NORTH ATLANTIC TREATY ORGANIZATION

ADVISORY GROUP FOR AEROSPACE RESEARCH AND DEVELOPMENT

(ORGANISATION DU TRAITE DE L'ATLANTIQUE NORD)

AGARD Advisory Report No.138

EXPERIMENTAL DATA BASE FOR COMPUTER PROGRAM ASSESSMENT

REPORT OF THE FLUID DYNAMICS PANEL

WORKING GROUP 04

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The economical advantages of applying transonic flow technology to aircraft design has created a large number of computational methods to predict and analyse transonic flows. The proof of validity and the refinement of such methods depend primarily on experimental results. Consequently errors inherent to data generated by any individual test facility may enter the computer codes thus restricting their applicability.

To aid in the development and refinement of computational methods and to improve their applicability and compatibility an EXPERIMENTAL DATA BASE was established, presenting selected test results and detailed geometric descriptions of representative airfoil, wing, wing-body and body-alone configurations. In addition, the basic limitations of the available data as well as suggestions for future tests designed to reduce these limitations are discussed in detail.

PREFACE

The economical advantages of applying transonic flow technology to aircraft design has created a large number of computational methods to predict and analyse transonic flows. The proof of validity and the refinement of such methods depend primarily on experimental results. Consequently errors inherent to data generated by any individual test facility may enter the computer codes thus restricting their applicability.

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Professor Dr. J.BARCHE
Chairman
Fluid Dynamics Panel Working
Group 04

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MBB- BODY OF REVOLUTION NO.3
by W.Lorenz-Meyer and F.Aulehla — C2

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by the High Speed Aerodynamics Laboratory NAE/NRC — C3

ONERA CALIBRATION MODEL C5
by X.Vaucheret — C4

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1. INTRODUCTION AND OVERVIEW OF CONFIGURATIONS

by

Jürgen Barche

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1.1 Objectives and Scope of Work

The well-known economical advantages of applying transonic flow technology to aircraft design has created a world-wide interest in methods predicting and analysing such flows. Consequently, a large number of computer codes exist today reflecting past and present theoretical and numerical standards in the solution of the basic flow equations. Since proof of validity and refinements of computational methods are primarily based on experimental results, erros inherent to data generated by any individual test facility may easily enter a computational method thus restricting its general applicability and compatibility.

To improve the applicability of transonic technology to practical aircraft design the AGARD Fluid Dynamics Panel (FDP) established the Specialist Working Group WG 04:

EXPERIMENTAL DATA BASE FOR COMPUTER PROGRAM ASSESSMENT

with the

OBJECTIVES

> "To assess, screen and identify the highest quality 2-D (section) and 3-D (wing-body) data available, particularly in the transonic speed regime, which is urgently needed as reference data in the development and refinement of costly computer programs for aircraft design. Data will be analysed with consideration for relevancy to geometric configurations suitable for analytic comparison needs, test instrumentation, procedures, conditions, corrections, and adequacy of range of test variables."

As a consequence of the urgent need for the Data Base a period of only one year was given the Group to accomplish its task. To guide the Working Group FDP defined the

SCOPE OF WORK

> "The Group will recommend at the earliest possible date the best 2-D and 3-D data available, if acceptable as a base data set, and provide detailed geometric descriptions of models. The Group will define required additional testing to establish adequacy of and confidence in the data. A programme of action will be recommended including which facilities should be utilized to obtain the needed data in an expedient manner without excessive demands on any one country or facility. The final selected data will be published as an AGARD report."

1.2 Group Members and Meetings

To assess, screen and identify the highest quality data available for the Data Base and to assemble these data into a final report specialists in theoretical and experimental transonic flow research have been nominated by the delegates of the Fluid Dynamics Panel. The WG thus formed had the following members:

T.W. Binion	ARO-AEDC	USA
G. Bucciantini	Aeritalia	Italy
P.J. Bobbitt	NASA-Langley	USA
H. Körner	DFVLR-Braunschweig	Germany
M. Monnerie	ONERA	France
L.H. Öhman	NAE	Canada
J. Slooff	NLR	Netherlands
E. Stanewsky	DFVLR-Göttingen	Germany
H. Viviand	ONERA	France
K.G. Winter	RAE-Bedford	UK

The Group was chaired by

J. Barche	DFVLR-Göttingen	Germany

and assisted by numerous specialists from industry and research institutes of various countries.

To accomplish the tasks two meetings were arranged. The first one was held at AGARD-Headquartes at Neuilly, France, during Dec. 8 through Dec. 10, 1976. Here evaluation criteria were established, and configurations and data previously submitted by the members were reviewed and a pre-selection carried out according to these criteria. The second meeting was hosted by ONERA at Modane from Sept. 22 through Sept. 24, 1977. Topics of this meeting were the final selection of configurations and data to be included in the Data Base,

recommendations for additional testing on existing and new configurations and the set-up of guide lines and a final time schedule for the preparation of this AGARD report.

1.3 Overview of Configurations

1.3.1 Evaluation and classification

To select the highest quality data from all data submitted by the WG members, a general set of EVALUATION CRITERIA was used covering items related to (see Table 1.1)

- the type of model
- the actual model geometry
- the range of freestream conditions and testing techniques employed, and
- the wind tunnel and instrumentation used in gathering a specific set of data.

The application of the criteria was supported by questionnaires which had to be completed for each configuration submitted. These questionnaires also form the basis for the presentation of all information on models, wind tunnels, test environments, etc. in this report.

To facilitate the selection of data by a potential user, the configurations and associated data analysed and presented here are divided into three categories:

- two-dimensional configurations (airfoils)
- wings and wing-body combinations, and
- body-alone configurations.

The data for each category are presented in Appendices A, B, and C, respectively, with a "Guide to the data" preceding each set of configurations.

1.3.2 Two-dimensional configurations

The final selection of two-dimensional configurations was based on the criteria listed in Table 1.1 with emphasis, however, placed on the knowledge of

- the transition location
- the magnitude of wall interference corrections and
- the availability of measured boundary conditions, and on
- the number of facilities in which a model was tested.

The model uniqueness was used as an additional criterion of same weight in order to provide a wide range of test cases without, however, disregarding the criteria mentioned above.

The list of two-dimensional configurations finally selected starts with the conventional airfoil NACA 0012 which has been and still is widely used as reference model for the investigation of wall interference effects.

The symmetrical shock-free supercritical airfoil NLR QE 0.11-0.75-1.375, designed by the Nieuwland Hodograph method, was tested specifically to verify experimentally the existence of shock-free supercritical flow.

The CAST 7 is a 12% thick supercritical design of moderate rear loading. The data set for this airfoil includes results from boundary-layer profiles and tunnel wall pressure measurements as well as surface pressures. The NLR 7301 represents with 16.5% the thickest of all supercritical airfoils submitted. For the supercritical configuration SKF 1.1 data with extended maneuver flap are included while for the subcritical design RAE 2822 a set of boundary layer data is provided covering subcritical as well as supercritical local flows with at least one example of shock induced boundary layer separation. For the supercritical airfoil NAE 75-0.36-13.2, designed for low lift, upper and lower wall pressures are included. The MBB A3 is the thinnest airfoil of the set (8.9%); furthermore, the supercritical wing of the 3-D configuration "MBB-AVA Pilot Model" of data set B3 is based on this airfoil. Similarly airfoil 9a, the last in the list of 2-D configurations and a Whitcomb design, is used on the TF-8A supercritical wing research airplane, presented as data set B5.

The airfoils included here together with characteristic geometric parameters and partidular features of a specific data set are listed in Table 1.2; the complete data sets are given in Appendix A.

1.3.3 Three-dimensional configurations

Due to the increased complexity of testing and computing three-dimensional flows, the number of 3-D configurations found adequate for inclusion into the Data Base was less than the number of 2-D configurations. It is assumed, however, that the five configurations and associated data selected represent a sufficiently wide range of geometries and experimental results to allow an assessment and future refinement of three-dimensional computational methods.

As simplest examples of three-dimensional flows two half-wing models have been included The first one is the low aspect-ratio wing ONERA M6 tested over a wide range of Reynolds numbers. The second, the ONERA AFV-D with a rectangular planform, was tested at sweep angles between zero and 60° with corresponding aspect ratios of 2.7 to 8, respectively. Wing-body interference effects are demonstrated and can be assessed by the results for the wing-fuselage configurations "MBB-AVA Pilot Model" with a wing based on the supercritical airfoil MBB A3 of data set A8 and the "RAE Wing A". Both models represent rather low aspect ratio designs. The supercritical wing research airplane TF-8A - AR = 6.8 - was chosen as an example of a complete model with vertical and horizontal tail. The model was developed for flight-testing a wing based on the Whitcomb supercritical airfoil of data set A9

The three-dimensional configurations included here are listed in Table 1.3; the complete data sets are presented in Appendix B.

1.3.4 Body-alone configurations

It was also felt that experimental results for representative body-alone configurations should be included here. Four configurations were selected. The first, an ogive-circular-cylinder model, represents a typical missile-type body while the second, MBB-AVA Body of Revolution, is more representative of an aircraft fuselage. The latter model was used extensively to investigate the influence of various aft-body shapes on the flow development.The NAE T3, a cone-cylinder model, and the ONERA C5, a body of revolution with a distribution of cross section area representative of a complete transport type aircraft, were extensively used to study wall interference effects.

The body-alone configurations included are listed in Table 1.4; the data sets are given in Appendix C.

Table 1.1

EVALUATION CRITERIA

- TYPE OF MODEL
  - Application of data
  - Complexity of model
  - Type of design pressure destribution
    - Pressure gradients in the supersonic region
    - Sustained adverse pressure gradients and demand on boundary layer
    - Presence of shock waves
    - Sensitivity to changes in Reynolds number and location of transition
  - Type of geometry
- ACTUAL MODEL GEOMETRY
  - Accuracy in determining actual model geometry
  - Deviations from desired geometry
  - Aeroelastic effects
- RANGE OF FREESTREAM CONDITIONS AND TESTING TECHNIQUE
  - Freestream conditions
    - Mach number
    - Model attitude
    - Reynolds number
    - Temperature equilibrium
  - Testing technique
    - Transition, free or forced
    - Location and type of transition fixing
    - Transition verification
- WIND TUNNEL AND INSTRUMENTATION
  - Test section/model size
    - Tunnel width/model span
    - Tunnel height/chord
    - Blockage ratio
    - Wall corrections applied
    - Flow quality in test section proper
    - Length/test section height
    - 2-D aspect ratio
  - Was model tested in other tunnels or in free flight
    - Agreement of results

Table 1.2

TWO-DIMENSIONAL CONFIGURATIONS			
no.	designation	test facility[1)]	remarks
A 1	NACA 0012	ONERA S3MA NAE 5x5 ft,2-D insert	conventional symmetrical airfoil, t/c = 12%, widely used to determine wall corrections, high Re-data and W/T wall pressures included
A 2	NLR QE 0.11- 0.75-1.375	NAE 5x5 ft,2-D insert NLR Pilot Tunnel	shock-free symmetrical airfoil, t/c = 11.7%, high Re-number data included, design M_∞ = 0.786 (theory)
A 3	CAST 7	DFVLR 1x1 Meter DFVLR TWB ARA 18"x 8"	shock-free supercritical airfoil, moderate rear loading, t/c = 11.8%, design: M_∞ = 0.76, C_L = 0.57, wall pressure and boundary layer data included
A 4	NLR 7301	NLR Pilot Tunnel	aft-loaded shock-free supercritical airfoil, t/c = 16.3%, design (theory): M_∞ = 0.721, C_L = 0.60 thickest airfoil of the set
A 5	SKF 1.1	DFVLR 1x1 Meter ONERA S3MA	supercritical airfoil with maneuver flap, t/c = 12.07%, design: M_∞ = 0.769, C_L = 0.532, W/T wall pressures included
A 6	RAE 2822	RAE 8x6 ft	rear loaded, subcritical airfoil, t/c = 12.1%, design: M_∞ = 0.66, C_L = 0.56, B/L measurements for sub- and supercritical conditions included
A 7	NAE 75-0.36-13:2	NAE 5x5 ft,2-D insert	low-lift supercritical airfoil, t/c = 13%, design: M_∞ = 0.75, C_L = 0.36, high Re-data and wall pressures included
A 8	MBB A 3	ARA 18"x 8" Politecnico Torino(PT)	shock-free supercritical airfoil, t/c = 8.9%, design: M_∞ = 0.75, C_L= 0.58, thinnest airfoil of the set, used on wing of data set B 3, pressure distributions near top and bottom W/T wall included
A 9	Airfoil 9a	NASA-Langley 8 ft	supercritical airfoil, t/c = 10%, design: M_∞ = 0.79, C_L ≈ 0.70, airfoil used on TF-8 A supercritical wing research airplane - see data set B 5 -

1) only facilities for which data are included are listed

Table 1.3

THREE-DIMENSIONAL CONFIGURATIONS			
no.	designation	test facility[1)]	remarks
B 1	ONERA Wing M 6	ONERA S2 MA	half wing, AR = 3.8, Λ_{LE} = 30° , TR = 0.562, peaky profil ONERA D, Re-numbers between $1.5 \cdot 10^6$ and $15 \cdot 10^6$
B 2	AFV-D Wing	ONERA S2 MA	half wing, rectangular planform, variable sweep $0° \leq \Lambda \leq 60°$ AR_{max} = 8, peaky profil ONERA D
B 3	MBB-AVA Pilot Model	DFVLR 1x1 Meter	wing/body model, AR = 4.5, Λ_{LE} = 35°, Λ_{TE} = 14.25°, TR = o.33, wing based on supercritical airfoil MBB-A 3 - see A8 -
B 4	RAE Wing A	RAE 8x6 ft	wing/body model, AR = 6, Λ_{LE} = 36.65°, Λ_{TE} = 22.34°, TR = 0.33, airfoil RAE 101
B 5	TF-8 A	NASA-Langley 8 ft Flight tests	wing/body/vertical and horizontal tail, AR = 6.8, Λ_{25} = 42.34°, Λ_{TE} = 35.10, TR = 0.36, wing based on supercritical airfoil 9a - see A9 -

1) See foot-note of Table 1.2

Table 1.4

BODY-ALONE CONFIGURATIONS			
no.	designation	test facility[1)]	remarks
C 1	1.5 D-Ogive Circular-Cylinder	DFVLR 1x1 Meter	ogive: L = 1.5D, cylinder: L = 20 D, D = 45 mm
C 2	MBB-AVA-Body of Revolution No.3	DFVLR 1x1 Meter	cubic fore and aftbody plus cylindrical center part, L = 774 mm, D_{max} = 120 mm
C 3	NAE Calibration Model T3	NAE 5x5 ft trisonic W/T	10° cone-cylinder model, overall L/D = 12, D = 127 mm
C 4	ONERA Calibration Model C5	Ames 11x11 ft transonic W/T	body of revolution with elliptical nose, base diameter: 85.2 mm, max. diameter: 152.7 mm, L_{total} = 1057.8 mm

1) See foot-note of Table 1.2

2. LIMITATIONS OF AVAILABLE DATA

by

Travis W. Binion

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2.1 General Remarks

In making wind tunnel tests at transonic speeds for the purposes of aircraft design, emphasis is placed on the attainment of high Reynolds number in order to approach as near as possible to flight conditions. On the other hand, for the purpose of providing data to assist in the development of calculation methods the test requirements may be considered from a somewhat different point of view. It is quite clear, for the type of pressure distributions associated with modern wing designs, that viscous effects are significant even at full-scale Reynolds numbers; for example, it is not uncommon to find a reduction of as much as 20% in lift for a typical design condition compared to expectations from inviscid flow calculations. It is probably true to say that viscous effects will continue to be an important aspect of all subsonic aerodynamic designs in which the vital function is to decelerate the flow over a surface from the high velocity, which provides the lift, to the maximum pressure recovery at the trailing edge without flow separation. The more rapidly this deceleration can be performed, the greater the extent of the surface over which the lift can be maintained; hence, in general, the most successful design will be the one which achieves the most rapid pressure recovery without separation of the boundary layer. The consequence of this is that boundary-layer growth and its effects will be large. Any worthwhile calculation method will have to include the boundary-layer effects. Thus, for the purposes of validating calculation methods the requirement for achieving high Reynolds number may not be so great. Of course, the Reynolds number must not be so low that the character of the flow is changed, thereby demanding a completely different representation from that at the target full-scale Reynolds numbers at which the calculation methods must aim. In addition, the position of transition must be known.

The other dominant factor requiring attention is the test environment. It is unfortunate that the facilities required for testing at transonic speeds introduce two difficulties. Whereas the use of ventilated tunnels ameliorates the constraint effect of the walls, the precise nature of the boundary conditions at the walls is generally unknown and the fluctuating disturbances introduced into the flow are increased compared with solid walls. Experiments are required in which the constraint effects are not only small--even at the expense of reduced Reynolds numbers, on the basis of the argument above--but in which the boundary conditions are determined directly by flow-field measurements. As far as flow disturbances are concerned the emphasis so far has been placed too strongly on the measurement of pressure fluctuations and insufficiently on the identification, separately, of the vorticity-mode or acoustic-mode of the disturbance field. Further discussion of the various factors which may influence the reliability of the data is given in the following sections. Significant advances have been made in recent years toward a better understanding of some of these effects and further work is in progress.[1*]

2.2 Flow Non-Uniformity

Spatial velocity and angularity gradients, of course, affect the flow uniformity and could be interpreted as local changes in wing twist or sweep. In general practice, wind tunnels are calibrated with an empty test section by measuring the centerline static pressure distribution from which the centerline Mach number distribution is calculated using an average total pressure measurement from the stilling chamber. Flow angularity is either inferred from upright and inverted model tests or, on occasion, from point measurements made with various types of probes. Rarely, however, are detailed spatial measurements of the velocity and flow angularity fields made in regions occupied by typical models. For most test objectives these presumably small gradients may be of little consequence. For precise data assessment, however, they can be significant. The flow uniformity information which does exist on each of the tunnels is given with the respective data sets.

2.3 Three-Dimensional Effects in Two-Dimensional Tests

The influence of the walls normal to the span (the sidewalls in most instances) has not been studied adequately in two-dimensional (2D) tests. For a lift-curve slope of 2π the simple model of Preston[2] gives as the downwash correction at the centerline of an airfoil of aspect ratio A, spanning a tunnel of width b, with displacement thickness of the boundary layer on the sidewalls δ^*, as

$$\frac{\Delta\alpha}{\alpha} = -\frac{4}{A}\frac{\delta^*}{b} \tag{1}$$

*Superscript numbers refer to references listed at the end of each section of the report.

Preston's model does not correspond closely to experiments. The results of Bernard-Guelle[3] and the more recent unpublished work by Chevallier at ONERA have led to an approximate empirical result

$$\frac{\Delta C_L}{C_L} \approx -3 \frac{\delta^*}{b} \tag{2}$$

which appears to be independent of the airfoil aspect ratio. The result holds only for flow with no strong shock waves. For supercritical flows the magnitude of the constant of proportionality varied rapidly between zero and 8 with angle of attack and Mach number. At present, there is no theoretical basis for a data correction nor any evidence that the empirical corrections devised are directly applicable to other facilities. However, values of the ratio of the displacement thickness of the boundary layer on the sidewall to the semi-width of the tunnel are given in the data sets so that the effect may be evaluated when a reliable method for doing so is devised.

It is known that three-dimensional (3D) effects readily develop in the turbulent boundary layer of flows which are nominally two dimensional. This three-dimensionality is likely to be amplified by interaction with a shock wave or in a separated flow. In a definitive experiment it is, therefore, essential to determine spanwise variations of the boundary-layer properties and to eliminate them if possible. Spanwise variations can arise from variations in transition position caused by irregularities in the free stream, in the airfoil surface, or in a transition trip. For the two cases (A3 and A6) for which boundary-layer results are presented the measurements do not satisfy the simple form of the boundary-layer integral momentum equation. For A3 the discrepancies are irregular; but, for A6, in accordance with boundary-layer experiments for other airfoils, the measured growth of momentum thickness in regions of adverse pressure gradients tends to exceed that calculated from the measured shape parameter, skin friction, and pressure gradient. In the past this type of discrepancy has been variously attributed to the effects of the normal stress terms omitted from the momentum equation, to the effects of normal pressure gradients, or to convergence of the flow. The explanation is not identified in the present data; however, because the measurements are made over an appreciable spanwise extent, flow convergence is unlikely to be the full explanation. It is important that the effect should be explored further in future measurements.

2.4 Support Interference for Complete Model Tests

Examples have been published where major influences of the effect of the model-support sting have been shown on afterbody and tail-surface pressure[4] and on afterbody drag.[5] These examples were, however, rather extreme in that the insertion of the sting into the models involved large distortions of the aft end, and the stings passed beneath the tail-planes in fairly close proximity. The configurations (B3, B4, B5) of the present data sets which were sting supported all had relatively large bases and it was not considered necessary to include information on the geometry of the stings.

2.5 Aeroelastic Effects

The term aeroelastic in the context of this report means the static deformation of the test article caused by the aerodynamic loads. The aeroelastic problem is to determine the deformed coordinates and attitude of the test article at the test conditions of interest. The aeroelastic effects can be manifested in the 2D case as spanwise changes in incidence and distortion of the airfoil and in the 3D case as changes in attitude, dihedral, wing twist and chordwise deformations. The deformations are aggravated under conditions of high dynamic pressure, thin wings and swept wings. However, most 2D wind tunnel models are relatively short span and solidly constructed so that aeroelastic deformations are negligible. A possible exception is the thin-trailing-edge, rear-loaded configurations which would be affected by aeroelastic deflection of the rear portion of the airfoil, if it occurs. For 3D models, wing bending, wing twist, and model support deflections can significantly affect the model coordinates and attitude. State-of-the-art correction methods[6] generally require the specification of stiffness coefficients applicable to the particular configurations. Aeroelastic corrections have been applied to the RAE wing model (B4), and wing-bending data are presented for the NASA F-8A model (B5).

2.6 Flow Unsteadiness

Of the three modes of flow unsteadiness--turbulence, noise, and temperature spottiness--noise appears to be the most important in present transonic wind tunnels.[7] However, the measurement of turbulence at transonic speeds is not straightforward, and the information in most transonic tunnels is limited to measurement of pressure fluctuations. Although there is still no completely reliable method of predicting boundary-layer transition location for the general case with various types of disturbances, it is well established that tunnel noise does influence transition location,[8] presuming of course transition is not fixed by mechanical roughness. Hence, for those cases in which the unit Reynolds number is below about 3×10^7 per meter, noise can have, indirectly, a significant effect on measured data. The noise influence can perhaps be characterized by an "effective" Reynolds number for non-laminar boundary layers. Unfortunately, a priori definition of the proper effective Reynolds number is not yet possible.[9] Much more understanding of the physice of boundary-layer/turbulence/noise interaction is needed before the effective Reynolds number concept can be used with confidence for transonic testing. Turbulence/

noise information has been given, when available, for the data presented. It is hoped that at some later date this information may be used to assess the turbulence/noise effects on the data with free transition.

Although there are indications[10,11] that free-stream turbulence can have an influence on attached boundary layers and may affect the conditions for separation onset, neither effect has been fully investigated. There is little evidence to show that noise, after it affects transition location, further affects either the development of the turbulent boundary layer or separation, per se. Experiments dealing with this problem have produced either inconclusive or negative results.[12]

2.7 Wall Interference

Perhaps the largest unknown in the data presented herein is the effect of wall interference. In classical wall interference theory[13] the wall interference effects were manifested as an incremental velocity (blockage), incidence (upwash), drag (bouyancy), and lift and pitching moment (streamline curvature). The magnitude of the corrections is dependent upon the test section shape, wall geometry, and a model-to-tunnel-size parameter. The theory has been successfully applied to relatively low-speed solid and open wall wind tunnels in which the wall boundary conditions are well known (zero velocity normal to the wall or constant boundary pressure for the solid or open wall, respectively), and the model could be represented by a single vortex or doublet. With the advent of the ventilated wall wind tunnel in the late 1940's, the concept of a homogeneous wall boundary condition was introduced[14,15] in which the discrete wall slots or holes were replaced by an equivalent homogeneous wall. However, independent verification of the homogeneous concept has never been satisfactorily demonstrated even at low speeds.

In those cases in which the theory has been used, the equivalent homogeneous boundary condition was determined numerically to satisfy empirical criteria, i.e., the boundary condition was used as a best-fit constant. Concern about tunnel boundary effects in the transonic speed range has led to a re-examination, in recent years, of the ventilated wall interference at transonic speeds. The results[16] reveal that the boundary condition is a strong function of the wall configuration and the boundary-layer development along the wall. The effect of the wall boundary layer appears so strong that its modification by the model-imposed pressure gradient is significant. Thus, not only is the boundary condition unique for a particular tunnel, it is also unique for the particular model-tunnel combination,[17] and the test conditions, i.e., Mach number, model incidence, and Reynolds number.[18,19,20] Since the transonic interference field is dependent upon the model shape, it is not appropriate to represent the model by a single vortex and doublet. The model must be represented by an appropriate distribution of equivalent thickness and lift. Although the test condition bounds are not clear, there are some cases with supercritical flow[18,20] which do appear to be amenable to simple Mach number/incidence corrections. For cases in which the supercritical flow region cannot be considered small with respect to the tunnel dimensions, the corrections are no longer manifested simply as a blockage, bouyancy, upwash, and curvature effects, but as a more complicated distortion of the flow field,[16] which can strongly influence the airfoil shock and separation pattern. In the worst cases there simply is not an equivalent free-air flow condition corresponding to the one the model is subjected to in the wind tunnel.

Unfortunately, precise quantitative assessment of the effects of wall interference in ventilated wind tunnels operating at transonic conditions is beyond the present state-of-the-art except in those two-dimensional cases in which sufficient measurements have been taken near the tunnel boundaries to allow realistic prescribed boundary conditions to be used.[16,18] However, some qualitative information can be obtained from 2D inviscid analyses. TSFOIL developed by Murman, et al.,[21] was employed to determine the possible sensitivity to wall interference of several of the airfoil/tunnel/test condition combinations presented herein. The analysis employs a finite difference solution to the transonic small perturbation equation for a 2D flow past a lifting airfoil in free air or with ideal homogeneous boundary conditions at the tunnel wall. It should be emphasized that the method cannot be considered exact because of the small-perturbation assumptions which are expected to be less reliable in a confined than in an unconfined flow. The treatment of shock waves is also not correct, no allowance is made for viscous effects, the test section is considered to be infinitely long, and the wall boundary conditions used are idealized for either porous or slotted walls as the case may be. It is convenient to characterize the tunnel boundary condition in terms of an ideal wall interference parameter, P, defined such that P = 0 corresponds to a solid wall and P = 1 corresponds to an open jet. For a slotted wall, P is a function of the tunnel semi-height and the number, width, and spacing of the slots, whereas for a porous wall, P is a function of Mach number, the pressure drop across the wall, and the velocity normal to the wall. Calculations have been made for free air, a solid wall (P = 0), P = 0.2 which corresponds to a slightly ventilated wall (perhaps a 0.5 to 1% porous wall or a slotted wall with four slots and 4% open area), and P = 0.5 which corresponds to a rather open tunnel (perhaps a 5% to 6% open, 60 degree, inclined hole wall, a 20% open normal hole wall or a slotted wall with 8 slots and 7% open area) which would have small blockage interference at subcritical conditions. These examples of wall configurations corresponding to P = 0.2 and 0.5 should not be construed as having any universal significance. Because of the many variables which influence ventilated wall crossflow characteristics, values of P for a given tunnel may deviate substantially from the examples cited.

The theoretical effects of variations in the homogeneous boundary condition for the RAE 2822 airfoil in a tunnel with a height-to-airfoil-chord ratio, H/c, of four is shown in Fig. 2.1. At subcritical conditions, Fig. 2.1a, the perturbed pressure distributions

exhibit the effects expected from classical theory. The flow over the airfoil is accelerated, compared to free air, in a solid wall tunnel and decelerated if the tunnel is too open. The magnitude of the interference only qualitatively conforms to classical theory which predicts zero interference in the neighborhood of P = 0.5. Simple classical theory does not, however, consider the effects of model thickness and lift distribution. The interference at P = 0 and 0.2 is well within experimental accuracy. At the supercritical condition, however, Fig. 2.1b, the interference is significant at all values of P. The fact that the terminal shock location with P = 0 and 0.2 agrees with the free-air location is fortuitous. Since the sonic line intersects the tunnel wall with P = 0 and 0.2 forming a bounded supersonic channel flow, the terminal shock must move to the airfoil trailing edge which is where the shock happens to be in the free air. The tunnel wall does cause a distortion of the supersonic region, compared to the unbounded case, which results in the increased static pressure over the airfoil upper surface. At the higher value of P, the boundary condition causes a sufficient decrease in local velocities so that the sonic line is much lower than the unbounded case.

Other calculations are available for the RAE 2822 airfoil at one condition which compare the pressure distribution obtained with wall constraint included and at an equivalent free-air condition. The equivalent free-air condition was obtained by applying the classical constraint and blockage corrections. The calculations were made with the RAE VISTRAN program,[22] which includes airfoil boundary-layer effects, combined, in the case of wall constraint included, with the method of Catherall.[23] The comparison is shown in Fig. 2.1c where it can be seen that apart from the region of the shock wave on the upper surface there is good correspondence between the two calculations. It would, however, be dangerous to generalize from this one example that such good correspondence could be obtained for all conditions with supercritical flow.

The theoretical interference at zero lift is illustrated in Fig. 2.2 for the NLR QE 0.11-0.75-1.375 airfoil in tunnels with H/c = 3 and 6, respectively. In each case the interference closely resembles classical theory in that the interference is negligible at P = 0.5. The calculations also imply that H/c = 6 is sufficiently large to avoid interference effects regardless of the boundary condition. This is not the case at lifting conditions, however, as shown in Fig. 2.3 where the interference on the Cast 7 airfoil is presented for P = 0.2 and 0.5 and several values of H/c. At P = 0.2, even at conditions in which the sonic line does not reach the wall, the calculations indicate the tunnel is too open to attain the correct expansion over the upper surface and that H/c = 6.6 is not large enough to make the interference negligible. The situation is worse with P = 0.5.

Finally, the calculations shown in Fig. 2.4 are presented to illustrate that it is difficult to generalize, even with a homogeneous boundary condition, the effects of wall interference at supercritical conditions. The SKF 1.1 and Cast 7 airfoil have very similar contours; yet, comparison of Figs. 2.4a and b shows the interference can be somewhat different for the same test and boundary condition. In order to provide some feel for the magnitude of the interference effects, calculations were also made using TSFOIL to determine the free-air conditions corresponding to the pressure distributions obtained for the Cast 7 airfoil with P = 0.2 and 0.5 at $M_\infty = 0.76$, $\alpha = 0.2^\circ$, Fig. 2.4b. For P = 0.2 the equivalent free-air condition is M = 0.77, $\alpha = -0.2^\circ$; whereas, for P = 0.5 the equivalent free-air condition is M = 0.77, $\alpha = -0.7^\circ$. To obtain the free-air data at M = 0.76, $\alpha = 0.2^\circ$, the test with P = 0.2 and 0.5 should be conducted at M = 0.75, $\alpha = 0.7^\circ$ and M = 0.76, $\alpha = 1.8^\circ$, respectively.

Unfortunately, interference calculations for 3D models at transonic speeds is beyond the state-of-the-art. It is felt, however, that H/c and the extent of the supercritical region are the critical parameters for the assessment of wall interference. Both of these factors are much more favorable for the 3D data presented herein than they are for the 2D data. Thus, it is expected that the wall interference effects are significantly less in the 3D data.

Blockage factors were calculated for the body of revolution data with the largest blockage ratio, C-1, using a subsonic theory with the Prandtl-Glauert correction.[24] The results indicate perturbations in C_p of less than 10^{-2} at free-stream Mach numbers equal to or less than 0.9.

2.8 Wave Reflections

The only evidence of wave reflections affecting the data is contained in the pressure distributions from the bodies of revolution, Appendix C. Each body which was tested at Mach numbers greater than unity was disturbed by waves reflected from the tunnel wall. The disturbed regions at zero incidence are quite evident and should pose no interpretation problem. The data upstream of the wave-model intersection are, of course, not affected. At supersonic Mach numbers and non-zero incidence, however, pressure gradients appear along the bodies which, although caused by shed vortices, resemble disturbances caused by spurious waves. Thus, the effects of reflected waves are not so evident in those cases, and the data should be interpreted carefully.

2.9 Measured Boundary Conditions

Five sets of the 2D data (A1, A3, A5, A7, and A8) contain pressures measured along or near the tunnel walls. These data, along with an appropriate assumption regarding the upstream and downstream velocity profiles, provide an outer boundary condition for the theoretical calculations which contains the effects of the tunnel walls. Theories which employ the measured boundary conditions should provide more physically realistic solutions than those which do not. It should be recognized, however, that significant local

gradients can occur in the wall pressures for a number of reasons not associated with the model-induced flow field. In addition, while three techniques have been used to measure the boundary pressures--orifices in the wall (A1, A3, and A5), orifices in an elliptical rail parallel to the free stream (A7), and a traversing static probe away from the wall (A8)--an investigation has not been conducted to determine if either method is satisfactory to measure the static pressure in the highly non-uniform velocity fields which can exist along the walls above and below the model. Thus, it seems justifiable for the user to employ a smoothed version of the wall pressure distribution, if necessary, to avoid numerical instability problems in the theoretical solutions.

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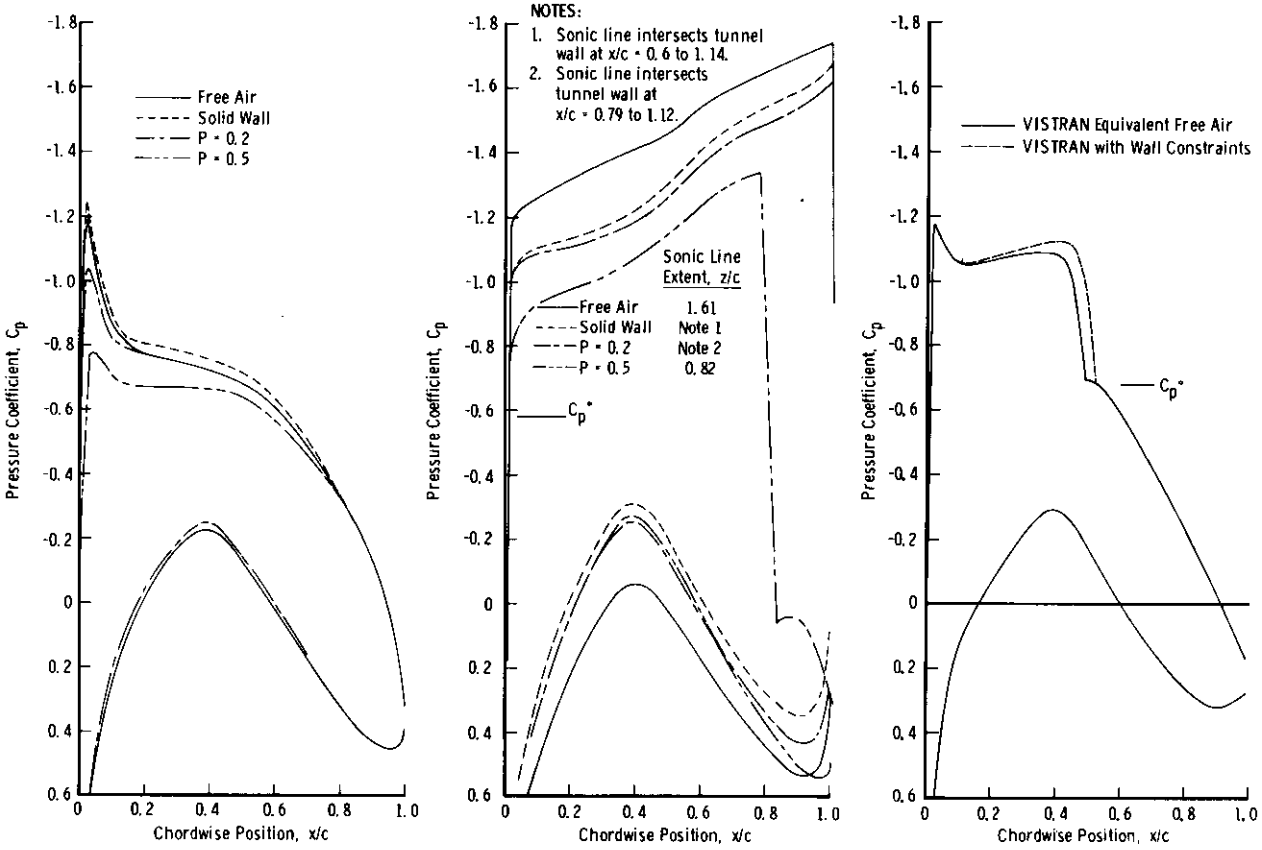
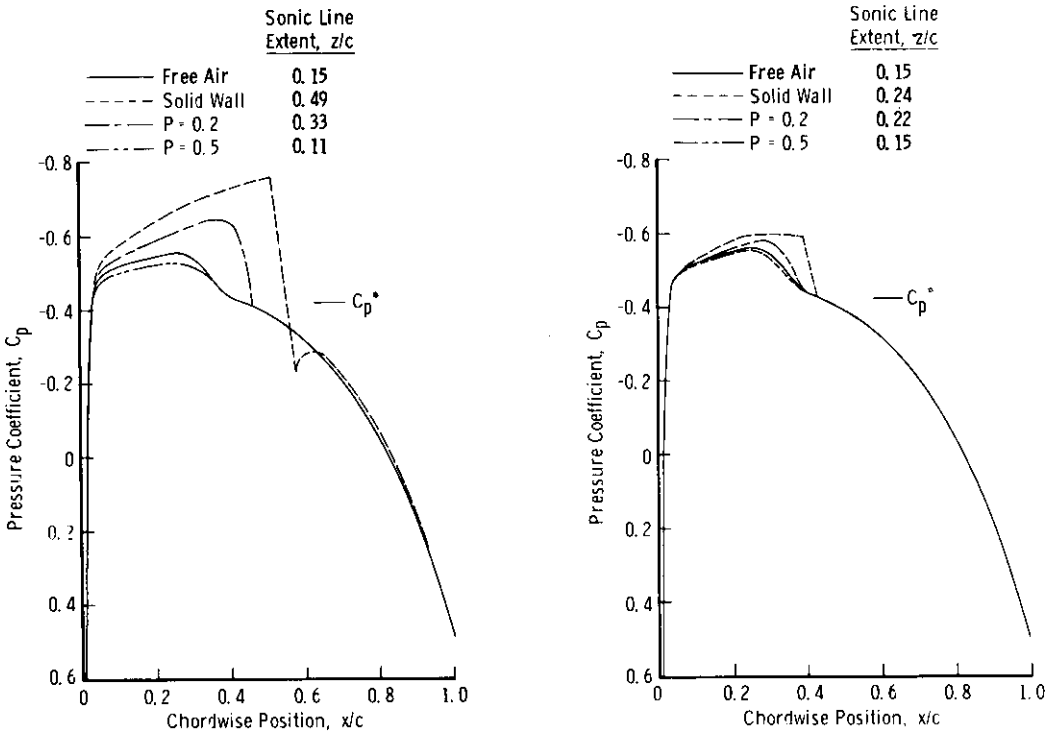


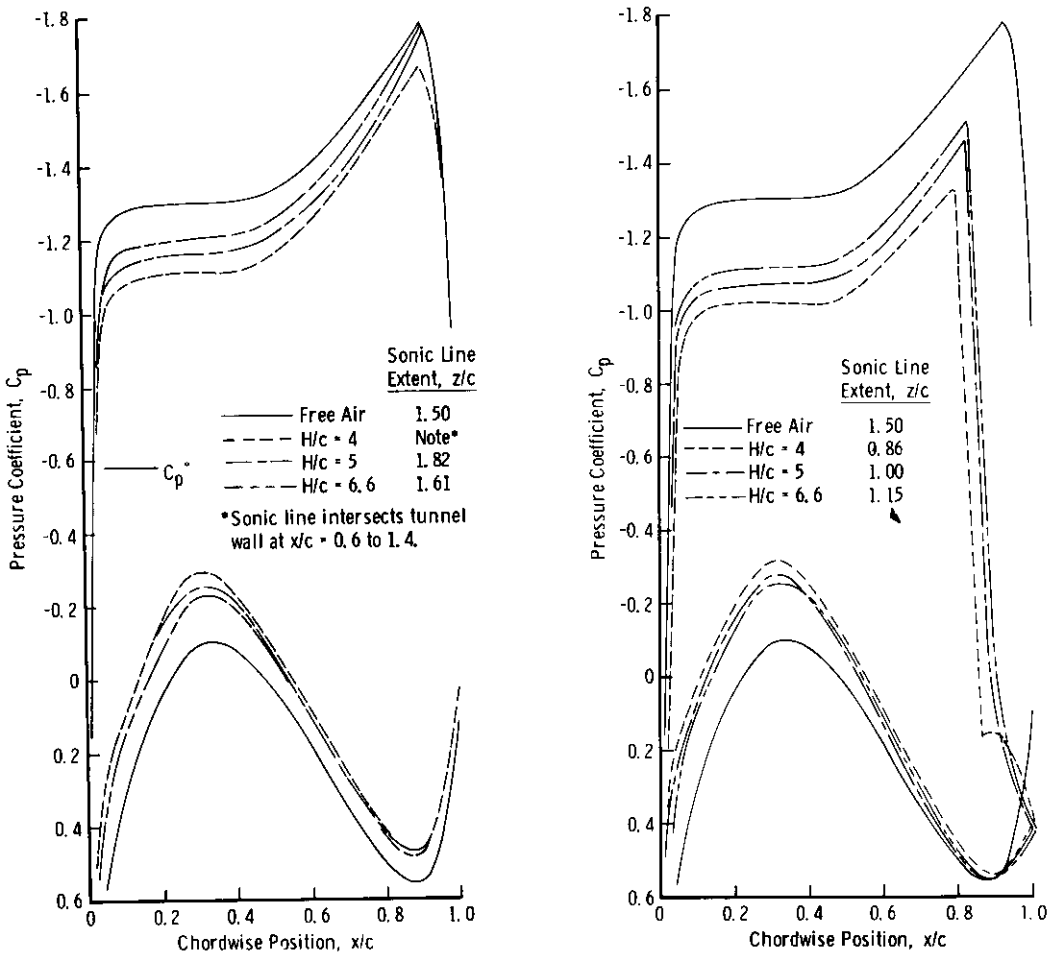
a. $M_\infty = 0.6$, $\alpha = 2.57$ deg b. $M_\infty = 0.75$, $\alpha = 3.19$ deg c. $M_\infty = 0.725$, $\alpha = 2.62$ deg

Fig. 2.1 Theoretical Wall Interference, RAE 2822 Airfoil, H/c = 4



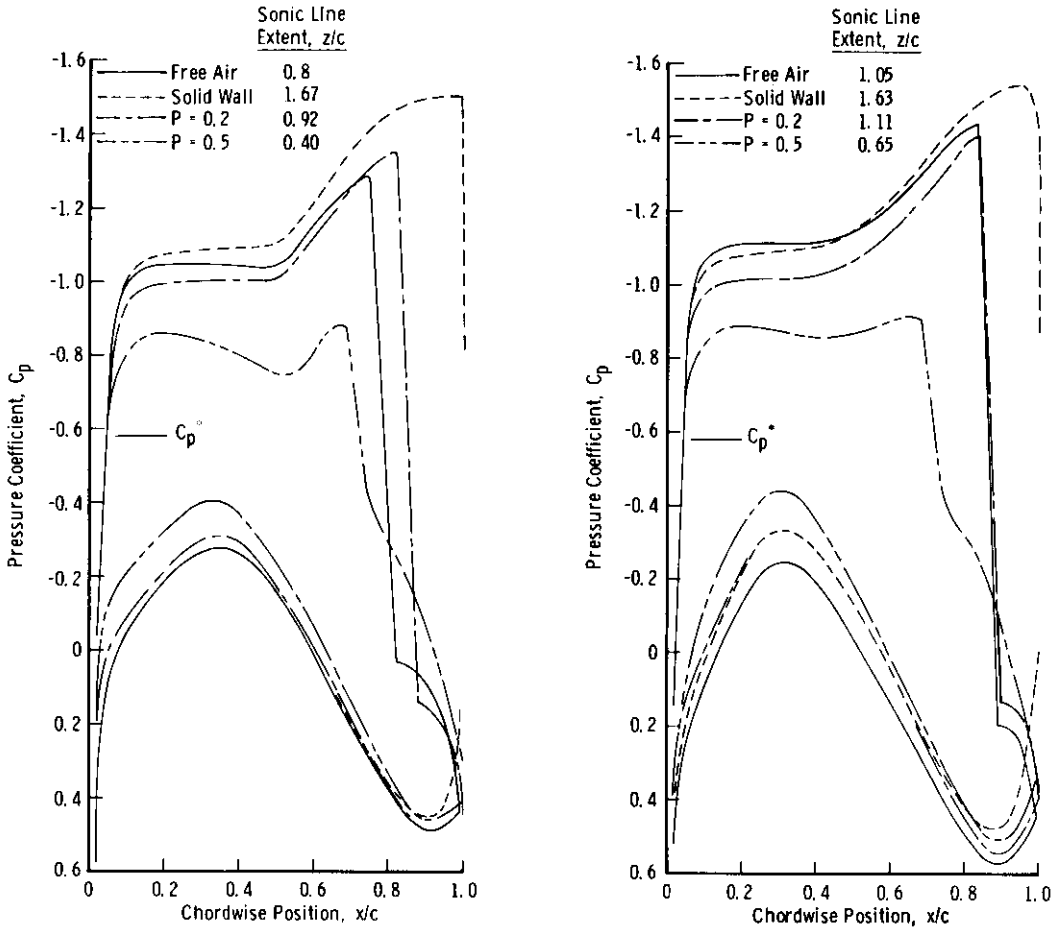
a. H/c = 3 b. H/c = 6

Fig. 2.2 Theoretical Wall Interference Effects on NRL QE 0.11-0.075-1.375 Airfoil, $M_\infty = 0.8$, $\alpha = 0$



a. P = 0.2 b. P = 0.5

Fig. 2.3 Theoretical Effect of Tunnel Height on 2D Cast 7 Airfoil, $M_\infty = 0.76$, $\alpha = 1.5$ deg



a. SKF 1.1 Airfoil

b. Cast 7 Airfoil

Fig. 2.4 Theoretical Wall Interference, $M_\infty = 0.76$, $\alpha = 0.2$ deg, $H/c = 5$

3. RECOMMENDATIONS FOR FUTURE TESTING

by

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3.1 General remarks

In the terms of reference of the Working Group it was stated that "The group will define required additional testing to establish adequacy of and confidence in the data and will specify the preferred measurable parameters and method of presentation to enhance the usefulness and utilization of results. A programme of action will be recommended including which facilities should be utilised to obtain the needed data in an expedient manner without excessive demands on one country or facility." Having assessed the most suitable data available the Group concludes that, although some recommendations for specific improvements to the test data can be made, the assessment indicates that there is a need for refined test cases for future use and suggestions for such test cases are made accordingly.

It should be stated that the emphasis in the recommendation is on the acquisition of highly reliable data for the intended purpose of the Working Group. This emphasis leads to an outlook different from that which would be reached if the purpose were intended to lead to improvements in tunnel techniques in general testing or to the acquisition of data for design purposes.

3.2 Two-dimensional tests

In the design of practical wings for aircraft it is clear that a successful outcome will result only if the design process takes full account of the three-dimensional features of the flow, the planform, the camber and twist, the thickness variation and the influence of the body. For a low aspect ratio wing these features will have a dominating influence and the performance of an isolated section may not have a direct correspondence to a section in the wing; on the other hand for a wing of high aspect ratio, sections in the mid semi-span region will have characteristics closely related to those of the section in two-dimensional flow. For such wings it is appropriate to utilise two-dimensional tests and calculations as a starting point for wing design. Thus, there is a need for reliable test results to validate calculation methods. For this purpose an ideal test should take place in interference-free and disturbance-free flow, should cover a range of conditions and should include measurements of pressure distribution, drag by wake traverse and determination of boundary-layer properties.

As noted in Chapter 2, there are still some uncertainties as to what constitutes the appropriate wall correction for each case. However, for those cases in which wall boundary conditions have been measured, a basis does exist for applying the correction, the finite-difference calculations now becoming available providing a more refined means of assessment than has been possible in the past with the classical methods. For a solid-wall tunnel, given the upstream conditions approaching the model, the boundary conditions are fully specified at the wall, provided the wall boundary-layer displacement surface is known. If the wall boundary layer can be ignored, the boundary conditions are of course specified by the zero normal velocity at the wall. In this case measurement of the wall-pressure distribution gives a means of checking the calculated interference. Alternatively by representing the measured perturbations at the wall by an appropriate singularity distribution the interference at the model may be calculated for subcritical flows. For a ventilated tunnel the technique proposed by Mokry et al[1] uses measured pressures to deduce wall porosity, by matching the pressures to a theoretical model of the interference. To provide a check on this type of estimation for a ventilated wall, equivalent to the zero normal velocity condition for a solid wall, measurements of v as well as u near the wall are required. Such measurements could also be used to derive directly the wall boundary conditions. It is therefore suggested that for a datum test case the full boundary conditions should be measured including determination of the flow upstream and downstream of the model. To make use of these boundary conditions a complete finite-difference flow-field calculation would be required. For flows with shock waves it is by no means clear that the outcome would be a set of tunnel corrections. Because of the non-linear nature of the problem, it is possible that there are some cases of constrained flow for which there exists no corresponding free-air solution which approximates the constrained flow with acceptable accuracy. In these cases the free flow could only be obtained by a further calculation, so that the tunnel tests essentially become a step in the development of a calculation method.

It is observed in Chapter 2 that a further possible shortcoming of the test results is the presence of three-dimensional effects arising either from the influence of the sidewall boundary layer or self-induced in the aerofoil boundary-layer flow. A reliable test case should explore these effects. Thus the main recommendation is that a datum test should be undertaken in which the following measurements be made:

(1) The boundary conditions for the inviscid flow in the vicinity of the roof and floor

(2) Upstream and downstream boundary conditions

(3) Determination of sidewall boundary-layer thickness for at least two values of the thickness changed, for instance, by applying suction

(4) Flow disturbance level including identification of acoustic and vorticity contributions

(5) Aerofoil pressure distribution and its spanwise variation

(6) Drag by wake traverse and its spanwise variation

(7) Boundary-layer development

(8) Wake development near the trailing edge

(9) Determination of the aeroelastic deformation of the aerofoil

The full set of measurements above are intended for a test to be undertaken in a two-dimensional test facility. If the measurements could be made in a self-correcting wind tunnel, in which the condition of zero interference caused by the tunnel walls which are parallel to the span of the aerofoil could be demonstrated, then, of course, measurement (1) would be incidental to the correction procedure. The datum test could, however, be made in a general purpose wind tunnel of size 2 to 3m (for example the NASA Langley 8-foot Tunnel, Ames 11 foot Tunnel or ARA 9 foot x 8 foot Tunnel) on an aerofoil of relatively small chord, say 0.3m. Because both the tunnel height : model chord ratio and model aspect ratio would then be of the order of 10, the constraint and blockage effects and sidewall interference effects should be small, reducing the importance of making measurements (1), (2) and (3) but because of the high aspect ratio measurement (9) would be important. The minimum test conditions should include both a case with a wholly subcritical flow and a case with a supercritical flow with a strong shock wave. The chosen aerofoil should be of advanced design and could be one of those for which data are already presented in this report (eg A3, A7, A8 or A9, with the extensive tests already made on A3 making it a prime candidate.) The achievement of a high Reynolds number would be advantageous but is not an over-riding criterion and would be restricted by the considerations of the load on a model of such high aspect ratio. The Reynolds number should however be sufficiently high that transition can be fixed without resorting to an excessively large trip. The use of air jets for tripping should be considered.

The above proposal is expensive and ambitious. A compromise is to see how far the present data might be improved. The cases for which the proposal is most nearly met are A3, A6, A7 and A8. For A3 the measurement of boundary conditions in the DFVLR 1m x 1m tunnel, in which the boundary layer measurements were made, would make this a more complete test case. For A6 no measurements of boundary conditions were made and there would be some difficulty in doing so because the tunnel has only 5 slots per wall, and several measurement positions would be required to ensure that an average condition was being determined. For A7 and A8 boundary conditions have in part been measured: the addition of boundary-layer measurements would further improve the usefulness of the data. There are however some reservations on A8 on account of the low Reynolds numbers of the tests for which the boundary conditions have been measured.

Other recommendations are that data should be sought for an aerofoil thinner than those in the current data base, (the lowest value of thickness-chord ratio is 9%) and that there is a general need for data containing results of boundary-layer measurements, including flows with separation.

3.3 Three-dimensional tests

The same type of recommendation as for two dimensions is made for a three-dimensional (wing-body) model. Of the five test cases selected B1 and B2 are half models without fuselage. B3 and B5 are aimed at aircraft design and only B4 had an initial aim of providing data on a wing-body combination with minimum wind-tunnel interference. The model has a blockage of 0.6%, a ratio of span to tunnel width of 0.375, and of mean chord to tunnel height of 0.08. However this case has the drawback that the wing does not have the type of pressure distribution appropriate to a modern design, the Reynolds number is also low - one million - although in the context of the wing section used this raised no problems because of careful attention to the choice of boundary-layer trip. Case B5, although of complex geometry, may be particularly valuable since the model represents an actual aircraft for which flight test data are available. Furthermore, the same model was tested in both the Langley 8 foot and 16 foot transonic tunnels. The data in B5 are from the 8 foot tunnel where special measures were taken to minimize blockage effects.

For the reasons given above it is felt justifiable to make a recommendation for two datum test series:

(1) a wing-body combination with a wing of high aspect ratio, say 7 or greater and thickness 12% with 30° sweep

(2) a wing-body combination with a wing of low aspect ratio, say 4 and thickness 6% with tapered planform and leading edge sweep 45°.

The models should have sections of supercritical type with aft-loading. It would be advantageous if at some conditions of the test a three-shock pattern were exhibited (forward and rear shocks inboard merging to a single shock outboard), since this type of flow is a severe test of calculation methods. Both models should be tested in a minimum interference environment say blockage less than 0.5%, and span : tunnel width less than 0.5 and tunnel height : chord ratio greater than 10. If possible the boundary conditions should be measured in the vicinity of all four walls. This would be a far more difficult task to accomplish than for a two-dimensional test and a compromise would probably have to be accepted of measuring only a static pressure distribution (and even this would not be

straightforward). The same comments apply, as for two-dimensional models, as regards Reynolds number. A minimum value of about 2×10^6 should be aimed at but even more care would be needed on the selection of the transition trip because of the wing taper and consequent variation of Reynolds number across the span. The aeroelastic distortion should be measured or estimated.

The model of case B3, tested in a larger tunnel, would provide an approximation to the second of the two proposed datum tests.

3.4 Bodies

The test cases provide a reasonable variety of geometry and have blockage ratio as low as 0.15%. Even so, as noted in Chapter 2, interference effects are present in most of the results and the occurrence of reflected disturbances limits the usefulness for Mach numbers near unity and above. A further shortcoming is that there is little information on boundary-layer development. It is however difficult to formulate a simple practical recommendation which would result in a significant improvement in the quality and usefulness of the information. On the basis of the analysis given by Binion[2] the results for configuration C4 (ONERA model C5) in the NASA Ames 11ft tunnel are virtually interference-free and this configuration therefore forms a good test case. The measurement of boundary-layer developments to complement the pressure distributions would provide a complete test case.

REFERENCES

1 Mokry M, Peake D J, Bowker A J — Wall interference on two-dimensional supercritical aerofoils using wall pressure measurements to determine the porosity factors for tunnel floor and ceiling. NRC Aeronautical Report LR-575. February 1974

2 Binion T W — Tests of the ONERA Calibration models in three transonic wind tunnels. AEDC-TR-76-133. November 1976.

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CONCLUDING REMARKS

by

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This report presents an experimental data base intended as support in the development of new and the refinement of existing computer codes in the transonic speed regime. The data are believed to belong to the "highest quality" experimental results available today. As is outlined in Chapter 2, however, there are certain limitations, which a user should keep in mind:

In analysing a large number of potential test cases a lack of information on the test environment was observed with the largest unknown being the effect of the test section wall interference on the flow about the test article. Calculations carried out on the basis of two-dimensional inviscid small-perturbation theory - see Chapter 2 - clearly demonstrate the appreciable influence of the geometry of the test section walls on the airfoil pressure distribution. Hence, to get the full benefit of the costly tests in transonic flow much more emphasis must be placed on reducing wall interference effects by optimizing the wall geometry and by establishing correction procedures that will produce results more presentative of free-air conditions.

Unfortunately, the precise quantitative assessment of the effects of wall interference in ventilated wind tunnels operating at transonic conditions is beyond the present state-of-the-art. An exception are those tests in which sufficient measurements have been taken near the tunnel boundaries - including velocity distributions upstream and downstream of the model - to allow realistic prescribed boundary conditions to be used in a computer code.

As is pointed out in Chapter 3, however, it is still doubtfull that this information also might lead to a usefull set of tunnel corrections if large supersonic regions with terminating shock waves are present.

To obtain more complete test cases for computer program assessment in the near future additional tests on two- and three-dimensional configurations are recommended in Chapter 3. The essence of the recommandation is that a datum test should be undertaken where the entire boundary conditions be determinded, disturbance levels and their influence be identified and the effect of the side wall boundary layer thickness - in the case of the 2D tests - be investigated. Measurements should incluce surface pressures, wake traverses and the determination of the boundary layer and wake development. The additional testing could be directed towards supplementing the present data - prime condicates being A3, A6, A7, A8 and B3 ; see table 1.2 and 1.3 - or towards carrying out a full set of new measurements. The latter has the advantage that the model and test environment most appropriate for the present objective can be selected,while a disadvantage lies in the somewhat longer time it would take to realize a full set of new measurements.

In spite of the limitations of the present data and the need for additional testing, it is believed that the data base presented here will largely meet the set objective. This is mainly due to the fact that for all of the configurations selected a fairly large amount of information on actual model geometry, wall interference, wall boundary conditions and on test conditions as well as an estimation of the data accuracy is presented. This will enable the user to judge the merit of each individual data set and allow him to draw conclusions concerning the quality of and necessary refinements to his computer code.

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APPENDIX A
2-D CONFIGURATIONS

0. Guide to the data

The objective of this data base being to compile, in the interest of the experimental verification of computational methods for 2-D transonic flows, the best available 2-D airfoil test data, much effort has been put in providing the potential user with all the available information on the geometrical and physical environments in which the airfoils were tested. This, supposedly, should help the user in forming his own judgement on the usefulness of each data set for his specific purpose.

For consistency and to facilitate the use of the data specific information on each data set has been put into one single format. The format contains information on model geometry, wind tunnel/model configuration (wall interference!), test set-up, test conditions, instrumentation, accuracy etc, as well as a guide to the actual data tables and graphs. Background information and additional remarks are given in the introduction to each data set. The (potential) user is, in his own interest, encouraged to take full notice of both the format and background information.

In order to help the user in selecting information to meet his needs from the nine different 2-D airfoil configurations included in this data base some important specific properties of the various configurations and tests are summarized below.

- Airfoil geometry
  Of each airfoil either the actual measured coordinates are given or the nominal (theoretical) coordinates plus the deviation from those measured on the model. In this way one possible source of discrepancy between computational and experimental results is practically eliminated.
- Wall interference
  Although in all cases it has been attempted to reduce wind tunnel wall interference as much as possible and to provide the best available data on wall interference corrections, there is, as mentioned already in Chapter 2 of this report, no absolute certainty about the real magnitude of wall interference effects. Where corrections have been applied, the method of doing this is indicated in order that the uncorrected data may be recovered, should the user wish to do so.
  In two sets of data (A7, NAE tests and A8, Politechnico di Torino tests) this problem has been circumvented by measuring static pressures at a small distance from both the top and bottom ventilated walls. In data sets A3 (DFVLR TWB tests) and A5 (ONERA tests) pressures have been measured at the top and bottom walls. With the assumption of parallel flow at the reference static pressure point upstream of the model and at some distance downstream, and the assumption that the wall pressures are sufficiently representative for a "homogeneous" boundary condition, these data sets provide the possibility of solving the problem of an airfoil in a channel with given (measured) boundary conditions on the channel boundaries. In a comparison between computational results thus obtained and the experimental results, wall interference, as a source of discrepancy, may, in principle, be eliminated.

  In two other sets of data (A1 and A2), concerning symmetrical airfoils at zero angle of attack, one type of wall interference, that due to lift, is absent. From the point of view of concern about wall interference effects these data sets are of special interest. For the remaining lifting cases possible discrepancies between theory and experiment due to lift-induced wall interference may, of course, be reduced by the familiar procedure of comparing for the same lift rather than for the same angle of attack. However, by doing so, the possibility is introduced of confusing tunnel interference effects and real airfoil (such as viscous) effects.

- Test conditions
  In many practical applications it is often more important to be able to predict the variation of the aerodynamic coefficients with Mach number, angle of attack and Reynolds number than to predict the absolute level . For this reason most data sets contain one Mach number sweep at constant angle of attack, at least one angle-of-attack sweep at constant Mach number, and in one case (A3, TWB tests) also Reynolds number sweeps at constant angle of attack and Mach number.
  Mach number sweeps of sufficiently wide range are contained by data sets A1, A2, A3, A4, A5,A7, A8, and A9. Angle-of-attack sweeps of sufficiently wide range can be found in A3, A4, A5,A7, A8 and A9.
  At the practical level of airfoil design it is of equal if not even greater importance to be able to predict the difference between the aerodynamic characteristics of one airfoil and another. In aerodynamic testing this is, for obvious reasons, preferably established in one and the same wind tunnel. Checking the predictive capabilities of computational methods in this respect would seem very important if not a prerequisite. Although the present data base was not compiled for this specific purpose it contains several examples of different airfoils tested in one and the same tunnel;

NAE 5 x 5 ft: NACA 0012 (A1), NLR QE (A2), NAE 75-036-13.2 (A7)

ARA 8x18 inch	: CAST 7(A3), MBB A.3(A8)
ONERA S3 MA	: NACA 0012 (A1), SKF 1.1 (A5)
NLR Pilot Tunnel	: NLR QE (A2), NLR 7301 (A4)

A special case is formed by the SKF 1.1 set (A5) which contains data for several flap deflections.

- Reynolds numbers
  The data cover a Reynolds number range of $0.4 - 40 \times 10^6$.
  "High Reynolds number" data ($> 10 \times 10^6$) can be found in data sets A1, A2, A3, A7,
  "moderate Reynolds number" data ($4\text{-}10 \times 10^6$) in A1, A3, A5, A6. A8, A9,
  "moderately low Re.no. " data ($1\text{-}4 \times 10^6$) in A2, A3, A4, A5, A6 and
  "low ($< 1 \times 10^6$) Re. no " data in A8.

- Transition position
  A very important parameter for the aerodynamic characteristics of an airfoil, in particular in transonic flow, is the position of boundary layer transition. In view of the modest state of the art of transition prediction methods (due, of course, to the complexity of the mechanism of transition), data on the position of transition should form an essential part of an experimental data base for computer program assessment. In the following data sets the majority of data points was taken with transition fixed by a roughness strip: A2 (NLR data), A3, A4, A6, A9. In data sets A4 and A9 the boundary layer trip was positioned relatively far aft, so that under flow conditions with significant adverse pressure gradients near the leading edge natural transition may have taken place in front of the trip. In A4 it has been indicated when this was the case. The location of natural boundary layer transition was determined by means of flow visualization techniques in data sets A2 (NLR data) and A4. For the remaining data sets A1, A5, A7 and A8 the position of transition, if not evident from the pressure distribution, may be estimated by means of one of the prediction methods available in the literature. The uncertainty involved with such procedure should not be too large in cases with high adverse pressure gradients near the nose. More caution is required in cases of flat or slightly sloping pressure distributions.

- Boundary layer data
  Boundary layer and wake data allowing the detailed comparison of computed and measured flow fields can be found in data sets A3 and A6.

It is finally mentioned that, in case further information on a specific data set is required, the formats contain the name and address of the person to be contacted at the organization that performed the wind tunnel tests.

1. NACA 0012 AIRFOIL

J.J. THIBERT, M. GRANDJACQUES - ONERA
L.H. OHMAN - NAE/NRC

1.1. Introduction

The NACA 0012 airfoil was selected for the following reasons :

i. This airfoil has been tested in most wind tunnels in the world and these data can be used for comparisons with other test results.

ii. Tests were performed at moderate Reynolds numbers in the ONERA S3MA wind tunnel and at high Reynolds number in the 2-D insert of the NAE 5 ft x 5 ft transonic wind tunnel, so there are differences between the two test configurations (height/chord ratio 3.71 versus 5 span/chord ratio 2.67 versus 1.27). The ONERA data include static pressure distributions on top and bottom walls which can be used to determine wall interference corrections.

iii. The data at zero angle of attack (which are not affected by wall interference due to lift) for various Reynolds number are good tests for methods involving coupled inviscid flow and boundary layer computations.

ONERA S3MA data are given in section 1.2 while NAE data are given in section 1.3.

1.2. DATA SET FROM ONERA TUNNEL

1. Airfoil

1.1. Airfoil designation	NACA 0012
1.2. Type of airfoil	symmetrical (see fig. 1.11)
1.2.1. airfoil geometry	$Y = \pm 0.60\,(0.2969\sqrt{X} - 0.126\,X - 0.3516\,X^2 + 0.2843\,X^3 - 0.1015\,X^4)$
nose radius	0.0158 chord
maximum thickness	0.012 chord
base thickness	0.0025 chord
1.2.2. design condition	mathematical definition corresponding to pre-existing efficient airfoils
1.3. Additional remarks	none
1.4. *References on airfoil*	*ref. 1*

2. Model geometry

2.1. Chord length	0.210 m
2.2. Span	0.560 m
2.3. Actual model co-ordinates and accuracy	See table 1.1 and figure 1.1
2.4. Maximum thickness	0.1205 chord
2.5. Base thickness	0.0023 chord
2.6. Additional remarks	none
2.7. References on model	none

3. Wind tunnel

3.1. Designation	S3 Modane or S3 MA
3.2. Type of tunnel	blow down
3.2.1. stagnation pressure	variable between 1 and 4 bar
3.2.2. stagnation temperature	T_i mean = 273 K varying slightly during a blow down see figure 1.2
3.2.3. humidity/dew point	humidity $<$ 0.5g H_2O / Kg air
3.3. Test section	rectangular See figure 1.3
3.3.1. dimensions	height = 0.78 m ; width = 0.56 m
3.3.2. type of walls	9.7 % perforated top and bottom walls. Solid side walls, separate top and bottom plenums, holes are normal to the flow direction
3.4. Flow field (empty test section)	
3.4.1. reference static pressure	taken at side wall 8.19 chords upstream of the model
3.4.2. flow angularity	$<\|0.05°\|$
3.4.3. Mach number distribution	see figure 1.4
3.4.4. pressure gradient	flaps (fig.1.3) are adjusted to give zero Mach number gradient between the leading edge of the model and the wake rake for the empty test section
3.4.5. turbulence / noise level	see figure 1.5
3.4.6. side wall boundary layer	$\delta\,(\frac{U}{Ue} = 0.99)$ = 60 mm for M = 0.4 50 mm for M = 0.6 43 mm for M = 0.8 at 0.25 chords of the profile and Pi = 1.2 bar
3.5. Additional remarks	none

3.6. References on wind tunnel — ref. 2 and 3

4. Tests

4.1. Type of measurements
- surface pressure
- wake pitot pressure
- top and bottom wall pressure distributions

4.2. Tunnel/model dimensions

4.2.1. height/chord ratio — 3.71

4.2.2. width/chord ratio — 2.67

4.3. Flow conditions included in present data base

4.3.1. angle of attack

4.3.2. Mach number

M	$\alpha°$ Force measurements	$\alpha°$ pressure measurements
0.3	$-2 < \alpha < +14$	0/4
0.4	$-2 < \alpha < +12$	-
0.5	$-2 < \alpha < +10$	0/2/4/6/8
0.6	$-2 < \alpha < +9$	4
0.7	$-2 < \alpha < +9$	0/4
0.75	$-2 < \alpha < +7$	0/1/2/3/4
0.8	$-2 < \alpha < +6$	0
0.83	$-2 < \alpha < +6$	0

4.3.3. Reynolds number — see figure 1.6

4.3.4. transition — Free
- position of free transition — was not determined
- transition fixing — none

4.3.5. temperature equilibrium — No

4.4. Additional remarks — the leading edge of the model is located 71 mm ahead of the origin of the wall pressure hole abscissa (window axis fig 1.4)

4.5. References on tests — see reference 4

5. Instrumentation

5.1. Surface pressure measurements

5.1.1. pressure holes
- size — Ø = 0,4 mm ; depth 1 to 2 mm
- spanwise station (s) — See figure 1.7
- chordwise positions — See table 1.2

5.1.2. type of transducers and scanning devices — ± 25 PSI Statham differential pressure transducers accuracy : ± 0.015 PSI

5.1.3. other — see table 1.2 for hole coordinates on top and bottom walls

5.2. Wake measurements — Yes

5.2.1. type/size of instrument(s) — moving rake: See figure 1.8

5.2.2. streamwise position (s) — wake rake at one chord downstream of the trailing edge at mid-span

5.2.3. type of transducers and scanning devices — ± 10 PSI Statham differential pressure transducers accuracy : ± 0.008 PSI

5.3. Boundary layer measurements — None

5.3.1. type/size of instruments

5.3.2. locations	
5.3.3. type of transducers and scanning devices	
5.4. Skin friction measurements	None
5.4.1. type/size of instruments	
5.4.2. locations	
5.4.3. type of transducer	
5.5. Flow visualisation	None
5.5.1. flow field	
5.5.2. surface flow	
5.6. Other	None
5.7. Additional remarks	
5.8. References on instrumentation	

6. Data

6.1. Accuracy (wall interference excluded)	
6.1.1. angle of attack setting	$\pm$ 0.04°
6.1.2. free stream Mach number :	$\pm$ 0.003
- setting	
- variation during one pressure scan	
6.1.3. pressure coefficients	$\Delta Cp \leqslant 0.005 + 0.01 \lvert Cp \rvert$ à Mo = 0.7
6.1.4. aerodynamic coefficients	see 6.1.6.
6.1.5. boundary layer quantities	
6.1.6. repeatability	$M \geqslant 0.5$ $C_z \pm 0.005$ $C_m \pm 0.001$ $C_{xs} \pm 0.0006$
	$M = 0.3$ $C_z \pm 0.011$ $C_m \pm 0.002$ $C_{xs} \pm 0.0003$
6.1.7. remarks	None
6.2. Wall interference corrections (indicate estimated accuracy)	For $M \sim 0.75$ and $\alpha \sim 2°$ the magnitude of the wall corrections are
6.2.1. angle of attack	$\Delta\alpha \sim 0.5°$
6.2.2. blockage (solid/wake)	$\Delta M \sim 0.0016$
6.2.3. streamline curvature (lift)	$\Delta C_z \sim 0.002$
6.2.4. other	$\Delta C_m \sim 0.0006$
6.2.5. remarks	The porosity factor has been determined to provide the same $C_{z\alpha}$ for the corrected tests with porous and solid walls. (P = 0.6 is the value retained for all the tests).
6.2.6. references on wall interference correction	reference 5
6.3. Presentation of data	
6.3.1. aerodynamic coefficients	see table 1.3 for conditions of § 4.3 and figure 1.9

6.3.2. surface pressures	see table 1.4 and figure 1.10 α = 0° Mo = 0.3/0.5/0.7/0.75/0.8/0.83 α = 4° Mo = 0.3/0.5/0.6/0.7/0.75 (p. A1.9, 10, 11) and in addition Mo = 0.5 α = 2/6/8 (p. A1.12) Mo = 0.75 α = 1/2/3 (p. A1.13)
6.3.3. boundary layer quantities	
6.3.4. wall interference corrections included ?	See table 1.3
6.3.5. corrections for model deflection	None
6.3.6. empty test section calibration taken into account ?	Yes
6.3.7. other corrections included ?	No
6.3.8. additional remarks	None
6.4. Were tests carried out in different facilities on the current aerofoil ? If so, what facilities. Are data included in the present data base ?	Yes at NAE TBWT - some data included in section 1.3 CALSPAN - no data included
6.5. To be contacted for further information on tests	J.J. THIBERT ONERA 92320 CHATILLON (FRANCE)

7. References

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3. M. Bazin	Note Technique ONERA n° 203 (1972) Dispositif d'essais de profils en courant plan dans la soufflerie S3 de Modane -Avrieux.
4. M. Grandjacques	Essais à S3MA des profils NACA 0012 et NACA 0012 à bord d'attaque cambré en écoulement plan PV n° 61/1369 ANG (not published)
5. M. Mokry	Higher-order theory of two dimensional subsonic wall interference in a perforated wall wind tunnel NRC Aero Report LR 553 (1971)

8. List of symbols

PI = PIO stagnation pressure (daPa)
PO = reference static pressure
MO = upstream Mach number
PD = dynamic pressure (daPa)
TIO = stagnation temperature (°K)
ALPHA = angle of attack (degré)
CZ = lift coefficient in aerodynamic axes
CM = pitching moment
C_{XS} = wake drag coefficient
X/L, Z/L = coordinates related to chord
P = pressure measurement on the model
CP = pressure coefficient
Re = Reynolds number related to chord

Subscript :
C indicates a corrected value

Table 1.1 ACTUAL NACA 0012 COORDINATES

Chord : 210 mm

X mm	Z mm Upper surface	Z mm Lower surface	X mm	Z mm Upper surface	Z mm Lower surface
0	0		60	12.660	- 12.570
1	2.490	- 2.490	65	12.680	- 12.575
2	3.515	- 3.495	70	12.635	- 12.540
3	4.275	- 4.225	75	12.540	- 12.440
4	4.890	- 4.835	80	12.395	- 12.285
5	5.420	- 5.365	85	12.215	- 12.095
6	5.890	- 5.850	90	12.015	- 11.880
7	6.310	- 6.255	95	11.790	- 11.650
8	6.685	- 6.635	100	11.520	- 11.370
9	7.035	- 6.990	105	11.220	- 11.075
10	7.365	- 7.315	110	10.885	- 10.750
12	7.955	- 7.905	115	10.530	- 10.390
14	8.465	- 8.420	120	10.155	- 10.020
16	8.925	- 8.880	125	9.760	- 9.620
18	9.340	- 9.380	130	8.860	- 9.195
20	9.710	- 9.670	135	8.935	- 8.760
22	10.055	- 10.005	140	8.490	- 8.300
24	10.370	- 10.310	145	8.020	- 7.825
26	10.650	- 10.590	150	7.530	- 7.330
28	10.905	- 10.835	155	7.025	- 6.825
30	11.130	- 11.065	160	6.505	- 6.295
32	11.345	- 11.270	165	5.980	- 5.750
34	11.530	- 11.460	170	5.430	- 5.190
36	11.700	- 11.630	180	4.285	- 4.020
38	11.855	- 11.790	185	3.680	- 3.405
40	11.990	- 11.930	190	3.070	- 2.785
42	12.115	- 12.050	195	2.440	- 2.150
44	12.220	- 12.150	200	1.800	- 1.510
46	12.320	- 12.240	205	1.130	- 0.835
48	12.400	- 12.320	209,90	0.380	- 0.110
50	12.480	- 12.380			
55	12.600	- 12.500			

TABLE 1.2 COORDINATES OF PRESSURE HOLES

MODEL

Lower Surface			Upper Surface		
N°	X/C	Z/C	N°	X/C	Z/C
1	0	0	32	0.9701	0.00547
2	0.0197	-0.02334	33	0.9102	0.01323
3	0.0296	-0.02823	34	0.8797	0.01702
4	0.0590	-0.03813	35	0.8503	0.02056
5	0.0697	-0.04084	36	0.8198	0.02408
6	0.0989	-0.04670	37	0.7900	0.02738
7	0.1195	-0.04986	38	0.7304	0.03367
8	0.1801	-0.05613	39	0.6994	0.03679
9	0.1997	-0.05742	40	0.6696	0.03961
10	0.2200	-0.05841	41	0.6396	0.04225
11	0.2400	-0.05910	42	0.6095	0.04486
12	0.2902	-0.05996	43	0.5792	0.04727
13	0.3200	-0.05996	44	0.5494	0.04953
14	0.3495	-0.05953	45	0.5192	0.05171
15	0.4103	-0.05750	46	0.4893	0.05364
16	0.4396	-0.05622	47	0.4591	0.05538
17	0.4698	-0.05470	48	0.3994	0.05804
18	0.5001	-0.05292	49	0.3691	0.05900
19	0.5302	-0.05092	50	0.3393	0.05979
20	0.5899	-0.04647	51	0.3102	0.06005
21	0.6201	-0.04398	52	0.2793	0.05996
22	0.6496	-0.04139	53	0.2492	0.05944
23	0.7099	-0.03564	54	0.2293	0.05879
24	0.7393	-0.03263	55	0.2096	0.05791
25	0.7699	-0.02941	56	0.1895	0.05680
26	0.7998	-0.02609	57	0.1697	0.05536
27	0.8298	-0.02276	58	0.1496	0.05352
28	0.8598	-0.01924	59	0.1293	0.05121
29	0.8895	-0.01569	60	0.1098	0.04848
30	0.9195	-0.01193	61	0.0995	0.04681
31	0.9497	-0.00804	62	0.0893	0.04497
			63	0.0803	0.04319
			64	0.0505	0.03577
			65	0.0298	0.02841
			66	0.0191	0.02314

WALLS

Top		Bottom	
N°	X	N°	X
1	-1.79000	35	0.73000
2	-1.49000	36	0.63000
3	-1.14000	37	0.58500
4	-0.64000	38	0.54500
5	-0.54000	39	0.45500
6	-0.49000	40	0.40500
7	-0.39000	41	0.29000
8	-0.34000	42	0.25000
9	-0.25000	43	0.20000
10	-0.20000	44	0.15000
11	-0.15000	45	0.13000
12	-0.13000	46	0.11000
13	-0.11000	47	0.09000
14	-0.09000	48	0.07000
15	-0.07000	49	0.05000
16	-0.05000	50	0.03000
17	-0.03000	51	0.01000
18	-0.01000	52	-0.01000
19	0.01000	53	-0.03000
20	0.03000	54	-0.05000
21	0.05000	55	-0.07000
22	0.07000	56	-0.09000
23	0.09000	57	-0.11000
24	0.11000	58	-0.13000
25	0.13000	59	-0.15000
26	0.15000	60	-0.20000
27	0.20000	61	-0.25000
28	0.25000	62	-0.29000
29	0.35000	63	-0.34000
30	0.39000	64	-0.44000
31	0.49000	65	-0.54000
32	0.57000	66	-0.64000
33	0.62000	67	-0.83000
34	0.72000	68	-1.23000

The abscissa of the model leading edge is - .071 m

Table 1.3 AERODYNAMIC COEFFICIENTS

NACA 0012 in S_3 M.A

without wall corrections

Mo	α°	$Re/_{10^6}$	Cz	Cm	C_{XS}
0.301	- 2.02	1.84	- 0.164	-0.0026	0.0074
0.30	- 0.02	1.85	0.005	-0.0009	0.0072
0.299	2.07	1.75	0.189	-0.0012	0.0076
0.299	4.04	1.86	0.350	0.0011	0.0090
0.299	6.07	1.86	0.528	0.0023	0.0098
0.299	8.07	1.87	0.703	0.0052	0.0114
0.299	10.09	1.86	0.882	0.0048	0.0136
0.299	11.06	1.85	0.948	0.0045	0.0149
0.299	12.04	1.84	1.037	0.0060	0.0171
0.299	13.06	1.82	1.074	0.0107	0.0200
0.299	14.06	1.81	1.121	0.0109	0.0234
0.401	- 2.02	2.29	- 0.177	-0.0031	0.0076
0.403	- 0.03	2.34	0.009	-0.0007	0.0072
0.401	1.93	2.34	0.184	0.0002	0.0073
0.401	3.93	2.34	0.363	0.0011	0.0080
0.40	5.93	2.34	0.547	0.0027	0.0093
0.40	7.93	2.32	0.727	0.0040	0.0111
0.401	9.93	2.31	0.903	0.0086	0.0139
0.401	11.04	2.30	0.971	0.0136	0.0186
0.401	12.05	2.30	1.003	0.0171	0.0261
0.504	- 2.12	2.88	- 0.192	- 0.0018	0.0071
0.502	- 0.02	2.89	0.010	- 0.0009	0.00695
0.502	2.06	2.91	0.198	0.0005	0.0070
0.504	4.06	2.93	0.391	0.0030	0.0079
0.503	6.05	2.93	0.586	0.0046	0.0090
0.503	7.01	2.90	0.675	0.0086	0.0099
0.503	8.02	2.85	0.772	0.0137	0.0118
0.502	9.01	2.83	0.848	0.0215	0.0168
0.502	10.03	2.82	0.90	0.0228	0.0250
0.602	- 2.04	3.28	- 0.206	- 0.0017	0.0071
0.604	- 0.05	3.34	0.003	- 0.0006	0.0067
0.602	1.93	3.31	0.199	0.0012	0.0068
0.602	4.04	3.29	0.421	0.0047	0.0077
0.601	6.03	3.24	0.629	0.0135	0.0101
0.604	7.04	3.20	0.729	0.0214	0.0152
0.602	8.02	3.17	0.810	0.0254	0.0237
0.601	9	3.15	0.859	0.0291	0.0369

NACA 0012 in S_3MA

wall corrections included

Mo_C	α°_C	C_{ZC}	Cm_C	C_{XSC}
0.301	- 1.84	- 0.162	-0.0031	0.0074
0.30	- 0.05	0.005	-0.0008	0.0072
0.30	1.82	0.187	-0.0006	0.0076
0.30	3.59	0.345	0.0021	0.0090
0.299	5.41	0.523	0.0038	0.0098
0.299	7.195	0.697	0.0072	0.0114
0.299	8.99	0.875	0.0072	0.0136
0.299	9.89	0.944	0.0069	0.0149
0.299	10.77	1.035	0.0082	0.0171
0.299	11.74	1.075	0.0124	0.0200
0.299	12.69	1.126	0.0122	0.0234
0.401	- 1.81	- 0.174	-0.0036	0.0076
0.403	- 0.65	0.009	-0.0006	0.0072
0.401	1.665	0.181	0.0008	0.0073
0.401	3.43	0.358	0.0023	0.0080
0.400	5.19	0.539	0.0044	0.0093
0.400	6.95	0.718	0.0063	0.0111
0.401	8.72	0.893	0.0111	0.0139
0.401	9.75	0.965	0.0151	0.0186
0.401	10.72	1.003	0.0171	0.0261
0.504	-1.87	-0.189	-0.0024	0.0071
0.503	-0.06	0.009	-0.0009	0.0069
0.502	1.77	0.195	0.0011	0.0070
0.504	3.51	0.386	0.0043	0.0079
0.504	5.23	0.580	0.0064	0.0090
0.503	6.07	0.668	0.0107	0.0099
0.503	6.95	0.766	0.0159	0.0118
0.502	7.85	0.844	0.0233	0.0168
0.502	8.80	0.901	0.0236	0.0250
0.603	-1.75	-0.203	-0.0024	0.0071
0.604	-0.08	0.002	-0.0004	0.0067
0.603	1.61	0.196	0.0020	0.0068
0.602	3.38	0.416	0.0062	0.0077
0.60	5.08	0.621	0.0157	0.0101
0.603	5.93	0.722	0.0239	0.0152
0.602	6.80	0.807	0.0273	0.0237
0.60	7.70	0.863	0.0297	0.0370

Table 1.3 AERODYNAMIC COEFFICIENTS (CON'D)

NACA 0012 in S_3 M.A

without wall corrections

Mo	α°	$Re/_{10^6}$	Cz	Cm	C_{XS}
0.702	- 2.10	3.76	-0.229	-0.0048	0.0069
0.703	- 0.05	3.79	0.002	-0.0009	0.00685
0.702	1.88	3.81	0.222	0.0031	0.0068
0.703	4.03	3.75	0.491	0.0116	0.0112
0.700	1.92	3.57	0.219	0.0034	0.0069
0.704	3.95	3.55	0.479	0.0113	0.0110
0.705	5	3.54	0.610	0.0137	0.0196
0.702	6	3.54	0.693	0.0162	0.0294
0.702	6.98	3.51	0.750	0.0178	0.0425
0.702	8.02	3.50	0.795	0.0098	0.0630
0.703	9.02	3.49	0.785	0.0080	0.0847
0.754	- 2.12	3.94	-0.274	-0.0048	0.0096
0.757	- 1.02	3.99	-0.116	-0.0040	0.0073
0.756	- 0.01	4.01	0.010	-0.0004	0.0068
0.754	0.99	3.96	0.127	0.0036	0.0072
0.753	1.95	3.88	0.258	0.0055	0.0088
0.754	2.98	3.80	0.408	0.0043	0.0143
0.756	3.99	3.76	0.533	0.0015	0.0245
0.757	4.95	3.73	0.625	-0.0014	0.0370
0.753	5.96	3.72	0.693	-0.0029	0.0508
0.754	6.98	3.73	0.721	-0.0113	0.0716
0.803	-2.13	4.03	-0.137	0.0120	0.0206
0.800	-0.95	4.08	-0.141	0.0028	0.0120
0.803	0.05	4.09	0.005	0.0009	0.0106
0.805	1.04	4.03	0.153	-0.0045	0.0137
0.802	2.02	3.94	0.307	-0.0115	0.0199
0.805	3.03	3.85	0.441	-0.0218	0.0306
0.800	4.02	3.81	0.534	-0.0289	0.040
0.803	4.99	3.82	0.592	-0.0384	0.0506
0.801	6.02	3.82	0.656	-0.0415	0.0703
0.830	- 2.04	4.05	- 0.269	0.0231	0.0266
0.832	- 0.95	4.10	- 0.139	0.0140	0.0207
0.829	0.05	4.08	0.010	-0.0011	0.0175
0.831	1.04	4.00	0.170	-0.0192	0.0217
0.831	2.02	3.91	0.321	-0.0342	0.0291
0.832	3.06	3.86	0.409	-0.0374	0.0355
0.827	4.02	3.85	0.495	-0.0436	0.0462
0.829	5.01	3.83	0.549	-0.0444	0.0629
0.828	6.0	3.85	0.601	-0.0473	0.0762

NACA 0012 in S_3MA

wall corrections included

Moc	α°_c	C_{ZC}	Cm_C	C_{XSC}
0.702	-1.75	-0.225	-0.0058	0.0069
0.703	-0.08	0.002	-0.0009	0.0068
0.702	1.50	0.218	0.0042	0.0068
0.703	3.22	0.483	0.0139	0.0112
0.70	1.55	0.215	0.0045	0.0069
0.703	3.15	0.471	0.0136	0.0110
0.704	3.99	0.601	0.0165	0.0196
0.701	4.86	0.687	0.0181	0.0295
0.7	5.74	0.749	0.0191	0.0427
0.699	6.67	0.797	0.0103	0.0634
0.698	7.70	0.792	-0.0082	0.0854
0.753	-1.67	-0.269	-0.0065	0.0096
0.756	-0.84	-0.114	-0.0047	0.0073
0.755	-0.05	0.010	-0.0003	0.0068
0.754	0.74	0.124	0.0044	0.0072
0.752	1.49	0.253	0.0071	0.0088
0.753	2.26	0.399	0.0067	0.0143
0.754	3.02	0.523	0.0047	0.0246
0.755	3.79	0.620	0.0005	0.0372
0.749	4.68	0.691	-0.0017	0.0511
0.749	5.65	0.724	-0.0110	0.0722
0.801	-1.56	-0.310	0.0099	0.0207
0.798	-0.72	-0.137	0.0018	0.0120
0.801	0.03	0.005	0.0010	0.0106
0.803	0.72	0.149	-0.0035	0.0137
0.799	1.25	0.300	-0.0097	0.020
0.801	2.0	0.435	-0.0201	0.0308
0.796	2.93	0.531	-0.0277	0.0402
0.798	3.78	0.591	-0.0377	0.0510
0.795	4.76	0.658	-0.0410	0.0709
0.826	- 1.54	- 0.266	0.0218	0.0268
0.829	- 0.67	- 0.137	0.0134	0.0208
0.826	- 0.22	0.010	-0.0016	0.0177
0.827	0.50	0.166	-0.0183	0.0212
0.826	1.29	0.317	-0.0332	0.0294
0.827	2.08	0.407	-0.0368	0.0357
0.822	2.87	0.494	-0.0433	0.0466
0.823	3.79	0.550	-0.0443	0.0635
0.820	4.78	0.605	-0.0472	0.0770

Table 1.4 PRESSURE DISTRIBUTIONS

MACH = 0,30 RE = 1.85×10^6
ALPHA = -0,02

MODEL				WALLS			
N°	CP	N°	CP	N°	CP	N°	CP
1	0.9980	32	0.1172	1	0.0203	35	0.0551
2	-0.1115	33	0.0513	2	0.0131	36	-0.0114
3	-0.2491	34	0.0150	3	-0.0008	37	-0.0185
4	-0.3847	35	-0.0089	4	-0.0040	38	-0.0171
5	-0.4068	36	-0.0345	5	-0.0003	39	-0.0213
6	-0.4336	37	-0.0772	6	-0.0024	40	-0.0198
7	-0.4188	38	-0.0965	7	-0.0047	41	-0.0211
8	-0.4162	39	-0.1157	8	0.0025	42	-0.0240
9	-0.4087	40	-0.1413	9	-0.0045	43	-0.0295
10	-0.3987	41	-0.1515	10	-0.0069	44	-0.0225
11	-0.3818	42	-0.1664	11	-0.0031	45	-0.0197
12	-0.3630	43	-0.1709	12	-0.0205	46	-0.0226
13	-0.3495	44	-0.2036	13	-0.0158	47	-0.0252
14	-0.3392	45	-0.2039	14	-0.0177	48	-0.0210
15	-0.3106	46	-0.2408	15	-0.0248	49	-0.0239
16	-0.2261	47	-0.2368	16	0.0025	50	-0.0239
17	-0.2331	48	-0.2935	17	-0.0233	51	-0.0168
18	-0.2116	49	-0.3266	18	-0.0266	52	-0.0182
19	-0.1948	50	-0.3367	19	-0.0229	53	-0.0154
20	-0.1776	51	-0.3575	20	-0.0229	54	-0.0196
21	-0.1514	52	-0.3651	21	-0.0177	55	-0.0140
22	-0.1455	53	-0.3939	22	-0.0303	56	-0.0168
23	-0.1027	54	-0.4029	23	-0.0246	57	-0.0140
24	-0.0797	55	-0.4108	24	-0.0276	58	-0.0125
25	-0.0746	56	-0.4189	25	-0.0242	59	-0.0111
26	-0.0394	57	-0.4326	26	-0.0180	60	-0.0139
27	-0.0247	58	-0.4405	27	-0.0204	61	-0.0027
28	0.0064	59	-0.4263	28	-0.0176	62	-0.0013
29	0.0240	60	-0.4361	29	-0.0174	63	0.0044
30	0.0686	61	-0.4284	30	-0.0220	64	0.0029
31	0.0996	62	-0.4101	31	-0.0147	65	-0.0041
		63	-0.4129	32	-0.0215	66	0.0086
		64	-0.3431	33	-0.0083	67	0.0043
		65	-0.2848	34	0.0780	68	0.0086
		66	-0.1336				

MACH = 0,5 RE = 2.39×10^6
ALPHA = - 0.02

MODEL				WALLS			
N°	CP	N°	CP	N°	CP	N°	CP
1	1.0621	32	-0.1304	1	0.0350	35	0.0782
2	-0.0965	33	-0.0588	2	0.0293	36	0.0009
3	-0.2619	34	0.0255	3	0.0157	37	-0.0072
4	-0.4024	35	-0.0008	4	0.0147	38	-0.0094
5	-0.4310	36	-0.0257	5	0.0163	39	-0.0128
6	-0.4641	37	-0.0632	6	0.0156	40	-0.0134
7	-0.4667	38	-0.0953	7	0.0130	41	-0.0145
8	-0.4468	39	-0.1240	8	0.0202	42	-0.0178
9	-0.4476	40	-0.1430	9	0.0152	43	-0.0252
10	-0.4340	41	-0.1636	10	0.0132	44	-0.0172
11	-0.4120	42	-0.1766	11	0.0168	45	-0.0133
12	-0.3843	43	-0.1868	12	0.0011	46	-0.0139
13	-0.3760	44	-0.2188	13	0.0041	47	-0.0150
14	-0.3688	45	-0.2243	14	-0.0023	48	-0.0150
15	-0.2979	46	-0.2590	15	-0.0094	49	-0.0122
16	-0.2524	47	-0.2695	16	0.0216	50	-0.0043
17	-0.2495	48	-0.2891	17	-0.0096	51	-0.0076
18	-0.2289	49	-0.3503	18	-0.0060	52	-0.0077
19	-0.2081	50	-0.3759	19	-0.0072	53	-0.0054
20	-0.1779	51	-0.3918	20	-0.0080	54	-0.0037
21	-0.1554	52	-0.4093	21	-0.0018	55	-0.0020
22	-0.1461	53	-0.4336	22	-0.0168	56	-0.0026
23	-0.1005	54	-0.4429	23	-0.0077	57	0.0053
24	-0.0813	55	-0.4522	24	-0.0113	58	0.0053
25	-0.0645	56	-0.4626	25	-0.0103	59	0.0155
26	-0.0452	57	-0.4749	26	-0.0061	60	0.0104
27	-0.0324	58	-0.4764	27	-0.0050	61	0.0104
28	0.0177	59	-0.4759	28	-0.0055	62	0.0109
29	0.0404	60	-0.4752	29	-0.0051	63	0.0143
30	0.0727	61	-0.4684	30	-0.0076	64	0.0110
31	0.1101	62	-0.4520	31	-0.0032	65	0.0076
		63	-0.4546	32	-0.0098	66	0.0143
		64	-0.3777	33	0.0091	67	0.0098
		65	-0.2810	34	0.1007	68	0.0036
		66	-0.1355				

MACH = 0,703 RE = 3.79×10^6
ALPHA = -0.05

MODEL				WALLS			
N°	CP	N°	CP	N°	CP	N°	CP
1	1.1252	32	0.1675	1	0.0401	35	0.0896
2	-0.0193	33	0.0746	2	0.0294	36	-0.0013
3	-0.2345	34	0.0360	3	0.0152	37	-0.0094
4	-0.4544	35	0.0038	4	0.0144	38	-0.0107
5	-0.4953	36	-0.0271	5	0.0170	39	-0.0154
6	-0.5662	37	-0.0594	6	0.0158	40	-0.0144
7	-0.5864	38	-0.1014	7	0.0178	41	-0.0184
8	-0.5840	39	-0.1329	8	0.0247	42	-0.0235
9	-0.5865	40	-0.1578	9	0.0173	43	-0.0312
10	-0.5691	41	-0.1809	10	0.0261	44	-0.0238
11	-0.5419	42	-0.2015	11	0.0171	45	-0.0198
12	-0.4958	43	-0.2168	12	-0.0016	46	-0.0201
13	-0.3759	44	-0.2474	13	0.0039	47	-0.0221
14	-0.4391	45	-0.2675	14	-0.0037	48	-0.0212
15	-0.3815	46	-0.3043	15	-0.0087	49	-0.0189
16	-0.3241	47	-0.3231	16	0.0154	50	-0.0182
17	-0.3155	48	-0.3552	17	-0.0156	51	-0.0135
18	-0.2868	49	-0.3849	18	-0.0149	52	-0.0128
19	-0.2602	50	-0.4297	19	-0.0146	53	-0.0104
20	-0.2157	51	-0.4863	20	-0.0171	54	-0.0071
21	-0.1324	52	-0.5084	21	-0.0110	55	-0.0037
22	-0.1688	53	-0.5449	22	-0.0272	56	-0.0020
23	-0.1171	54	-0.5614	23	-0.0166	57	0.0047
24	-0.0915	55	-0.5692	24	-0.0202	58	0.0084
25	-0.0714	56	-0.5857	25	-0.0189	59	0.0090
26	-0.0354	57	-0.6004	26	-0.0127	60	0.0154
27	-0.0143	58	-0.5959	27	-0.0130	61	0.0174
28	0.0249	59	-0.5873	28	-0.0117	62	0.0205
29	0.0555	60	-0.5644	29	-0.0069	63	0.0218
30	0.1008	61	-0.5556	30	-0.0095	64	0.0141
31	0.1449	62	-0.5204	31	-0.0051	65	0.0100
		63	-0.5058	32	-0.0150	66	0.0177
		64	-0.3780	33	0.0046	67	0.0103
		65	-0.2391	34	0.1165	68	-0.0028
		66	-0.0464				

MACH = 0.756 RE = 4.01×10^6
ALPHA = -0.01

MODEL				WALLS			
N°	CP	N°	CP	N°	CP	N°	CP
1	1.1452	32	0.1801	1	0.0442	35	0.1019
2	0.0414	33	0.0845	2	0.0330	36	0.0018
3	-0.1827	34	0.0431	3	0.0162	37	-0.0073
4	-0.4264	35	0.0107	4	0.0188	38	-0.0094
5	-0.4752	36	-0.0220	5	0.0205	39	-0.0113
6	-0.5886	37	-0.0534	6	0.0234	40	-0.0121
7	-0.6318	38	-0.1022	7	0.0247	41	-0.0163
8	-0.6743	39	-0.1357	8	0.0311	42	-0.0221
9	-0.6977	40	-0.1633	9	0.0281	43	-0.0334
10	-0.6719	41	-0.1844	10	0.0328	44	-0.0240
11	-0.6272	42	-0.2088	11	0.0250	45	-0.0209
12	-0.5554	43	-0.2275	12	0.0049	46	-0.0209
13	-0.4108	44	-0.2589	13	0.0092	47	-0.0241
14	-0.4863	45	-0.2874	14	0.0010	48	-0.0234
15	-0.4136	46	-0.3267	15	-0.0057	49	-0.0213
16	-0.3447	47	-0.3528	16	0.0216	50	-0.0198
17	-0.3345	48	-0.3868	17	-0.0141	51	-0.0143
18	-0.3059	49	-0.4206	18	-0.0127	52	-0.0125
19	-0.2764	50	-0.4915	19	-0.0133	53	0.0088
20	-0.2234	51	-0.5564	20	-0.0169	54	-0.0049
21	-0.1901	52	-0.5950	21	-0.0120	55	-0.0027
22	-0.1739	53	-0.6448	22	-0.0275	56	0.0003
23	-0.1178	54	-0.6625	23	-0.0162	57	0.0088
24	-0.0915	55	-0.6856	24	-0.0197	58	0.0134
25	-0.0681	56	-0.7143	25	-0.0182	59	0.0141
26	-0.0342	57	-0.7202	26	-0.0134	60	0.0235
27	-0.0094	58	-0.6924	27	-0.0096	61	0.0241
28	0.0353	59	-0.6623	28	-0.0088	62	0.0265
29	0.0649	60	-0.6211	29	-0.0031	63	0.0302
30	0.1109	61	-0.5769	30	-0.0051	64	0.0192
31	0.1572	62	-0.5462	31	-0.0022	65	0.0137
		63	-0.5240	32	-0.0118	66	0.0192
		64	-0.3676	33	0.0076	67	0.0119
		65	-0.2062	34	0.1284	68	-0.0033
		66	-0.0195				

Table 1.4 PRESSURE DISTRIBUTIONS (CON'D)

MACH = 0,803 RE = 4.09×10^6
ALPHA = 0.05

MODEL				WALLS			
N°	CP	N°	CP	N°	CP	N°	CP
1	1.1677	32	0.2003	1	0.0495	35	0.1122
2	0.1009	33	0.1046	2	0.0360	36	0.0032
3	-0.1212	34	0.0596	3	0.0168	37	-0.0098
4	-0.3696	35	0.0308	4	0.0225	38	-0.0100
5	-0.4149	36	-0.0033	5	0.0275	39	-0.0122
6	-0.5484	37	-0.0325	6	0.0306	40	-0.0120
7	-0.5926	38	-0.0795	7	0.0334	41	-0.0162
8	-0.6845	39	-0.1113	8	0.0422	42	-0.0230
9	-0.7245	40	-0.1373	9	0.0382	43	-0.0343
10	-0.7604	41	-0.1564	10	0.0348	44	-0.0278
11	-0.7740	42	-0.1719	11	0.0321	45	-0.0255
12	-0.8005	43	-0.1825	12	0.0103	46	-0.0254
13	-0.8060	44	-0.1959	13	0.0131	47	-0.0297
14	-0.8279	45	-0.1940	14	0.0056	48	-0.0295
15	-0.7818	46	-0.1878	15	-0.0052	49	-0.0265
16	-0.3267	47	-0.2155	16	0.0177	50	-0.0254
17	-0.1841	48	-0.7910	17	-0.0175	51	-0.0198
18	-0.2164	49	-0.8381	18	-0.0194	52	-0.0161
19	-0.2164	50	-0.8499	19	-0.0197	53	-0.0104
20	-0.1939	51	-0.8321	20	-0.0218	54	-0.0047
21	-0.1636	52	-0.8114	21	-0.0184	55	-0.0001
22	-0.1532	53	-0.7929	22	-0.0348	56	0.0044
23	-0.1033	54	-0.7716	23	-0.0219	57	0.0132
24	-0.0730	55	-0.7567	24	-0.0258	58	0.0203
25	-0.0505	56	-0.7397	25	-0.0230	59	0.0231
26	-0.0157	57	-0.7114	26	-0.0182	60	0.0338
27	0.0100	58	-0.6635	27	-0.0128	61	0.0352
28	0.0526	59	-0.6188	28	-0.0110	62	0.0384
29	0.0836	60	-0.5601	29	-0.0050	63	0.0387
30	0.1276	61	-0.5221	30	-0.0059	64	0.0280
31	0.1753	62	-0.4876	31	-0.0043	65	0.0204
		63	-0.4662	32	-0.0161	66	0.0241
		64	-0.3094	33	0.0058	67	0.0142
		65	-0.1492	34	0.1331	68	-0.0023
		66	0.0466				

MACH = 0,829 RE = 4.08×10^6
ALPHA = 0,05

MODEL				WALLS			
N°	CP	N°	CP	N°	CP	N°	CP
1	1.1785	32	0.2153	1	0.0531	35	0.1140
2	0.1341	33	0.1269	2	0.0381	36	0.0019
3	-0.0717	34	0.0877	3	0.0178	37	-0.0098
4	-0.3244	35	0.0594	4	0.0271	38	-0.0112
5	-0.3688	36	0.0317	5	0.0347	39	-0.0144
6	-0.5063	37	0.0070	6	0.0384	40	-0.0152
7	-0.5449	38	-0.0223	7	0.0446	41	-0.0196
8	-0.6492	39	-0.0431	8	0.0529	42	-0.0267
9	-0.6886	40	-0.0503	9	0.0509	43	-0.0397
10	-0.7182	41	-0.0535	10	0.0481	44	-0.0344
11	-0.7337	42	-0.0628	11	0.0445	45	-0.0330
12	-0.7744	43	-0.1322	12	0.0210	46	-0.0335
13	-0.7842	44	-0.4231	13	0.0204	47	-0.0377
14	-0.8230	45	-0.7810	14	0.0108	48	-0.0383
15	-0.8424	46	-0.8069	15	-0.0015	49	-0.0368
16	-0.8250	47	-0.8359	16	0.0174	50	-0.0345
17	-0.7842	48	-0.8509	17	-0.0195	51	-0.0271
18	-0.7757	49	-0.8444	18	-0.0221	52	-0.0216
19	-0.5482	50	-0.8206	19	-0.0243	53	-0.0141
20	-0.0695	51	-0.7972	20	-0.0290	54	-0.0008
21	-0.0640	52	-0.7761	21	-0.0257	55	0.0020
22	-0.0734	53	-0.7510	22	-0.0416	56	0.0079
23	-0.0440	54	-0.7289	23	-0.0297	57	0.0219
24	-0.0289	55	-0.7127	24	-0.0320	58	0.0295
25	-0.0129	56	-0.6934	25	-0.0287	59	0.0339
26	0.0198	57	-0.6619	26	-0.0219	60	0.0459
27	0.0375	58	-0.6165	27	-0.0167	61	0.0486
28	0.0772	59	-0.5716	28	-0.0136	62	0.0500
29	0.1072	60	-0.5073	29	-0.0066	63	0.0489
30	0.1510	61	-0.4742	30	-0.0074	64	0.0361
31	0.1954	62	-0.4383	31	-0.0031	65	0.0282
		63	-0.4187	32	-0.0142	66	0.0298
		64	-0.2558	33	0.0062	67	0.0156
		65	-0.1026	34	0.1425	68	-0.0036
		66	0.0890				

MACH = 0,3 RE = 1.86×10^6
ALPHA = 4,04

MODEL				WALLS			
N°	CP	N°	CP	N°	CP	N°	CP
1	0.5702	32	0.1173	1	0.0136	35	0.0084
2	0.5750	33	0.0377	2	0.0124	36	-0.0368
3	0.3896	34	0.0011	3	-0.0044	37	-0.0439
4	0.1498	35	-0.0409	4	-0.0018	38	-0.0510
5	0.0729	36	-0.0732	5	-0.0003	39	-0.0567
6	0.0054	37	-0.1029	6	-0.0041	40	-0.0567
7	-0.0268	38	-0.1465	7	0.0030	41	-0.0581
8	-0.1013	39	-0.1721	8	0.0082	42	-0.0567
9	-0.1121	40	-0.1971	9	0.0068	43	-0.0652
10	-0.1481	41	-0.2199	10	0.0103	44	-0.0596
11	-0.1481	42	-0.2379	11	0.0200	45	-0.0582
12	-0.1346	43	-0.2523	12	0.0046	46	-0.0552
13	-0.1392	44	-0.2964	13	0.0117	47	-0.0553
14	-0.1591	45	-0.3114	14	0.0106	48	-0.0553
15	-0.1411	46	-0.3510	15	0.0082	49	-0.0539
16	-0.1129	47	-0.3720	16	0.0330	50	-0.0552
17	-0.1397	48	-0.4174	17	0.0013	51	-0.0525
18	-0.1386	49	-0.4564	18	0.0110	52	-0.0613
19	-0.1049	50	-0.4983	19	0.0134	53	-0.0526
20	-0.0887	51	-0.5362	20	0.0108	54	-0.0497
21	-0.0778	52	-0.5576	21	0.0181	55	-0.0493
22	-0.0701	53	-0.5927	22	0.0063	56	-0.0525
23	-0.0254	54	-0.6338	23	0.0122	57	-0.0411
24	-0.0146	55	-0.6653	24	0.0046	58	-0.0440
25	-0.0173	56	-0.6653	25	0.0084	59	-0.0427
26	0.0136	57	-0.7122	26	0.0119	60	-0.0370
27	0.0068	58	-0.7679	27	0.0072	61	-0.0298
28	0.0445	59	-0.8402	28	0.0035	62	-0.0271
29	0.0445	60	-0.8851	29	-0.0003	63	-0.0157
30	0.0781	61	-0.9120	30	-0.0050	64	-0.0115
31	0.0982	62	-0.9194	31	-0.0085	65	-0.0101
		63	-0.9717	32	-0.0158	66	-0.0001
		64	-1.0495	33	0.0028	67	-0.0016
		65	-1.1854	34	0.0913	68	-0.0242
		66	-1.1898				

MACH = 0,504 RE = 2.93×10^6
ALPHA = 4,06

MODEL				WALLS			
N°	CP	N°	CP	N°	CP	N°	CP
1	0.7056	32	0.1377	1	0.0339	35	0.0252
2	0.6124	33	0.0444	2	0.0272	36	-0.0246
3	0.4186	34	0.0028	3	0.0163	37	-0.0347
4	0.1616	35	-0.0386	4	0.0160	38	-0.0370
5	0.1093	36	-0.0625	5	0.0186	39	-0.0426
6	0.0081	37	-0.0918	6	0.0212	40	-0.0404
7	-0.0357	38	-0.1391	7	0.0231	41	-0.0443
8	-0.1172	39	-0.1785	8	0.0327	42	-0.0527
9	-0.1306	40	-0.2057	9	0.0351	43	-0.0571
10	-0.1381	41	-0.2316	10	0.0401	44	-0.0520
11	-0.1369	42	-0.2565	11	0.0471	45	-0.0487
12	-0.1506	43	-0.2815	12	0.0347	46	-0.0482
13	-0.1597	44	-0.3174	13	0.0408	47	-0.0523
14	-0.1658	45	-0.3417	14	0.0372	48	-0.0494
15	-0.1497	46	-0.3892	15	0.0357	49	-0.0476
16	-0.1277	47	-0.4116	16	0.0604	50	-0.0477
17	-0.1317	48	-0.4664	17	0.0333	51	-0.0445
18	-0.1199	49	-0.5148	18	0.0355	52	-0.0420
19	-0.1120	50	-0.5622	19	0.0361	53	-0.0410
20	-0.0935	51	-0.5986	20	0.0357	54	-0.0354
21	-0.0542	52	-0.6319	21	0.0407	55	-0.0347
22	-0.0569	53	-0.6688	22	0.0271	56	-0.0341
23	-0.0408	54	-0.7134	23	0.0358	57	-0.0275
24	-0.0200	55	-0.7523	24	0.0321	58	-0.0253
25	-0.0288	56	-0.7679	25	0.0317	59	-0.0230
26	0.0080	57	-0.8012	26	0.0364	60	-0.0135
27	0.0128	58	-0.8409	27	0.0300	61	-0.0118
28	0.0405	59	-0.9505	28	0.0291	62	-0.0062
29	0.0458	60	-1.0079	29	0.0230	63	-0.0006
30	0.0862	61	-1.0295	30	0.0170	64	0.0005
31	0.1138	62	-1.0349	31	0.0158	65	-0.0006
		63	-1.0947	32	0.0012	66	0.0112
		64	-1.1965	33	0.0248	67	0.0067
		65	-1.2935	34	0.1244	68	-0.0012
		66	-1.2863				

TABLE 1.4 PRESSURE DISTRIBUTIONS (CON'D)

MACH = 0.60 RE = 4.65×10^6
ALPHA = 3.94

MODEL				WALLS			
N°	CP	N°	CP	N°	CP	N°	CP
1	0.8110	32	0.1643	1	0.0412	35	0.0327
2	0.6187	33	0.0664	2	0.0340	36	-0.0243
3	0.4190	34	0.0230	3	0.0225	37	-0.0302
4	0.1596	35	-0.0085	4	0.0243	38	-0.0320
5	0.1038	36	-0.0476	5	0.0252	39	-0.0398
6	-0.0019	37	-0.0868	6	0.0268	40	-0.0362
7	-0.0481	38	-0.1351	7	0.0339	41	-0.0404
8	-0.1269	39	-0.1768	8	0.0438	42	-0.0473
9	-0.1428	40	-0.2063	9	0.0478	43	-0.0560
10	-0.1495	41	-0.2332	10	0.0547	44	-0.0509
11	-0.1484	42	-0.2613	11	0.0620	45	-0.0472
12	-0.1615	43	-0.2875	12	0.0445	46	-0.0466
13	-0.1663	44	-0.3280	13	0.0524	47	-0.0484
14	-0.1767	45	-0.3538	14	0.0492	48	-0.0503
15	-0.1555	46	-0.3952	15	0.0443	49	-0.0490
16	-0.1294	47	-0.4242	16	0.0737	50	-0.0478
17	-0.1336	48	-0.4881	17	0.0425	51	-0.0428
18	-0.1121	49	-0.5392	18	0.0459	52	-0.0409
19	-0.0799	50	-0.5903	19	0.0472	53	-0.0400
20	-0.0718	51	-0.6299	20	0.0460	54	-0.0352
21	-0.0525	52	-0.6692	21	0.0476	55	-0.0338
22	-0.0535	53	-0.7135	22	0.0371	56	-0.0317
23	-0.0248	54	-0.7668	23	0.0453	57	-0.0234
24	-0.0120	55	-0.8087	24	0.0392	58	-0.0168
25	-0.0031	56	-0.8130	25	0.0400	59	-0.0162
26	-0.0187	57	-0.8685	26	0.0435	60	-0.0049
27	0.0261	58	-0.8991	27	0.0418	61	0.0005
28	0.0595	59	-0.9399	28	0.0380	62	0.0068
29	0.0749	60	-1.0987	29	0.0292	63	0.0142
30	0.1049	61	-1.1304	30	0.0231	64	0.0115
31	0.1373	62	-1.1199	31	0.0201	65	0.0101
		63	-1.1755	32	0.0007	66	0.0199
		64	-1.2831	33	0.0278	67	0.0139
		65	-1.3756	34	0.1358	68	0.0035
		66	-1.2518				

MACH = 0.703 RE = 3.75×10^6
ALPHA = 4.03

MODEL				WALLS			
N°	CP	N°	CP	N°	CP	N°	CP
1	0.9258	32	0.1758	1	0.0405	35	0.0292
		33	0.0801	2	0.0288	36	-0.0286
2	0.6183	34	0.0385	3	0.0180	37	-0.0364
3	0.4196	35	0.0010	4	0.0232	38	-0.0398
4	0.1658	36	-0.0415	5	0.0299	39	-0.0462
5	0.1070	37	-0.0715	6	0.0356	40	-0.0448
6	-0.0040	38	-0.1248	7	0.0428	41	-0.0489
7	-0.0568	39	-0.1653	8	0.0543	42	-0.0572
8	-0.1425	40	-0.1959	9	0.0636	43	-0.0654
9	-0.1659	41	-0.2236	10	0.0772	44	-0.0596
10	-0.1697	42	-0.2532	11	0.0767	45	-0.0589
11	-0.1712	43	-0.2785	12	0.0616	46	-0.0597
12	-0.1818	44	-0.3112	13	0.0692	47	-0.0627
13	-0.1331	45	-0.3408	14	0.0649	48	-0.0624
14	-0.1969	46	-0.3848	15	0.0606	49	-0.0637
15	-0.1787	47	-0.4078	16	0.0854	50	-0.0620
16	-0.1482	48	-0.4394	17	0.0571	51	-0.0552
17	-0.1503	49	-0.4579	18	0.0596	52	-0.0543
18	-0.1422	50	-0.4507	19	0.0590	53	-0.0505
19	-0.1339	51	-0.5166	20	0.0557	54	-0.0465
20	-0.0759	52	-1.3149	21	0.0590	55	-0.0414
21	-0.0609	53	-1.3904	22	0.0476	56	-0.0374
22	-0.0654	54	-1.4324	23	0.0543	57	-0.0270
23	-0.0321	55	-1.4741	24	0.0476	58	-0.0193
24	-0.0171	56	-1.4748	25	0.0494	59	-0.0172
25	-0.0081	57	-1.4485	26	0.0507	60	-0.0001
26	0.0158	58	-1.4120	27	0.0471	61	0.0066
27	0.0242	59	-1.3828	28	0.0411	62	0.0144
28	0.0574	60	-1.3536	29	0.0303	63	0.0221
29	0.0782	61	-1.3478	30	0.0227	64	0.0188
30	0.1128	62	-1.3371	31	0.0163	65	0.0161
31	0.1412	63	-1.3400	32	-0.0025	66	0.0235
		64	-1.2471	33	0.0197	67	0.0127
		65	-1.1663	34	0.1426	68	-0.0118
		66	-0.9440				

MACH = 0.756 RE = 3.76×10^6
ALPHA = 3.99

MODEL				WALLS			
N°	CP	N°	CP	N°	CP	N°	CP
1	1.0060	32	0.1882	1	0.0452	35	0.0296
2	0.5974	33	0.1034	2	0.0339	36	-0.0346
3	0.4077	34	0.0667	3	0.0185	37	-0.0424
4	0.1539	35	0.0364	4	0.0327	38	-0.0464
5	0.0892	36	0.0047	5	0.0414	39	-0.0516
6	-0.0213	37	-0.0238	6	0.0469	40	-0.0525
7	-0.0727	38	-0.0626	7	0.0572	41	-0.0565
8	-0.1651	39	-0.0921	8	0.0707	42	-0.0631
9	-0.1845	40	-0.1107	9	0.0787	43	-0.0721
10	-0.1964	41	-0.1313	10	0.0930	44	-0.0667
11	-0.1918	42	-0.1520	11	0.0917	45	-0.0661
12	-0.2076	43	-0.1717	12	0.0765	46	-0.0725
13	-0.1515	44	-0.2268	13	0.0830	47	-0.0774
14	-0.2154	45	-0.2875	14	0.0787	48	-0.0783
15	-0.1975	46	-0.4184	15	0.0743	49	-0.0780
16	-0.1630	47	-0.6367	16	0.0990	50	-0.0764
17	-0.1617	48	-1.2817	17	0.0684	51	-0.0704
18	-0.1517	49	-1.2959	18	0.0699	52	-0.0659
19	-0.1405	50	-1.3351	19	0.0688	53	-0.0603
20	-0.0823	51	-1.3470	20	0.0641	54	-0.0519
21	-0.0620	52	-1.3421	21	0.0650	55	-0.0451
22	-0.0664	53	-1.3375	22	0.0563	56	-0.0384
23	-0.0317	54	-1.3247	23	0.0621	57	-0.0248
24	-0.0172	55	-1.3183	24	0.0568	58	-0.0144
25	-0.0063	56	-1.2919	25	0.0548	59	-0.0096
26	0.0202	57	-1.2614	26	0.0583	60	0.0105
27	0.0315	58	-1.2161	27	0.0544	61	0.0220
28	0.0665	59	-1.1826	28	0.0483	62	0.0305
29	0.0882	60	-1.1476	29	0.0341	63	0.0360
30	0.1232	61	-1.1392	30	0.0266	64	0.0305
31	0.1602	62	-1.1217	31	0.0165	65	0.0269
		63	-1.1210	32	-0.0051	66	0.0318
		64	-1.0082	33	0.0174	67	0.0156
		65	-0.9121	34	0.1535	68	-0.0166
		66	-0.7002				

Table 1.4 PRESSURE DISTRIBUTIONS (CON'D)

MACH = 0.502 RE = 2.91 x 10^6
ALPHA = 2.06

MODEL				WALLS			
N°	CP	N°	CP	N°	CP	N°	CP
1	0.9775	32	0.1395	1	0.0350	35	0.0448
2	0.3095	33	0.0509	2	0.0293	36	-0.0179
3	0.1139	34	0.0111	3	0.0167	37	-0.0253
4	-0.1166	35	-0.0164	4	0.0172	38	-0.0275
5	-0.1462	36	-0.0486	5	0.0160	39	-0.0326
6	-0.2361	37	-0.0793	6	0.0172	40	-0.0320
7	-0.2560	38	-0.1183	7	0.0192	41	-0.0349
8	-0.2730	39	-0.1469	8	0.0245	42	-0.0383
9	-0.2946	40	-0.1749	9	0.0224	43	-0.0451
10	-0.2832	41	-0.1956	10	0.0241	44	-0.0389
11	-0.2703	42	-0.2186	11	0.0285	45	-0.0338
12	-0.2690	43	-0.2380	12	0.0149	46	-0.0337
13	-0.2685	44	-0.2676	13	0.0192	47	-0.0338
14	-0.2679	45	-0.2855	14	0.0132	48	-0.0339
15	-0.2467	46	-0.3265	15	0.0112	49	-0.0316
16	-0.2009	47	-0.3370	16	0.0389	50	-0.0299
17	-0.1851	48	-0.3839	17	0.0070	51	-0.0264
18	-0.1696	49	-0.4189	18	0.0113	52	-0.0254
19	-0.1448	50	-0.4515	19	0.0111	53	-0.0225
20	-0.1274	51	-0.4743	20	0.0096	54	-0.0208
21	-0.1036	52	-0.4828	21	0.0133	55	-0.0214
22	-0.1060	53	-0.5479	22	0.0011	56	-0.0202
23	-0.0720	54	-0.5906	23	0.0082	57	-0.0126
24	-0.0522	55	-0.6146	24	0.0045	58	-0.0112
25	-0.0511	56	-0.6366	25	0.0054	59	-0.0106
26	-0.0136	57	-0.6610	26	0.0104	60	-0.0027
27	-0.0055	58	-0.6819	27	0.0084	61	-0.0005
28	0.0284	59	-0.7060	28	0.0058	62	0.0030
29	0.0461	60	-0.7268	29	0.0057	63	0.0080
30	0.0816	61	-0.7264	30	0.0024	64	0.0052
31	0.1186	62	-0.7339	31	0.0041	65	0.0046
		63	-0.7556	32	-0.0048	66	0.0125
		64	-0.7430	33	0.0151	67	0.0086
		65	-0.7447	34	0.1149	68	0.0040
		66	-0.6492				

MACH = 0,503 RE = 2.93 x 10^6
ALPHA = 6,05

MODEL				WALLS			
N°	CP	N°	CP	N°	CP	N°	CP
1	0.2243	32	0.1391	1	0.0341	35	0.0039
2	0.8195	33	0.0478	2	0.0286	36	-0.0391
3	0.6508	34	0.0081	3	0.0188	37	-0.0458
4	0.3836	35	-0.0280	4	0.0210	38	-0.0525
5	0.3157	36	-0.0662	5	0.0255	39	-0.0590
6	0.2049	37	-0.1027	6	0.0279	40	-0.0579
7	0.1534	38	-0.1605	7	0.0352	41	-0.0584
8	0.0449	39	-0.2007	8	0.0481	42	-0.0634
9	0.0162	40	-0.2370	9	0.0562	43	-0.0684
10	0.0039	41	-0.2621	10	0.0635	44	-0.0691
11	-0.0036	42	-0.2936	11	0.0741	45	-0.0664
12	-0.0382	43	-0.3213	12	0.0609	46	-0.0646
13	-0.0525	44	-0.3599	13	0.0682	47	-0.0691
14	-0.0707	45	-0.3921	14	0.0630	48	-0.0674
15	-0.0516	46	-0.4387	15	0.0628	49	-0.0641
16	-0.0431	47	-0.4732	16	0.0884	50	-0.0641
17	-0.0487	48	-0.5469	17	0.0603	51	-0.0604
18	-0.0552	49	-0.6029	18	0.0659	52	-0.0570
19	-0.0392	50	-0.6581	19	0.0650	53	-0.0570
20	-0.0314	51	-0.7029	20	0.0625	54	-0.0525
21	-0.0281	52	-0.7505	21	0.0671	55	-0.0502
22	-0.0234	53	-0.8108	22	0.0559	56	-0.0453
23	-0.0059	54	-0.8662	23	0.0619	57	-0.0380
24	0.0170	55	-0.9199	24	0.0563	58	-0.0335
25	0.0270	56	-0.9497	25	0.0557	59	-0.0329
26	0.0466	57	-1.0176	26	0.0604	60	-0.0217
27	0.0397	58	-1.0812	27	0.0534	61	-0.0150
28	0.0641	59	-1.1083	28	0.0468	62	-0.0089
29	0.0715	60	-1.2320	29	0.0379	63	0.0011
30	0.0982	61	-1.3027	30	0.0256	64	0.0039
31	0.1183	62	-1.3091	31	0.0194	65	0.0022
		63	-1.3641	32	0.0014	66	0.0145
		64	-1.7160	33	0.0223	67	0.0067
		65	-1.9819	34	0.1219	68	-0.0084
		66	-2.1297				

MACH = 0,503 RE = 2.85 x 10^6
ALPHA = 8,02

MODEL				WALLS			
N°	CP	N°	CP	N°	CP	N°	CP
1	-0.3212	32	0.1199	1	0.0335	35	-0.0104
2	0.9500	33	0.0480	2	0.0286	36	-0.0493
3	0.8216	34	0.0089	3	0.0176	37	-0.0493
4	0.5659	35	-0.0355	4	0.0251	38	-0.0599
5	0.4984	36	-0.0698	5	0.0327	39	-0.0696
6	0.3796	37	-0.1014	6	0.0354	40	-0.0656
7	0.3083	38	-0.1653	7	0.0487	41	-0.0689
8	0.1805	39	-0.2076	8	0.0621	42	-0.0763
9	0.1510	40	-0.2464	9	0.0756	43	-0.0825
10	0.1131	41	-0.2829	10	0.0855	44	-0.0758
11	0.1136	42	-0.3151	11	0.0985	45	-0.0674
12	0.0707	43	-0.3489	12	0.0878	46	-0.0729
13	0.0477	44	-0.3962	13	0.0949	47	-0.0668
14	0.0296	45	-0.4287	14	0.0903	48	-0.0667
15	0.0318	46	-0.4845	15	0.0929	49	-0.0764
16	0.0281	47	-0.5242	16	0.1187	50	-0.0740
17	0.0195	48	-0.6176	17	0.0949	51	-0.0684
18	0.0131	49	-0.6791	18	0.0964	52	-0.0690
19	0.0169	50	-0.7379	19	0.0984	53	-0.0667
20	0.0137	51	-0.7978	20	0.0943	54	-0.0634
21	0.0164	52	-0.8611	21	0.0969	55	-0.0611
22	0.0153	53	-0.9362	22	0.0866	56	-0.0571
23	0.0234	54	-1.0015	23	0.0928	57	-0.0504
24	0.0288	55	-1.0684	24	0.0853	58	-0.0442
25	0.0293	56	-1.1154	25	0.0830	59	-0.0436
26	0.0395	57	-1.1928	26	0.0825	60	-0.0307
27	0.0395	58	-1.2805	27	0.0698	61	-0.0222
28	0.0572	59	-1.3293	28	0.0643	62	-0.0137
29	0.0706	60	-1.4941	29	0.0465	63	-0.0036
30	0.0979	61	-1.5717	30	0.0356	64	0.0048
31	0.1054	62	-1.6000	31	0.0292	65	0.0021
		63	-1.6727	32	0.0075	66	0.0139
		64	-2.3213	33	0.0267	67	0.0082
		65	-3.0205	34	0.1284	68	-0.0132
		66	-3.2976				

TABLE 1.4 PRESSURE DISTRIBUTIONS (CON'D)

MACH = 0.754 ALPHA = 0.99 RE = 3.96×10^6

MODEL				WALLS			
N°	CP	N°	CP	N°	CP	N°	CP
1	1.1395	32	0.1832	1	0.0443	35	0.0786
2	0.1960	33	0.0859	2	0.0325	36	-0.0088
3	-0.0246	34	0.0435	3	0.0165	37	-0.0148
4	-0.2767	35	0.0095	4	0.0167	38	-0.0164
5	-0.3196	36	-0.0264	5	0.0217	39	-0.0206
6	-0.4329	37	-0.0594	6	0.0238	40	-0.0201
7	-0.4621	38	-0.1091	7	0.0257	41	-0.0249
8	-0.5178	39	-0.1464	8	0.0348	42	-0.0308
9	-0.5361	40	-0.1745	9	0.0330	43	-0.0412
10	-0.5274	41	-0.1996	10	0.0412	44	-0.0348
11	-0.5017	42	-0.2240	11	0.0332	45	-0.0317
12	-0.4696	43	-0.2445	12	0.0159	46	-0.0342
13	-0.4097	44	-0.2793	13	0.0199	47	-0.0355
14	-0.4509	45	-0.3060	14	0.0113	48	-0.0348
15	-0.3929	46	-0.3499	15	0.0053	49	-0.0333
16	-0.2948	47	-0.3741	16	0.0314	50	-0.0330
17	-0.2937	48	-0.4087	17	-0.0018	51	-0.0265
18	-0.2677	49	-0.4346	18	-0.0016	52	-0.0234
19	-0.2455	50	-0.4017	19	-0.0025	53	-0.0216
20	-0.2019	51	-0.6393	20	-0.0039	54	-0.0183
21	-0.1716	52	-0.8390	21	-0.0008	55	-0.0146
22	-0.1562	53	-0.9035	22	-0.0162	56	-0.0109
23	-0.1046	54	-0.9191	23	-0.0064	57	-0.0015
24	-0.0799	55	-0.9171	24	-0.0087	58	0.0035
25	-0.0595	56	-0.9128	25	-0.0060	59	0.0053
26	-0.0278	57	-0.8939	26	-0.0006	60	0.0154
27	-0.0052	58	-0.8551	27	0.0017	61	0.0184
28	0.0338	59	-0.8179	28	0.0022	62	0.0226
29	0.0657	60	-0.7626	29	0.0052	63	0.0266
30	0.1078	61	-0.7269	30	0.0028	64	0.0175
31	0.1531	62	-0.6928	31	0.0065	65	0.0117
		63	-0.6799	32	-0.0064	66	0.0196
		64	-0.5366	33	0.0162	67	0.0116
		65	-0.3911	34	0.1439	68	-0.0045
		66	-0.1927				

MACH = 0.753 ALPHA = 1.95 RE = 3.88×10^6

MODEL				WALLS			
N°	CP	N°	CP	N°	CP	N°	CP
1	1.1140	32	0.1835	1	0.0449	35	0.0619
2	0.3405	33	0.0901	2	0.0327	36	-0.0166
3	0.1395	34	0.0461	3	0.0174	37	-0.0232
4	-0.1273	35	0.0107	4	0.0211	38	-0.0266
5	-0.1735	36	-0.0257	5	0.0240	39	-0.0299
6	-0.2961	37	-0.0567	6	0.0279	40	-0.0300
7	-0.3245	38	-0.1070	7	0.0325	41	-0.0346
8	-0.3897	39	-0.1432	8	0.0417	42	-0.0416
9	-0.4059	40	-0.1736	9	0.0446	43	-0.0517
10	-0.4040	41	-0.1964	10	0.0525	44	-0.0449
11	-0.3926	42	-0.2216	11	0.0478	45	-0.0434
12	-0.3793	43	-0.2430	12	0.0306	46	-0.0440
13	-0.3212	44	-0.2702	13	0.0359	47	-0.0482
14	-0.3660	45	-0.2920	14	0.0292	48	-0.0482
15	-0.3381	46	-0.3248	15	0.0254	49	-0.0467
16	-0.2380	47	-0.3302	16	0.0508	50	-0.0455
17	-0.2348	48	-0.2820	17	0.0172	51	-0.0397
18	-0.2186	49	-0.5305	18	0.0181	52	-0.0367
19	-0.2031	50	-0.9996	19	0.0170	53	-0.0324
20	-0.1671	51	-1.0231	20	0.0138	54	-0.0278
21	-0.1375	52	-1.0762	21	0.0170	55	-0.0241
22	-0.1312	53	-1.0830	22	0.0043	56	-0.0214
23	-0.0834	54	-1.0762	23	0.0147	57	-0.0104
24	-0.0625	55	-1.0743	24	0.0107	58	-0.0052
25	-0.0436	56	-1.0624	25	0.0132	59	-0.0022
26	-0.0149	57	-1.0362	26	0.0161	60	0.0116
27	0.0052	58	-0.9945	27	0.0187	61	0.0174
28	0.0448	59	-0.9550	28	0.0189	62	0.0222
29	0.0718	60	-0.9078	29	0.0174	63	0.0277
30	0.1128	61	-0.8842	30	0.0131	64	0.0182
31	0.1552	62	-0.8617	31	0.0108	65	0.0146
		63	-0.8504	32	-0.0044	66	0.0214
		64	-0.6981	33	0.0175	67	0.0122
		65	-0.5767	34	0.1494	68	-0.0070
		66	-0.3741				

MACH = 0.754 ALPHA = 2.98 RE = 3.80×10^6

MODEL				WALLS			
N°	CP	N°	CP	N°	CP	N°	CP
1	1.0651	32	0.1891	1	0.0450	35	0.0462
2	0.4850	33	0.0952	2	0.0331	36	-0.0247
3	0.2767	34	0.0555	3	0.0186	37	-0.0320
4	0.0237	35	0.0165	4	0.0260	38	-0.0345
5	-0.0325	36	-0.0130	5	0.0326	39	-0.0381
6	-0.1491	37	-0.0449	6	0.0373	40	-0.0387
7	-0.1849	38	-0.0921	7	0.0431	41	-0.0440
8	-0.2631	39	-0.1263	8	0.0558	42	-0.0508
9	-0.2850	40	-0.1515	9	0.0596	43	-0.0599
10	-0.2878	41	-0.1731	10	0.0745	44	-0.0571
11	-0.2817	42	-0.1915	11	0.0709	45	-0.0559
12	-0.2770	43	-0.2017	12	0.0538	46	-0.0567
13	-0.2356	44	-0.2226	13	0.0594	47	-0.0630
14	-0.2846	45	-0.2275	14	0.0533	48	-0.0621
15	-0.2609	46	-0.2506	15	0.0507	49	0.0614
16	-0.2154	47	-0.2664	16	0.0719	50	-0.0611
17	-0.2122	48	-0.9516	17	0.0441	51	-0.0553
18	-0.1730	49	-1.1655	18	0.0454	52	-0.0513
19	-0.1475	50	-1.1899	19	0.0435	53	-0.0480
20	-0.1263	51	-1.2258	20	0.0400	54	-0.0404
21	-0.1010	52	-1.2294	21	0.0428	55	-0.0354
22	-0.0968	53	-1.2278	22	0.0309	56	-0.0300
23	-0.0607	54	-1.2165	23	0.0393	57	-0.0178
24	-0.0378	55	-1.2062	24	0.0341	58	-0.0101
25	-0.0279	56	-1.1968	25	0.0364	59	-0.0061
26	0.0053	57	-1.1653	26	0.0394	60	0.0095
27	0.0213	58	-1.1219	27	0.0381	61	0.0177
28	0.0573	59	-1.0815	28	0.0338	62	0.0244
29	0.0828	60	-1.0351	29	0.0263	63	0.0296
30	0.1206	61	-1.0190	30	0.0217	64	0.0244
31	0.1606	62	-0.9991	31	0.0150	65	0.0201
		63	-0.9892	32	-0.0019	66	0.0256
		64	-0.8561	33	0.0216	67	0.0122
		65	-0.7626	34	0.1560	68	-0.0064
		66	-0.5507				

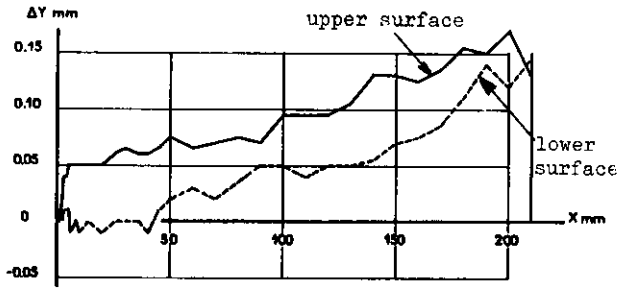


Fig. 1.1. DEVIATION OF REALIZED MODEL FROM THEORITICAL SHAPE

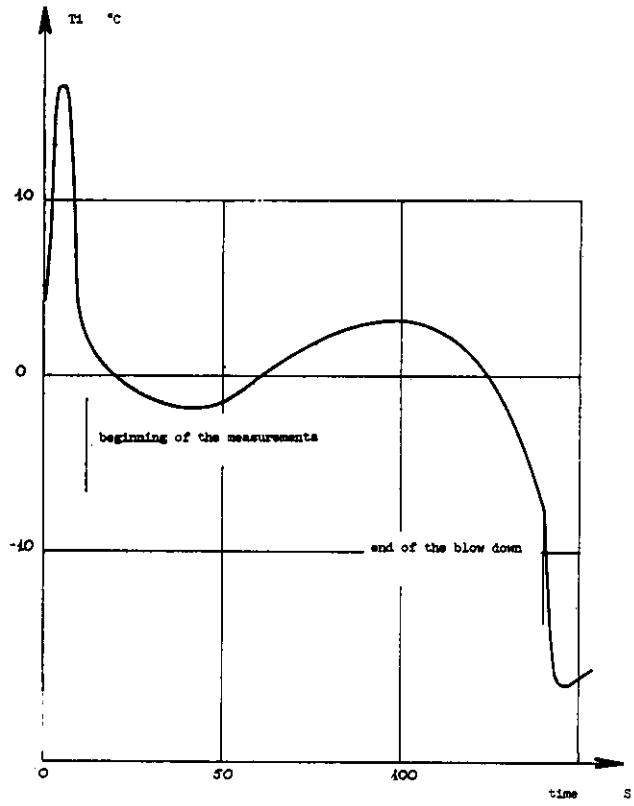


Fig. 1.2 EVOLUTION OF THE STAGNATION TEMPERATURE DURING A BLOW DOWN

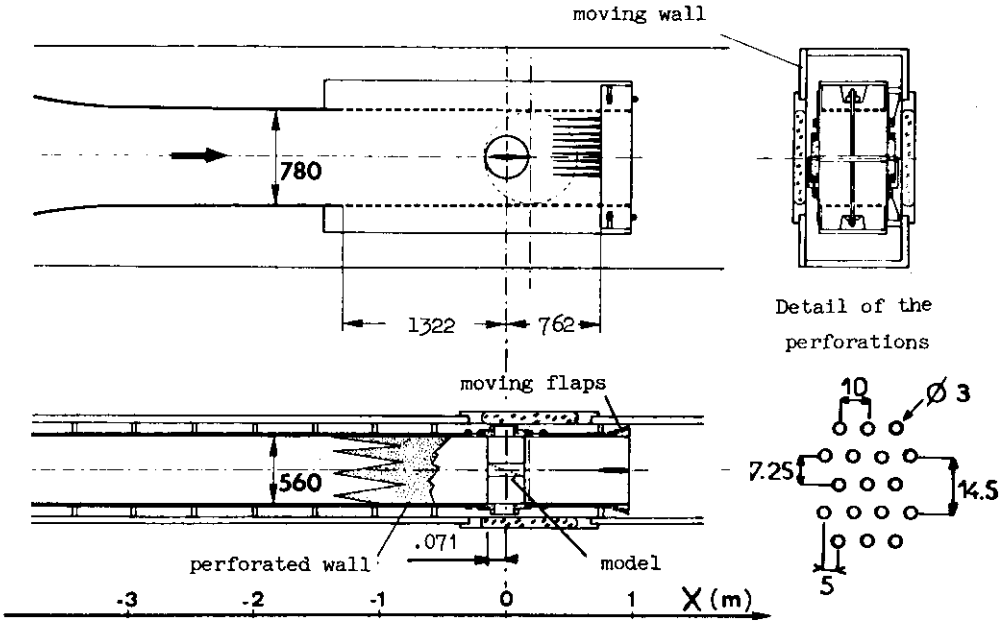


Fig. 1.3 MODEL INSTALLATION IN THE S3MA TRANSONIC WIND TUNNEL

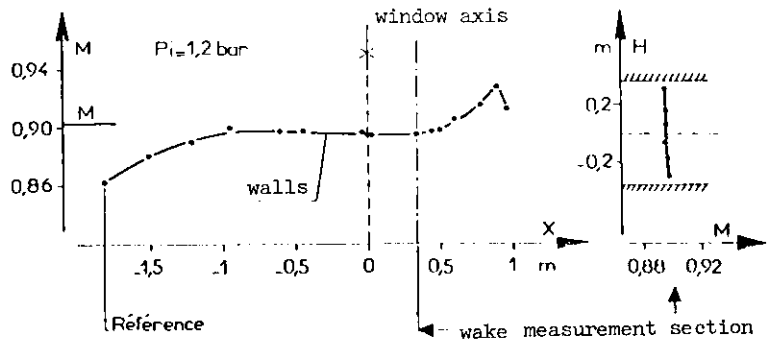


Fig. 1.4a Mach number distribution in the wind tunnel

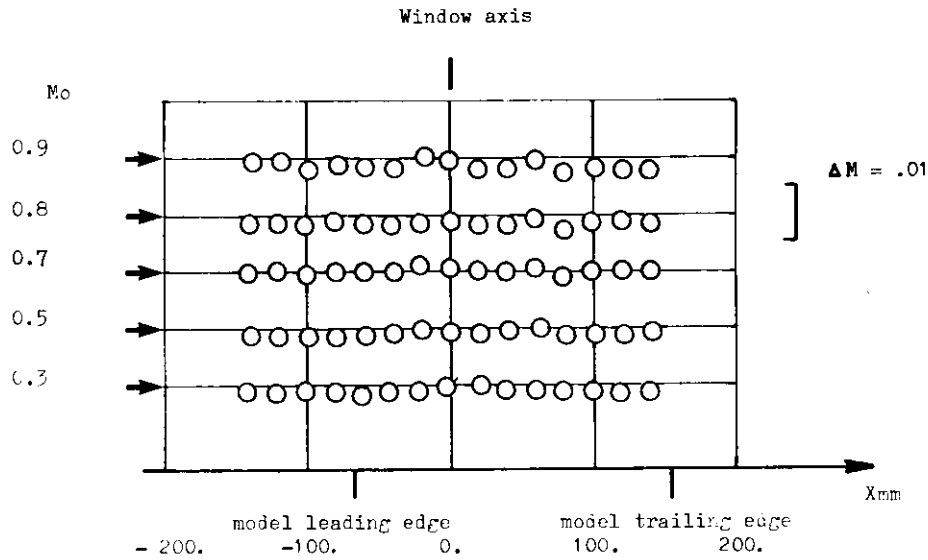


Fig. 1.4b Mach number distributions in the model region

Fig. 1.4 S3MA TUNNEL EMPTY TEST SECTION CALIBRATION DATA

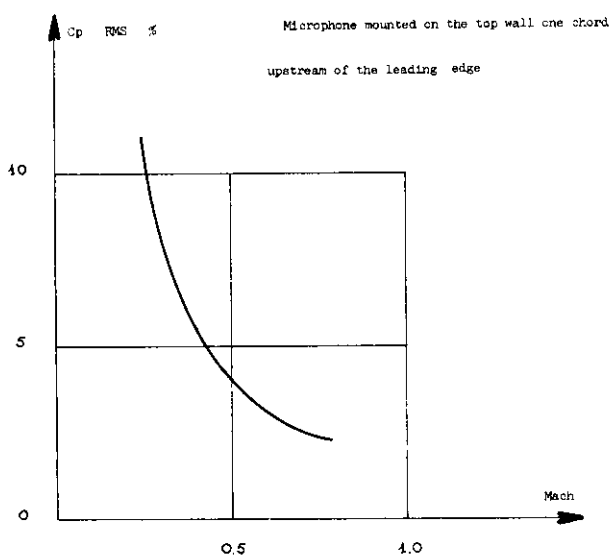


Fig. 1.5 NOISE LEVEL

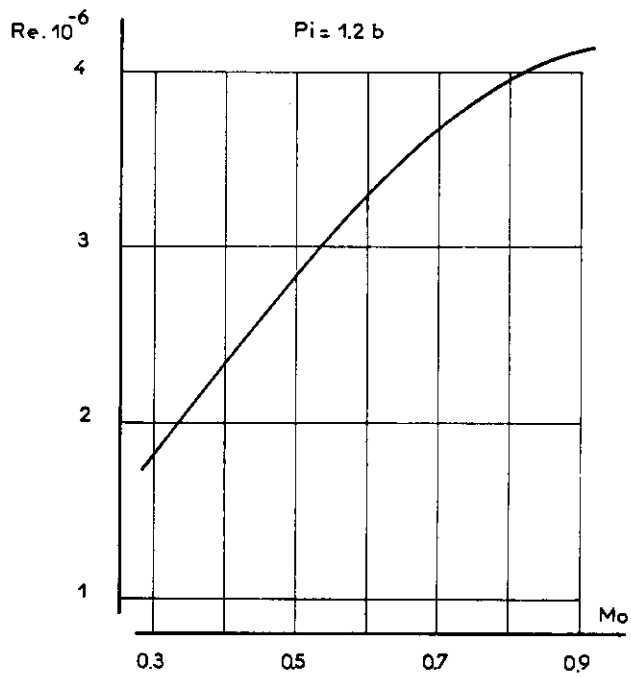


Fig. 1.6 REYNOLDS NUMBER BASED ON CHORD LENGTH

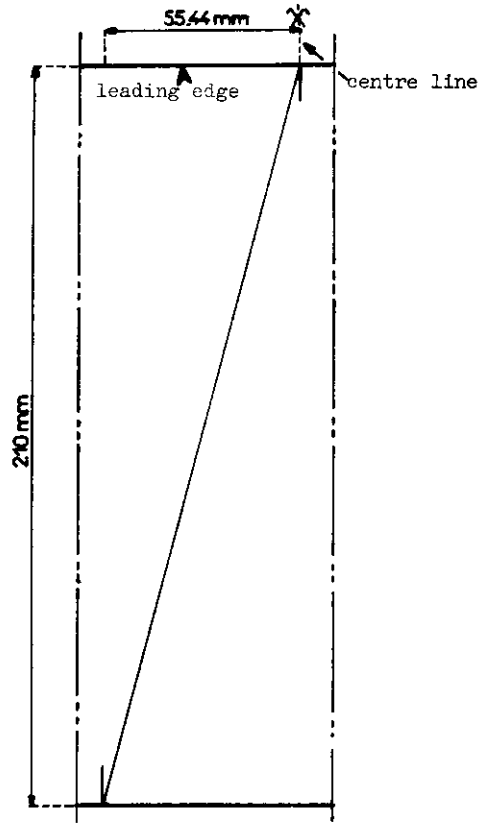


Fig.1.7 SPANWISE LOCATION OF THE MODEL PRESSURE HOLES

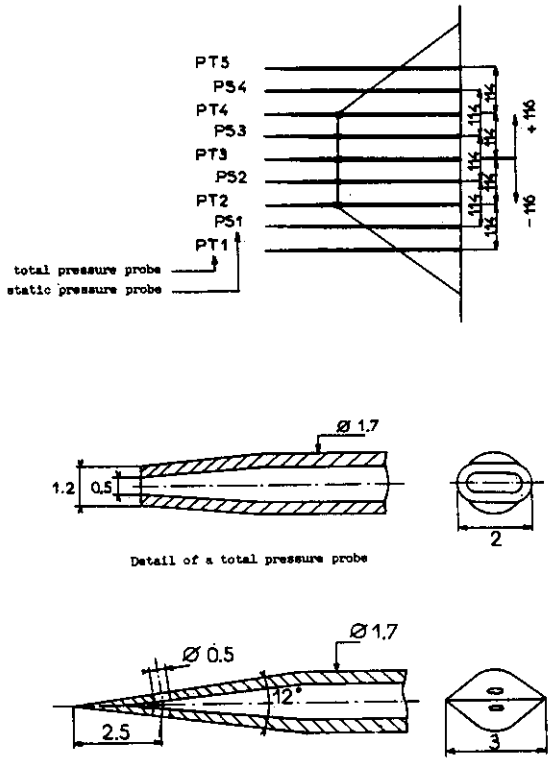
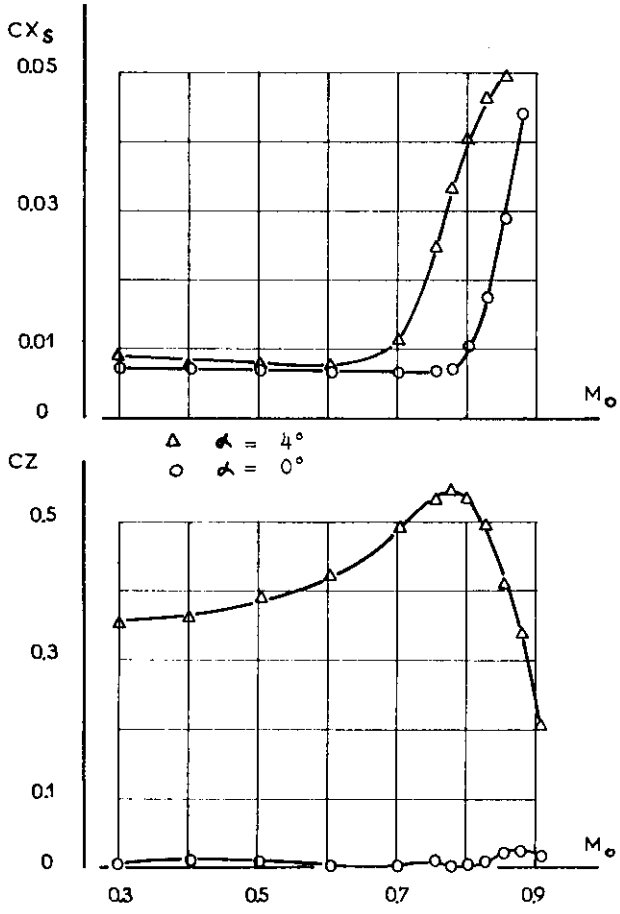
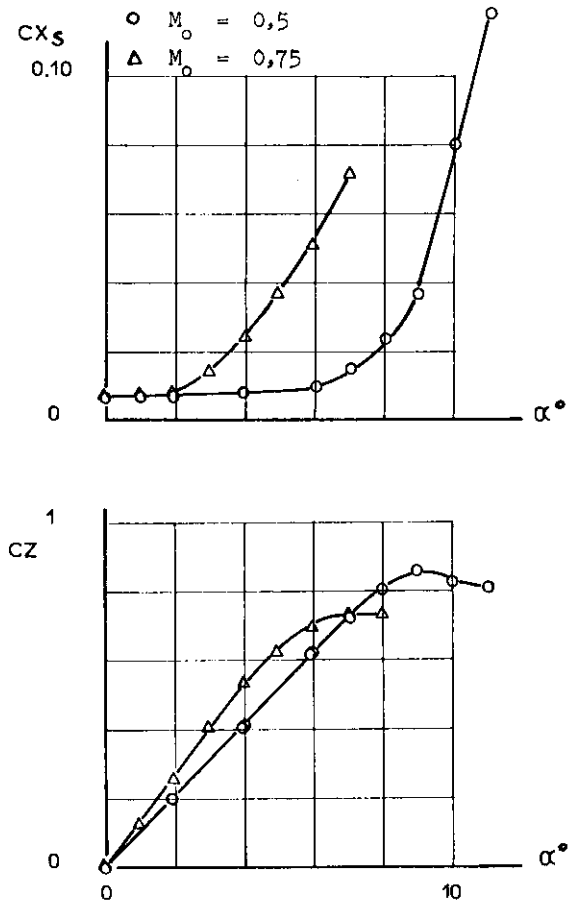


Fig.1.8 WAKE RAKE

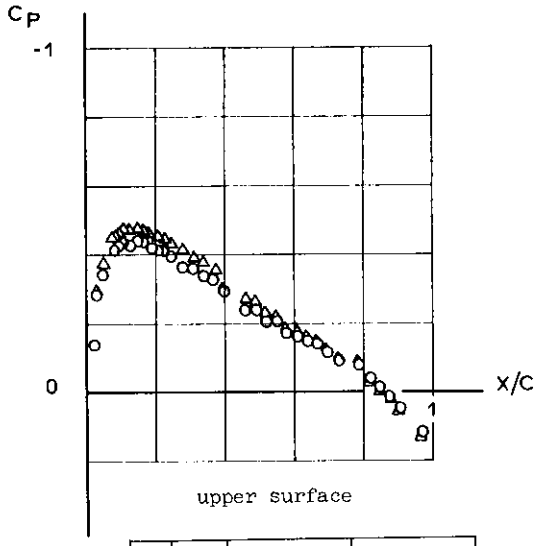


Lift and drag versus Mach number

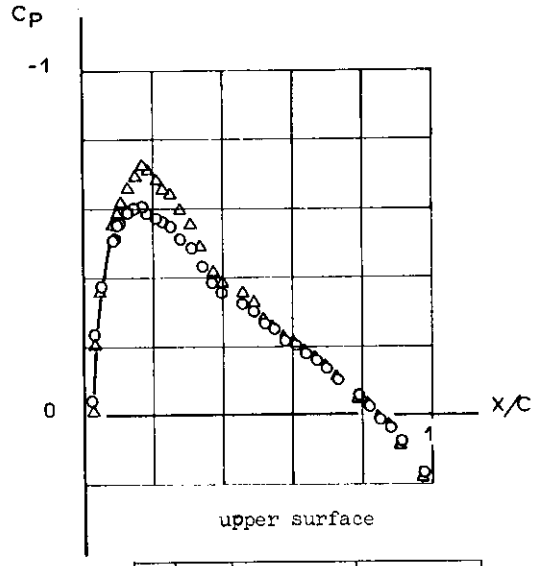


Lift and drag versus angle of attack

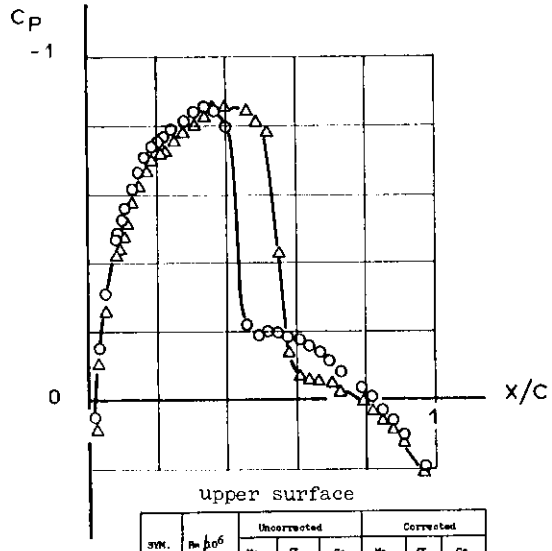
FIG.1.9 EVOLUTIONS OF THE AERODYNAMIC COEFFICIENTS



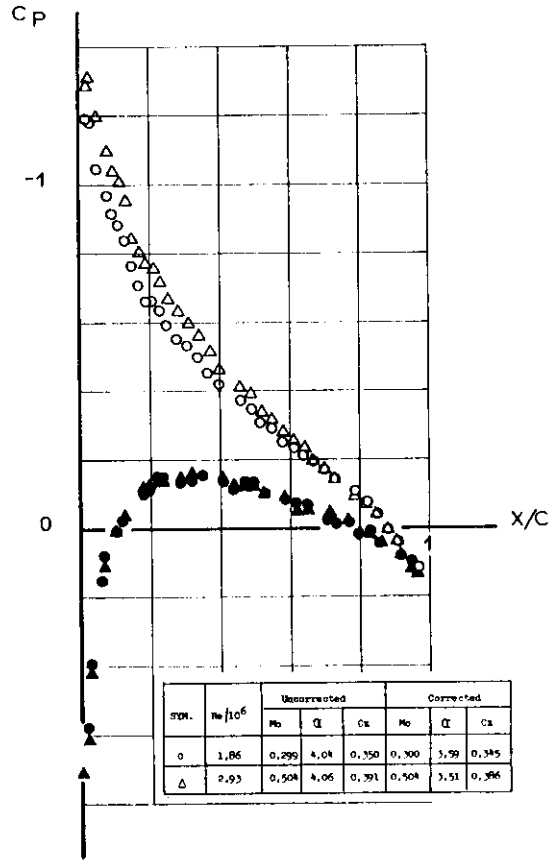
SYM.	Re/10^6	Uncorrected			Corrected		
		Mo	α	Cx	Mo	α	Cx
o	1,85	0,300	-0,02	0,005	0,300	-0,05	0,005
Δ	2,89	0,502	-0,02	0,01	0,503	-0,06	0,009



SYM.	Re/10^6	Uncorrected			Corrected		
		Mo	α	Cx	Mo	α	Cx
o	3,79	0,703	-0,05	0,002	0,703	-0,08	0,002
Δ	4,01	0,756	-0,01	0,01	0,755	-0,05	0,01

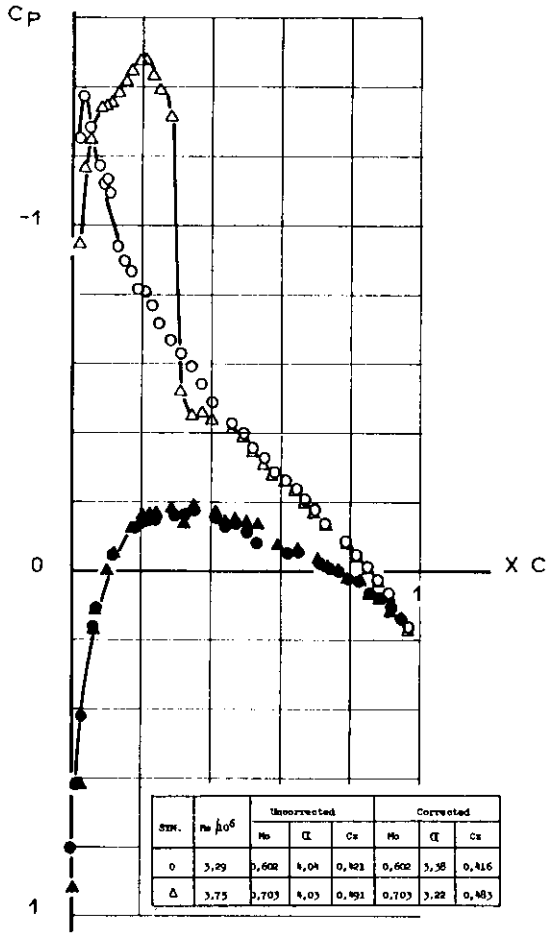


SYM.	Re/10^6	Uncorrected			Corrected		
		Mo	α	Cx	Mo	α	Cx
o	4,09	0,803	0,05	0,005	0,801	0,03	0,002
Δ	4,08	0,829	0,05	0,01	0,826	-0,22	0,01

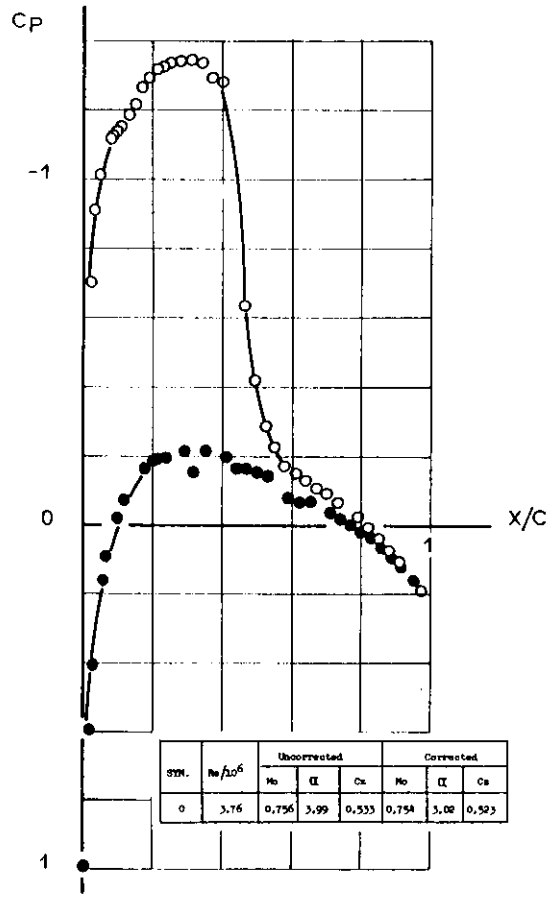


SYM.	Re/10^6	Uncorrected			Corrected		
		Mo	α	Cx	Mo	α	Cx
o	1,86	0,299	4,04	0,350	0,300	3,59	0,385
Δ	2,93	0,504	4,06	0,391	0,504	3,51	0,386

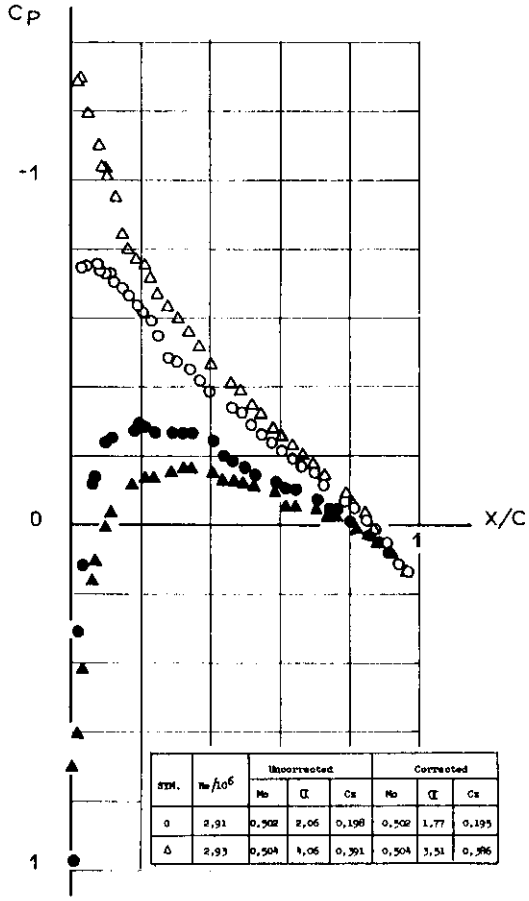
FIG.1.10 SURFACE PRESSURE DISTRIBUTIONS



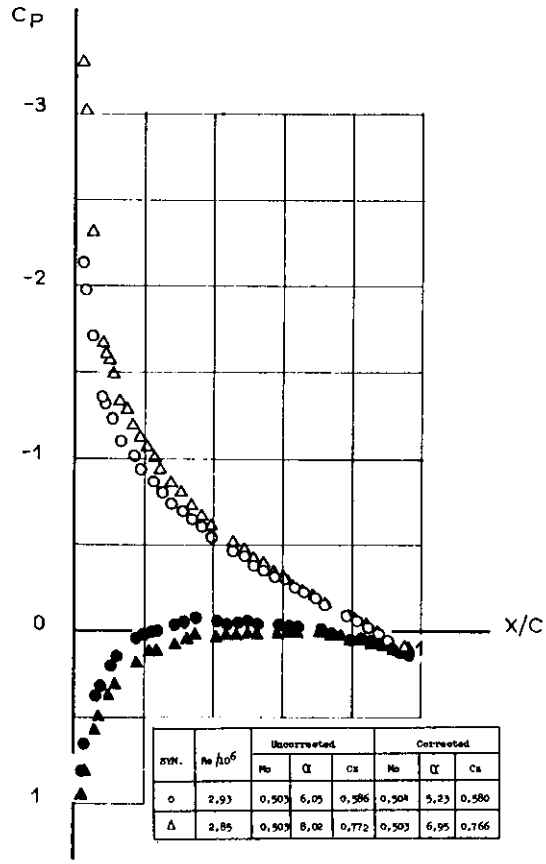
SYM.	Re /10^6	Uncorrected			Corrected		
		Mo	α	Cx	Mo	α	Cx
o	3,29	0,602	4,04	0,421	0,602	3,38	0,416
Δ	3,75	0,703	4,03	0,491	0,703	3,22	0,483



SYM.	Re /10^6	Uncorrected			Corrected		
		Mo	α	Cx	Mo	α	Cx
o	3,76	0,756	3,99	0,533	0,754	3,02	0,523

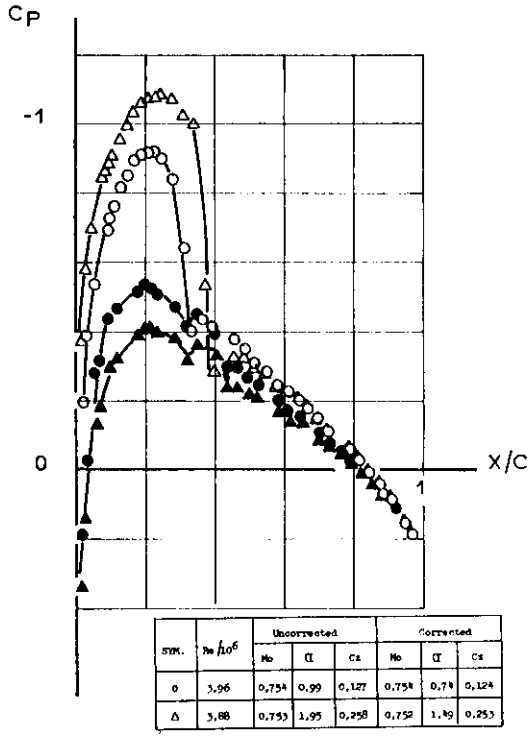


SYM.	Re /10^6	Uncorrected			Corrected		
		Mo	α	Cx	Mo	α	Cx
o	2,91	0,502	2,06	0,198	0,502	1,77	0,195
Δ	2,93	0,504	4,06	0,391	0,504	3,51	0,386

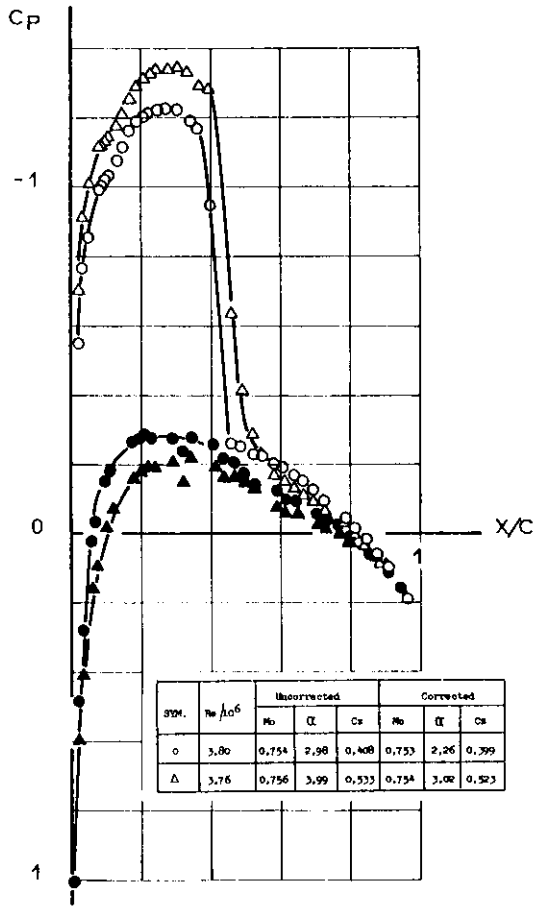


SYM.	Re /10^6	Uncorrected			Corrected		
		Mo	α	Cx	Mo	α	Cx
o	2,93	0,503	6,05	0,586	0,504	5,23	0,580
Δ	2,85	0,503	8,02	0,772	0,503	6,95	0,766

FIG.1.10 SURFACE PRESSURE DISTRIBUTIONS (CON'D)



SYM.	Re 10^6	Uncorrected			Corrected		
		Mo	α	Cz	Mo	α	Cz
o	3,96	0,754	0,99	0,127	0,754	0,74	0,124
Δ	3,88	0,753	1,95	0,258	0,752	1,89	0,253



SYM.	Re 10^6	Uncorrected			Corrected		
		Mo	α	Cz	Mo	α	Cz
o	3,80	0,754	2,98	0,408	0,753	2,26	0,399
Δ	3,76	0,756	3,99	0,533	0,754	3,02	0,523

FIG.1.10 SURFACE PRESSURE DISTRIBUTIONS (CON'D)

1.3 DATA SET FROM NAE HIGH SPEED TUNNEL

These data are extracted from a larger body of data obtained in a collaborative program with ONERA. The selected data is primarily aimed at providing high Reynolds number experimental results under as close to interference free conditions as possible.

1. Airfoil

1.1 Airfoil designation	NACA 0012
1.2 Type of airfoil	symmetrical
1.2.1 airfoil geometry	Figure 1.11
nose radius	r/c = 1.58%
maximum thickness	t/c = 12%
base thickness	0.252% chord
1.2.2 design condition	-
1.3 Additional remarks	None
1.4 References on airfoil	1

2. Model geometry

2.1 Chord length	0.300 m
2.2 Span	0.381 m
2.3 Actual model co-ordinates and accuracy	Table 1.5
2.4 Maximum thickness	t/c = 12%
2.5 Base thickness	0.252% chord
2.6 Additional remarks	None
2.7 References on model	2

3. Wind tunnel

3.1 Designation	NAE 5-ft x 5-ft trisonic W/T with 2-D insert
3.2 Type of tunnel	Blowdown
3.2.1 stagnation pressure	2-11 bars
3.2.2 stagnation temperature	293 K, max drop ~5K during a run
3.2.3 humidity/dew point	0.0002 kg H_2O/Kg air
3.3 Test section	Rectangular, Fig.1.12
3.3.1 dimensions	0.38m x 1.52m
3.3.2 type of walls	Perforated top and bottom 20.5% porosity ϕ 12.7 mm normal holes at 26.4 mm spacing
3.4 Flow field (empty test section)	
3.4.1 reference static pressure	at sidewall 6.48 chord upstream of model LE
3.4.2 flow angularity	-not determined
3.4.3 Mach number distribution	Fig.1.13
3.4.4 pressure gradient	Fig.1.13
3.4.5 turbulence/noise level	free stream $\left(\frac{\Delta p}{q}\right)_{rms} = 0.008$ at $M_\infty = 0.8$
3.4.6 side wall boundary layer	$\delta^* \leq 2.5$ mm $\frac{2\delta^*}{B} \leq 0.013$
3.5 Additional remarks	sidewall suction over an area 1.8 x 2.4 chord around model
3.6 References on wind tunnel	3, 4

4. Tests

4.1 Type of measurements	force balance surface pressure wake pitot pressure
4.2 Tunnel/model dimensions	
4.2.1 height/chord ratio	5/1
4.2.3 width/chord ratio	1.27/1

4.3 Flow conditions included in present data base	
4.3.1 angle of attack	nominally 0°
4.3.2 Mach number	0.5 - 0.93
4.3.3 Reynolds number	17 to 43 x 10^6
4.3.4 transition	free transition
-position of free transition	not established
-transition fixing	
4.3.5 temperature equilibrium	yes
4.4 Additional remarks	
4.5 References on tests	2

see Table 1.6

5. Instrumentation

5.1 Surface pressure measurements	
5.1.1 pressure holes	80
-size	ϕ 0.40 mm
-spanwise station(s)	centre span in a line 15° to flow direction
-chordwise positions	see Table 1.5
5.1.2 type of transducers and scanning devices	Two D9 scanivalves with 200 psia Kulite VQS-500-200A
5.1.3 other	scan rate for 5.1.2 20 ports/sec.
5.2 Wake measurements	
5.2.1 type/size of instrument(s)	Traversing probe, see Fig.1.12 OD/ID = 2.286/1.524 mm
5.2.2 streamwise position(s)	1.27 x chord downstream of TE
5.2.3 type of transducers and scanning devices	50 psid Statham PM 131 TC
5.3 Boundary layer measurements	-
5.3.1 type/size of instruments	
5.3.2 locations	
5.3.3 type of transducers and scanning devices	
5.4 Skin friction measurements	-
5.4.1 type/size of instruments	
5.4.3 type of transducer	
5.5 Flow visualisation	
5.5.1 flow field	
5.5.2 surface flow	at $\alpha_g = 5°$ $M_\infty = 0.76$ $Re = 24 \times 10^6$ and different sidewall suction (Data not included in Data Base)
5.6 other	
5.7 Additional remarks	two three-component balances for force measurements
5.8 References on instrumentation	2, 4

6. Data

6.1 Accuracy (wall interference excluded)	
6.1.1 angle of attack setting	± 0.02°

6.1.2 free stream Mach number:	
- setting	±0.003
- variation during one pressure scan	±0.003
6.1.3 pressure coefficients	$\Delta C_p \leq \begin{matrix} 0.017 & (q = 12) \\ 0.004 & (q = 50) \end{matrix} + 0.007 \lvert C_p \rvert$
6.1.4 aerodynamic coefficients	
6.1.5 boundary layer quantities	
6.1.6 repeatability	Generally ΔC_{N_P} ±0.005 ΔC_{X_P} ±0.0005 ΔC_{M_P} ±0.0005 ΔC_{N_B} ±0.005 ΔC_{X_B} ±0.0005 ΔC_{M_B} ±0.0005 ΔC_{D_W} ±0.0015
6.1.7 remarks	
6.2 Wall interference corrections (indicate estimated accuracy)	No corrections
6.2.5 remarks	since supplied data are for nearly zero lift all wall corrections can be considered negligible.
6.2.6 references on wall interference correction	5, 6
6.3 Presentation of data	
6.3.1 aerodynamic coefficients	Table 1.6
6.3.2 surface pressures	Table 1.7 - 1.15, Figure 1.14 - 1.22
6.3.3 boundary layer quantities	
6.3.4 wall interference corrections included ?	No
6.3.5 corrections for model deflection	No
6.3.6 empty test section calibration taken into account ?	Yes
6.3.7 other corrections included ?	No
6.3.8 additional remarks	Wake drag data are those obtained from probe on ℄ only.
6.4 Were tests carried out in different facilities on the current airfoil ? If so, what facilities. Are data included in the present data base ?	Yes, in ONERA S3 wind tunnel.
6.5 To be contacted for further information on tests.	L.H. Öhman - High Speed Aerodynamics Laboratory NAE/NRC Ottawa, Ontario, Canada.

7. References

1. I.H. Abbott / A.E. von Doenhoff — Theory of wing sections. Dover Publications Inc., New York
2. R.C. Dixon — High Reynolds Number Investigation of an ONERA model of the NACA 0012 Airfoil Section NRC/NAE LTR-HA-5x5/0069 1975
3. L.H. Öhman et al — The NAE High Reynolds Number 15in x 16in two-dimenstional test facility NRC/NAE LTR-HA-4 April, 1970
4. L.H. Öhman — The NAE 15in x 60in two-dimenstional test facility: new features and some related observations, results of new centre line calibration at 20.5% porosity NRC/NAE LTR-HA-15 March, 1973
5. D.J. Peake / A.J. Bowker — A simple streamwise momentum analysis to indicate an empirical correction to angle of incidence in two-dimensional, transonic flow, due to a perforated floor and ceiling of the wind tunnel. NRC/NAE LTR-HA-11 January, 1973
6. M. Mokry et al — Wall interference on 2D supercritical airfoils, using wall pressure measurements to determine

6. M. Mokry et al (cont.) the porosity factors for tunnel floor and ceiling.
NRC/NAE LR-575 February, 1974

8. List of symbols

B	tunnel width = model span
C	model chord
H	tunnel height
M, MLOC	local Mach number
M_∞,MTUN	free stream Mach number
P	local static pressure
P_∞,PS	free stream static pressure
PO	free stream total pressure
Re	Reynolds number based on model chord
q_∞,Q	free stream dynamic pressure
V/U	relative sidewall suction $\frac{\text{velocity} \perp \text{sidewall}}{\text{free stream velocity}}$
C_p,CP	$\frac{P-P_\infty}{q_\infty}$ pressure coefficient
C_N,CN	normal force coefficient
C_X,CX	chord force coefficient
C_M,CMC4	pitching moment coefficient, about 1/4 chord
C_{DW}	wake drag coefficient
X	streamwise coordinate model origin: LE W/T origin: balance ℄ = 0.364 model X/C
α_g	geometric angle of attack, angle between chordline and tunnel ℄

subscript	P refers to	pressure data
	B	balance data
	d	design data
	m	model data
	L	lower surface
	U	upper surface

Table 1.5 Model Geometry and Pressure Hole Locations

Pressure Hole	$(X/C)_m$	$(Y/C)_m$	$(Y/C)_d$	$(Y/C)_m - (Y/C)_d$
42U	0.97000	0.00510	0.00539	-0.00029
40U	0.90920	0.01300	0.01333	-0.00033
38U	0.84930	0.02030	0.02061	-0.00031
37U	0.81940	0.02380	0.02406	-0.00026
36U	0.78960	0.02710	0.02738	-0.00028
35U	0.75950	0.03040	0.03061	-0.00021
34U	0.72950	0.03350	0.03371	-0.00021
33U	0.69960	0.03650	0.03668	-0.00018
32U	0.66930	0.03940	0.03956	-0.00016
31U	0.63950	0.04210	0.04226	-0.00016
30U	0.60960	0.04470	0.04484	-0.00014
29U	0.58390	0.04680	0.04693	-0.00013
28U	0.54960	0.04940	0.04955	-0.00015
27U	0.51990	0.05160	0.05164	-0.00004
26U	0.48920	0.05360	0.05361	-0.00001
25U	0.45910	0.05530	0.05533	-0.00003
24U	0.42960	0.05670	0.05680	-0.00010
23U	0.39900	0.05800	0.05807	-0.00007
22U	0.36960	0.05890	0.05902	-0.00012
21U	0.33880	0.05960	0.05969	-0.00009
20U	0.30910	0.06000	0.06000	0.00000
19U	0.27930	0.06000	0.05992	0.00008
18U	0.24940	0.05950	0.05940	0.00010
17U	0.22940	0.05880	0.05877	0.00003
16U	0.20930	0.05800	0.05788	0.00012
15U	0.18930	0.05680	0.05671	0.00009
14U	0.16880	0.05530	0.05519	0.00011
13U	0.14950	0.05350	0.05340	0.00010
12U	0.12950	0.05140	0.05113	0.00027
11U	0.10940	0.04860	0.04834	0.00026
10U	0.09920	0.04700	0.04669	0.00031
9U	0.08950	0.04530	0.04496	0.00034
8U	0.07900	0.04320	0.04286	0.00034
7U	0.06960	0.04110	0.04077	0.00033
6U	0.05960	0.03860	0.03827	0.00033
5U	0.04960	0.03580	0.03543	0.00037
4U	0.03990	0.03260	0.03224	0.00036
3U	0.02930	0.02850	0.02810	0.00040
2U	0.01920	0.02360	0.02316	0.00044
1U	0.00880	0.01660	0.01603	0.00057
OLE	0.00000	0.00000	0.00000	0.00000
1L	0.00940	-0.01680	-0.01654	-0.00026
2L	0.01940	-0.02340	-0.02327	-0.00013
3L	0.02970	-0.02840	-0.02827	-0.00013
4L	0.03950	-0.03210	-0.03210	-0.00000
5L	0.04980	-0.03550	-0.03549	-0.00001
6L	0.05920	-0.03820	-0.03816	-0.00004
7L	0.07000	-0.04090	-0.04086	-0.00004
8L	0.07910	-0.04270	-0.04288	0.00018
9L	0.08950	-0.04500	-0.04496	-0.00004
10L	0.09960	-0.04680	-0.04676	-0.00004
11L	0.11980	-0.04990	-0.04985	-0.00005
12L	0.13980	-0.05230	-0.05236	0.00006
13L	0.15980	-0.05430	-0.05440	0.00010
14L	0.17940	-0.05600	-0.05602	0.00002
15L	0.19960	-0.05730	-0.05735	0.00005
16L	0.21960	-0.05830	-0.05837	0.00007
17L	0.23990	-0.05910	-0.05913	0.00003
18L	0.25950	-0.05960	-0.05963	0.00003
19L	0.28950	-0.06000	-0.05999	-0.00001
20L	0.31930	-0.06000	-0.05993	-0.00007
21L	0.34960	-0.05960	-0.05949	-0.00011
22L	0.37960	-0.05880	-0.05872	-0.00008
23L	0.40980	-0.05770	-0.05765	-0.00005
24L	0.43940	-0.05640	-0.05634	-0.00006
25L	0.46980	-0.05480	-0.05474	-0.00006
26L	0.49960	-0.05300	-0.05297	-0.00003
27L	0.52990	-0.05110	-0.05096	-0.00014
28L	0.55990	-0.04890	-0.04879	-0.00011
29L	0.59010	-0.04650	-0.04644	-0.00006
30L	0.61940	-0.04410	-0.04401	-0.00009
31L	0.64980	-0.04150	-0.04134	-0.00016
34L	0.73920	-0.03290	-0.03272	-0.00018
35L	0.76960	-0.02970	-0.02954	-0.00016
36L	0.79980	-0.02650	-0.02625	-0.00025
37L	0.82950	-0.02310	-0.02291	-0.00019
38L	0.86020	-0.01960	-0.01932	-0.00028
39L	0.88970	-0.01610	-0.01575	-0.00035
40L	0.91980	-0.01240	-0.01198	-0.00042
41L	0.94980	-0.00850	-0.00809	-0.00041

TABLE 1.6

AERODYNAMICS COEFFICIENTS

TABLE	FIG	M_∞	Re 10^{-6}	α_g°	PRESSURE C_{N_P}	PRESSURE C_{X_P}	PRESSURE C_{M_P}	BALANCE C_{N_B}	BALANCE C_{X_B}	BALANCE C_{M_B}	C_{D_W}	RUN NO.	SCAN NO.
1.7	1.14	0.490	17.5	-0.12	-0.020	0.0011	0.001	-0.019	0.0031	0.002	0.0081	2777	2
1.8	1.15	0.693	22.2	-0.13	-0.017	0.0033	-0.002	-0.020	0.0075	0.001	0.0078	2763	2
1.9	1.16	0.696	36.7	-0.13	-0.025	0.0027	-0.002	-0.021	0.0074	0.001	0.0081	2767	1
1.10	1.17	0.776	23.7	-0.13	-0.017	0.0060	-0.002	-0.020	0.0101	0.000	0.0082	2788	1
1.11	1.18	0.814	24.7	-0.13	-0.020	0.0121	-0.001	-0.019	0.0168	0.000	0.0132	2753	2
1.12	1.19	0.817	32.3	-0.13	-0.009	0.0137	-0.004	-0.011	0.0179	0.000	0.0147	2801	1
1.13	1.20	0.835	24.7	-0.13	-0.004	0.0198	-0.003	-0.007	0.0246	-0.001	0.0198	2789	1
1.14	1.21	0.918	25.9	-0.17	0.060	0.0678	-0.038	0.007	0.0703	-0.013	0.0603	2775	2
1.15	1.22	0.930	42.8	-0.18	0.018	0.0764	-0.023	0.002	0.0770	-0.011	0.0610	2784	1

TABLE 1.7

SURFACE PRESSURE MEASUREMENTS

RUN NUMBER 2777 ONERA 2D TESTS

SCAN	M	RE/E6	PO	TO	PI	Q	V/U
2	0.490	17.51	87.44	536.52	74.16	12.50	0.0073

TUBE	X/C	CP	MLOC	P/PO	P/PS	MTUN
1U	0.0088	0.194	0.440	0.876	1.032	0.490
2U	0.0192	-0.114	0.519	0.832	0.981	0.490
3U	0.0293	-0.239	0.549	0.815	0.960	0.490
4U	0.0399	-0.341	0.573	0.801	0.943	0.490
5U	0.0496	-0.345	0.574	0.800	0.943	0.489
6U	0.0596	-0.386	0.583	0.794	0.936	0.490
7U	0.0696	-0.417	0.592	0.789	0.930	0.491
8U	0.0790	-0.456	0.601	0.783	0.924	0.491
9U	0.0895	-0.450	0.599	0.785	0.925	0.491
10U	0.0992	-0.468	0.602	0.783	0.922	0.490
11U	0.1094	-0.477	0.605	0.781	0.921	0.490
12U	0.1295	-0.467	0.604	0.782	0.922	0.491
13U	0.1495	-0.475	0.607	0.780	0.920	0.492
14U	0.1688	-0.444	0.600	0.784	0.926	0.492
15U	0.1893	-0.450	0.600	0.784	0.925	0.491
16U	0.2093	-0.437	0.598	0.786	0.927	0.492
17U	0.2295	-0.409	0.591	0.790	0.932	0.491
18U	0.2494	-0.419	0.592	0.789	0.930	0.491
19U	0.2793	-0.391	0.587	0.792	0.935	0.491
20U	0.3091	-0.376	0.584	0.794	0.937	0.492
21U	0.3388	-0.357	0.579	0.797	0.940	0.492
22U	0.3697	-0.338	0.572	0.801	0.944	0.489
23U	0.3991	-0.325	0.568	0.804	0.946	0.489
24U	0.4296	-0.299	0.562	0.807	0.951	0.489
25U	0.4592	-0.279	0.558	0.810	0.954	0.489
26U	0.4893	-0.261	0.554	0.812	0.956	0.490
27U	0.5199	-0.236	0.547	0.816	0.961	0.489
28U	0.5497	-0.216	0.544	0.818	0.964	0.490
29U	0.5840	-0.194	0.538	0.821	0.968	0.490
30U	0.6097	-0.178	0.535	0.823	0.970	0.491
31U	0.6395	-0.170	0.535	0.823	0.971	0.492
32U	0.6693	-0.144	0.529	0.827	0.976	0.493
33U	0.6996	-0.112	0.521	0.831	0.981	0.493
34U	0.7296	-0.092	0.516	0.834	0.984	0.493
35U	0.7596	-0.082	0.513	0.836	0.986	0.492
36U	0.7896	-0.060	0.508	0.839	0.990	0.492
37U	0.8194	-0.041	0.502	0.842	0.993	0.491
38U	0.8494	-0.014	0.495	0.846	0.998	0.491
40U	0.9093	0.049	0.479	0.855	1.008	0.491
42U	0.9700	0.142	0.454	0.868	1.023	0.490
0LE	0.0000	1.063	0.046	0.999	1.175	0.489
1L	0.0094	0.113	0.450	0.865	1.018	0.489
2L	0.0194	-0.135	0.522	0.830	0.978	0.489
3L	0.0297	-0.347	0.574	0.800	0.943	0.489
4L	0.0395	-0.361	0.577	0.798	0.940	0.489
5L	0.0498	-0.394	0.585	0.793	0.935	0.490
6L	0.0592	-0.439	0.596	0.786	0.927	0.490
7L	0.0700	-0.472	0.602	0.783	0.922	0.489
8L	0.0791	-0.460	0.601	0.784	0.924	0.490
9L	0.0895	-0.522	0.619	0.773	0.912	0.493
10L	0.0996	-0.497	0.612	0.777	0.917	0.492
11L	0.1198	-0.499	0.611	0.778	0.917	0.491
12L	0.1398	-0.502	0.613	0.776	0.916	0.492
13L	0.1598	-0.497	0.612	0.776	0.917	0.492
14L	0.1794	-0.481	0.609	0.779	0.919	0.493
15L	0.1996	-0.475	0.608	0.780	0.920	0.493
16L	0.2196	-0.458	0.601	0.784	0.924	0.490
17L	0.2399	-0.452	0.601	0.784	0.924	0.491
18L	0.2596	-0.440	0.597	0.786	0.927	0.491
19L	0.2895	-0.421	0.593	0.788	0.930	0.491
20L	0.3193	-0.401	0.587	0.792	0.934	0.490
21L	0.3496	-0.391	0.585	0.793	0.935	0.490
22L	0.3796	-0.368	0.580	0.797	0.939	0.490
23L	0.4098	-0.347	0.575	0.800	0.942	0.490
24L	0.4394	-0.304	0.566	0.805	0.949	0.491
25L	0.4699	-0.291	0.563	0.807	0.951	0.491
26L	0.4996	-0.239	0.550	0.814	0.960	0.491
27L	0.5299	-0.240	0.549	0.815	0.960	0.490
28L	0.5600	-0.221	0.546	0.817	0.963	0.491
29L	0.5902	-0.208	0.542	0.819	0.965	0.490
30L	0.6194	-0.188	0.537	0.822	0.969	0.490
31L	0.6499	-0.171	0.534	0.823	0.971	0.492
34L	0.7393	-0.085	0.513	0.836	0.986	0.491
35L	0.7697	-0.072	0.510	0.837	0.988	0.492
36L	0.7998	-0.061	0.508	0.839	0.990	0.492
37L	0.8296	-0.049	0.505	0.840	0.992	0.492
38L	0.8603	-0.014	0.496	0.846	0.998	0.492
39L	0.8898	0.012	0.489	0.850	1.002	0.491
40L	0.9199	0.046	0.479	0.855	1.007	0.491
41L	0.9499	0.104	0.465	0.863	1.017	0.491

TABLE 1.8

SURFACE PRESSURE MEASUREMENTS

RUN NUMBER 2763 ONERA 2D TESTS

SCAN	M	RE/E6	PO	TO	PI	Q	V/U
2	0.693	22.15	87.24	540.31	63.32	21.25	0.0027

TUBE	X/C	CP	MLOC	P/PO	P/PS	MTUN
1U	0.0088	0.312	0.571	0.802	1.104	0.692
2U	0.0192	-0.031	0.703	0.719	0.990	0.692
3U	0.0293	-0.173	0.757	0.684	0.943	0.693
4U	0.0399	-0.323	0.814	0.647	0.893	0.694
5U	0.0496	-0.320	0.813	0.648	0.894	0.694
6U	0.0596	-0.419	0.850	0.624	0.861	0.694
7U	0.0696	-0.464	0.866	0.613	0.845	0.694
8U	0.0790	-0.508	0.881	0.604	0.831	0.693
9U	0.0895	-0.512	0.883	0.602	0.829	0.693
10U	0.0992	-0.544	0.896	0.594	0.819	0.694
11U	0.1094	-0.557	0.901	0.591	0.814	0.694
12U	0.1295	-0.562	0.902	0.590	0.813	0.693
13U	0.1495	-0.569	0.904	0.589	0.811	0.692
14U	0.1688	-0.543	0.894	0.595	0.819	0.693
15U	0.1893	-0.556	0.901	0.591	0.814	0.694
16U	0.2093	-0.532	0.891	0.598	0.823	0.693
17U	0.2295	-0.508	0.884	0.602	0.830	0.695
18U	0.2494	-0.515	0.885	0.601	0.828	0.694
19U	0.2793	-0.478	0.873	0.609	0.840	0.695
20U	0.3091	-0.460	0.864	0.615	0.847	0.693
21U	0.3388	-0.428	0.849	0.624	0.859	0.691
22U	0.3697	-0.399	0.843	0.628	0.867	0.694
23U	0.3991	-0.391	0.839	0.631	0.870	0.694
24U	0.4296	-0.356	0.826	0.640	0.882	0.693
25U	0.4592	-0.334	0.818	0.645	0.889	0.694
26U	0.4893	-0.306	0.807	0.652	0.898	0.694
27U	0.5199	-0.274	0.796	0.659	0.909	0.694
28U	0.5497	-0.251	0.786	0.665	0.917	0.693
29U	0.5840	-0.235	0.781	0.669	0.922	0.694
30U	0.6097	-0.220	0.773	0.674	0.928	0.691
31U	0.6395	-0.194	0.764	0.680	0.936	0.692
32U	0.6693	-0.174	0.756	0.685	0.943	0.692
33U	0.6996	-0.125	0.739	0.696	0.959	0.693
34U	0.7296	-0.103	0.732	0.701	0.966	0.694
35U	0.7596	-0.091	0.728	0.703	0.970	0.694
36U	0.7896	-0.058	0.717	0.710	0.981	0.695
37U	0.8194	-0.041	0.706	0.718	0.987	0.691
38U	0.8494	-0.009	0.694	0.725	0.997	0.691
40U	0.9093	0.067	0.668	0.742	1.022	0.694
42U	0.9700	0.170	0.629	0.766	1.056	0.694
OLE	0.0000	1.133	0.032	0.999	1.378	0.694
1L	0.0094	0.224	0.607	0.780	1.074	0.693
2L	0.0194	-0.077	0.722	0.707	0.974	0.694
3L	0.0297	-0.301	0.806	0.652	0.900	0.694
4L	0.0395	-0.353	0.825	0.640	0.883	0.694
5L	0.0498	-0.435	0.855	0.621	0.856	0.694
6L	0.0592	-0.500	0.879	0.605	0.833	0.693
7L	0.0700	-0.527	0.890	0.598	0.824	0.694
8L	0.0791	-0.540	0.895	0.595	0.820	0.694
9L	0.0895	-0.645	0.932	0.571	0.786	0.692
10L	0.0996	-0.602	0.916	0.581	0.800	0.692
11L	0.1198	-0.614	0.919	0.579	0.797	0.691
12L	0.1398	-0.584	0.913	0.583	0.804	0.695
13L	0.1598	-0.609	0.921	0.578	0.797	0.694
14L	0.1794	-0.593	0.915	0.582	0.802	0.694
15L	0.1996	-0.576	0.907	0.587	0.808	0.693
16L	0.2196	-0.554	0.900	0.592	0.815	0.694
17L	0.2399	-0.546	0.897	0.594	0.818	0.694
18L	0.2596	-0.532	0.888	0.600	0.824	0.691
19L	0.2895	-0.509	0.878	0.605	0.832	0.691
20L	0.3193	-0.462	0.866	0.614	0.846	0.694
21L	0.3496	-0.436	0.855	0.620	0.855	0.693
22L	0.3796	-0.414	0.845	0.627	0.863	0.692
23L	0.4098	-0.388	0.835	0.634	0.872	0.692
24L	0.4394	-0.357	0.826	0.640	0.882	0.693
25L	0.4699	-0.339	0.818	0.644	0.888	0.693
26L	0.4996	-0.267	0.793	0.661	0.911	0.694
27L	0.5299	-0.260	0.791	0.662	0.914	0.694
28L	0.5600	-0.257	0.788	0.664	0.915	0.693
29L	0.5902	-0.230	0.779	0.670	0.924	0.694
30L	0.6194	-0.211	0.772	0.675	0.930	0.694
31L	0.6499	-0.186	0.762	0.681	0.938	0.693
34L	0.7393	-0.086	0.726	0.704	0.971	0.694
35L	0.7697	-0.074	0.720	0.708	0.976	0.693
36L	0.7998	-0.056	0.713	0.713	0.981	0.692
37L	0.8296	-0.030	0.702	0.720	0.990	0.691
38L	0.8603	0.005	0.691	0.727	1.002	0.693
39L	0.8898	0.043	0.678	0.735	1.014	0.695
40L	0.9199	0.071	0.667	0.743	1.024	0.694
41L	0.9499	0.134	0.644	0.757	1.045	0.695

TABLE 1.9

SURFACE PRESSURE MEASUREMENTS

RUN NUMBER 2767 ONERA 2D TESTS

SCAN	M	RE/E6	PO	TO	PI	Q	V/U
1	0.696	36.70	146.00	545.97	105.62	35.82	0.0028

TUBE	X/C	CP	MLOC	P/PO	P/PS	MTUN
1U	0.0088	0.316	0.574	0.800	1.107	0.697
2U	0.0192	-0.049	0.715	0.711	0.984	0.697
3U	0.0293	-0.182	0.766	0.679	0.939	0.698
4U	0.0399	-0.350	0.828	0.638	0.883	0.697
5U	0.0496	-0.331	0.821	0.643	0.889	0.697
6U	0.0596	-0.430	0.858	0.619	0.856	0.697
7U	0.0696	-0.472	0.876	0.607	0.840	0.699
8U	0.0790	-0.523	0.895	0.595	0.823	0.698
9U	0.0895	-0.528	0.895	0.595	0.822	0.697
10U	0.0992	-0.556	0.905	0.588	0.813	0.697
11U	0.1094	-0.570	0.913	0.583	0.807	0.698
12U	0.1295	-0.571	0.912	0.584	0.807	0.698
13U	0.1495	-0.590	0.918	0.580	0.802	0.697
14U	0.1688	-0.553	0.904	0.589	0.814	0.697
15U	0.1893	-0.567	0.910	0.585	0.809	0.698
16U	0.2093	-0.546	0.901	0.591	0.816	0.697
17U	0.2295	-0.523	0.892	0.597	0.824	0.597
18U	0.2494	-0.528	0.895	0.595	0.822	0.697
19U	0.2793	-0.502	0.883	0.602	0.832	0.696
20U	0.3091	-0.474	0.874	0.609	0.841	0.696
21U	0.3388	-0.445	0.862	0.616	0.850	0.696
22U	0.3697	-0.434	0.861	0.617	0.853	0.698
23U	0.3991	-0.415	0.855	0.621	0.860	0.699
24U	0.4296	-0.380	0.841	0.629	0.872	0.699
25U	0.4592	-0.366	0.833	0.635	0.878	0.697
26U	0.4893	-0.327	0.820	0.643	0.890	0.698
27U	0.5199	-0.294	0.809	0.650	0.901	0.699
28U	0.5497	-0.269	0.799	0.657	0.909	0.698
29U	0.5840	-0.251	0.791	0.662	0.916	0.697
30U	0.6097	-0.220	0.777	0.671	0.927	0.695
31U	0.6395	-0.205	0.773	0.674	0.931	0.696
32U	0.6693	-0.180	0.764	0.680	0.940	0.697
33U	0.6996	-0.135	0.746	0.692	0.955	0.696
34U	0.7296	-0.123	0.740	0.695	0.959	0.694
35U	0.7596	-0.104	0.734	0.699	0.965	0.696
36U	0.7896	-0.073	0.723	0.706	0.976	0.696
37U	0.8194	-0.051	0.714	0.712	0.983	0.695
38U	0.8494	-0.019	0.703	0.720	0.994	0.696
40U	0.9093	0.055	0.676	0.737	1.018	0.697
42U	0.9700	0.154	0.636	0.762	1.051	0.696
0LE	0.0000	1.114	0.090	0.994	1.375	0.697
1L	0.0094	0.178	0.630	0.766	1.060	0.699
2L	0.0194	-0.115	0.742	0.694	0.961	0.699
3L	0.0297	-0.341	0.826	0.640	0.886	0.698
4L	0.0395	-0.413	0.852	0.623	0.862	0.697
5L	0.0498	-0.468	0.873	0.609	0.842	0.697
6L	0.0592	-0.533	0.898	0.593	0.820	0.698
7L	0.0700	-0.556	0.908	0.587	0.812	0.699
8L	0.0791	-0.577	0.914	0.582	0.805	0.698
9L	0.0895	-0.667	0.948	0.561	0.776	0.697
10L	0.0996	-0.628	0.932	0.571	0.789	0.696
11L	0.1198	-0.642	0.935	0.569	0.785	0.695
12L	0.1398	-0.611	0.925	0.575	0.795	0.695
13L	0.1598	-0.624	0.930	0.573	0.791	0.696
14L	0.1794	-0.624	0.927	0.574	0.792	0.694
15L	0.1996	-0.605	0.922	0.577	0.797	0.695
16L	0.2196	-0.577	0.911	0.584	0.806	0.696
17L	0.2399	-0.569	0.910	0.585	0.809	0.697
18L	0.2596	-0.543	0.899	0.592	0.818	0.696
19L	0.2895	-0.520	0.890	0.598	0.826	0.695
20L	0.3193	-0.518	0.892	0.597	0.825	0.697
21L	0.3496	-0.498	0.884	0.602	0.832	0.698
22L	0.3796	-0.471	0.874	0.608	0.841	0.697
23L	0.4098	-0.439	0.861	0.617	0.852	0.697
24L	0.4394	-0.394	0.844	0.627	0.868	0.697
25L	0.4699	-0.365	0.835	0.633	0.877	0.698
26L	0.4996	-0.297	0.810	0.650	0.900	0.699
27L	0.5299	-0.303	0.810	0.649	0.899	0.697
28L	0.5600	-0.275	0.801	0.656	0.908	0.698
29L	0.5902	-0.248	0.791	0.662	0.917	0.698
30L	0.6194	-0.236	0.785	0.666	0.921	0.697
31L	0.6499	-0.197	0.770	0.676	0.934	0.697
34L	0.7393	-0.089	0.730	0.701	0.970	0.698
35L	0.7697	-0.082	0.727	0.703	0.973	0.697
36L	0.7998	-0.066	0.721	0.707	0.978	0.697
37L	0.8296	-0.038	0.710	0.715	0.987	0.696
38L	0.8607	-0.006	0.698	0.722	0.998	0.696
39L	0.8898	0.029	0.685	0.731	1.010	0.696
40L	0.9199	0.064	0.672	0.739	1.021	0.697
41L	0.9499	0.117	0.652	0.752	1.039	0.597

TABLE 1.10

SURFACE PRESSURE MEASUREMENTS

RUN NUMBER 2788 ONERA 2D TESTS

SCAN	M	PE/E6	PO	TO	PI	Q	V/U
1	0.776	23.74	87.15	538.49	58.50	24.70	0.0025

TUBE	X/C	CP	MLOC	P/PO	P/PS	MTUN
1U	0.0088	0.397	0.604	0.782	1.167	0.779
2U	0.0192	0.048	0.758	0.684	1.020	0.778
3U	0.0293	-0.107	0.824	0.641	0.955	0.778
4U	0.0399	-0.267	0.892	0.597	0.888	0.776
5U	0.0496	-0.296	0.904	0.589	0.876	0.776
6U	0.0596	-0.384	0.946	0.562	0.838	0.778
7U	0.0696	-0.441	0.971	0.547	0.815	0.778
8U	0.0790	-0.501	0.997	0.530	0.790	0.777
9U	0.0895	-0.509	1.000	0.528	0.787	0.776
10U	0.0992	-0.602	1.044	0.502	0.748	0.777
11U	0.1094	-0.604	1.044	0.502	0.748	0.777
12U	0.1295	-0.677	1.075	0.484	0.719	0.774
13U	0.1495	-0.734	1.108	0.464	0.691	0.778
14U	0.1688	-0.723	1.101	0.468	0.697	0.777
15U	0.1893	-0.733	1.105	0.466	0.693	0.777
16U	0.2093	-0.719	1.099	0.469	0.699	0.777
17U	0.2295	-0.705	1.093	0.473	0.705	0.777
18U	0.2494	-0.717	1.099	0.469	0.699	0.777
19U	0.2793	-0.694	1.087	0.476	0.710	0.777
20U	0.3091	-0.544	1.016	0.519	0.773	0.776
21U	0.3388	-0.488	0.992	0.534	0.796	0.777
22U	0.3697	-0.467	0.981	0.540	0.805	0.777
23U	0.3991	-0.447	0.973	0.545	0.813	0.777
24U	0.4295	-0.412	0.958	0.555	0.827	0.778
25U	0.4592	-0.384	0.946	0.562	0.839	0.778
26U	0.4893	-0.348	0.928	0.574	0.854	0.777
27U	0.5199	-0.317	0.913	0.583	0.868	0.776
28U	0.5497	-0.283	0.899	0.592	0.881	0.776
29U	0.5840	-0.257	0.887	0.600	0.892	0.775
30U	0.6097	-0.230	0.876	0.607	0.904	0.776
31U	0.6395	-0.206	0.866	0.613	0.914	0.777
32U	0.6693	-0.179	0.856	0.620	0.925	0.778
33U	0.6996	-0.138	0.836	0.633	0.943	0.776
34U	0.7296	-0.114	0.826	0.640	0.953	0.777
35U	0.7596	-0.094	0.819	0.644	0.961	0.778
36U	0.7896	-0.058	0.804	0.654	0.976	0.778
37U	0.8194	-0.034	0.794	0.660	0.986	0.779
38U	0.8494	0.001	0.778	0.671	1.000	0.778
40U	0.9093	0.084	0.742	0.694	1.035	0.778
42U	0.9700	0.186	0.697	0.723	1.077	0.777
CLE	0.0000	1.171	0.004	1.000	1.491	0.778
1L	0.0094	0.312	0.641	0.759	1.131	0.778
2L	0.0194	0.011	0.773	0.674	1.004	0.777
3L	0.0297	-0.213	0.869	0.611	0.911	0.777
4L	0.0395	-0.268	0.892	0.597	0.888	0.776
5L	0.0498	-0.359	0.932	0.571	0.850	0.775
6L	0.0592	-0.450	0.973	0.545	0.812	0.776
7L	0.0700	-0.487	0.989	0.535	0.797	0.776
8L	0.0791	-0.482	0.988	0.536	0.798	0.777
9L	0.0895	-0.693	1.089	0.475	0.709	0.778
10L	0.0996	-0.652	1.067	0.488	0.728	0.777
11L	0.1198	-0.646	1.063	0.490	0.730	0.776
12L	0.1398	-0.671	1.078	0.481	0.719	0.778
13L	0.1598	-0.728	1.105	0.466	0.694	0.778
14L	0.1794	-0.755	1.116	0.459	0.684	0.777
15L	0.1996	-0.785	1.131	0.451	0.671	0.776
16L	0.2196	-0.786	1.132	0.450	0.670	0.777
17L	0.2399	-0.789	1.135	0.448	0.669	0.778
18L	0.2596	-0.793	1.138	0.447	0.667	0.778
19L	0.2895	-0.780	1.132	0.450	0.671	0.779
20L	0.3193	-0.681	1.080	0.481	0.716	0.776
21L	0.3496	-0.457	0.978	0.542	0.808	0.778
22L	0.3796	-0.445	0.974	0.545	0.813	0.778
23L	0.4098	-0.417	0.962	0.552	0.824	0.779
24L	0.4394	-0.395	0.949	0.561	0.835	0.776
25L	0.4699	-0.368	0.938	0.568	0.845	0.777
26L	0.4996	-0.299	0.908	0.587	0.874	0.778
27L	0.5299	-0.291	0.905	0.588	0.878	0.778
28L	0.5600	-0.280	0.895	0.595	0.883	0.774
29L	0.5902	-0.248	0.884	0.602	0.896	0.777
30L	0.6194	-0.219	0.872	0.610	0.909	0.777
31L	0.6499	-0.196	0.862	0.616	0.918	0.777
34L	0.7393	-0.088	0.815	0.647	0.963	0.777
35L	0.7697	-0.071	0.807	0.651	0.970	0.777
36L	0.7998	-0.046	0.798	0.658	0.981	0.778
37L	0.8296	-0.021	0.787	0.665	0.991	0.777
38L	0.8603	0.015	0.770	0.676	1.006	0.776
39L	0.8898	0.057	0.753	0.687	1.024	0.777
40L	0.9199	0.094	0.737	0.697	1.039	0.777
41L	0.9499	0.145	0.714	0.712	1.061	0.777

TABLE 1.11

SURFACE PRESSURE MEASUREMENTS

RUN NUMBER 2753 ONERA 2D TESTS

SCAN	M	RE/E6	PC	TO	PI	Q	V/U
2	0.814	24.70	87.20	532.51	55.37	26.19	0.0025

TUBE	X/C	CP	MLOC	P/PO	P/PS	MTUN
1U	0.0088	0.425	0.618	0.773	1.196	0.815
2U	0.0192	0.084	0.776	0.672	1.039	0.814
3U	0.0293	-0.056	0.840	0.630	0.974	0.814
4U	0.0399	-0.208	0.911	0.584	0.904	0.815
5U	0.0496	-0.218	0.916	0.582	0.899	0.814
6U	0.0596	-0.322	0.964	0.551	0.852	0.814
7U	0.0696	-0.386	0.995	0.532	0.822	0.814
8U	0.0790	-0.442	1.022	0.515	0.796	0.814
9U	0.0895	-0.451	1.025	0.513	0.793	0.813
10U	0.0992	-0.517	1.057	0.494	0.763	0.813
11U	0.1094	-0.562	1.081	0.480	0.741	0.814
12U	0.1295	-0.607	1.102	0.468	0.722	0.813
13U	0.1495	-0.670	1.138	0.447	0.692	0.815
14U	0.1688	-0.679	1.142	0.445	0.688	0.814
15U	0.1893	-0.727	1.166	0.431	0.666	0.813
16U	0.2093	-0.735	1.171	0.429	0.662	0.813
17U	0.2295	-0.748	1.180	0.424	0.656	0.814
18U	0.2494	-0.775	1.197	0.414	0.641	0.816
19U	0.2793	-0.794	1.207	0.409	0.633	0.816
20U	0.3091	-0.822	1.223	0.400	0.620	0.816
21U	0.3388	-0.816	1.221	0.402	0.622	0.816
22U	0.3697	-0.807	1.213	0.406	0.628	0.815
23U	0.3991	-0.776	1.196	0.415	0.642	0.815
24U	0.4296	-0.789	1.201	0.412	0.637	0.814
25U	0.4592	-0.560	1.078	0.481	0.743	0.813
26U	0.4893	-0.281	0.944	0.564	0.871	0.813
27U	0.5199	-0.243	0.928	0.574	0.888	0.815
28U	0.5497	-0.228	0.920	0.579	0.895	0.814
29U	0.5840	-0.219	0.916	0.581	0.899	0.815
30U	0.6097	-0.196	0.907	0.587	0.909	0.816
31U	0.6395	-0.181	0.900	0.592	0.916	0.816
32U	0.6693	-0.167	0.892	0.597	0.923	0.814
33U	0.6996	-0.125	0.872	0.610	0.942	0.814
34U	0.7296	-0.104	0.862	0.616	0.952	0.814
35U	0.7596	-0.082	0.852	0.622	0.962	0.814
36U	0.7896	-0.052	0.838	0.632	0.976	0.814
37U	0.8194	-0.018	0.824	0.641	0.991	0.816
38U	0.8494	0.013	0.809	0.650	1.005	0.815
40U	0.9093	0.090	0.774	0.673	1.042	0.815
42U	0.9700	0.199	0.724	0.705	1.092	0.815
0LE	0.0000	1.187	0.004	1.000	1.544	0.813
1L	0.0094	0.344	0.656	0.749	1.158	0.814
2L	0.0194	0.046	0.794	0.660	1.022	0.814
3L	0.0297	-0.159	0.888	0.599	0.927	0.815
4L	0.0395	-0.213	0.913	0.583	0.902	0.814
5L	0.0498	-0.304	0.957	0.556	0.860	0.815
6L	0.0592	-0.403	1.003	0.527	0.814	0.814
7L	0.0700	-0.438	1.021	0.516	0.798	0.815
8L	0.0791	-0.439	1.019	0.517	0.798	0.813
9L	0.0895	-0.581	1.091	0.474	0.733	0.814
10L	0.0996	-0.590	1.098	0.470	0.727	0.816
11L	0.1198	-0.645	1.127	0.453	0.702	0.816
12L	0.1398	-0.630	1.116	0.460	0.710	0.814
13L	0.1598	-0.675	1.140	0.446	0.690	0.814
14L	0.1794	-0.722	1.165	0.432	0.668	0.814
15L	0.1996	-0.753	1.182	0.423	0.654	0.814
16L	0.2196	-0.766	1.190	0.418	0.646	0.815
17L	0.2399	-0.787	1.202	0.412	0.637	0.815
18L	0.2596	-0.804	1.211	0.407	0.629	0.815
19L	0.2895	-0.832	1.228	0.398	0.615	0.816
20L	0.3193	-0.836	1.230	0.397	0.614	0.815
21L	0.3496	-0.862	1.242	0.390	0.603	0.814
22L	0.3796	-0.869	1.248	0.388	0.599	0.814
23L	0.4098	-0.869	1.249	0.387	0.599	0.815
24L	0.4394	-0.845	1.231	0.396	0.612	0.813
25L	0.4699	-0.526	1.054	0.490	0.757	0.814
26L	0.4996	-0.265	0.937	0.568	0.878	0.814
27L	0.5299	-0.208	0.910	0.585	0.904	0.814
28L	0.5600	-0.205	0.907	0.587	0.906	0.813
29L	0.5902	-0.192	0.903	0.590	0.912	0.814
30L	0.6194	-0.178	0.895	0.595	0.918	0.813
31L	0.6499	-0.163	0.889	0.599	0.925	0.813
34L	0.7393	-0.075	0.848	0.625	0.965	0.813
35L	0.7697	-0.058	0.841	0.629	0.973	0.814
36L	0.7998	-0.036	0.832	0.636	0.983	0.815
37L	0.8296	-0.008	0.820	0.643	0.996	0.816
38L	0.8603	0.024	0.805	0.653	1.011	0.815
39L	0.8898	0.061	0.788	0.664	1.028	0.816
40L	0.9199	0.101	0.770	0.676	1.047	0.816
41L	0.9499	0.154	0.745	0.692	1.071	0.814

TABLE 1.12

SURFACE PRESSURE MEASUREMENTS

RUN NUMBER 2801 ONERA 2D TESTS

SCAN	M	RE/E6	PO	TO	PI	Q	V/U
1	0.817	32.26	116.63	549.92	75.23	35.15	0.0025

TUBE	X/C	CP	MLOC	P/PO	P/PS	MTUN
1U	0.0088	0.427	0.622	0.771	1.199	0.821
2U	0.0192	0.095	0.776	0.672	1.045	0.820
3U	0.0293	-0.051	0.842	0.629	0.976	0.818
4U	0.0399	-0.212	0.817	0.580	0.901	0.818
5U	0.0496	-0.197	0.910	0.585	0.908	0.818
6U	0.0596	-0.328	0.972	0.546	0.848	0.818
7U	0.0696	-0.385	1.001	0.528	0.820	0.819
8U	0.0790	-0.438	1.029	0.511	0.795	0.820
9U	0.0895	-0.449	1.032	0.509	0.790	0.819
10U	0.0992	-0.517	1.063	0.491	0.760	0.817
11U	0.1094	-0.570	1.091	0.474	0.735	0.818
12U	0.1295	-0.598	1.106	0.465	0.722	0.818
13U	0.1495	-0.668	1.144	0.444	0.689	0.819
14U	0.1688	-0.685	1.152	0.439	0.682	0.818
15U	0.1893	-0.731	1.177	0.425	0.661	0.818
16U	0.2093	-0.747	1.184	0.421	0.654	0.817
17U	0.2295	-0.752	1.186	0.420	0.652	0.817
18U	0.2494	-0.779	1.200	0.413	0.639	0.817
19U	0.2793	-0.800	1.212	0.406	0.629	0.816
20U	0.3091	-0.839	1.231	0.396	0.613	0.815
21U	0.3388	-0.840	1.230	0.397	0.613	0.814
22U	0.3697	-0.829	1.230	0.397	0.615	0.817
23U	0.3991	-0.825	1.227	0.398	0.617	0.817
24U	0.4296	-0.794	1.211	0.407	0.631	0.817
25U	0.4592	-0.776	1.201	0.412	0.639	0.818
26U	0.4893	-0.375	0.997	0.530	0.824	0.820
27U	0.5199	-0.263	0.942	0.565	0.878	0.819
28U	0.5497	-0.216	0.920	0.579	0.899	0.819
29U	0.5840	-0.208	0.915	0.582	0.903	0.818
30U	0.6097	-0.184	0.907	0.587	0.914	0.821
31U	0.6395	-0.178	0.902	0.590	0.917	0.819
32U	0.6693	-0.167	0.896	0.594	0.922	0.818
33U	0.6996	-0.128	0.879	0.605	0.940	0.819
34U	0.7296	-0.104	0.868	0.612	0.951	0.819
35U	0.7596	-0.085	0.860	0.617	0.960	0.820
36U	0.7896	-0.055	0.845	0.627	0.974	0.819
37U	0.8194	-0.037	0.831	0.636	0.983	0.814
38U	0.8494	0.002	0.813	0.648	1.001	0.814
40U	0.9093	0.079	0.779	0.670	1.037	0.814
42U	0.9700	0.190	0.728	0.703	1.087	0.814
OLE	0.0000	1.188	0.015	1.000	1.551	0.818
1L	0.0094	0.358	0.652	0.752	1.166	0.818
2L	0.0194	0.051	0.794	0.660	1.024	0.817
3L	0.0297	-0.174	0.898	0.593	0.919	0.817
4L	0.0395	-0.235	0.928	0.574	0.891	0.818
5L	0.0498	-0.299	0.958	0.555	0.861	0.818
6L	0.0592	-0.399	1.007	0.524	0.814	0.819
7L	0.0700	-0.433	1.024	0.514	0.798	0.819
8L	0.0791	-0.423	1.021	0.516	0.802	0.820
9L	0.0895	-0.597	1.106	0.465	0.722	0.818
10L	0.0996	-0.593	1.105	0.466	0.724	0.819
11L	0.1198	-0.636	1.130	0.451	0.703	0.821
12L	0.1398	-0.642	1.131	0.451	0.701	0.819
13L	0.1598	-0.649	1.137	0.448	0.697	0.820
14L	0.1794	-0.705	1.165	0.432	0.672	0.819
15L	0.1996	-0.744	1.185	0.421	0.654	0.819
16L	0.2196	-0.757	1.184	0.421	0.652	0.814
17L	0.2399	-0.782	1.198	0.414	0.639	0.814
18L	0.2596	-0.797	1.206	0.410	0.633	0.814
19L	0.2895	-0.826	1.222	0.401	0.620	0.814
20L	0.3193	-0.842	1.240	0.392	0.608	0.818
21L	0.3496	-0.868	1.254	0.384	0.596	0.818
22L	0.3796	-0.871	1.259	0.382	0.593	0.820
23L	0.4098	-0.871	1.262	0.380	0.592	0.821
24L	0.4394	-0.863	1.253	0.385	0.597	0.819
25L	0.4699	-0.839	1.242	0.391	0.607	0.820
26L	0.4996	-0.299	0.959	0.554	0.861	0.819
27L	0.5299	-0.221	0.922	0.578	0.897	0.818
28L	0.5600	-0.196	0.909	0.586	0.909	0.818
29L	0.5902	-0.191	0.907	0.587	0.911	0.818
30L	0.6194	-0.169	0.895	0.595	0.921	0.817
31L	0.6499	-0.158	0.891	0.598	0.927	0.817
34L	0.7393	-0.066	0.849	0.625	0.969	0.818
35L	0.7697	-0.056	0.845	0.627	0.973	0.818
36L	0.7998	-0.033	0.834	0.634	0.984	0.819
37L	0.8296	-0.010	0.819	0.644	0.995	0.814
38L	0.8603	0.025	0.804	0.654	1.011	0.815
39L	0.8898	0.062	0.788	0.664	1.029	0.816
40L	0.9199	0.102	0.770	0.676	1.048	0.817
41L	0.9499	0.153	0.747	0.691	1.071	0.817

TABLE 1.13

SURFACE PRESSURE MEASUREMENTS

RUN NUMBER 2789 ONERA 2D TESTS

SCAN	M	RE/E6	PO	TO	PI	Q	V/U
1	0.835	24.65	87.17	538.04	55.22	26.93	0.0025

TUBE	X/C	CP	MLOC	P/PO	P/PS	MTUN
1U	0.0088	0.439	0.627	0.767	1.213	0.837
2U	0.0192	0.103	0.788	0.664	1.050	0.837
3U	0.0293	-0.033	0.852	0.622	0.984	0.837
4U	0.0399	-0.178	0.919	0.579	0.914	0.835
5U	0.0496	-0.208	0.934	0.570	0.899	0.835
6U	0.0596	-0.302	0.982	0.540	0.853	0.836
7U	0.0696	-0.356	1.008	0.524	0.828	0.836
8U	0.0790	-0.414	1.036	0.507	0.800	0.835
9U	0.0895	-0.437	1.047	0.500	0.788	0.835
10U	0.0992	-0.470	1.066	0.489	0.772	0.836
11U	0.1094	-0.528	1.096	0.471	0.744	0.836
12U	0.1295	-0.581	1.124	0.455	0.718	0.836
13U	0.1495	-0.628	1.150	0.440	0.696	0.836
14U	0.1688	-0.657	1.164	0.432	0.682	0.835
15U	0.1893	-0.702	1.190	0.418	0.660	0.835
16U	0.2093	-0.709	1.194	0.416	0.657	0.836
17U	0.2295	-0.728	1.204	0.411	0.648	0.835
18U	0.2494	-0.765	1.221	0.401	0.632	0.833
19U	0.2793	-0.776	1.229	0.397	0.627	0.834
20U	0.3091	-0.806	1.248	0.387	0.611	0.835
21U	0.3388	-0.823	1.259	0.382	0.602	0.835
22U	0.3697	-0.825	1.261	0.381	0.600	0.835
23U	0.3991	-0.822	1.258	0.382	0.602	0.835
24U	0.4296	-0.800	1.246	0.388	0.613	0.835
25U	0.4592	-0.775	1.233	0.395	0.625	0.836
26U	0.4893	-0.800	1.248	0.388	0.612	0.836
27U	0.5199	-0.809	1.254	0.385	0.607	0.836
28U	0.5497	-0.472	1.067	0.488	0.771	0.836
29U	0.5840	-0.212	0.937	0.568	0.897	0.836
30U	0.6097	-0.162	0.912	0.584	0.922	0.835
31U	0.6395	-0.134	0.900	0.592	0.935	0.837
32U	0.6693	-0.117	0.891	0.597	0.943	0.836
33U	0.6996	-0.088	0.878	0.606	0.957	0.836
34U	0.7296	-0.073	0.871	0.611	0.964	0.836
35U	0.7596	-0.058	0.864	0.615	0.972	0.836
36U	0.7896	-0.034	0.852	0.622	0.984	0.837
37U	0.8194	-0.014	0.841	0.630	0.993	0.835
38U	0.8494	0.019	0.825	0.640	1.009	0.835
40U	0.9093	0.093	0.791	0.662	1.045	0.836
42U	0.9700	0.202	0.739	0.696	1.097	0.835
0LE	0.0000	1.191	0.049	0.998	1.576	0.836
1L	0.0094	0.389	0.651	0.753	1.188	0.835
2L	0.0194	0.722	7.950	6.591	0.342	8.296
3L	0.0297	-0.106	0.885	0.601	0.948	0.835
4L	0.0395	-0.168	0.914	0.582	0.918	0.835
5L	0.0498	-0.261	0.961	0.553	0.873	0.836
6L	0.0592	-0.349	1.004	0.526	0.831	0.836
7L	0.0700	-0.388	1.024	0.514	0.812	0.836
8L	0.0791	-0.383	1.021	0.515	0.815	0.836
9L	0.0895	-0.539	1.102	0.467	0.738	0.836
10L	0.0995	-0.543	1.105	0.466	0.736	0.837
11L	0.1198	-0.596	1.131	0.451	0.712	0.835
12L	0.1398	-0.608	1.139	0.446	0.705	0.837
13L	0.1598	-0.623	1.147	0.442	0.698	0.836
14L	0.1794	-0.669	1.173	0.427	0.675	0.836
15L	0.1996	-0.707	1.194	0.416	0.657	0.836
16L	0.2195	-0.726	1.202	0.412	0.650	0.835
17L	0.2399	-0.751	1.218	0.403	0.637	0.836
18L	0.2596	-0.770	1.228	0.398	0.628	0.835
19L	0.2895	-0.801	1.245	0.389	0.613	0.835
20L	0.3193	-0.815	1.255	0.384	0.605	0.835
21L	0.3496	-0.834	1.270	0.376	0.594	0.837
22L	0.3796	-0.851	1.280	0.371	0.585	0.837
23L	0.4098	-0.861	1.286	0.368	0.582	0.837
24L	0.4394	-0.861	1.282	0.370	0.583	0.835
25L	0.4699	-0.835	1.267	0.378	0.596	0.835
26L	0.4995	-0.788	1.240	0.391	0.619	0.836
27L	0.5299	-0.727	1.205	0.410	0.648	0.836
28L	0.5600	-0.283	0.972	0.546	0.863	0.836
29L	0.5902	-0.205	0.934	0.570	0.900	0.836
30L	0.6194	-0.141	0.903	0.590	0.931	0.836
31L	0.6499	-0.116	0.890	0.598	0.943	0.836
34L	0.7393	-0.047	0.858	0.619	0.977	0.835
35L	0.7697	-0.039	0.853	0.622	0.982	0.835
36L	0.7998	-0.016	0.844	0.628	0.992	0.836
37L	0.8296	0.004	0.832	0.635	1.002	0.835
38L	0.8603	0.035	0.818	0.645	1.017	0.835
39L	0.8898	0.066	0.802	0.655	1.032	0.834
40L	0.9199	0.100	0.786	0.665	1.048	0.833
41L	0.9499	0.157	0.761	0.682	1.076	0.835

TABLE 1.14

SURFACE PRESSURE MEASUREMENTS

RUN NUMBER 2775 ONERA 2D TESTS

SCAN	M	RE/E6	PO	TO	PI	Q	V/U
2	0.918	25.94	87.28	533.97	50.59	29.86	0.0025

TUBE	X/C	CP	MLOC	P/PO	P/PS	MTUN
1U	0.0088	0.554	0.628	0.767	1.326	0.920
2U	0.0192	0.249	0.790	0.663	1.147	0.921
3U	0.0293	0.125	0.854	0.621	1.073	0.920
4U	0.0399	-0.026	0.933	0.571	0.985	0.918
5U	0.0496	-0.035	0.935	0.569	0.980	0.916
6U	0.0596	-0.127	0.987	0.537	0.925	0.918
7U	0.0696	-0.181	1.018	0.518	0.894	0.919
8U	0.0790	-0.243	1.052	0.497	0.857	0.918
9U	0.0895	-0.274	1.068	0.487	0.840	0.917
10U	0.0992	-0.303	1.089	0.475	0.822	0.920
11U	0.1094	-0.324	1.102	0.468	0.808	0.921
12U	0.1295	-0.395	1.143	0.444	0.767	0.920
13U	0.1495	-0.451	1.174	0.427	0.736	0.917
14U	0.1688	-0.457	1.176	0.426	0.733	0.916
15U	0.1893	-0.511	1.210	0.407	0.702	0.917
16U	0.2093	-0.526	1.220	0.402	0.693	0.917
17U	0.2295	-0.541	1.234	0.395	0.682	0.919
18U	0.2494	-0.571	1.252	0.386	0.665	0.918
19U	0.2793	-0.598	1.270	0.376	0.649	0.919
20U	0.3091	-0.629	1.291	0.365	0.631	0.919
21U	0.3388	-0.652	1.309	0.357	0.616	0.920
22U	0.3697	-0.669	1.312	0.355	0.610	0.915
23U	0.3991	-0.681	1.324	0.349	0.602	0.917
24U	0.4296	-0.671	1.317	0.353	0.608	0.917
25U	0.4592	-0.673	1.318	0.352	0.607	0.917
26U	0.4893	-0.676	1.321	0.351	0.605	0.917
27U	0.5199	-0.650	1.307	0.358	0.618	0.919
28U	0.5497	-0.658	1.314	0.354	0.612	0.920
29U	0.5840	-0.674	1.326	0.349	0.603	0.920
30U	0.6097	-0.690	1.334	0.345	0.595	0.919
31U	0.6395	-0.695	1.337	0.343	0.592	0.919
32U	0.6693	-0.699	1.339	0.342	0.591	0.918
33U	0.6996	-0.696	1.336	0.344	0.593	0.917
34U	0.7296	-0.707	1.344	0.340	0.586	0.917
35U	0.7596	-0.715	1.351	0.337	0.581	0.919
36U	0.7896	-0.710	1.349	0.338	0.583	0.919
37U	0.8194	-0.594	1.271	0.376	0.649	0.921
38U	0.8494	-0.257	1.062	0.491	0.849	0.920
40U	0.9093	-0.082	0.964	0.551	0.951	0.919
42U	0.9700	-0.006	0.923	0.577	0.996	0.919
OLE	0.0000	1.232	0.046	0.999	1.720	0.917
1L	0.0094	0.498	0.656	0.750	1.291	0.917
2L	0.0194	0.214	0.805	0.653	1.125	0.917
3L	0.0297	0.047	0.891	0.597	1.027	0.915
4L	0.0395	-0.016	0.925	0.576	0.991	0.916
5L	0.0498	-0.093	0.971	0.547	0.944	0.920
6L	0.0592	-0.175	1.016	0.519	0.897	0.920
7L	0.0700	-0.218	1.039	0.505	0.872	0.919
8L	0.0791	-0.251	1.055	0.495	0.853	0.917
9L	0.0895	-0.331	1.102	0.468	0.806	0.918
10L	0.0996	-0.342	1.110	0.463	0.799	0.919
11L	0.1198	-0.419	1.156	0.437	0.754	0.919
12L	0.1398	-0.427	1.161	0.434	0.749	0.919
13L	0.1598	-0.450	1.175	0.427	0.736	0.919
14L	0.1794	-0.491	1.199	0.413	0.712	0.918
15L	0.1996	-0.527	1.221	0.401	0.692	0.917
16L	0.2196	-0.536	1.230	0.397	0.685	0.919
17L	0.2399	-0.561	1.246	0.388	0.670	0.919
18L	0.2596	-0.580	1.260	0.381	0.658	0.920
19L	0.2895	-0.615	1.285	0.369	0.637	0.921
20L	0.3193	-0.637	1.296	0.363	0.626	0.918
21L	0.3496	-0.663	1.316	0.353	0.610	0.920
22L	0.3796	-0.681	1.331	0.346	0.598	0.921
23L	0.4098	-0.691	1.338	0.343	0.593	0.920
24L	0.4394	-0.707	1.343	0.341	0.587	0.917
25L	0.4699	-0.718	1.353	0.336	0.579	0.918
26L	0.4996	-0.667	1.318	0.352	0.608	0.919
27L	0.5299	-0.693	1.334	0.345	0.594	0.918
28L	0.5600	-0.705	1.347	0.339	0.585	0.920
29L	0.5902	-0.716	1.357	0.334	0.578	0.921
30L	0.6194	-0.726	1.363	0.331	0.573	0.920
31L	0.5499	-0.737	1.365	0.330	0.569	0.917
34L	0.7393	-0.238	1.047	0.500	0.861	0.917
35L	0.7697	-0.190	1.020	0.516	0.889	0.915
36L	0.7998	-0.146	0.997	0.531	0.914	0.917
37L	0.8296	-0.132	0.992	0.534	0.922	0.920
38L	0.8603	-0.112	0.980	0.541	0.934	0.919
39L	0.8898	-0.088	0.956	0.550	0.948	0.919
40L	0.9199	-0.067	0.955	0.557	0.960	0.918
41L	0.9499	-0.028	0.935	0.570	0.984	0.919

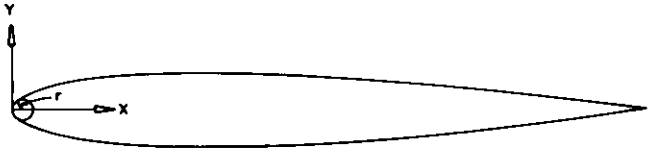
TABLE 1.15

SURFACE PRESSURE MEASUREMENTS

RUN NUMBER 2784 ONERA 2D TESTS

SCAN	M	RE/E6	PO	TO	PI	Q	V/U
1	0.930	42.75	145.92	541.94	83.47	50.56	0.0025

TUBE	X/C	CP	MLOC	P/PO	P/PS	MTUN
0LE	0.0000	1.235	0.065	0.997	1.743	0.930
1L	0.0094	0.494	0.670	0.741	1.299	0.933
2L	0.0194	0.222	0.815	0.647	1.135	0.934
3L	0.0297	0.049	0.906	0.587	1.029	0.933
4L	0.0395	-0.020	0.942	0.565	0.988	0.931
5L	0.0498	-0.095	0.983	0.539	0.942	0.931
6L	0.0592	-0.179	1.032	0.509	0.891	0.932
7L	0.0700	-0.230	1.059	0.493	0.862	0.931
8L	0.0791	-0.241	1.065	0.489	0.855	0.930
9L	0.0895	-0.339	1.125	0.454	0.795	0.932
10L	0.0996	-0.330	1.121	0.456	0.799	0.933
11L	0.1198	-0.405	1.167	0.431	0.755	0.933
12L	0.1398	-0.428	1.177	0.425	0.743	0.930
13L	0.1598	-0.444	1.188	0.419	0.733	0.930
14L	0.1794	-0.480	1.211	0.407	0.711	0.930
15L	0.1996	-0.510	1.230	0.397	0.693	0.930
16L	0.2196	-0.535	1.246	0.389	0.679	0.929
17L	0.2399	-0.557	1.262	0.380	0.665	0.930
18L	0.2596	-0.565	1.266	0.378	0.660	0.930
19L	0.2895	-0.602	1.293	0.365	0.637	0.931
20L	0.3193	-0.629	1.313	0.355	0.620	0.931
21L	0.3496	-0.657	1.333	0.345	0.604	0.931
22L	0.3796	-0.674	1.346	0.339	0.593	0.931
23L	0.4098	-0.684	1.353	0.336	0.588	0.931
24L	0.4394	-0.689	1.356	0.335	0.585	0.930
25L	0.4699	-0.698	1.362	0.332	0.580	0.930
26L	0.4996	-0.646	1.328	0.348	0.609	0.932
27L	0.5299	-0.683	1.351	0.337	0.589	0.930
28L	0.5600	-0.693	1.359	0.333	0.582	0.931
29L	0.5902	-0.706	1.367	0.329	0.575	0.930
30L	0.6194	-0.721	1.376	0.325	0.568	0.929
31L	0.6499	-0.721	1.380	0.324	0.566	0.931
34L	0.7393	-0.715	1.378	0.324	0.568	0.932
35L	0.7697	-0.728	1.387	0.320	0.561	0.931
36L	0.7998	-0.293	1.097	0.470	0.823	0.931
37L	0.8296	-0.154	1.016	0.519	0.907	0.931
38L	0.8603	-0.132	1.003	0.527	0.920	0.930
39L	0.8898	-0.098	0.986	0.538	0.940	0.931
40L	0.9199	-0.070	0.970	0.547	0.958	0.931
41L	0.9499	-0.038	0.951	0.559	0.977	0.930
1U	0.0088	0.589	0.616	0.774	1.354	0.931
2U	0.0192	0.268	0.789	0.664	1.161	0.931
3U	0.0293	0.138	0.857	0.619	1.082	0.931
4U	0.0399	0.012	0.925	0.576	1.007	0.931
5U	0.0496	-0.007	0.935	0.569	0.996	0.931
6U	0.0596	-0.099	0.985	0.538	0.940	0.930
7U	0.0696	-0.152	1.017	0.518	0.908	0.932
8U	0.0790	-0.219	1.053	0.496	0.868	0.931
9U	0.0895	-0.250	1.071	0.486	0.850	0.930
10U	0.0992	-0.280	1.086	0.477	0.832	0.929
11U	0.1094	-0.305	1.102	0.467	0.817	0.930
12U	0.1295	-0.363	1.139	0.446	0.781	0.931
13U	0.1495	-0.426	1.178	0.425	0.743	0.931
14U	0.1688	-0.426	1.179	0.424	0.743	0.931
15U	0.1893	-0.476	1.211	0.407	0.712	0.932
16U	0.2093	-0.499	1.224	0.400	0.699	0.931
17U	0.2295	-0.511	1.232	0.396	0.692	0.930
18U	0.2494	-0.547	1.257	0.383	0.670	0.931
19U	0.2793	-0.574	1.275	0.374	0.653	0.931
20U	0.3091	-0.604	1.294	0.364	0.636	0.930
21U	0.3388	-0.633	1.316	0.354	0.618	0.931
22U	0.3697	-0.639	1.323	0.350	0.613	0.933
23U	0.3991	-0.650	1.333	0.345	0.606	0.934
24U	0.4296	-0.647	1.330	0.347	0.608	0.933
25U	0.4592	-0.654	1.330	0.347	0.606	0.930
26U	0.4893	-0.665	1.337	0.344	0.600	0.930
27U	0.5199	-0.663	1.337	0.344	0.601	0.931
28U	0.5497	-0.637	1.321	0.351	0.615	0.932
29U	0.5840	-0.660	1.335	0.344	0.602	0.931
30U	0.6097	-0.667	1.344	0.340	0.596	0.933
31U	0.6395	-0.679	1.353	0.336	0.589	0.933
32U	0.6693	-0.685	1.356	0.335	0.586	0.932
33U	0.6996	-0.675	1.345	0.340	0.594	0.930
34U	0.7296	-0.692	1.357	0.334	0.584	0.930
35U	0.7596	-0.704	1.366	0.330	0.577	0.930
36U	0.7896	-0.685	1.352	0.336	0.588	0.930
37U	0.8194	-0.724	1.382	0.322	0.564	0.931
38U	0.8494	-0.607	1.295	0.364	0.635	0.930
40U	0.9093	-0.116	0.994	0.532	0.930	0.930
42U	0.9700	-0.026	0.944	0.564	0.984	0.929



$$\frac{Y}{C} = 0.60\left[0.29690\sqrt{\frac{X}{C}} - 0.12600\frac{X}{C} - 0.35160\left(\frac{X}{C}\right)^2 + 0.28430\left(\frac{X}{C}\right)^3 - 0.10150\left(\frac{X}{C}\right)^4\right]$$

$$\frac{r}{C} = 0.0158$$

(Ref.1)

FIG. 1.11 NACA 0012 AIRFOIL

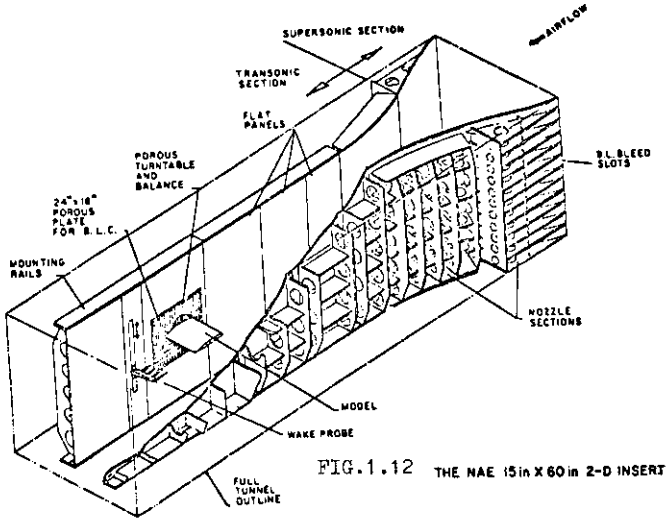


FIG.1.12 THE NAE 15in X 60in 2-D INSERT

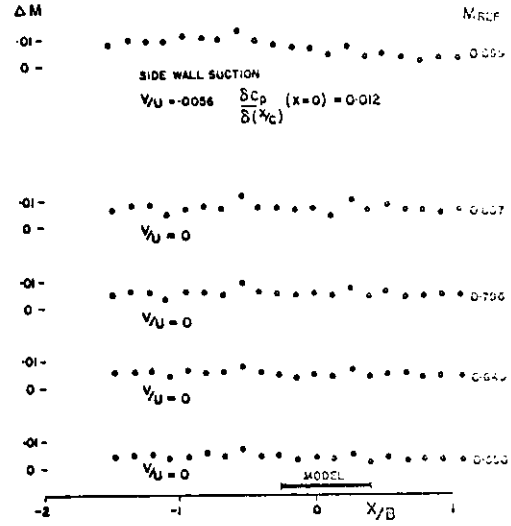


FIG.1.13 MACH NUMBER DISTRIBUTION, EMPTY TEST SECTION NAE 15in X 60in 2-D INSERT.

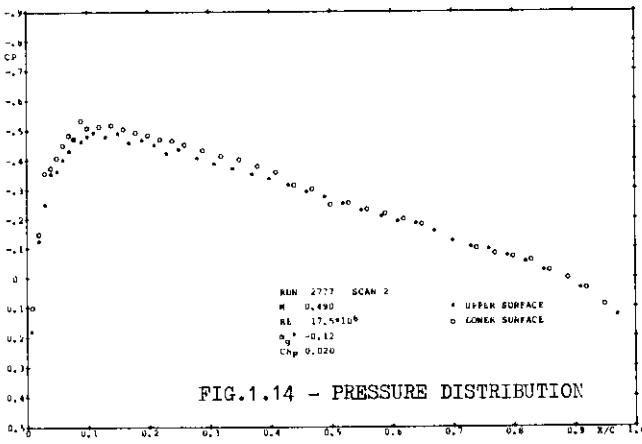


FIG.1.14 - PRESSURE DISTRIBUTION

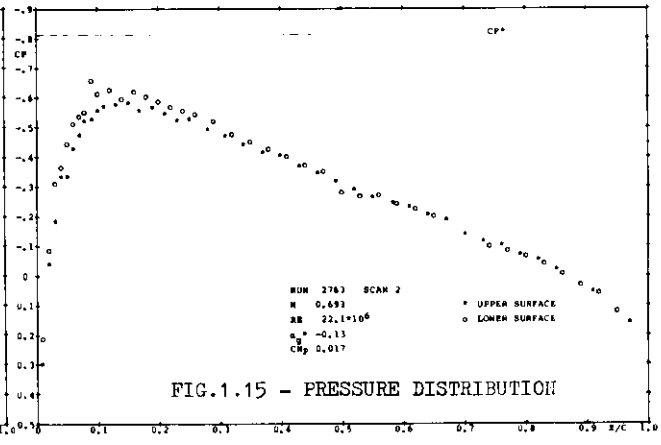


FIG.1.15 - PRESSURE DISTRIBUTION

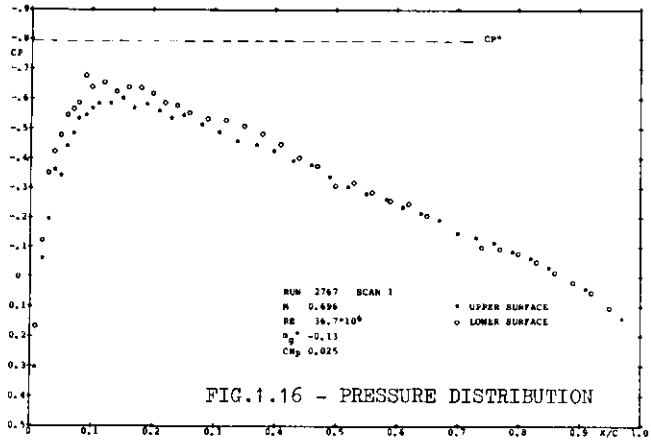


FIG.1.16 - PRESSURE DISTRIBUTION

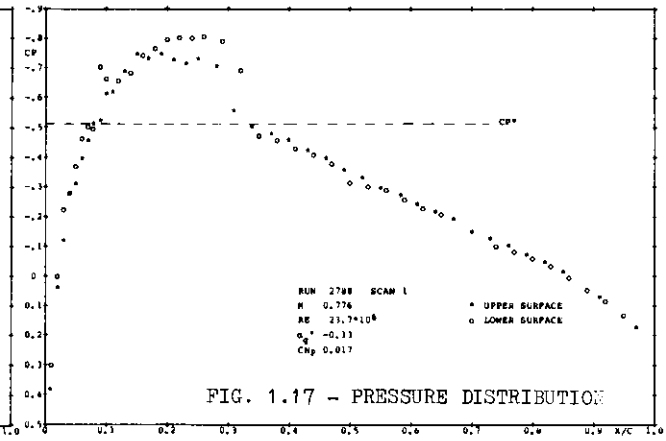


FIG. 1.17 - PRESSURE DISTRIBUTION

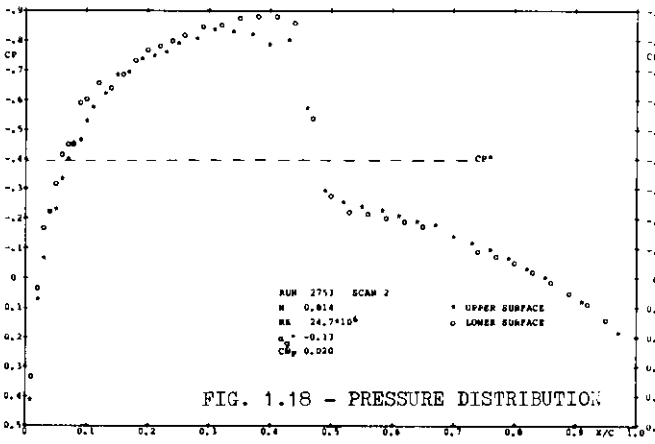


FIG. 1.18 - PRESSURE DISTRIBUTION

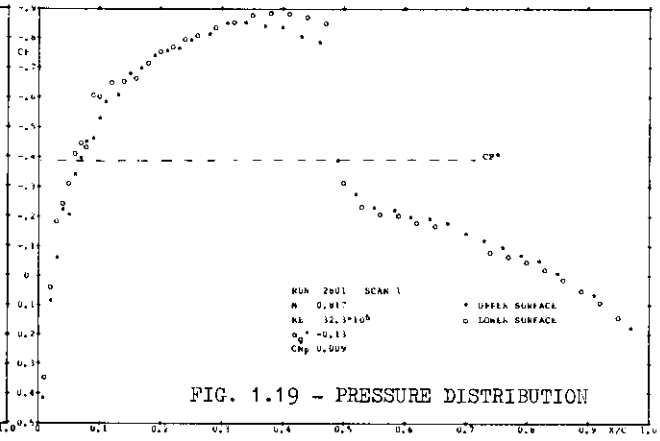


FIG. 1.19 - PRESSURE DISTRIBUTION

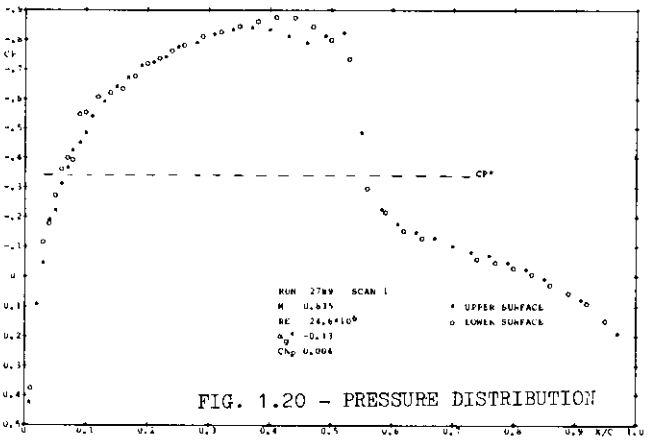


FIG. 1.20 - PRESSURE DISTRIBUTION

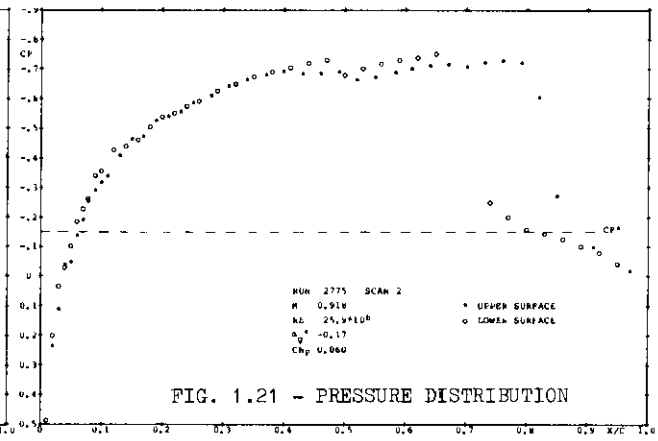


FIG. 1.21 - PRESSURE DISTRIBUTION

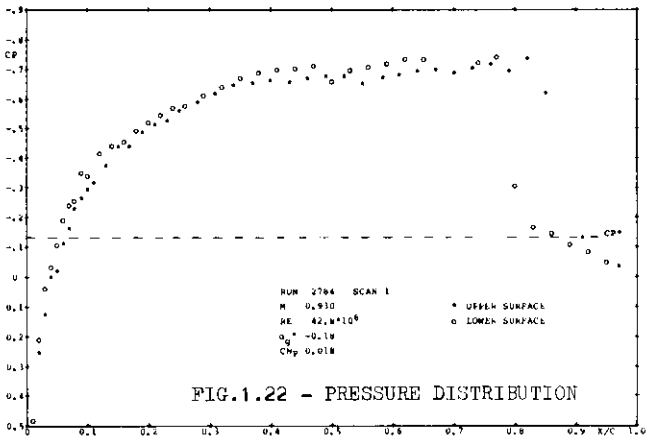


FIG.1.22 - PRESSURE DISTRIBUTION

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2. NLR QE 0.11 - 0.75 - 1.375 airfoil

contributed by

National Aerospace Laboratory NLR
Amsterdam, The Netherlands

and

National Aeronautical Establishment
Ottawa, Canada

2.1 Introduction

The NLR (Q)uasi (E)lliptical airfoil 0.11-0.75-1.375 was selected primarily for the following reasons:

i. It is a symmetrical ("shock-free") airfoil and thus provides, at zero incidence, a case where the aerodynamic characteristics (such as shock position) of a supercritical airfoil, as measured in the wind tunnel, are not affected by wall interference due to lift. One significant source of possible discrepancy between interference free computational results and wind tunnel experiment is thus absent.

ii. Tests were performed at low Reynolds number ($\approx 2 \times 10^6$), both with free and fixed transition, in the NLR Pilot Tunnel and at high Reynolds number ($\approx 20 \times 10^6$) in the 2-D insert of the NAE 5 ft x 5 ft transonic wind tunnel. In spite of the fact that there are vast differences between the two tunnel configurations (slotted versus porous walls, height/chord ratio 3.1 versus 6.0, span/chord ratio 2.3 versus 1.5) there is a comforting degree of similarity between the two data sets, suggesting that blockage effects in both tunnels were indeed small.

It should finally be mentioned that the tests were performed specifically to verify experimentally the existence of supercritical shock-free flow on an airfoil that was designed theoretically to exhibit this feature. For this reason more than usual care was taken to perform the experiments as accurately as possible.

2.2. DATA SET FROM NLR TUNNEL

1. Airfoil

1.1. Airfoil designation	NLR QE 0.11-0.75-1.375
1.2. Type of airfoil	symmetrical, "peaky"-type shock-free supercritical designed by means of Nieuwland hodograph method
1.2.1. airfoil geometry	see fig. 2.1 and tables 2.1 , 2.2
nose radius	$R/c = 4.4\%$
maximum thickness	$t/c = 11.7\%$
base thickness	zero
1.2.2. design condition	potential flow (hodograph theory): $M = 0.786$, $\alpha = 0^o$ experiment (NLR Pilottunnel) $M_t = 0.789$, $\alpha = 0^o$
design pressure distribution	see fig. 2.1 , table 2.1
1.3. Additional remarks	none
1.4. References on airfoil	ref. 1

2. Model geometry

2.1. Chord length	0.1795 m
2.2. Span	0.42 m
2.3. Actual model co-ordinates and accuracy	fig. 2.2
2.4. Maximum thickness	$t/c = 11.7\%$
2.5. Base thickness	0.05 mm
2.6. Additional remarks	finite trailing-edge (base) thickness was obtained by cutting-off theoretical airfoil at 99.7 % chord
2.7. References on model	see ref. 2

3. Wind tunnel

3.1. Designation	NLR Pilot tunnel
3.2. Type of tunnel	continuous, closed circuit
3.2.1. stagnation pressure	atmospheric
3.2.2. stagnation temperature	313 ± 1 K
3.2.3. humidity/dew point	varies with atmospheric condition (stagnation temperature chosen such that condensation is avoided)
3.3. Test section	see fig. 2.3
3.3.1. dimensions	rectangular height 0.55 m, width 0.42 m
3.3.2. type of walls	10% slotted top and bottom walls, solid side walls separate top and bottom plenums
3.4. Flow field (empty test section)	
3.4.1. reference static pressure	taken at side wall 3.6 chords upstream of model
3.4.2. flow angularity	upwash $\Delta\alpha = 0.12^o$ ($\pm 0.03^o$) (with respect to tunnel reference plane)
3.4.3. Mach number distribution	see fig. 2.4a
3.4.4. pressure gradient	see fig. 2.4b
3.4.5. turbulence/noise level	see fig.2.5 and ref. 5
3.4.6. side wall boundary layer	thickness 10% of test section semi-width, no special treatment
3.5. Additional remarks	for two-dimensionality of the flow see ref. 4
3.6. References on wind tunnel	ref. 3

4. Tests

4.1. Type of measurements	surface pressures wake pitot pressures surface flow visualization flow field visualization
4.2. Tunnel/model dimensions	
4.2.1. height/chord ratio	3.1
4.2.2. width/chord ratio	2.3.
4.3. Flow conditions included in present data base	
4.3.1. angle of attack	zero
4.3.2. Mach number	0.30 to 0.85
4.3.3. Reynolds number	about 2×10^6 (see fig. 2.6)
4.3.4. transition	free and fixed
- position of free transition	see fig.2.7
- transition fixing	grit no. 220 carborundum at 5-10% chord

4.3.5. temperature equilibrium	yes
4.4. Additional remarks	with free transition a laminar separation bubble was present between 9 and 18% chord at design condition
4.5. References on tests	ref. 2

5. Instrumentation

5.1. Surface pressure measurements	
5.1.1. pressure holes	
- size	diameter 0.1 mm on first 20% chord, 0.25 mm aft of 20% chord; depth 1 mm
- spanwise station(s)	staggered (± 25 mm around center line)
- chordwise positions	table 2.3
5.1.2. type of transducers and scanning devices	one ± 7.5 psi and one ± 5 psi Statham differential transducer + Scanivalves; reference pressure p_∞
5.1.3. other	none
5.2. Wake measurements	
5.2.1. type/size of instrument(s)	single translating total-head pressure tube of 1.5 mm diameter
5.2.2. streamwise position(s)	0.8 chords downstream of trailing edge
5.2.3. type of transducers and scanning devices	± 2.5 psi Statham differential pressure transducer referenced to p_o
5.3. Boundary layer measurements	none
5.3.1. type/size of instruments	
5.3.2. locations	
5.3.3. type of transducers and scanning devices	
5.4. Skin friction measurements	none
5.4.1. type/size of instruments	
5.4.2. locations	
5.4.3. type of transducer	
5.5. Flow visualization	
5.5.1. flow field	shadow and Schlieren pictures
5.5.2. surface flow	detection of transition position by sublimation technique (acenaphtene) and surface oil flow
5.6. other	no
5.7. Additional remarks	none
5.8. References on instrumentation	none

6. Data

6.1. Accuracy (wall interference excluded)	
6.1.1. angle of attack setting	± 0.02°
6.1.2. free stream Mach number:	
- setting	± 0.002
- variation during one pressure scan	± 0.002
6.1.3. pressure coefficients	± 0.002 to ± 0.020, depending on local pressure level and dynamic pressure
6.1.4. aerodynamic coefficients	unknown
6.1.5. boundary layer quantities	n.a.
6.1.6. repeatability	unknown
6.1.7. remarks	none
6.2. Wall interference corrections (indicate estimated accuracy)	
6.2.1. angle of attack	n.a.
6.2.2. blockage (solid/wake)	$\lvert\Delta M\rvert < 0.005$
6.2.3. streamline curvature	n.a.
6.2.4. other	
6.2.5. remarks	wall interference in NLR Pilot tunnel is presently being reassessed
6.2.6. references on wall interference corrections	ref. 6
6.3. Presentation of data	
6.3.1. aerodynamic coefficients	fig. 2.8 , table 2.4
6.3.2. surface pressures	fig. 2.9 , table 2.4
6.3.3. boundary layer quantities	n.a.
6.3.4. wall interference corrections included?	no

6.3.5. corrections for model deflection	no
6.3.6. Empty test section calibration taken into account?	no
6.3.7. other corrections included?	no
6.3.8. additional remarks	fixed transition surface pressure data are affected by disturbances due to transition band
6.4. Were tests carried out in different facilities on the current aerofoil? If so, what facilities. Are data included in the present data base?	Yes, NAE 5 x 5 ft 2-D insert Data included in present data base
6.5. To be contacted for further information on tests	J.A. van Egmond National Aerospace Laboratory NLR Anthony Fokkerweg 2 Amsterdam 1017 Netherlands

7. References

1. Boerstoel, J.W.	A survey of symmetrical transonic potential flows around quasi-elliptical aerofoil sections NLR Report T. 136, 1967
2. Spee, B.M., and Uylenhoet, R.	Pressure measurements on symmetrical quasi-elliptical aerofoil sections designed for shock-free transonic flow NLR TR 69041
3. Zwaaneveld, J.	Principal data of the NLL Pilot Tunnel NLR MP. 185
4. Dambrink, H.A.	Investigation of the two-dimensionality of the flow around a profile in the NLR 0.55x0.42 m^2 transonic wind tunnel NLR Memorandum AC-72-018
5. Ross, R.and Rohne, P.B.	Noise environment in the NLR transonic wind tunnel HST NLR TR 74128 U
6. Smith, J.	Values of wall interference corrections for the NLR Pilot Tunnel with 10% open test section NLR Memorandum AC-74-01

8. List of symbols

8.1. used in text and figures

C_p (CP)	pressure coefficient
C_p^*	critical pressure coefficient
c	airfoil chord length
c_d (CD)	drag coefficient
c_l	lift coefficient
c_m	pitching moment coefficient (with respect to .25c)
i	integer indicating pressure hole number
M(MA-NO)	free stream Mach number
M_m	maximum local Mach number
p	local static pressure
p_∞	free stream static pressure
p_o	free stream stagnation pressure
q	dynamic pressure
Re_c	Reynolds number based on chord
R_o	leading edge radius
t	airfoil maximum thickness
x,z	airfoil coordinate system
x_t, z_t	windtunnel coordinate system
α (ALFA)	angle of attack

subscript

t	refers to uncorrected values

8.2. used in data tables

alpha	α (degrees) (with respect to flow direction)
cd	c_d
cpi,cp	C_p
cpw	wake total head deficit pressure coefficient
i	integer indicating pressure hole number
ma.nom	nominal, "set" Mach number
macs	M_t at beginning of scanning cycle
mace	M_t, at end of scanning cycle
p	local static pressure (kgf/m^2)
po	free stream stagnation pressure (kgf/m^2)
re	Re_c
c/R_o	curvature of nose
θ	surface slope

AEROFOIL SECTION 0.11 0.75 - 1.375

K	M_m	$(t/c)_{max}$	$x(t/c)_{max}$	z_m/c	c/R_c
0.78612	1.306	0.1172	0.3245	0.0182	22.902
	x/c	z/c	c_p	p/p_0	θ
	0	0	1.1642	1.00000	1.57080
	0.00100	0.00927	1.0440	0.96543	1.35608
	0.00197	0.01293	0.9269	0.93174	1.26769
	0.00291	0.01562	0.8127	0.89889	1.20019
	0.00382	0.01778	0.7014	0.86687	1.14370
	0.00469	0.01959	0.5930	0.83566	1.09428
	0.00554	0.02113	0.4874	0.80530	1.04994
	0.00633	0.02246	0.3845	0.77567	1.00953
	0.00710	0.02362	0.2844	0.74688	0.97228
	0.00774	0.02464	0.1870	0.71887	0.93764
	0.00849	0.02553	0.0922	0.69156	0.90524
	0.00896	0.02631	0.0000	0.66508	0.87476
	0.00971	0.02699	-0.0896	0.63930	0.84596
	0.01024	0.02758	-0.1768	0.61419	0.81865
	0.01073	0.02809	-0.2614	0.58986	0.79265
	0.01118	0.02853	-0.3437	0.56622	0.76778
	0.01158	0.02890	-0.4235	0.54322	0.74390
	0.01182	0.02913	-0.4754	0.52828	0.72843
	0.01194	0.02923	-0.5010	0.52091	0.72081
	0.01226	0.02951	-0.5762	0.50106	0.69831
	0.01256	0.02975	-0.6492	0.47829	0.67615
	0.01283	0.02997	-0.7199	0.45797	0.65399
	0.01311	0.03017	-0.7885	0.43821	0.63135
	0.01342	0.03039	-0.8549	0.41914	0.60741
	0.01381	0.03066	-0.9192	0.40061	0.58071
	0.01444	0.03106	-0.9815	0.38267	0.54758
	0.01611	0.03200	-1.0418	0.36536	0.48926
	0.02033	0.03401	-1.0418	0.36536	0.40170
	0.02906	0.03714	-0.9815	0.38267	0.29875
	0.04699	0.04157	-0.9192	0.40061	0.19961
	0.07251	0.04584	-0.8549	0.41914	0.14053
	0.10589	0.04984	-0.7885	0.43821	0.10097
	0.15050	0.05357	-0.7199	0.45797	0.06820
	0.20673	0.05656	-0.6492	0.47829	0.03937
	0.27574	0.05832	-0.5762	0.50106	0.01289
	0.36312	0.05826	-0.5010	0.52091	-0.01319
	0.39644	0.05766	-0.4754	0.52828	-0.02197
	0.46620	0.05553	-0.4235	0.54322	-0.03945
	0.56833	0.05021	-0.3437	0.56622	-0.06460
	0.65802	0.04339	-0.2614	0.58986	-0.08770
	073301	0.03538	-0.1768	0.61419	-0.10840
	0.79462	0.02867	-0.0896	0.63930	-0.12630
	0.84588	0.02136	0.0000	0.66508	-0.14100
	0.88839	0.01559	0.0922	0.69156	-0.15130
	0.92366	0.01012	0.1870	0.71887	-0.15551
	0.95324	0.00552	0.2844	0.74688	-0.14998
	0.97808	0.00202	0.3845	0.77567	-0.12601
	0.99877	0.00002	0.4874	0.80530	-0.03432
	1.00000	0	0.4924	0.80674	0

TABLE 2.1

Main characteristics of aerofoil section 0.11 – 0.75 – 1.375

0.000000	0.000000
0.000056	0.002222
0.000228	0.004444
0.000244	0.004633
0.000544	0.006856
0.000956	0.009078
0.001000	0.009272
0.001439	0.011100
0.001972	0.012933
0.002417	0.014278
0.002911	0.015622
0.003817	0.017778
0.004694	0.019589
0.005539	0.021128
0.006333	0.022461
0.007100	0.023622
0.007817	0.024639
0.008494	0.025533
0.009122	0.026311
0.009706	0.026989
0.010244	0.027578
0.010733	0.028089
0.011178	0.028528
0.011578	0.028906
0.011822	0.029128
0.011939	0.029228
0.012261	0.029511
0.012556	0.029750
0.012833	0.029967
0.013106	0.030172
0.013417	0.030394
0.013806	0.030661
0.014439	0.031056
0.016117	0.032006
0.018228	0.033061
0.020333	0.034006
0.022556	0.034906
0.024694	0.035700
0.026917	0.036456
0.029061	0.037139
0.031283	0.037800
0.033506	0.038428
0.035728	0.039017
0.037950	0.039572
0.038028	0.039589
0.040250	0.040117
0.042472	0.040617
0.044694	0.041094
0.046917	0.041556
0.046989	0.041572
x/c	z/c

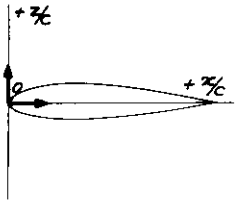


TABLE 2.2

Detailed co-ordinates of quasi – elliptical aerofoil section 0.11 – 0.75 – 1.375

0.049211	0.042011	0.152722	0.053722	0.336094	0.058517	0.596106	0.048317		
0.051433	0.042433	0.154944	0.053867	0.341650	0.058478	0.601661	0.047911		
0.053656	0.042844	0.157167	0.054011	0.347206	0.058433	0.607217	0.047500		
0.055878	0.043239	0.159389	0.054156	0.352761	0.058383	0.612772	0.047083		
0.058100	0.043622	0.161611	0.054294	0.358317	0.058317	0.613172	0.047056		
0.059750	0.043900	0.163833	0.054428	0.353122	0.058256	0.618728	0.046628		
0.061972	0.044256	0.166056	0.054561	0.368678	0.058178	0.624283	0.046199		
0.064194	0.044606	0.168278	0.054694	0.374233	0.058094	0.629839	0.045750		
0.066417	0.044950	0.170500	0.054822	0.379783	0.057994	0.635394	0.045294		
0.068639	0.045278	0.172722	0.054944	0.385339	0.057994	0.640950	0.044839		
0.070861	0.045600	0.174944	0.055067	0.390894	0.057783	0.646506	0.044372		
0.072511	0.045839	0.177167	0.055189	0.396439	0.057661	0.652061	0.043894		
0.074733	0.046150	0.178617	0.055267	0.401994	0.057533	0.657617	0.043411		
0.076956	0.046450	0.180839	0.055383	0.407550	0.057406	0.658017	0.043378		
0.079178	0.046750	0.183061	0.055494	0.413106	0.057261	0.663572	0.042883		
0.081400	0.047039	0.185283	0.055606	0.418661	0.057111	0.669128	0.042383		
0.083622	0.047322	0.187506	0.055717	0.424217	0.056956	0.674683	0.041872		
0.085844	0.047600	0.189728	0.055822	0.429772	0.056789	0.680239	0.041356	0.851422	0.021072
0.088067	0.047867	0.191950	0.055922	0.431322	0.056744	0.685794	0.040828	0.856978	0.020267
0.089200	0.048006	0.194172	0.056028	0.436878	0.056572	0.691350	0.040294	0.862533	0.019461
0.091422	0.048267	0.196394	0.056128	0.442433	0.056389	0.696511	0.039889	0.867128	0.018783
0.093644	0.048522	0.198617	0.056222	0.447989	0.056194	0.701067	0.039339	0.872683	0.017961
0.095867	0.048772	0.200839	0.056317	0.453544	0.056000	0.706622	0.038783	0.878239	0.017133
0.098089	0.049017	0.203061	0.056411	0.459100	0.055794	0.712178	0.038217	0.883794	0.016294
0.100311	0.049256	0.205283	0.056500	0.464656	0.055578	0.717733	0.037639	0.888389	0.015589
0.102533	0.049489	0.206733	0.056556	0.466200	0.055117	0.723289	0.037056	0.893944	0.014728
0.104756	0.049722	0.212289	0.056767	0.471756	0.054294	0.728844	0.036461	0.899500	0.013872
0.105894	0.049839	0.217844	0.056967	0.477311	0.055067	0.733006	0.036011	0.905056	0.013011
0.108117	0.050061	0.223400	0.057156	0.482867	0.054828	0.738561	0.035400	0.906022	0.012861
0.110339	0.050278	0.228956	0.057328	0.488422	0.054575	0.744117	0.034783	0.911578	0.011994
0.112561	0.050494	0.234511	0.057489	0.493978	0.054328	0.749672	0.034156	0.917133	0.011122
0.114783	0.050700	0.240067	0.057639	0.499533	0.054067	0.755228	0.033522	0.922689	0.010250
0.117006	0.050911	0.241233	0.057667	0.505089	0.053800	0.760783	0.032878	0.923661	0.010111
0.119228	0.051111	0.246789	0.057800	0.510644	0.053522	0.763811	0.032522	0.929217	0.009233
0.121450	0.051311	0.252344	0.057928	0.516200	0.053239	0.769367	0.031861	0.934772	0.008367
0.123672	0.051506	0.257900	0.058039	0.517267	0.053183	0.774922	0.031194	0.938450	0.007789
0.125894	0.051694	0.263456	0.058139	0.522822	0.052894	0.780478	0.030617	0.944006	0.006928
0.128117	0.051878	0.269011	0.058228	0.528378	0.052594	0.786033	0.029828	0.949561	0.006078
0.128194	0.051889	0.274567	0.058306	0.533933	0.052283	0.791589	0.029133	0.953244	0.005522
0.130417	0.052072	0.275739	0.058322	0.539489	0.051972	0.794622	0.028750	0.958800	0.004689
0.132639	0.052250	0.281294	0.058389	0.545044	0.051644	0.800178	0.028039	0.964356	0.003878
0.134861	0.052428	0.286850	0.058444	0.550600	0.051317	0.805733	0.027317	0.965667	0.003694
0.137083	0.052600	0.292406	0.058489	0.556156	0.050978	0.811289	0.026589	0.971222	0.002917
0.139306	0.052767	0.297961	0.058528	0.561711	0.050633	0.816844	0.025850	0.976778	0.002183
0.141528	0.052933	0.303517	0.058556	0.567267	0.050278	0.820244	0.025394	0.978083	0.002017
0.143750	0.053094	0.309072	0.058567	0.568328	0.050211	0.825800	0.024644	0.983639	0.001322
0.145972	0.053256	0.314628	0.058578	0.573883	0.049844	0.831356	0.023883	0.988528	0.000778
0.148194	0.053411	0.319428	0.058572	0.579439	0.049472	0.836911	0.023111	0.994083	0.000289
0.150417	0.053567	0.324983	0.058567	0.584994	0.049094	0.842467	0.022333	0.998967	0.000022
0.150500	0.053572	0.330539	0.058544	0.590550	0.048711	0.845867	0.021856	1.000000	0.000000
x/c	z/c	x/c	z/c	x/c	z/c	x/c	z/c	x/c	z/c

TABLE 2.2 Detailed co-ordinates of quasi – elliptical aerofoil section 0.11 – 0.75 – 1.375

upper surface		
i	x/c	z/c
1	0	0
2	0.0013	0.0106
3	0.0046	0.0194
4	0.0094	0.0268
5	0.0198	0.0338
6	0.0342	0.0384
7	0.0492	0.0421
8	0.0745	0.0459
9	0.0992	0.0491
10	0.1493	0.0536
11	0.1994	0.0564
12	0.2491	0.0579
13	0.2996	0.0586
14	0.3496	0.0583
15	0.3992	0.0576
16	0.4492	0.0561
17	0.4997	0.0539
18	0.5593	0.0514
19	0.6193	0.0467
20	0.6792	0.0414
21	0.7390	0.0349
22	0.7993	0.0277
23	0.8593	0.0197
24	0.9198	0.0107
25	0.9914	0.0006

lower surface		
i	x/c	z/c
26	0.8997	0.0137
27	0.7995	0.0277
28	0.6999	0.0393
29	0.6010	0.0481
30	0.4999	0.0539
31	0.3998	0.0575
32	0.2998	0.0587
33	0.2008	0.0565
34	0.1500	0.0537
35	0.0999	0.0493
36	0.0499	0.0422
37	0.0251	0.0368
38	0.0108	0.0282
39	0.0056	0.0212
40	0.0019	0.0128

upper surface		
i	x/c	z/c
41	0.0200	0.0338
42	0.2997	0.0586
43	0.6194	0.0467

TABLE 2.3 Co-ordinates of the model pressure holes

alpha 0.00 — cd 0.0095
ma.nom 0.300 6
re. 1.07 10 — macs 0.303
po 10144 — mace 0.302

MODEL

i	cpi	i	cpi
1	1.026	25	0.177
2	0.811	26	0.042
3	0.334	27	-0.087
4	-0.405	28	-0.168
5	-0.863	29	-0.220
6	-0.689	30	-0.252
7	-0.580	31	-0.283
8	-0.482	32	-0.318
9	-0.433	33	-0.360
10	-0.388	34	-0.381
11	-0.360	35	-0.430
12	-0.339	36	-0.570
13	-0.322	37	-0.776
14	-0.294	38	-0.622
15	-0.280	39	0.240
16	-0.266	40	0.751
17	-0.252	41	-0.867
18	-0.234	42	-0.318
19	-0.210	43	-0.210
20	-0.178		
21	-0.140		
22	-0+087		
23	-0.017		
24	0.077		

WAKE

i	x_t/c	cpw	i	x_t/c	cpw
1	0.0000	0.000	21	0.0733	0.165
2	0.0049	0.002	22	0.0782	0.117
3	0.0098	0.003	23	0.0831	0.073
4	0.0146	0.006	24	0.0879	0.040
5	0.0195	0.012	25	0.0928	0.018
6	0.0244	0.028	26	0.0977	0.007
7	0.0293	0.055	27	0.1002	0.005
8	0.0342	0.097	28	0.1050	0.000
9	0.0391	0.145			
10	0.0440	0.193			
11	0.0464	0.212			
12	0.0488	0.230			
13	0.0513	0.243			
14	0.0537	0.255			
15	0.0562	0.260			
16	0.0586	0.258			
17	0.0611	0.253			
18	0.0635	0.242			
19	0.0659	0.227			
20	0.0684	0.208			

alpha 0.00 — cd 0.0118
ma.nom. 0.300 6
re 1.10 .10 — macs 0.300
po 10446 — mace 0.299

MODEL

i	cp	p/po	i	cp	p/po
1	1.029	1.0004	25	0.161	0.9489
2	0.794	0.9865	26	0.041	0.9419
3			27	-0.080	0.9346
4	-0.523	0.9084	28	-0.164	0.9297
5	-0.894	0.8864	29	-0.214	0.9267
6	-0.693	0.8983	30	-0.262	0.9239
7	-0.556	0.9064	31	-0.286	0.9224
8	-0.516	0.9088	32	-0.307	0.9212
9	-0.449	0.9128	33	-0.339	0.9193
10	-0.384	0.9166	34	-0.355	0.9184
11	-0.365	0.9178	35	-0.413	0.9149
12	-0.342	0.9191	36	-0.547	0.9070
13	-0.326	0.9201	37	-0.950	0.8831
14	-0.307	0.9212	38	-0.982	0.8812
15	-0.294	0.9220	39	-1.011	0.8795
16	-0.278	0.9229	40	-0.942	0.8836
17	-0.262	0.9239	41	-0.912	0.8854
18	-0.236	0.9254	42	-0.323	0.9203
19	-0.212	0.9268	43	-0.220	0.9264
20	-0.182	0.9286			
21	-0.145	0.9308			
22	-0.090	0.9341			
23	-0.019	0.9383			
24	0.072	0.9437			

WAKE

i	x_t/c	cpw	i	x_t/c	cpw
1	0.0000	0.000	23	0.4397	0.069
2	0.0230	0.000	24	0.4446	0.115
3	0.0462	0.000	25	0.4495	0.161
4	0.0695	0.000	26	0.4544	0.211
5	0.0929	0.000	27	0.4593	0.257
6	0.1165	0.000	28	0.4642	0.289
7	0.1401	0.000	29	0.4691	0.304
8	0.1639	0.000	30	0.4739	0.300
9	0.1878	0.000	31	0.4788	0.280
10	0.2117	0.000	32	0.4837	0.244
11	0.2357	0.000	33	0.4886	0.195
12	0.2598	0.000	34	0.4935	0.144
13	0.2840	0.000	35	0.4984	0.095
14	0.3082	0.000	36	0.4544	0.058
15	0.3325	0.000	37	0.5081	0.030
16	0.3568	0.000	38	0.5130	0.014
17	0.3812	0.000	39	0.5179	0.007
18	0.4056	0.002	40	0.5228	0.004
19	0.4178	0.003	41	0.5277	0.003
20	0.4251	0.007	42	0.5399	0.002
21	0.4300	0.019	43	0.5472	0.000
22	0.4349	0.038	44	0.5521	0.000

alpha 0.00 — cd 0.0098
ma.nom 0.500 6
re. 1.65 10 — macs 0.502
po 10113 — mace 0.502

MODEL

i	cpi	i	cpi
1	1.064	25	0.185
2	0.857	26	0.043
3	0.394	27	-0.096
4	-0.370	28	-0.184
5	-0.936	29	-0.242
6	-0.746	30	-0.280
7	-0.637	31	-0.322
8	-0.525	32	-0.342
9	-0.473	33	-0.374
10	-0.428	34	-0.421
11	-0.376	35	-0.469
12	-0.360	36	-0.622
13	-0.345	37	-0.839
14	-0.328	38	-0.620
15	-0.312	39	0.295
16	-0.297	40	0.794
17	-0.280	41	-0.937
18	-0.257	42	-0.343
19	-0.231	43	-0.229
20	-0.196		
21	-0.153		
22	-0.096		
23	-0.020		
24	0.081		

WAKE

i	x_t/c	cpw	i	x_t/c	cpw
1	0.0000	0.000	21	0.0611	0.270
2	0.0049	0.001	22	0.0635	0.254
3	0.0098	0.003	23	0.0660	0.236
4	0.0146	0.010	24	0.0684	0.213
5	0.0195	0.026	25	0.0708	0.191
6	0.0244	0.052	26	0.0733	0.166
7	0.0269	0.070	27	0.0757	0.141
8	0.0293	0.091	28	0.0782	0.117
9	0.0317	0.114	29	0.0806	0.094
10	0.0342	0.139	30	0.0831	0.072
11	0.0366	0.162	31	0.0855	0.054
12	0.0391	0.188	32	0.0904	0.026
13	0.0415	0.211	33	0.0953	0.011
14	0.0440	0.235	34	0.1002	0.004
15	0.0464	0.253	35	0.1050	0.001
16	0.0488	0.268	36	0.1099	0.000
17	0.0513	0.279			
18	0.0537	0.284			
19	0.0562	0.284			
20	0.0586	0.279			

alpha 0.00 — cd 0.0118
ma.nom. 0.500 6
re 1.70 .10 — macs 0.502
po 10358 — mace 0.501

MODEL

i	cp	p/po	i	cp	p/po
1	1.073	1.0013	25	0.174	0.8687
2	0.853	0.9688	26	0.045	0.8496
3			27	-0.092	0.8295
4	-0.493	0.7703	28	-0.185	0.8157
5	-0.959	0.7015	29	-0.240	0.8077
6	-0.741	0.7337	30	-0.291	0.8001
7	-0.606	0.7537	31	-0.322	0.7956
8	-0.547	0.7623	32	-0.344	0.7923
9	-0.498	0.7695	33	-0.381	0.7868
10	-0.423	0.7806	34	-0.403	0.7836
11	-0.400	0.7839	35	-0.477	0.7726
12	-0.378	0.7873	36	-0.604	0.7540
13	-0.359	0.7901	37	-0.995	0.6962
14	-0.337	0.7933	38	-1.045	0.6886
15	-0.324	0.7952	39	-1.072	0.6846
16	-0.304	0.7982	40	-0.981	0.6983
17	-0.288	0.8006	41	-0.977	0.6988
18	-0.260	0.8046	42	-0.355	0.7907
19	-0.232	0.8087	43	-0.245	0.8069
20	-0.199	0.8137			
21	-0.154	0.8203			
22	-0.096	0.8288			
23	-0.019	0.8407			
24	0.078	0.8545			

WAKE

i	x_t/c	cpw	i	x_t/c	cpw
1	0.0000	0.000	24	0.4167	0.073
2	0.0232	0.000	25	0.4216	0.117
3	0.0465	0.000	26	0.4265	0.169
4	0.0699	0.000	27	0.4314	0.220
5	0.0934	0.000	28	0.4362	0.269
6	0.1171	0.000	29	0.4411	0.300
7	0.1409	0.000	30	0.4460	0.317
8	0.1647	0.000	31	0.4509	0.313
9	0.1887	0.000	32	0.4558	0.289
10	0.2127	0.000	33	0.4607	0.257
11	0.2368	0.000	34	0.4656	0.208
12	0.2610	0.000	35	0.4705	0.156
13	0.2852	0.000	36	0.4753	0.108
14	0.3095	0.000	37	0.4802	0.065
15	0.3338	0.000	38	0.4851	0.036
16	0.3581	0.000	39	0.4900	0.016
17	0.3825	0.001	40	0.4949	0.006
18	0.3874	0.001	41	0.4998	0.002
19	0.3923	0.001	42	0.5047	0.001
20	0.3972	0.002	43	0.5095	0.001
21	0.4021	0.008	44	0.5144	0.000
22	0.4069	0.019	45	0.5193	0.000
23	0.4118	0.039	46	0.5242	0.000

TABLE 2.4.1 Free transition data

TABLE 2.4.2 Fixed transition data

alpha	0.00		cd	0.0097	
ma.nom	0.600	6			
re.	1.89	10	macs	0.601	
po	10099		mace	0.601	

MODEL

i	cpi	i	cpi
1	1.093	25	0.194
2	0.895	26	0.049
3	0.447	27	-0.101
4	-0.314	28	-0.199
5	-0.999	29	-0.262
6	-0.802	30	-0.306
7	-0.688	31	-0.352
8	-0.570	32	-0.376
9	-0.514	33	-0.412
10	-0.464	34	-0.455
11	-0.411	35	-0.510
12	-0.397	36	-0.677
13	-0.377	37	-0.902
14	-0.356	38	-0.581
15	-0.342	39	0.348
16	-0.324	40	0.833
17	-0.305	41	-1.000
18	-0.279	42	-0.376
19	-0.249	43	-0.248
20	-0.210		
21	-0.164		
22	-0.101		
23	-0.018		
24	0.088		

WAKE

i	x_t/c	cpw	i	x_t/c	cpw
1	0.0000	0.000	21	0.0611	0.251
2	0.0049	0.004	22	0.0635	0.231
3	0.0098	0.011	23	0.0660	0.211
4	0.0147	0.028	24	0.0684	0.186
5	0.0195	0.055	25	0.0708	0.162
6	0.0244	0.096	26	0.0733	0.136
7	0.0269	0.119	27	0.0757	0.112
8	0.0293	0.143	28	0.0782	0.090
9	0.0317	0.169	29	0.0806	0.069
10	0.0342	0.193	30	0.0831	0.051
11	0.0366	0.216	31	0.0879	0.026
12	0.0391	0.239	32	0.0928	0.010
13	0.0415	0.258	33	0.0977	0.004
14	0.0440	0.275	34	0.1026	0.001
15	0.0464	0.285	35	0.1075	0.000
16	0.0489	0.292			
17	0.0513	0.294			
18	0.0537	0.290			
19	0.0562	0.283			
20	0.0586	0.269			

alpha	0.00		cd	0.0096	
ma.nom	0.700	6			
re.	2.14	10	macs	0.702	
po	10312		mace	0.702	

MODEL

i	cpi	i	cpi
1	1.132	25	0.206
2	0.948	26	0.062
3	0.532	27	-0.102
4	-0.184	28	-0.216
5	-1.097	29	-0.293
6	-0.900	30	-0.347
7	-0.777	31	-0.402
8	-0.647	32	-0.434
9	-0.582	33	-0.474
10	-0.520	34	-0.514
11	-0.472	35	-0.585
12	-0.454	36	-0.775
13	-0.428	37	-1.012
14	-0.404	38	-0.440
15	-0.387	39	0.435
16	-0.365	40	0.890
17	-0.343	41	-1.087
18	-0.313	42	-0.426
19	-0.276	43	-0.275
20	-0.228		
21	-0.174		
22	-0.102		
23	-0.010		
24	0.102		

WAKE

i	x_t/c	cpw	i	x_t/c	cpw
1	0.0000	0.000	21	0.0782	0.158
2	0.0049	0.002	22	0.0831	0.110
3	0.0098	0.006	23	0.0879	0.068
4	0.0146	0.016	24	0.0928	0.037
5	0.0195	0.036	25	0.0977	0.017
6	0.0244	0.067	26	0.1026	0.007
7	0.0293	0.108	27	0.1075	0.002
8	0.0342	0.156	28	0.1124	0.001
9	0.0391	0.206	29	0.1173	0.000
10	0.0440	0.253			
11	0.0488	0.284			
12	0.0513	0.297			
13	0.0537	0.304			
14	0.0562	0.306			
15	0.0586	0.304			
16	0.0611	0.298			
17	0.0635	0.286			
18	0.0660	0.271			
19	0.0684	0.253			
20	0.0733	0.208			

alpha	0.00		cd	0.0098	
ma.nom	0.740	6			
re.	2.23	10	macs	0.741	
po	10416		mace	0.741	

MODEL

i	cpi	i	cpi
1	1.147	25	0.211
2	0.970	26	0.068
3	0.572	27	-0.101
4	-0.107	28	-0.221
5	-1.077	29	-0.307
6	-0.968	30	-0.368
7	-0.834	31	-0.429
8	-0.697	32	-0.467
9	-0.624	33	-0.509
10	-0.552	34	-0.550
11	-0.497	35	-0.635
12	-0.484	36	-0.843
13	-0.460	37	-1.068
14	-0.432	38	-0.355
15	-0.413	39	0.474
16	-0.388	40	0.912
17	-0.364	41	-1.066
18	-0.329	42	-0.459
19	-0.289	43	-0.289
20	-0.237		
21	-0.178		
22	-0.100		
23	-0.005		
24	0.109		

WAKE

i	x_t/c	cpw	i	x_t/c	cpw
1	0.0000	0.000	21	0.0782	0.212
2	0.0049	0.000	22	0.0831	0.163
3	0.0098	0.002	23	0.0879	0.115
4	0.0146	0.008	24	0.0928	0.073
5	0.0195	0.021	25	0.0977	0.041
6	0.0244	0.044	26	0.1026	0.020
7	0.0293	0.076	27	0.1075	0.009
8	0.0342	0.120	28	0.1124	0.003
9	0.0391	0.168	29	0.1172	0.001
10	0.0440	0.218	30	0.1221	0.000
11	0.0488	0.259	31	0.1270	0.000
12	0.0537	0.291			
13	0.0562	0.301			
14	0.0586	0.307			
15	0.0611	0.309			
16	0.0635	0.307			
17	0.0659	0.300			
18	0.0684	0.287			
19	0.0708	0.273			
20	0.0733	0.256			

TABLE 2.4.1 Free transition data (con'd)

			cd	0.0115	
			macs	0.598	
			mace	0.598	

MODEL

i	cp	p/po	i	cp	p/po
1	1.094	1.0002	25	0.180	0.8195
2	0.889	0.9597	26	0.049	0.7938
3			27	-0.091	0.7648
4	-0.425	0.7000	28	-0.201	0.7444
5	-1.009	0.5847	29	-0.263	0.7321
6	-0.785	0.6290	30	-0.320	0.7208
7	-0.653	0.6550	31	-0.355	0.7139
8	-0.594	0.6666	32	-0.381	0.7087
9	-0.537	0.6780	33	-0.417	0.7016
10	-0.458	0.6935	34	-0.443	0.6966
11	-0.425	0.6980	35	-0.525	0.6804
12	-0.412	0.7026	36	-0.656	0.6544
13	-0.392	0.7066	37	-1.050	0.5765
14	-0.368	0.7113	38	-1.086	0.5694
15	-0.354	0.7141	39	-1.100	0.5667
16	-0.332	0.7183	40	-0.967	0.5930
17	-0.314	0.7219	41	-1.023	0.5819
18	-0.284	0.7280	42	-0.383	0.7084
19	-0.252	0.7342	43	-0.262	0.7323
20	-0.214	0.7417			
21	-0.167	0.7510			
22	-0.103	0.7637			
23	-0.020	0.7801			
24	0.083	0.8004			

WAKE

i	x_t/c	cpw	i	x_t/c	cpw
1	0.0000	0.000	23	0.4118	0.044
2	0.0232	0.000	24	0.4167	0.081
3	0.0465	0.000	25	0.4216	0.127
4	0.0699	0.000	26	0.4265	0.177
5	0.0934	0.000	27	0.4314	0.229
6	0.1171	0.000	28	0.4362	0.272
7	0.1409	0.000	29	0.4411	0.306
8	0.1647	0.000	30	0.4460	0.323
9	0.1887	0.000	31	0.4509	0.323
10	0.2127	0.000	32	0.4558	0.299
11	0.2368	0.000	33	0.4607	0.263
12	0.2610	0.000	34	0.4656	0.219
13	0.2852	0.000	35	0.4705	0.169
14	0.3095	0.000	36	0.4753	0.117
15	0.3338	0.000	37	0.4802	0.073
16	0.3581	0.000	38	0.4851	0.041
17	0.3825	0.000	39	0.4900	0.019
18	0.3874	0.000	40	0.4949	0.006
19	0.3923	0.001	41	0.4998	0.001
20	0.3972	0.003	42	0.5047	0.000
21	0.4021	0.009	43	0.5095	0.000
22	0.4069	0.023			

alpha	0.00		cd	0.0118	
ma.nom.	0.700	6			
re	2.14	.10	macs	0.702	
po	10286		mace	0.701	

MODEL

i	cp	p/po	i	cp	p/po
1	1.135	1.0017	25	0.190	0.7678
2	0.928	0.9504	26	0.059	0.7353
3			27	-0.100	0.6959
4	-0.289	0.6493	28	-0.218	0.6668
5	-1.104	0.4478	29	-0.293	0.6483
6	-0.861	0.5077	30	-0.361	0.6315
7	-0.737	0.5384	31	-0.403	0.6210
8	-0.692	0.5496	32	-0.438	0.6123
9	-0.608	0.5703	33	-0.483	0.6013
10	-0.517	0.5928	34	-0.506	0.5955
11	-0.494	0.5986	35	-0.603	0.5716
12	-0.468	0.6050	36	-0.740	0.5377
13	-0.443	0.6113	37	-1.129	0.4414
14	-0.415	0.6181	38	-1.075	0.4549
15	-0.397	0.6225	39	-1.034	0.4649
16	-0.373	0.6286	40	-0.838	0.5134
17	-0.350	0.6342	41	-1.126	0.4422
18	-0.315	0.6429	42	-0.438	0.6123
19	-0.277	0.6523	43	-0.288	0.6495
20	-0.231	0.6635			
21	-0.176	0.6772			
22	-0.103	0.6953			
23	-0.012	0.7179			
24	0.095	0.7443			

WAKE

i	x_t/c	cpw	i	x_t/c	cpw
1	0.0000	0.000	27	0.4495	0.191
2	0.0230	0.000	28	0.4544	0.242
3	0.0462	0.000	29	0.4593	0.286
4	0.0695	0.000	30	0.4642	0.316
5	0.0929	0.000	31	0.4691	0.336
6	0.1165	0.000	32	0.4739	0.336
7	0.1401	0.000	33	0.4788	0.320
8	0.1639	0.000	34	0.4837	0.286
9	0.1878	0.000	35	0.4886	0.238
10	0.2117	0.000	36	0.4935	0.193
11	0.2357	0.000	37	0.4984	0.142
12	0.2598	0.000	38	0.5033	0.094
13	0.2840	0.000	39	0.5081	0.059
14	0.3082	0.000	40	0.5130	0.032
15	0.3325	0.000	41	0.5179	0.015
16	0.3568	0.000	42	0.4349	0.005
17	0.3812	0.000	43	0.5277	0.002
18	0.4056	0.000	44	0.5326	0.001
19	0.4104	0.001	45	0.5375	0.001
20	0.4153	0.002	46	0.5423	0.001
21	0.4202	0.005	47	0.5472	0.001
22	0.4251	0.014	48	0.5521	0.000
23	0.4300	0.029	49	0.5765	0.000
24	0.4349	0.055	50	0.6008	0.000
25	0.4397	0.094	51	0.6252	0.000
26	0.4446	0.139			

alpha	0.00		cd	0.0118	
ma.nom.	0.740	6			
re	2.21	.10	macs	0.740	
po	10295		mace	0.740	

MODEL

i	cp	p/po	i	cp	p/po
1	1.146	1.0003	25	0.136	0.7472
2	0.964	0.9519	26	0.067	0.7126
3			27	-0.098	0.6687
4	-0.204	0.6404	28	-0.223	0.6353
5	-1.031	0.4040	29	-0.305	0.6135
6	-0.894	0.4565	30	-0.380	0.5935
7	-0.781	0.4866	31	-0.429	0.5804
8	-0.772	0.4889	32	-0.469	0.5696
9	-0.626	0.5280	33	-0.518	0.5566
10	-0.545	0.5494	34	-0.537	0.5516
11	-0.525	0.5548	35	-0.649	0.5217
12	-0.499	0.5617	36	-0.768	0.4900
13	-0.472	0.5689	37	-1.040	0.4174
14	-0.440	0.5775	38	-0.970	0.4362
15	-0.421	0.5826	39	-0.934	0.4458
16	-0.393	0.5900	40	-0.738	0.4981
17	-0.368	0.5966	41	-1.102	0.4009
18	-0.328	0.6073	42	-0.465	0.5709
19	-0.287	0.6184	43	-0.299	0.6151
20	-0.237	0.6315			
21	-0.177	0.6476			
22	-0.100	0.6682			
23	-0.005	0.6934			
24	0.102	0.7219			

WAKE

i	x_t/c	cpw	i	x_t/c	cpw
1	0.0000	0.000	24	0.4167	0.106
2	0.0232	0.000	25	0.4216	0.153
3	0.0465	0.000	26	0.4265	0.207
4	0.0699	0.000	27	0.4314	0.255
5	0.0934	0.000	28	0.4362	0.292
6	0.1171	0.000	29	0.4411	0.325
7	0.1409	0.000	30	0.4460	0.339
8	0.1647	0.000	31	0.4509	0.338
9	0.1887	0.000	32	0.4558	0.321
10	0.2127	0.000	33	0.4607	0.290
11	0.2368	0.000	34	0.4656	0.248
12	0.2610	0.000	35	0.4705	0.195
13	0.2852	0.000	36	0.4753	0.145
14	0.3095	0.000	37	0.4802	0.100
15	0.3338	0.000	38	0.4851	0.063
16	0.3581	0.000	39	0.4900	0.035
17	0.3825	0.001	40	0.4949	0.017
18	0.3874	0.001	41	0.4996	0.007
19	0.3923	0.003	42	0.5047	0.002
20	0.3972	0.008	43	0.5095	0.001
21	0.4021	0.018	44	0.5144	0.000
22	0.4069	0.039	45	0.5193	0.000
23	0.4119	0.067	46	0.5242	0.000

TABLE 2.4.2 Fixed transition data (con'd)

alpha 0.00 | cd 0.0099
ma.nom 0.770 6
re. 2.28 10 | macs 0.771
po 10412 | mace 0.770

MODEL

i	cpi	i	cpi
1	1.159	25	0.221
2	0.985	26	0.076
3	0.599	27	-0.098
4	-0.055	28	-0.226
5	-1.020	29	-0.319
6	-0.988	30	-0.386
7	-0.937	31	-0.454
8	-0.799	32	-0.494
9	-0.714	33	-0.538
10	-0.612	34	-0.602
11	-0.507	35	-0.683
12	-0.523	36	-0.904
13	-0.495	37	-1.000
14	-0.464	38	-0.277
15	-0.441	39	0.517
16	-0.413	40	0.935
17	-0.383	41	-1.011
18	-0.344	42	-0.495
19	-0.298	43	-0.298
20	-0.242		
21	-0.177		
22	-0.095		
23	0.005		
24	0.119		

WAKE

i	x_t/c	cpw	i	x_t/c	cpw
1	0.0000	0.000	21	0.0782	0.216
2	0.0049	0.000	22	0.0831	0.168
3	0.0098	0.002	23	0.0879	0.120
4	0.0146	0.008	24	0.0928	0.078
5	0.0195	0.021	25	0.0977	0.045
6	0.0244	0.044	26	0.1026	0.023
7	0.0293	0.076	27	0.1075	0.010
8	0.0342	0.118	28	0.1124	0.003
9	0.0391	0.167	29	0.1172	0.001
10	0.0440	0.214	30	0.1221	0.000
11	0.0488	0.257	31	0.1270	0.000
12	0.0537	0.289			
13	0.0562	0.299			
14	0.0586	0.306			
15	0.0611	0.308			
16	0.0635	0.306			
17	0.0659	0.300			
18	0.0684	0.289			
19	0.0708	0.275			
20	0.0733	0.258			

alpha 0.00 | cd 0.0122
ma.nom. 0.770 6
re 2.26 .10 | macs 0.771
po 10333 | mace 0.771

MODEL

i	cp	p/po	i	cp	p/po
1	1.162	1.0013	25	0.200	0.7319
2	0.977	0.9496	26	0.073	0.6960
3			27	-0.094	0.6493
4	-0.140	0.6364	28	-0.226	0.6123
5	-1.024	0.3888	29	-0.317	0.5868
6	-0.952	0.4086	30	-0.400	0.5635
7	-0.822	0.4454	31	-0.456	0.5478
8	-0.822	0.4453	32	-0.505	0.5341
9	-0.679	0.4434	33	-0.555	0.5203
10	-0.550	0.5245	34	-0.544	0.5233
11	-0.564	0.5177	35	-0.850	0.4374
12	-0.539	0.5245	36	-0.768	0.4604
13	-0.506	0.5338	37	-0.959	0.4070
14	-0.471	0.5438	38	-0.881	0.4287
15	-0.448	0.5500	39	-0.841	0.4399
16	-0.417	0.5587	40	-0.654	0.4923
17	-0.388	0.5670	41	-1.030	0.3870
18	-0.344	0.5792	42	-0.507	0.5349
19	-0.298	0.5924	43	-0.309	0.5890
20	-0.244	0.6073			
21	-0.179	0.6255			
22	-0.097	0.6484			
23	-0.001	0.6755			
24	0.107	0.7058			

WAKE

i	x_t/c	cpw	i	x_t/c	cpw
1	0.0000	0.000	28	0.4544	0.252
2	0.0230	0.000	29	0.4593	0.293
3	0.0462	0.000	30	0.4642	0.327
4	0.0695	0.000	31	0.4691	0.342
5	0.0929	0.000	32	0.4739	0.345
6	0.1165	0.000	33	0.4789	0.334
7	0.1401	0.000	34	0.4837	0.302
8	0.1639	0.000	35	0.4886	0.263
9	0.1878	0.000	36	0.4935	0.216
10	0.2117	0.000	37	0.4984	0.167
11	0.2357	0.000	38	0.5033	0.119
12	0.2598	0.000	39	0.5081	0.078
13	0.2840	0.000	40	0.5130	0.048
14	0.3082	0.000	41	0.5179	0.029
15	0.3325	0.000	42	0.5228	0.015
16	0.3568	0.000	43	0.5277	0.009
17	0.3812	0.001	44	0.5326	0.005
18	0.4056	0.001	45	0.5375	0.004
19	0.4104	0.002	46	0.5423	0.002
20	0.4153	0.005	47	0.5472	0.002
21	0.4202	0.011	48	0.5521	0.001
22	0.4251	0.023	49	0.5765	0.001
23	0.4300	0.043	50	0.6008	0.000
24	0.4349	0.073	51	0.6252	0.000
25	0.4397	0.108	52	0.6494	0.000
26	0.4446	0.154	53	0.6737	0.000
27	0.4495	0.205			

alpha 0.00 | cd 0.0089
ma.nom 0.789 6
re. 2.31 10 | macs 0.789
po 10400 | mace 0.789

MODEL

i	cpi	i	cpi
1	1.168	25	0.239
2	0.999	26	0.085
3	0.620	27	-0.096
4	-0.018	28	-0.229
5	-0.967	29	-0.326
6	-0.947	30	-0.396
7	-0.910	31	-0.452
8	-0.849	32	-0.552
9	-0.787	33	-0.615
10	-0.673	34	-0.657
11	-0.618	35	-0.762
12	-0.579	36	-0.891
13	-0.468	37	-0.954
14	-0.464	38	-0.233
15	-0.453	39	0.540
16	-0.425	40	0.950
17	-0.394	41	-0.953
18	-0.352	42	-0.461
19	-0.303	43	-0.303
20	-0.242		
21	-0.174		
22	-0.089		
23	0.015		
24	0.134		

WAKE

i	x_t/c	cpw	i	x_t/c	cpw
1	0.0000	0.000	21	0.0782	0.191
2	0.0049	0.000	22	0.0831	0.138
3	0.0098	0.002	23	0.0879	0.094
4	0.0146	0.007	24	0.0928	0.057
5	0.0195	0.018	25	0.0977	0.028
6	0.0244	0.038	26	0.1026	0.012
7	0.0293	0.073	27	0.1075	0.005
8	0.0342	0.112	28	0.1124	0.001
9	0.0391	0.163	29	0.1172	0.000
10	0.0440	0.211	30	0.1221	0.000
11	0.0488	0.254			
12	0.0537	0.284			
13	0.0562	0.292			
14	0.0586	0.297			
15	0.0611	0.297			
16	0.0635	0.293			
17	0.0659	0.283			
18	0.0684	0.271			
19	0.0708	0.254			
20	0.0733	0.236			

alpha 0.00 | cd 0.0121
ma.nom. 0.790 6
re 2.29 .10 | macs 0.790
po 10327 | mace 0.789

MODEL

i	cp	p/po	i	cp	p/po
1	1.167	1.0003	25	0.208	0.7230
2	0.998	0.9516	26	0.081	0.6863
3			27	-0.086	0.6380
4	-0.037	0.6348	28	-0.222	0.5985
5	-0.963	0.3847	29	-0.320	0.5704
6	-0.926	0.3951	30	-0.408	0.5447
7	-0.796	0.4325	31	-0.472	0.5264
8	-0.779	0.4374	32	-0.528	0.5100
9	-0.813	0.4276	33	-0.538	0.5071
10	-0.740	0.4488	34	-0.735	0.4502
11	-0.514	0.5141	35	-0.838	0.4205
12	-0.554	0.5025	36	-0.752	0.4452
13	-0.530	0.5094	37	-0.893	0.4044
14	-0.488	0.5217	38	-0.816	0.4269
15	-0.464	0.5287	39	-0.775	0.4385
16	-0.428	0.5389	40	-0.593	0.4913
17	-0.397	0.5481	41	-0.965	0.3836
18	-0.349	0.5619	42	-0.525	0.5109
19	-0.299	0.5764	43	-0.310	0.5731
20	-0.241	0.5932			
21	-0.174	0.6126			
22	-0.090	0.6367			
23	0.008	0.6652			
24	0.116	0.6965			

WAKE

i	x_t/c	cpw	i	x_t/c	cpw
1	0.0000	0.000	27	0.4495	0.217
2	0.0230	0.000	28	0.4544	0.259
3	0.0462	0.000	29	0.4593	0.300
4	0.0695	0.000	30	0.4642	0.329
5	0.0929	0.000	31	0.4691	0.343
6	0.1165	0.000	32	0.4739	0.342
7	0.1401	0.000	33	0.4788	0.326
8	0.1639	0.000	34	0.4837	0.296
9	0.1878	0.000	35	0.4886	0.255
10	0.2117	0.000	36	0.4935	0.211
11	0.2357	0.000	37	0.4984	0.159
12	0.2598	0.000	38	0.5033	0.117
13	0.2840	0.000	39	0.5081	0.078
14	0.3082	0.000	40	0.5130	0.047
15	0.3325	0.000	41	0.5179	0.025
16	0.3568	0.001	42	0.5228	0.012
17	0.3812	0.001	43	0.5277	0.006
18	0.4056	0.002	44	0.5326	0.003
19	0.4104	0.004	45	0.5375	0.002
20	0.4153	0.006	46	0.5423	0.001
21	0.4202	0.013	47	0.5472	0.001
22	0.4251	0.027	48	0.5521	0.001
23	0.4300	0.047	49	0.5765	0.001
24	0.4349	0.081	50	0.6008	0.000
25	0.4397	0.119	51	0.6252	0.000
26	0.4446	0.166			

alpha 0.00 | cd 0.0083
ma.nom 0.800 6
re. 2.32 10 | macs 0.800
po 10397 | mace 0.800

MODEL

i	cpi	i	cpi
1	1.174	25	0.254
2	1.006	26	0.092
3	0.635	27	-0.093
4	0.005	28	-0.227
5	-0.935	29	-0.326
6	-0.921	30	-0.387
7	-0.889	31	-0.440
8	-0.838	32	-0.618
9	-0.791	33	-0.667
10	-0.740	34	-0.703
11	-0.695	35	-0.761
12	-0.640	36	-0.864
13	-0.586	37	-0.921
14	-0.458	38	-0.208
15	-0.399	39	0.554
16	-0.416	40	0.957
17	-0.395	41	-0.925
18	-0.355	42	-0.587
19	-0.305	43	-0.304
20	-0.243		
21	-0.175		
22	-0.087		
23	0.018		
24	0.141		

WAKE

i	x_t/c	cpw	i	x_t/c	cpw
1	0.0000	0.000	21	0.0782	0.181
2	0.0049	0.000	22	0.0831	0.130
3	0.0098	0.001	23	0.0879	0.082
4	0.0146	0.004	24	0.0928	0.046
5	0.0195	0.011	25	0.0977	0.022
6	0.0244	0.029	26	0.1026	0.009
7	0.0293	0.058	27	0.1075	0.004
8	0.0342	0.099	28	0.1124	0.002
9	0.0391	0.146	29	0.1172	0.001
10	0.0440	0.198	30	0.1221	0.000
11	0.0488	0.244			
12	0.0537	0.277			
13	0.0562	0.289			
14	0.0586	0.294			
15	0.0611	0.295			
16	0.0635	0.290			
17	0.0659	0.282			
18	0.0684	0.269			
19	0.0708	0.251			
20	0.0733	0.230			

alpha 0.00 | cd 0.0121
ma.nom. 0.800 6
re 2.31 .10 | macs 0.800
po 10376 | mace 0.801

MODEL

i	cp	p/po	i	cp	p/po
1	1.169	0.9997	25	0.211	0.7179
2	1.004	0.9509	26	0.084	0.6806
3			27	-0.084	0.6313
4	-0.079	0.6331	28	-0.221	0.5909
5	-0.934	0.3815	29	-0.322	0.5612
6	-0.903	0.3905	30	-0.414	0.5343
7	-0.776	0.4278	31	-0.474	0.5166
8	-0.771	0.4293	32	-0.500	0.5091
9	-0.188	0.4242	33	-0.717	0.4453
10	-0.753	0.4346	34	-0.743	0.4375
11	-0.714	0.4460	35	-0.816	0.4162
12	-0.669	0.4592	36	-0.744	0.4371
13	-0.476	0.5159	37	-0.860	0.4031
14	-0.431	0.5145	38	-0.793	0.4257
15	-0.471	0.5174	39	-0.742	0.4378
16	-0.435	0.5281	40	-0.563	0.4904
17	-0.401	0.5379	41	-0.932	0.3819
18	-0.353	0.5522	42	-0.473	0.5169
19	-0.300	0.5679	43	-0.311	0.5645
20	-0.241	0.5852			
21	-0.171	0.6055			
22	-0.086	0.6306			
23	0.013	0.6598			
24	0.120	0.6911			

WAKE

i	x_t/c	cpw	i	x_t/c	cpw
1	0.0000	0.000	29	0.4593	0.305
2	0.0230	0.000	30	0.4642	0.331
3	0.0462	0.000	31	0.4691	0.345
4	0.0695	0.000	32	0.4739	0.344
5	0.0929	0.000	33	0.4788	0.326
6	0.1165	0.000	34	0.4837	0.295
7	0.1401	0.000	35	0.4886	0.255
8	0.1639	0.000	36	0.4935	0.207
9	0.1878	0.000	37	0.4984	0.162
10	0.2117	0.000	38	0.5033	0.116
11	0.2357	0.000	39	0.5081	0.076
12	0.2598	0.000	40	0.5130	0.047
13	0.2840	0.000	41	0.5179	0.025
14	0.3082	0.000	42	0.5228	0.013
15	0.3325	0.000	43	0.5277	0.005
16	0.3568	0.001	44	0.5326	0.003
17	0.3812	0.002	45	0.5375	0.002
18	0.4056	0.002	46	0.5423	0.001
19	0.4104	0.004	47	0.5472	0.001
20	0.4153	0.006	48	0.5521	0.001
21	0.4202	0.015	49	0.5765	0.001
22	0.4251	0.028	50	0.6008	0.001
23	0.4300	0.051	51	0.6252	0.001
24	0.4349	0.084	52	0.6494	0.001
25	0.4397	0.124	53	0.6737	0.000
26	0.4446	0.173	54	0.6978	0.000
27	0.4495	0.223	55	0.7219	0.000
28	0.4544	0.267			

TABLE 2.4.1 Free transition data (con'd)

TABLE 2.4.2 Fixed transition data (con'd)

alpha	0.00		cd	0.0091	
ma.nom	0.820	6			
re.	2.35	10	macs	0.821	
po	10375		mace	0.819	

MODEL

i	cpi	i	cpi
1	1.183	25	0.289
2	1.019	26	0.114
3	0.656	27	-0.071
4	0.044	28	-0.196
5	-0.876	29	-0.235
6	-0.868	30	-0.629
7	-0.839	31	-0.696
8	-0.796	32	-0.699
9	-0.762	33	-0.674
10	-0.732	34	-0.686
11	-0.722	35	-0.721
12	-0.721	36	-0.808
13	-0.726	37	-0.855
14	-0.729	38	-0.157
15	-0.699	39	0.582
16	-0.654	40	0.972
17	-0.514	41	-0.867
18	-0.224	42	-0.724
19	-0.243	43	-0.253
20	-0.213		
21	-0.154		
22	-0.072		
23	0.033		
24	0.162		

WAKE

i	x_t/c	cpw	i	x_t/c	cpw
1	0.0000	0.000	21	0.3387	0.295
2	0.0956	0.001	22	0.3411	0.277
3	0.1438	0.003	23	0.3436	0.258
4	0.2410	0.002	24	0.3485	0.209
5	0.2654	0.002	25	0.3534	0.152
6	0.2752	0.002	26	0.3582	0.095
7	0.2849	0.003	27	0.3631	0.053
8	0.2898	0.005	28	0.3680	0.024
9	0.2947	0.016	29	0.3729	0.010
10	0.2996	0.039	30	0.3778	0.004
11	0.3045	0.083	31	0.3827	0.002
12	0.3094	0.136	32	0.3876	0.002
13	0.3143	0.192	33	0.2752	0.002
14	0.3191	0.243	34	0.4242	0.002
15	0.3240	0.286	35	0.4850	0.004
16	0.3265	0.301	36	0.6298	0.000
17	0.3289	0.312			
18	0.3314	0.315			
19	0.3338	0.314			
20	0.3362	0.307			

alpha	0.00		cd	0.0143	
ma.nom.	0.820	6			
re	2.35	.10	macs	0.821	
po	10366		mace	0.821	

MODEL

i	cp	p/po	i	cp	p/po
1	1.166	0.9957	25	0.215	0.7079
2	1.019	0.9515	26	0.093	0.6709
3			27	-0.071	0.6214
4	-0.034	0.6325	28	-0.202	0.5818
5	-0.870	0.3794	29	-0.280	0.5581
6	-0.896	0.3836	30	-0.342	0.5395
7	-0.733	0.4211	31	-0.724	0.4238
8	-0.751	0.4155	32	-0.726	0.4230
9	-0.739	0.4193	33	-0.711	0.4276
10	-0.731	0.4216	34	-0.711	0.4277
11	-0.721	0.4247	35	-0.760	0.4126
12	-0.713	0.4271	36	-0.712	0.4273
13	-0.727	0.4227	37	-0.798	0.4012
14	-0.733	0.4211	38	-0.723	0.4241
15	-0.720	0.4250	39	-0.682	0.4363
16	-0.472	0.5001	40	-0.511	0.4883
17	-0.332	0.5423	41	-0.871	0.3793
18	-0.319	0.5463	42	-0.732	0.4212
19	-0.278	0.5588	43	-0.287	0.5561
20	-0.228	0.5739			
21	-0.160	0.5943			
22	-0.076	0.6197			
23	0.031	0.6493			
24	0.127	0.6812			

WAKE

i	x_t/c	cpw	i	x_t/c	cpw
1	0.0000	0.000	36	0.4593	0.311
2	0.0230	0.000	37	0.4642	0.337
3	0.0462	0.000	38	0.4691	0.349
4	0.0695	0.000	39	0.4739	0.350
5	0.0929	0.000	40	0.4788	0.336
6	0.1165	0.000	41	0.4837	0.309
7	0.1401	0.000	42	0.4886	0.273
8	0.1639	0.000	43	0.4935	0.227
9	0.1878	0.000	44	0.4984	0.183
10	0.2117	0.001	45	0.5033	0.139
11	0.2357	0.001	46	0.5081	0.098
12	0.2598	0.002	47	0.5130	0.063
13	0.2840	0.003	48	0.5179	0.042
14	0.3082	0.005	49	0.5228	0.027
15	0.3325	0.006	50	0.5277	0.019
16	0.3446	0.006	51	0.5326	0.015
17	0.3568	0.006	52	0.5375	0.014
18	0.3665	0.008	53	0.5423	0.013
19	0.3763	0.009	54	0.5472	0.013
20	0.3812	0.010	55	0.5521	0.013
21	0.3860	0.010	56	0.5619	0.013
22	0.3909	0.011	57	0.5716	0.012
23	0.3958	0.011	58	0.5814	0.011
24	0.4007	0.011	59	0.5911	0.009
25	0.4056	0.011	60	0.6008	0.008
26	0.4104	0.013	61	0.6130	0.006
27	0.4153	0.017	62	0.6252	0.006
28	0.4202	0.025	63	0.6494	0.005
29	0.4251	0.041	64	0.6737	0.004
30	0.4300	0.069	65	0.6978	0.003
31	0.4349	0.099	66	0.7219	0.002
32	0.4397	0.140	67	0.7460	0.001
33	0.4446	0.184	68	0.7699	0.000
34	0.4495	0.232	69	0.7938	0.000
35	0.4544	0.274	70	0.8175	0.000

alpha	0.00		cd	0.0201	
ma.nom	0.850	6			
re.	2.38	10	macs	0.851	
po	10335		mace	0.851	

MODEL

i	cpi	i	cpi
1	1.199	25	0.304
2	1.040	26	0.160
3	0.691	27	0.029
4	0.101	28	-0.135
5	-0.789	29	-0.688
6	-0.785	30	-0.746
7	-0.761	31	-0.715
8	-0.725	32	-0.673
9	-0.698	33	-0.641
10	-0.676	34	-0.640
11	-0.677	35	-0.662
12	-0.688	36	-0.732
13	-0.699	37	-0.770
14	-0.712	38	-0.091
15	-0.727	39	0.620
16	-0.741	40	0.998
17	-0.750	41	-0.777
18	-0.692	42	-0.698
19	-0.687	43	-0.690
20	-0.274		
21	-0.016		
22	0.019		
23	0.091		
24	0.195		

WAKE

i	x_t/c	cpw	i	x_t/c	cpw
1	0.0000	0.000	21	0.6866	0.151
2	0.1328	0.003	22	0.6964	0.090
3	0.2714	0.009	23	0.7012	0.066
4	0.4142	0.018	24	0.7061	0.048
5	0.4624	0.020	25	0.7110	0.035
6	0.5109	0.015	26	0.7159	0.025
7	0.5596	0.015	27	0.7208	0.021
8	0.5860	0.018	28	0.7256	0.018
9	0.5889	0.022	29	0.7305	0.017
10	0.5986	0.036	30	0.7549	0.015
11	0.6084	0.072	31	0.8036	0.015
12	0.6182	0.129	32	0.8521	0.021
13	0.6279	0.199	33	0.9004	0.020
14	0.6377	0.256	34	1.0432	0.009
15	0.6475	0.291	35	1.1817	0.003
16	0.6524	0.296	36	1.3145	0.000
17	0.6573	0.293			
18	0.6621	0.282			
19	0.6670	0.265			
20	0.6768	0.214			

TABLE 2.4.1 Free transition data (concluded)

alpha	0.00		cd	0.0243	
ma.nom.	0.850	6			
re	2.37	.10	macs	0.850	
po	10296		mace	0.850	

MODEL

i	cp	p/po	i	cp	p/po
1	1.158	0.9837	25	0.197	0.6855
2	1.036	0.9502	26	0.100	0.6548
3			27	-0.026	0.6151
4	0.024	0.6306	28	-0.153	0.5750
5	-0.785	0.3758	29	-0.551	0.4495
6	-0.779	0.3777	30	-0.777	0.3782
7	-0.661	0.4150	31	-0.734	0.3917
8	-0.698	0.4039	32	-0.680	0.4085
9	-0.667	0.4144	33	-0.655	0.4167
10	-0.670	0.4120	34	-0.651	0.4181
11	-0.681	0.4084	35	-0.680	0.4089
12	-0.691	0.4057	36	-0.644	0.4203
13	-0.636	0.4037	37	-0.714	0.3983
14	-0.705	0.4009	38	-0.636	0.4220
15	-0.726	0.3943	39	-0.601	0.4337
16	-0.739	0.3903	40	-0.434	0.4863
17	-0.760	0.3837	41	-0.787	0.3766
18	-0.715	0.3977	42	-0.634	0.4046
19	-0.333	0.5184	43	-0.337	0.5170
20	-0.177	0.5675			
21	-0.103	0.5919			
22	-0.031	0.6135			
23	0.046	0.6377			
24	0.125	0.6629			

WAKE

i	x_t/c	cpw	i	x_t/c	cpw
1	0.0000	0.000	35	0.4607	0.314
2	0.0232	0.000	36	0.4656	0.295
3	0.0465	0.000	37	0.4705	0.267
4	0.0699	0.001	38	0.4753	0.241
5	0.0934	0.001	39	0.4802	0.212
6	0.1171	0.003	40	0.4851	0.182
7	0.1409	0.005	41	0.4900	0.152
8	0.1647	0.010	42	0.4949	0.125
9	0.1887	0.013	43	0.4998	0.103
10	0.2127	0.016	44	0.5047	0.084
11	0.2368	0.019	45	0.5095	0.068
12	0.2610	0.023	46	0.5144	0.058
13	0.2852	0.026	47	0.5193	0.052
14	0.3095	0.030	48	0.5242	0.047
15	0.3338	0.034	49	0.5291	0.044
16	0.3581	0.038	50	0.5339	0.043
17	0.3703	0.042	51	0.5413	0.042
18	0.3776	0.046	52	0.5535	0.040
19	0.3825	0.053	53	0.5778	0.037
20	0.3874	0.061	54	0.6021	0.033
21	0.3923	0.073	55	0.6264	0.028
22	0.3972	0.093	56	0.6506	0.024
23	0.4021	0.112	57	0.6748	0.021
24	0.4069	0.136	58	0.6989	0.017
25	0.4118	0.169	59	0.7229	0.014
26	0.4167	0.198	60	0.7469	0.012
27	0.4216	0.230	61	0.7707	0.010
28	0.4265	0.262	62	0.7945	0.005
29	0.4314	0.287	63	0.8181	0.004
30	0.4362	0.310	64	0.8417	0.002
31	0.4411	0.325	65	0.8651	0.001
32	0.4460	0.333	66	0.8884	0.000
33	0.4509	0.334	67	0.9116	0.000
34	0.4558	0.326	68	0.9346	0.000

TABLE 2.4.2 Fixed transition data (concluded)

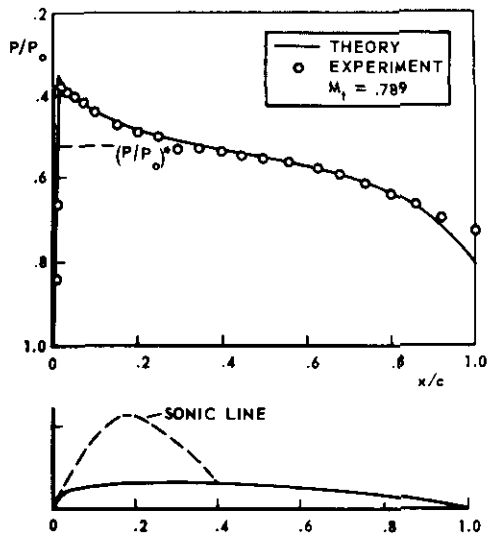


Fig. 2.1 Airfoil shape and design pressure distribution

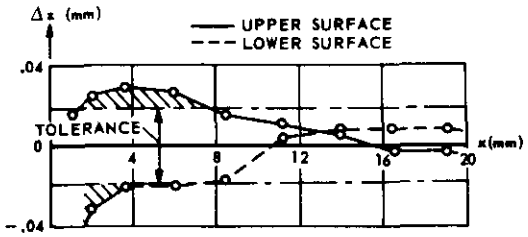


Fig. 2.2 Deviation of realised model profile from theoretical shape (nose region)

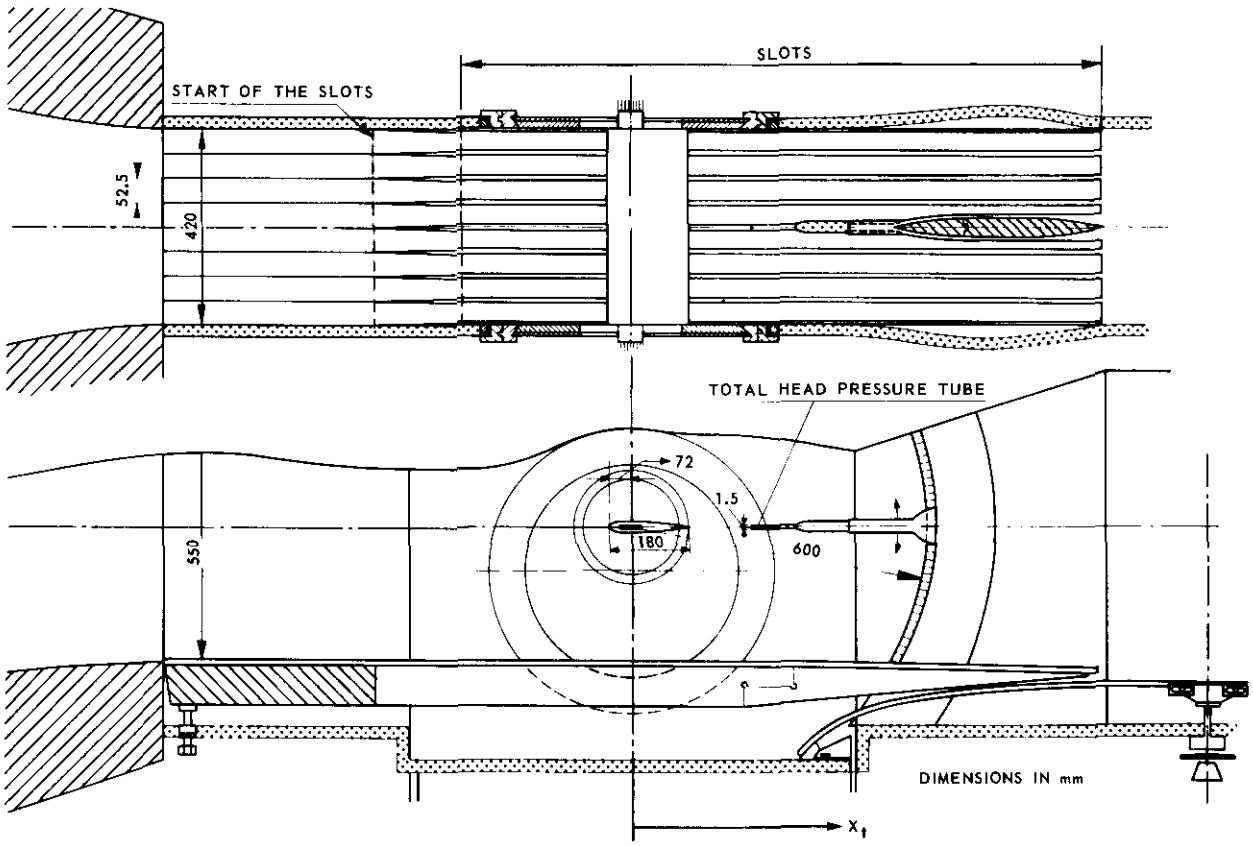


Fig. 2.3 Transonic test section of the NLR pilot tunnel

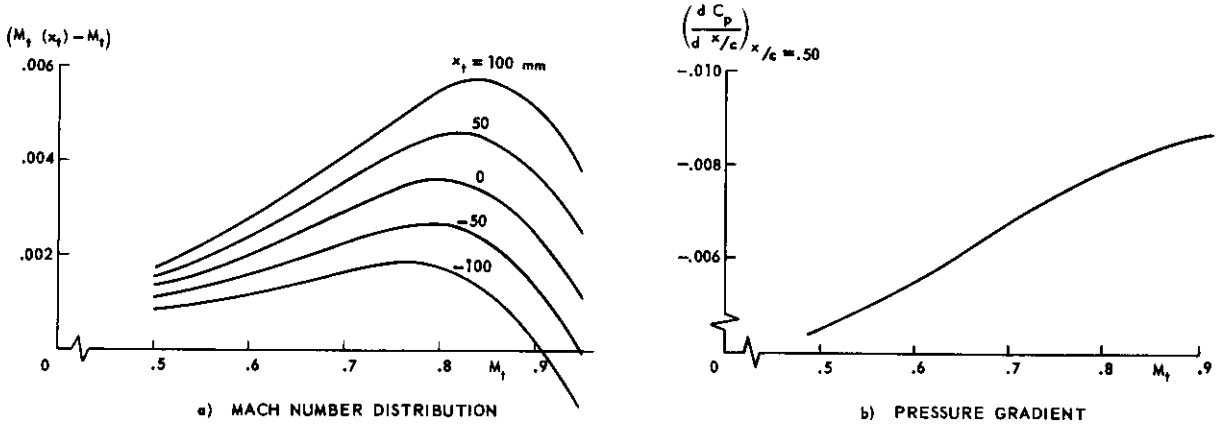


Fig. 2.4 NLR pilot tunnel empty test section calibration data

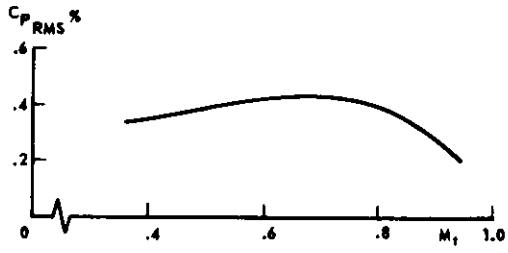


Fig. 2.5 Noise level in NLR pilot tunnel (measured in stream)

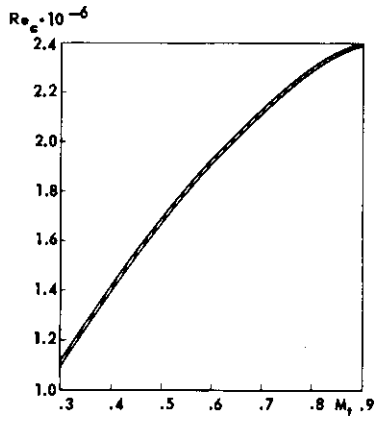


Fig. 2.6 Reynolds number based on chord length as function of Mach number

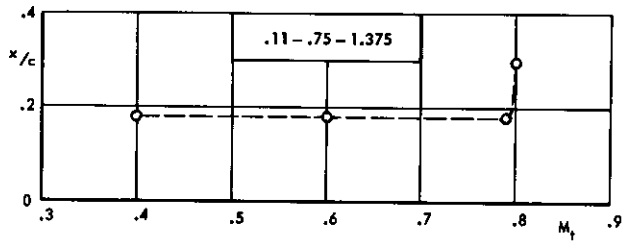


Fig. 2.7 Transition position as a function of Mach number ($\alpha = 0°$)

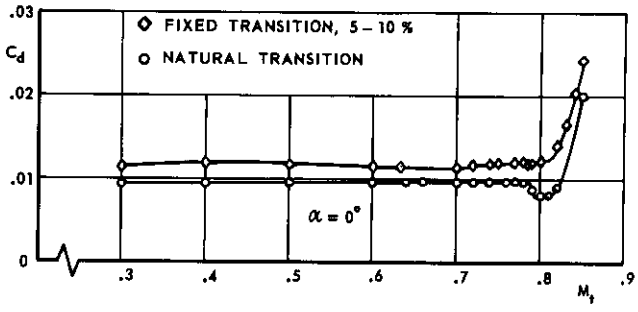


Fig. 2.8 Drag versus Mach number

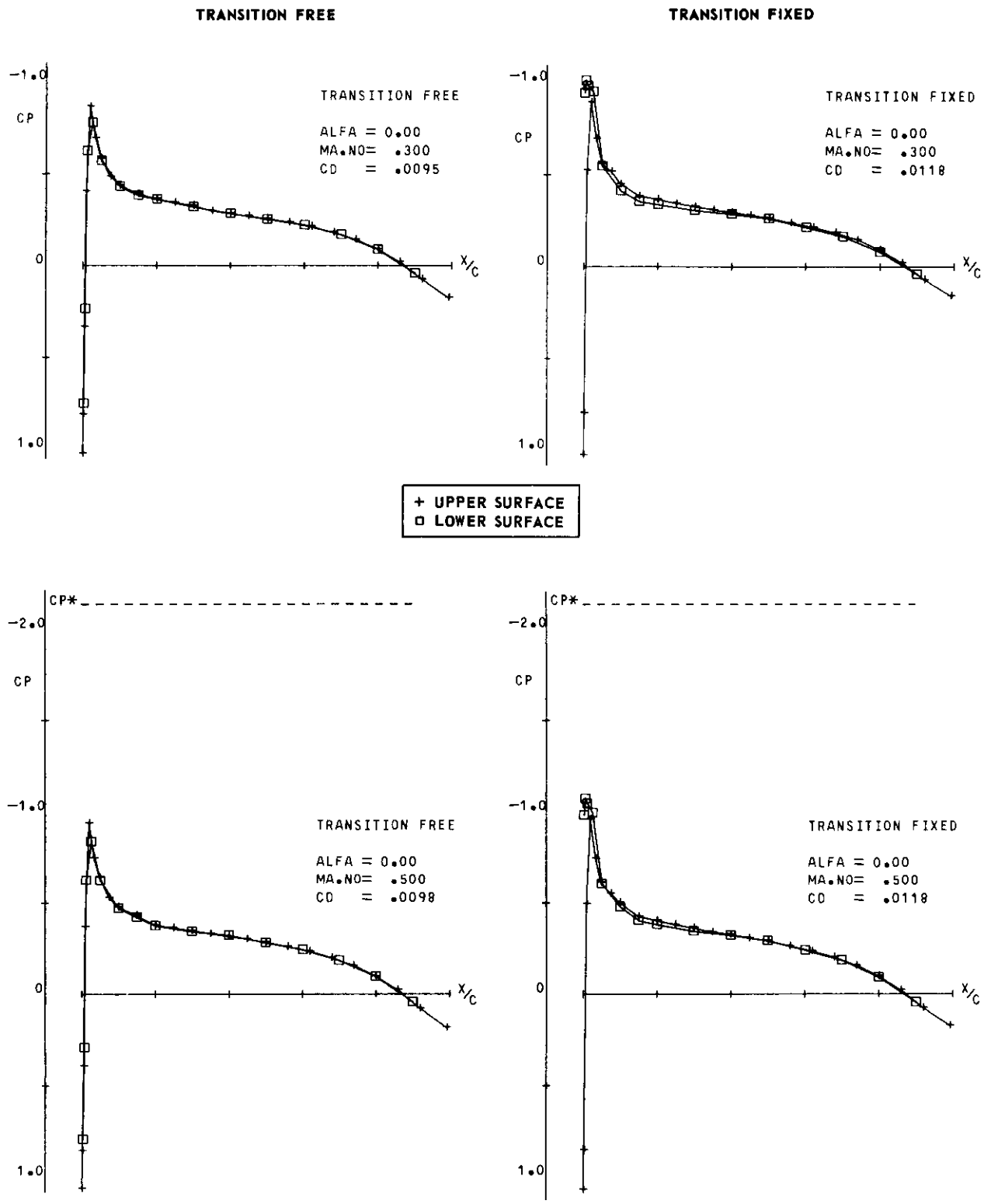


Fig. 2.9 Pressure distributions

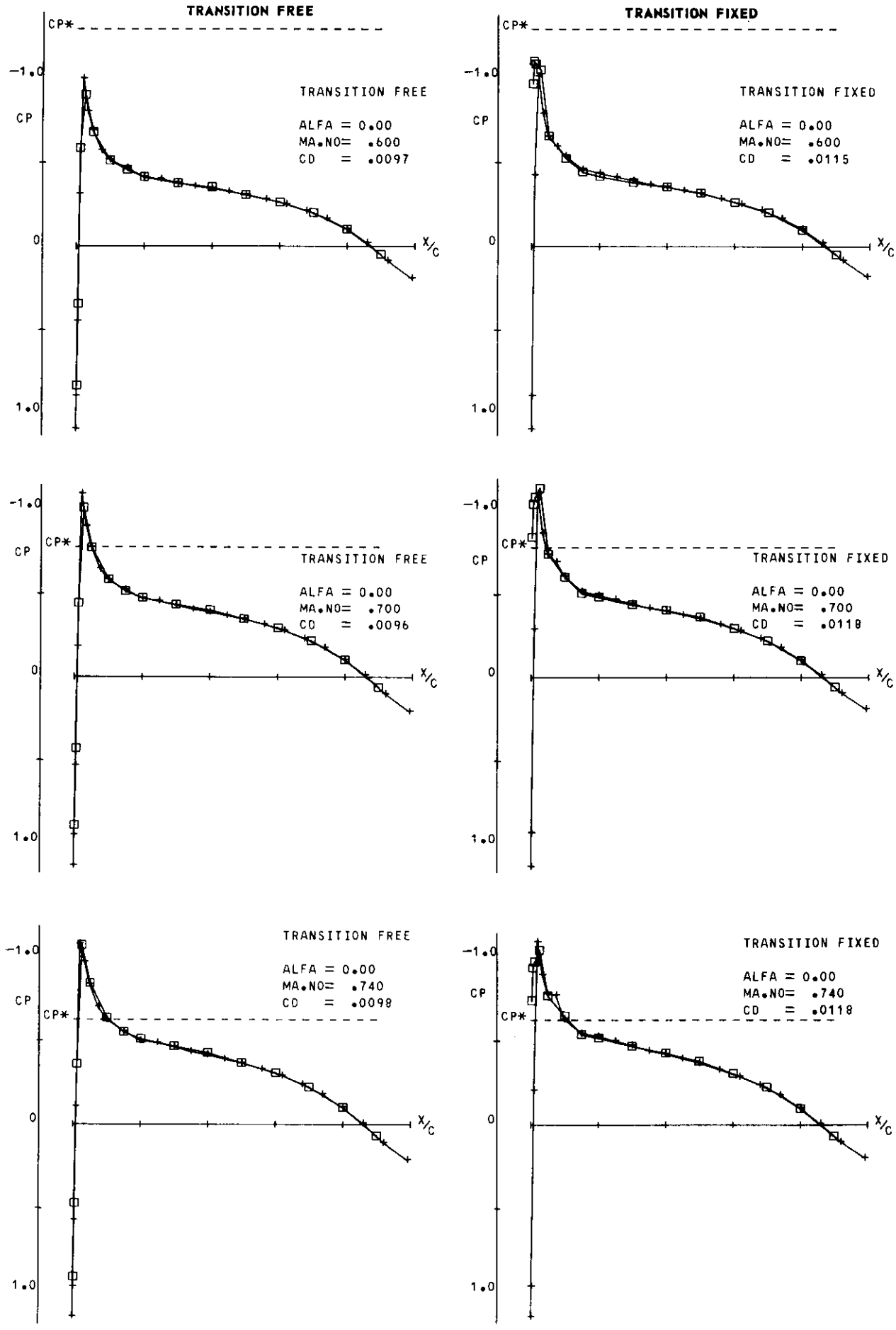


Fig. 2.9 Pressure distributions (con'd)

TRANSITION FREE **TRANSITION FIXED**

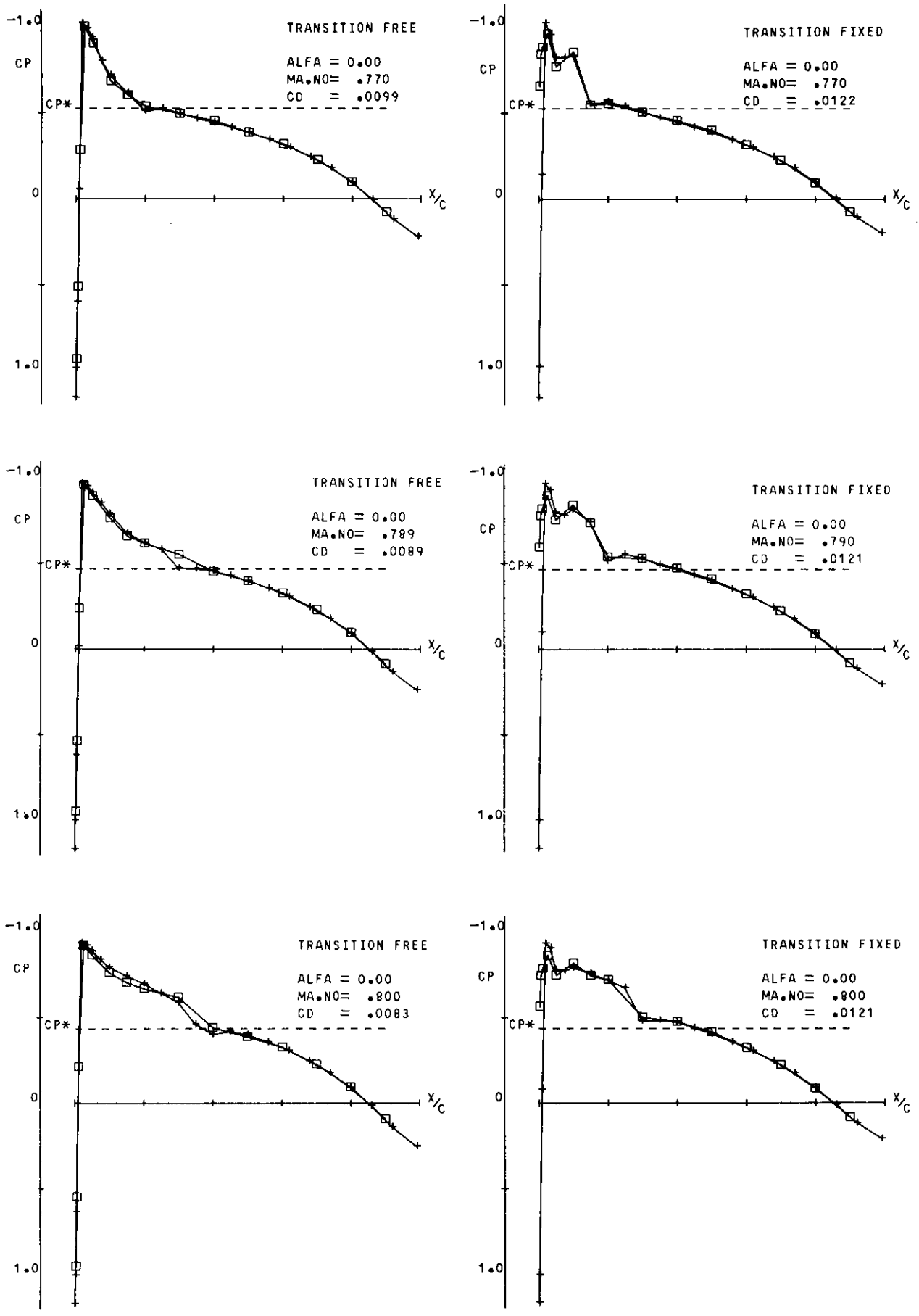


Fig. 2.9 Pressure distributions (con'd)

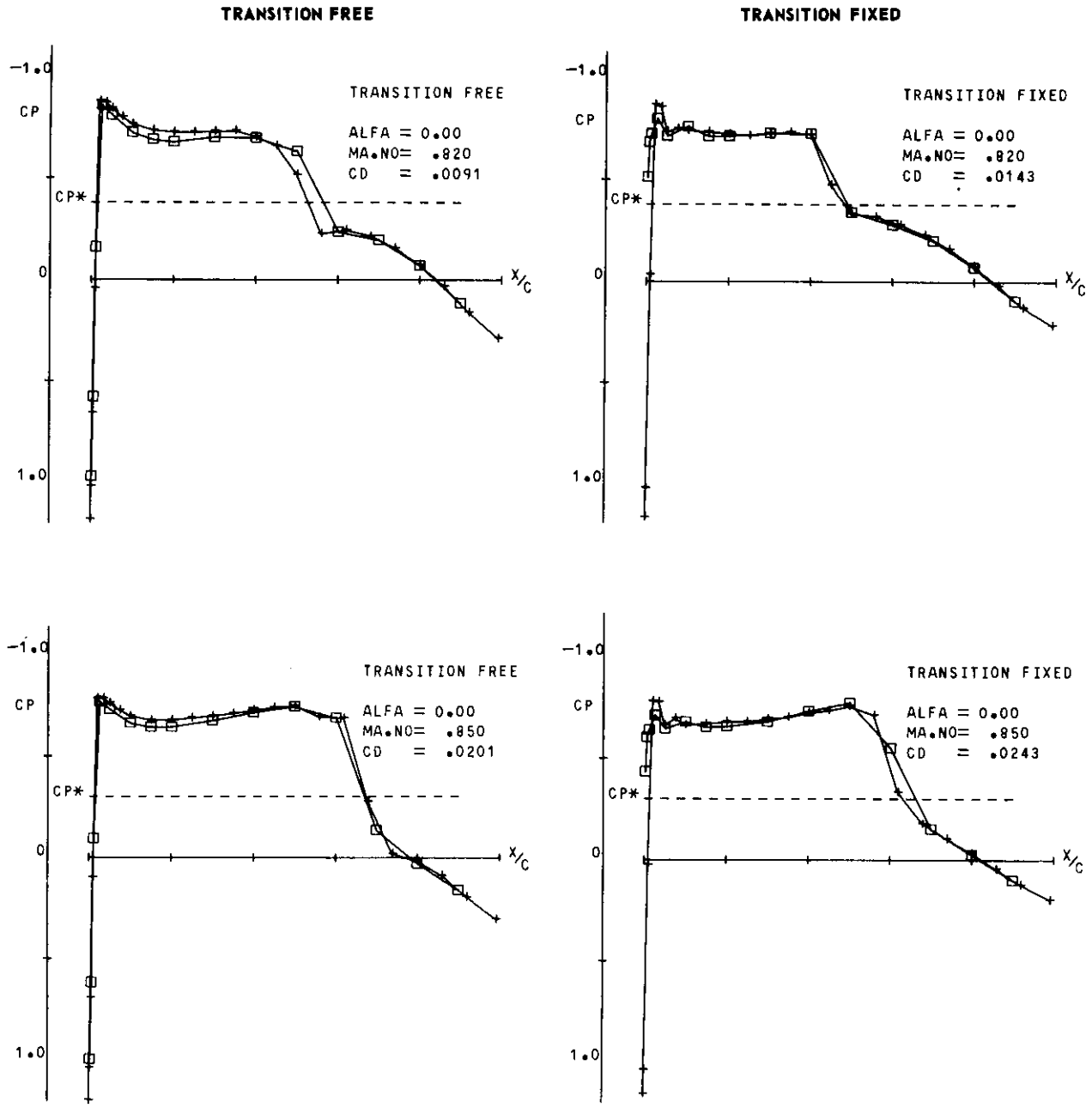


Fig. 2.9 Pressure distributions (concluded)

2.3 DATA SET FROM NAE TUNNEL

1. Airfoil	
1.1. Airfoil designation	NLR QE 0.11-0.75-1.375
1.2. Type of airfoil	symmetrical, "peaky"-type shock-free supercritical designed by means of Nieuwland hodograph method
1.2.1. airfoil geometry	see fig.2.10and tables 2.6 , 2.7
nose radius	R/c = 4.4%
maximum thickness	t/c = 11.7%
base thickness	zero
1.2.2. design condition	potential flow (hodograph theory) $M = 0.786$, $\alpha = 0^o$ experiment $M_t = 0.789$, $\alpha = 0^o$
design pressure distribution	see fig. 2.10 , table 2.6
1.3. Additional remarks	none
1.4. References on airfoil	ref. 1.
2. Model geometry	
2.1. Chord length	10 inch (0.254 m)
2.2. Span	15 inch (0.381 m)
2.3. Actual model co-ordinates and accuracy	table2.7(theoretical coordinates obtained by spline fit through table 2.6 data), fig. 2.11
2.4. Maximum thickness	t/c = 11.7 %
2.5. Base thickness	0.010 inch (0.25 mm)
2.6. Additional remarks	finite trailing edge (base) thickness obtained by symmetric increase of thickness from 95% - 100% chord
2.7. References on model	see ref. 2
3. Wind tunnel	
3.1. Designation	NAE 5ft x 5ft transonic W/T with 2-d insert
3.2. Type of tunnel	blowdown
3.2.1. stagnation pressure	2 - 11 bars
3.2.2. stagnation temperature	293^oK, max. drop 5° during run
3.2.3. humidity / dew point	0.0002 kg H_2O/ kg air
3.3. Test section	figure 2.12
3.3.1. dimensions	60 x 15 inch
3.3.2. type of walls	perforated; top and bottom walls 20.5% open ϕ 12.7 mm straight holes at 26.4 mm spacing solid sidewalls (except for small porous area around model location)
3.4. Flow field (empty test section)	
3.4.1. reference static pressure	at sidewall, 7.7 chords upstream of model L.E.
3.4.2. flow angularity	$\Delta\alpha = -0.29^o \pm 0.02^o$
3.4.3. Mach number distribution	figure 2.13
3.4.4. pressure gradient	figure 2.13
3.4.5. turbulence/noise level	$\left(\frac{\Delta p}{q}\right)_{rms} = 0.008$ at $M = 0.8$
3.4.6. side wall boundary layer	$\delta^* \approx 2.5$ mm , $\frac{2\delta^*}{B} \approx 0.013$
3.5. Additional remarks	side wall suction applied through porous material around model location with objective to prevent side wall b.l. separation
3.6. References on wind tunnel	ref 3, 4
4. Tests	
4.1. Type of measurements	force balance measurements,surface pressures, wake pitot pressures
4.2. Tunnel/model dimensions	
4.2.1. height/chord ratio	6.0
4.2.3. width/chord ratio	1.5

4.3. Flow conditions included in present data base	
4.3.1. angle of attack	0°
4.3.2. Mach number	0.4 to 0.86
4.3.3. Reynolds number	$\approx 21 \times 10^{6}$
4.3.4. transition	free only
- position of free transition	near leading edge; exact position unknown
- transition fixing	n.a.
4.3.5. temperature equilibrium	yes
4.4. Additional remarks	
4.5. References on tests	Ref. 2

5. Instrumentation

5.1. Surface pressure measurements	
5.1.1. pressure holes	
- size	0.51 mm
- spanwise station(s)	at mid span; staggered near leading edge
- chordwise positions	see table 2.7
5.1.2. type of transducers and scanning devices	48 port Dg Scanivalves + 200 psia Kulite VQS - 500-200A pressure transducers
5.1.3. other	
5.2. Wake measurements	
5.2.1. type/size of instrument(s)	traversing probe, see figure 2.12 diameter outer/inner 1.6/0.51 mm
5.2.2. streamwise position(s)	1.5 chords downstream of T.E
5.2.3. type of transducers and scanning devices	25 psid Statham PM 131 TC
5.3. Boundary layer measurements	none
5.3.1. type/size of instruments	
5.3.2. locations	
5.3.3. type of transducers and scanning devices	
5.4. Skin friction measurements	none
5.4.1. type/size of instruments	
5.4.2. locations	
5.4.3. type of transducer	
5.5. Flow visualisation	none
5.5.1. flow field	
5.5.2 surface flow	
5.6. other	three-component side-wall balances
5.7. Additional remarks	
5.8. References on instrumentation	ref. 4

6. Data

6.1. Accuracy (wall interference excluded)	
6.1.1. angle of attack setting	$\pm 0.02^{o}$
6.1.2. free stream Mach number:	
- setting	± 0.003
- variation during one pressure scan	± 0.003
6.1.3. pressure coefficients	-
6.1.4. aerodynamic coefficients	-
6.1.5. boundary layer quantities	n.a.
6.1.6. repeatability	$\Delta c_n \approx \pm 0.002$, $\Delta c_m \approx \pm 0.0005$
	$\Delta c_{dw} \approx \pm 0.0002$ subsonic
	± 0.0010 transonic
6.1.7. remarks	

6.2. Wall interference corrections (indicate estimated accuracy)	
6.2.1. angle of attack	$\Delta\alpha \approx -1.2\ c_l$ at $M = 0.75$
6.2.2. blockage (solid/wake)	solid/wake blockage negligible, lift-induced blockage $\Delta M \approx -0.012\ c_l$ at $M = 0.75$
6.2.3. streamline curvature (lift)	-
6.2.4. other	-
6.2.5. remarks	values given estimated for $P_{up} = 1.5$ and $P_{lo} = 0.5$
6.2.6. references on wall interference correction	5,6
6.3. Presentation of data	
6.3.1. aerodynamic coefficients	table 2.8 , fig. 2.14
6.3.2. surface pressures	table 2.8 , fig. 2.15
6.3.3. boundary layer quantities	n.a.
6.3.4. wall interference corrections included?	No
6.3.5. corrections for model deflection	angle of attack includes deflection due to side wall support
6.3.6. Empty test section calibration taken into account?	Yes
6.3.7. other corrections included?	No
6.3.8. additional remarks	wake drag data given is the average from two probes about ± 0.1c off centerline
6.4. Were tests carried out in different facilities on the current aerofoil? If so, what facilities. Are data included in the present data base?	Yes. In NLR Pilot Tunnel, but on different model. Included in data base
6.5. To be contacted for further information on tests	

7. References

1. Boerstoel J.W. — A survey of symmetrical transonic potential flows around quasi-elliptical aerofoil sections NLR TRT.136, 1967

2. Kacprzynski J.J. — Wind tunnel tests of a Boerstoel shockless symmetrical airfoil 0.11-0.75-1.375 NAE Report 5X5/0061, 1972

3. Ohman L.H. — The NAE high Reynolds number 15-ins x 60-ins two-dimensional test facility NRC/NAE LTR-HA-4 1970

4. Ohman L.H. — The NAE 15-ins x 60 ins two-dimensional test facility; new features and some related observations. Result of new centre line calibration at 20.5% porosity. NRC/NAE LTR-HA-15 1973

5. Peake D.J. / Bowker A.J. — A simple streamwise momentum analysis to indicate an empirical correction to angle of incidence in two-dimensional, transonic flow, due to a perforated floor and ceiling of the wind tunnel NRC/NAE LTR-HA-11 1973

6. Mokry M. et al — Wall interference on 2D supercritical airfoils, using wall pressure measurements to determine the porosity factors for tunnel floor and ceiling. NRC/NAE LR-575 1974

8. List of Symbols

8.1. used in text and figures

B	width of test section
C_p	pressure coefficient
C_p^*	critical pressure coefficient
c	airfoil chord length
c_d	drag coefficient
c_l	lift coefficient
c_m	pitching moment coefficient (with respect to .25c)
i	integer indicating pressure hole number
M_m	maximum local Mach number
M	Mach number
P	wall porosity factor
p	local static pressure
p_∞	free stream static pressure
p_o	free stream stagnation pressure
q	dynamic pressure
Re_c	Reynolds number based on chord
R_o	leading edge radius
t	airfoil maximum thickness
x	streamwise coordinate, model origin:L.E W/T origin; Balance ℄ = 0.4 model x/c
z	airfoil thickness coordinate
α	angle of attack
subscript	
t	refers to uncorrected values

8.2. used in data tables

C	chord length
CC	tangential force coefficient (from balance)
CDW	drag coefficient (from wake measurements)
CM	c_m (balance)
CN	normal force coefficient (balance)
M LOC	Local Mach number
P/PO	p/p_o
WT ANGLE	α_t

AEROFOIL SECTION 0.11 0.75 - 1.375

M	M_m	$(t/c)_{max}$	$x(t/c)_{max}$	xM_m/c	c/R_o
0.78612	1.306	0.1172	0.3245	0.0182	22.902

x/c	z/c	c_p	p/p_o	θ
0	0	1.1642	1.00000	1.57080
0.00100	0.00927	1.0440	0.96543	1.35608
0.00197	0.01293	0.9269	0.93174	1.26769
0.00291	0.01562	0.8127	0.89889	1.20019
0.00382	0.01778	0.7014	0.86687	1.14370
0.00469	0.01959	0.5930	0.83566	1.09428
0.00554	0.02113	0.4874	0.80530	1.04994
0.00633	0.02246	0.3845	0.77567	1.00953
0.00710	0.02362	0.2844	0.74688	0.97228
0.00774	0.02464	0.1870	0.71887	0.93764
0.00849	0.02553	0.0922	0.69156	0.90524
0.00896	0.02631	0.0000	0.66508	0.87476
0.00971	0.02699	-0.0896	0.63930	0.84596
0.01024	0.02758	-0.1768	0.61419	0.81865
0.01073	0.02809	-0.2614	0.58986	0.79265
0.01118	0.02853	-0.3437	0.56622	0.76778
0.01158	0.02890	-0.4235	0.54322	0.74390
0.01182	0.02913	-0.4754	0.52828	0.72843
0.01194	0.02923	-0.5010	0.52091	0.72081
0.01226	0.02951	-0.5762	0.50106	0.69831
0.01256	0.02975	-0.6492	0.47829	0.67615
0.01283	0.02997	-0.7199	0.45797	0.65399
0.01311	0.03017	-0.7885	0.43821	0.63135
0.01342	0.03039	-0.8549	0.41914	0.60741
0.01381	0.03066	-0.9192	0.40061	0.58071
0.01444	0.03106	-0.9815	0.38267	0.54758
0.01611	0.03200	-1.0418	0.36536	0.48926
0.02033	0.03401	-1.0418	0.36536	0.40170
0.02906	0.03714	-0.9815	0.38267	0.29875
0.04699	0.04157	-0.9192	0.40061	0.19961
0.07251	0.04584	-0.8549	0.41914	0.14053
0.10589	0.04984	-0.7885	0.43821	0.10097
0.15050	0.05357	-0.7199	0.45797	0.06820
0.20673	0.05656	-0.6492	0.47829	0.03937
0.27574	0.05832	-0.5762	0.50106	0.01289
0.36312	0.05826	-0.5010	0.52091	-0.01319
0.39644	0.05766	-0.4754	0.52828	-0.02197
0.46620	0.05553	-0.4235	0.54322	-0.03945
0.56833	0.05021	-0.3437	0.56622	-0.06460
0.65802	0.04339	-0.2614	0.58986	-0.08770
073301	0.03538	-0.1768	0.61419	-0.10840
0.79462	0.02867	-0.0896	0.63930	-0.12630
0.84588	0.02136	0.0000	0.66508	-0.14100
0.88839	0.01559	0.0922	0.69156	-0.15130
0.92366	0.01012	0.1870	0.71887	-0.15551
0.95324	0.00552	0.2844	0.74688	-0.14998
0.97808	0.00202	0.3845	0.77567	-0.12601
0.99877	0.00002	0.4874	0.80530	-0.03432
1.00000	0	0.4924	0.80674	0

TABLE 2.6 Main characteristics of aerofoil section 0.11 – 0.75 – 1.375

NLR QE 0.11 – 0.75 – 1.375 AIRFOIL

Pressure Hole No.	Specified location X/C	$(X/C)_{mod.}$	$(Z/C)_{th}$	Upper surface $(Z/C)_{mod.}$	$(Z/C)_{mod.} - (Z/C)_{th}$
1	0	-	0	-	-
2	0.002	-		-	-
3	0.004			-	-
4	0.006	0.00610	0.02204	0.02205	0.00001
5	0.008	0.00800	0.02489	0.02485	-0.00004
6	0.010	0.01000	0.02731	0.02725	-0.00006
7	0.012	0.01210	0.02937	0.02915	-0.00022
8	0.014	0.01390	0.03072	0.03055	-0.00017
9	0.016	0.01590	0.03189	0.03165	-0.00024
10	0.018	0.01795	0.03292	0.03285	-0.00007
11	0.020	0.01970	0.03374	0.03360	-0.00014
12	0.022	0.02190	0.03469	0.03450	-0.00019
13	0.024	0.02390	0.03539	0.03530	-0.00009
14	0.025	0.02495	0.03576	0.03568	-0.00008
15	0.026	0.02585	0.03608	0.03610	0.00002
16	0.028	0.02780	0.03676	0.03665	-0.00011
17	0.030	0.02970	0.03756	0.03725	-0.00031
18	0.035	0.03480	0.03878	0.03885	0.00007
19	0.040	0.03970	0.03994	0.04005	0.00011
20	0.050	0.04980	0.04225	0.04220	-0.00005
21	0.060	0.05990	0.04389	0.04385	-0.00004
22	0.080	0.08010	0.04690	0.04675	-0.00015
23	0.100	0.10020	0.04927	0.04905	-0.00022
24	0.120	0.12025	0.05120	0.05097	-0.00023
25	0.140	0.14000	0.05282	0.05265	-0.00017
26	0.160	0.16030	0.05427	0.05398	-0.00029
27	0.180	0.18050	0.05532	0.05515	-0.00017
28	0.200	0.20023	0.05635	0.05610	-0.00025
29	0.220	0.22010	0.05709	0.05685	-0.00024
30	0.240	0.24030	0.05760	0.05748	-0.00012
31	0.260	0.25960	0.05808	0.05785	-0.00023
32	0.280	0.28000	0.05857	0.05815	-0.00042
33	0.300	0.30030	0.05855	0.05835	-0.00020
34	0.320	0.32020	0.05852	0.05845	-0.00007
35	0.340	0.34000	0.05850	0.05835	-0.00015
36	0.360	0.36010	0.05847	0.05820	-0.00027
37	0.380	0.38020	0.05798	0.05797	-0.00001
38	0.400	0.39985	0.05768	0.05755	-0.00013
39	0.450	0.45015	0.05614	0.05605	-0.00009
40	0.500	0.49950	0.05405	0.05395	-0.00010
41	0.550	0.55000	0.05142	0.05120	-0.00022
42	0.600	0.60030	0.04799	0.04787	-0.00012
43	0.650	0.65040	0.04419	0.04405	-0.00014
44	0.700	0.70030	0.03938	0.03945	0.00007
45	0.750	0.74990	0.03413	0.03385	-0.00028
46	0.800	0.80000	0.02810	0.02785	-0.00025
47	0.850	0.85000	0.02130	0.02098	-0.00032
48	0.900	0.90020	0.01377	0.01355	-0.00022
49	0.950	0.95020	0.00596	0.00575	-0.00021
50	.004	0.00380	-0.01774	-0.01805	-0.00031
51	.010	0.01010	-0.02742	-0.02745	-0.00003
52	.100	0.10030	-0.04928	-0.04925	0.00003
53	.200	0.19980	-0.05634	-0.05625	0.00009
54	.300	0.30000	-0.05855	-0.05845	0.00010
55	.400	0.40015	-0.05767	-0.05750	0.00017
56	.500	0.50040	-0.05402	-0.05390	0.00012
57	.600	0.60020	-0.04800	-0.04790	0.00010
58	.700	0.70025	-0.03940	-0.03925	0.00015
59	.800	0.80020	-0.02808	-0.02765	0.00043
60	.900	0.90010	-0.01378	-0.01335	0.00043

TABLE 2.7 NAE model geometry and pressure hole locations

SHOCKLESS SYMMETRICAL AIRFOIL 0.1100-0.7500-1.375

RUN 773 SCAN 1
MACH NUMBER=0.438
REYNOLDS NO.=19.08*10**6
W.T.ANGLE= 0.21 DEG
CN =-0.017
CM = 0.0060
CC = 0.0029
CDW= 0.0088

PRESSURE DISTRIBUTION ON THE LOWER SURFACE

X/C	CP	P/PO	M LOC
0.004	0.4614	0.931	0.321
0.010	-0.5604	0.811	0.556
0.100	-0.4664	0.822	0.538
0.200	-0.3813	0.832	0.520
0.300	-0.3456	0.836	0.512
0.400	-0.3114	0.840	0.505
0.500	-0.2727	0.844	0.498
0.600	-0.2304	0.850	0.488
0.700	-0.1739	0.856	0.476
0.800	-0.0856	0.866	0.457
0.900	0.0562	0.883	0.426

PRESSURE DISTRIBUTION ON THE UPPER SURFACE

X/C	CP	P/PO	M LOC
0.0	1.0535	1.001	
0.002	0.7697	0.967	0.220
0.004	0.4752	0.932	0.319
0.006	0.1695	0.896	0.399
0.008	-0.1784	0.855	0.479
0.010	-0.5006	0.816	0.546
0.012	-0.7689	0.784	0.601
0.014	-0.8551	0.773	0.619
0.016	-0.9603	0.760	0.639
0.018	-0.9472	0.763	0.634
0.020	-0.9167	0.768	0.625
0.022	-0.8826	0.773	0.618
0.024	-0.8590	0.776	0.613
0.025	-0.7793	0.785	0.598
0.026	-0.7953	0.783	0.602
0.028	-0.6821	0.797	0.580
0.030	-0.7629	0.789	0.592
0.035	-0.6644	0.801	0.573
0.040	-0.6398	0.803	0.569
0.050	-0.5629	0.812	0.555
0.060	-0.5434	0.814	0.551
0.080	-0.4986	0.818	0.544
0.100	-0.4559	0.823	0.535
0.120	-0.4263	0.827	0.528
0.140	-0.4008	0.829	0.524
0.160	-0.3877	0.831	0.522
0.180	-0.3777	0.832	0.519
0.200	-0.3715	0.833	0.518
0.220	-0.3602	0.835	0.515
0.240	-0.3527	0.834	0.516
0.260	-0.3437	0.835	0.514
0.280	-0.3350	0.837	0.511
0.300	-0.3309	0.837	0.511
0.320	-0.3277	0.837	0.511
0.340	-0.3205	0.837	0.511
0.360	-0.2938	0.840	0.506
0.380	-0.3079	0.838	0.509
0.400	-0.3115	0.838	0.508
0.450	-0.2952	0.842	0.503
0.500	-0.2719	0.845	0.497
0.550	-0.2464	0.848	0.491
0.600	-0.2251	0.850	0.487
0.650	-0.2034	0.853	0.483
0.700	-0.1781	0.856	0.477
0.750	-0.1493	0.860	0.469
0.800	-0.0908	0.867	0.455
0.850	-0.0253	0.875	0.442
0.900	0.0489	0.883	0.425
0.950	0.1528	0.895	0.401

SHOCKLESS SYMMETRICAL AIRFOIL 0.1100-0.7500-1.375

RUN 775 SCAN 1
MACH NUMBER=0.518
REYNOLDS NO.=21.81*10**6
W.T.ANGLE= 0.17 DEG
CN =-0.011
CM = 0.0042
CC = 0.0039
CDW= 0.0082

PRESSURE DISTRIBUTION ON THE LOWER SURFACE

X/C	CP	P/PO	M LOC
0.004	0.5127	0.914	0.360
0.010	-0.5529	0.749	0.656
0.100	-0.4963	0.757	0.643
0.200	-0.4138	0.770	0.624
0.300	-0.3712	0.775	0.614
0.400	-0.3302	0.781	0.605
0.500	-0.2906	0.786	0.596
0.600	-0.2549	0.792	0.586
0.700	-0.1894	0.802	0.570
0.800	-0.0944	0.817	0.546
0.900	0.0562	0.841	0.504

PRESSURE DISTRIBUTION ON THE UPPER SURFACE

X/C	CP	P/PO	M LOC
0.0	1.0573	0.998	0.048
0.002	0.7916	0.957	0.251
0.004	0.4871	0.909	0.371
0.006	0.1695	0.858	0.472
0.008	-0.1712	0.804	0.567
0.010	-0.4891	0.753	0.649
0.012	-0.7927	0.706	0.724
0.014	-0.9044	0.687	0.752
0.016	-1.0361	0.666	0.784
0.018	-1.0245	0.667	0.784
0.020	-0.9995	0.670	0.779
0.022	-0.9595	0.677	0.768
0.024	-0.9126	0.686	0.754
0.025	-0.8734	0.694	0.742
0.026	-0.8550	0.698	0.735
0.028	-0.7784	0.713	0.713
0.030	-0.7868	0.710	0.717
0.035	-0.7327	0.720	0.702
0.040	-0.6773	0.730	0.686
0.050	-0.6157	0.740	0.670
0.060	-0.5559	0.750	0.655
0.080	-0.5201	0.750	0.654
0.100	-0.4791	0.758	0.643
0.120	-0.4575	0.762	0.636
0.140	-0.4357	0.766	0.629
0.160	-0.4193	0.769	0.624
0.180	-0.4062	0.772	0.620
0.200	-0.4074	0.772	0.619
0.220	-0.3966	0.774	0.617
0.240	-0.3858	0.774	0.616
0.260	-0.3737	0.775	0.614
0.280	-0.3556	0.776	0.613
0.300	-0.3545	0.775	0.615
0.320	-0.3475	0.776	0.614
0.340	-0.3367	0.778	0.610
0.360	-0.3162	0.780	0.606
0.380	-0.3251	0.779	0.608
0.400	-0.3220	0.778	0.609
0.450	-0.3080	0.780	0.607
0.500	-0.2880	0.784	0.601
0.550	-0.2563	0.790	0.590
0.600	-0.2358	0.794	0.584
0.650	-0.2166	0.799	0.576
0.700	-0.1790	0.806	0.564
0.750	-0.1457	0.810	0.557
0.800	-0.0907	0.820	0.541
0.850	-0.0358	0.829	0.525
0.900	0.0488	0.843	0.500
0.950	0.1602	0.860	0.469

TABLE 2.8 Force data and surface pressure distributions

SHOCKLESS SYMMETRICAL AIRFOIL 0.1100-0.7500-1.375

RUN 776 SCAN 1
MACH NUMBER=0.568
REYNOLDS NO.=21.46*10**6
W.T.ANGLE= 0.22 DEG
CN =-0.009
CM = 0.0033
CC = 0.0037
CDW= 0.0086

PRESSURE DISTRIBUTION ON THE LOWER SURFACE

X/C	CP	P/PO	M LOC
0.004	0.5518	0.903	0.384
0.010	-0.4566	0.720	0.702
0.100	-0.4994	0.712	0.714
0.200	-0.4200	0.727	0.690
0.300	-0.3759	0.736	0.677
0.400	-0.3393	0.743	0.666
0.500	-0.2953	0.750	0.655
0.600	-0.2572	0.758	0.642
0.700	-0.1944	0.770	0.623
0.800	-0.0964	0.787	0.596
0.900	0.0608	0.815	0.549

PRESSURE DISTRIBUTION ON THE UPPER SURFACE

X/C	CP	P/PO	M LOC
0.0	1.0853	1.000	
0.002	0.8088	0.949	0.273
0.004	0.5042	0.893	0.405
0.006	0.1731	0.834	0.516
0.008	-0.1468	0.774	0.616
0.010	-0.4936	0.710	0.717
0.012	-0.7949	0.655	0.802
0.014	-0.9179	0.633	0.836
0.016	-1.0661	0.606	0.878
0.018	-1.0891	0.602	0.883
0.020	-1.0299	0.615	0.864
0.022	-0.9889	0.624	0.850
0.024	-0.9317	0.635	0.833
0.025	-0.9099	0.640	0.825
0.026	-0.8959	0.644	0.819
0.028	-0.8440	0.656	0.801
0.030	-0.8529	0.656	0.800
0.035	-0.7893	0.669	0.781
0.040	-0.7106	0.682	0.760
0.050	-0.6659	0.690	0.748
0.060	-0.6257	0.698	0.735
0.080	-0.5435	0.705	0.725
0.100	-0.4968	0.714	0.711
0.120	-0.4755	0.718	0.705
0.140	-0.4581	0.720	0.701
0.160	-0.4317	0.724	0.695
0.180	-0.4258	0.725	0.693
0.200	-0.4197	0.726	0.692
0.220	-0.4058	0.729	0.688
0.240	-0.3983	0.728	0.689
0.260	-0.3776	0.731	0.684
0.280	-0.3764	0.732	0.683
0.300	-0.3762	0.732	0.683
0.320	-0.3706	0.733	0.681
0.340	-0.3560	0.736	0.678
0.360	-0.3374	0.739	0.672
0.380	-0.3399	0.739	0.672
0.400	-0.3425	0.739	0.672
0.450	-0.3244	0.743	0.666
0.500	-0.2994	0.749	0.657
0.550	-0.2754	0.754	0.649
0.600	-0.2517	0.759	0.641
0.650	-0.2234	0.765	0.631
0.700	-0.1918	0.772	0.619
0.750	-0.1584	0.780	0.607
0.800	-0.0984	0.791	0.589
0.850	-0.0296	0.803	0.569
0.900	0.0555	0.818	0.544
0.950	0.1618	0.838	0.510

SHOCKLESS SYMMETRICAL AIRFOIL 0.1100-0.7500-1.375

RUN 777 SCAN 1
MACH NUMBER=0.631
REYNOLDS NO.=21.97*10**6
W.T.ANGLE= 0.20 DEG
CN =-0.012
CM = 0.0027
CC = 0.0041
CDW=*******

PRESSURE DISTRIBUTION ON THE LOWER SURFACE

X/C	CP	P/PO	M LOC
0.004	0.5836	0.890	0.412
0.010	-0.4335	0.674	0.773
0.100	-0.5497	0.648	0.812
0.200	-0.4587	0.667	0.783
0.300	-0.4075	0.678	0.766
0.400	-0.3631	0.688	0.752
0.500	-0.3245	0.696	0.739
0.600	-0.2705	0.708	0.721
0.700	-0.2036	0.722	0.699
0.800	-0.1002	0.744	0.665
0.900	0.0706	0.779	0.608

PRESSURE DISTRIBUTION ON THE UPPER SURFACE

X/C	CP	P/PO	M LOC
0.0	1.1211	1.004	
0.002	0.8523	0.947	0.281
0.004	0.5614	0.885	0.422
0.006	0.2342	0.815	0.549
0.008	-0.0673	0.751	0.654
0.010	-0.4291	0.674	0.773
0.012	-0.7553	0.603	0.882
0.014	-0.9222	0.566	0.940
0.016	-1.1184	0.523	1.009
0.018	-1.1301	0.520	1.014
0.020	-1.0693	0.534	0.992
0.022	-1.0383	0.540	0.981
0.024	-0.9870	0.550	0.966
0.025	-0.9785	0.552	0.963
0.026	-0.9510	0.558	0.953
0.028	-0.9306	0.561	0.947
0.030	-0.8935	0.572	0.931
0.035	-0.8599	0.583	0.913
0.040	-0.7864	0.602	0.883
0.050	-0.7052	0.621	0.855
0.060	-0.6415	0.630	0.840
0.080	-0.5895	0.640	0.826
0.100	-0.5270	0.653	0.806
0.120	-0.5017	0.658	0.797
0.140	-0.4766	0.663	0.789
0.160	-0.4640	0.667	0.784
0.180	-0.4539	0.669	0.780
0.200	-0.4460	0.671	0.777
0.220	-0.4333	0.674	0.773
0.240	-0.4294	0.675	0.771
0.260	-0.4129	0.678	0.767
0.280	-0.4063	0.679	0.765
0.300	-0.4005	0.680	0.764
0.320	-0.3961	0.681	0.762
0.340	-0.3800	0.683	0.758
0.360	-0.3653	0.685	0.755
0.380	-0.3680	0.684	0.758
0.400	-0.3628	0.685	0.756
0.450	-0.3427	0.689	0.749
0.500	-0.3172	0.695	0.740
0.550	-0.2854	0.701	0.731
0.600	-0.2645	0.705	0.724
0.650	-0.2362	0.711	0.715
0.700	-0.2025	0.718	0.704
0.750	-0.1562	0.730	0.687
0.800	-0.0955	0.746	0.662
0.850	-0.0315	0.761	0.637
0.900	0.0616	0.782	0.604
0.950	0.1807	0.805	0.566

TABLE 2.8 Force data and surface pressure distributions (con'd)

SHOCKLESS SYMMETRICAL AIRFOIL 0.1100-0.7500-1.375

RUN 779 SCAN 1
MACH NUMBER=0.691
REYNOLDS NO.=21.14*10**6
W.T.ANGLE= 0.18 DEG
CN =-0.013
CM = 0.0020
CC = 0.0046
CDW= 0.0082

PRESSURE DISTRIBUTION ON THE LOWER SURFACE

X/C	CP	P/PO	M LOC
0.004	0.6434	0.883	0.420
0.010	-0.3296	0.648	0.810
0.100	-0.5883	0.585	0.910
0.200	-0.5016	0.605	0.870
0.300	-0.4411	0.619	0.850
0.400	-0.3987	0.630	0.840
0.500	-0.3468	0.642	0.820
0.600	-0.2873	0.655	0.800
0.700	-0.2118	0.674	0.770
0.800	-0.1011	0.701	0.730
0.900	0.0761	0.744	0.664

PRESSURE DISTRIBUTION ON THE UPPER SURFACE

X/C	CP	P/PO	M LOC
0.0	1.1235	1.000	0.020
0.002	0.8664	0.937	0.300
0.004	0.6119	0.875	0.440
0.006	0.3061	0.800	0.570
0.008	-0.0104	0.723	0.690
0.010	-0.3326	0.645	0.810
0.012	-0.6437	0.568	0.930
0.014	-0.8090	0.527	1.000
0.016	-1.0848	0.459	1.110
0.018	-1.2154	0.427	1.170
0.020	-1.2481	0.420	1.180
0.022	-1.2492	0.421	1.180
0.024	-1.1228	0.452	1.120
0.025	-1.0862	0.463	1.110
0.026	-0.9878	0.487	1.060
0.028	-0.8704	0.515	1.020
0.030	-0.8732	0.514	1.020
0.035	-0.8561	0.518	1.010
0.040	-0.8187	0.530	0.990
0.050	-0.7582	0.547	0.970
0.060	-0.6895	0.566	0.940
0.080	-0.6300	0.573	0.930
0.100	-0.5693	0.588	0.900
0.120	-0.5346	0.597	0.890
0.140	-0.5151	0.602	0.880
0.160	-0.4976	0.607	0.870
0.180	-0.4852	0.610	0.870
0.200	-0.4813	0.611	0.870
0.220	-0.4621	0.616	0.860
0.240	-0.4570	0.615	0.860
0.260	-0.4450	0.618	0.850
0.280	-0.4334	0.620	0.850
0.300	-0.4253	0.622	0.850
0.320	-0.4248	0.622	0.850
0.340	-0.4034	0.627	0.840
0.360	-0.3901	0.630	0.840
0.380	-0.3946	0.628	0.840
0.400	-0.3888	0.629	0.840
0.450	-0.3665	0.635	0.830
0.500	-0.3396	0.643	0.820
0.550	-0.3045	0.651	0.800
0.600	-0.2797	0.659	0.790
0.650	-0.2466	0.667	0.780
0.700	-0.2076	0.676	0.760
0.750	-0.1582	0.688	0.750
0.800	-0.0921	0.704	0.720
0.850	-0.0178	0.723	0.690
0.900	0.0762	0.748	0.650
0.950	0.1886	0.776	0.610

SHOCKLESS SYMMETRICAL AIRFOIL 0.1100-0.7500-1.375

RUN 780 SCAN 1
MACH NUMBER=0.736
REYNOLDS NO.=21.94*10**6
W.T.ANGLE= 0.17 DEG
CN =-0.015
CM = 0.0017
CC = 0.0054
CDW= 0.0086

PRESSURE DISTRIBUTION ON THE LOWER SURFACE

X/C	CP	P/PO	M LOC
0.004	0.6789	0.877	0.430
0.010	-0.2385	0.635	0.830
0.100	-0.6281	0.532	0.990
0.200	-0.5444	0.554	0.950
0.300	-0.4769	0.572	0.930
0.400	-0.4199	0.587	0.900
0.500	-0.3659	0.601	0.880
0.600	-0.3008	0.619	0.850
0.700	-0.2162	0.641	0.820
0.800	-0.0971	0.673	0.770
0.900	0.0891	0.722	0.699

PRESSURE DISTRIBUTION ON THE UPPER SURFACE

X/C	CP	P/PO	M LOC
0.0	1.1478	1.001	
0.002	0.9110	0.939	0.300
0.004	0.6442	0.868	0.450
0.006	0.3716	0.796	0.580
0.008	0.0920	0.721	0.700
0.010	-0.2187	0.639	0.820
0.012	-0.5170	0.559	0.950
0.014	-0.6886	0.512	1.020
0.016	-0.9537	0.443	1.140
0.018	-1.0864	0.409	1.200
0.020	-1.1300	0.396	1.230
0.022	-1.1569	0.388	1.240
0.024	-1.1351	0.393	1.230
0.025	-1.1595	0.388	1.240
0.026	-1.1398	0.394	1.230
0.028	-1.1128	0.403	1.210
0.030	-1.1127	0.403	1.210
0.035	-1.0577	0.418	1.190
0.040	-0.9971	0.435	1.160
0.050	-0.7329	0.506	1.030
0.060	-0.6766	0.524	1.000
0.080	-0.6854	0.517	1.010
0.100	-0.6014	0.539	0.980
0.120	-0.5725	0.547	0.970
0.140	-0.5508	0.552	0.960
0.160	-0.5411	0.555	0.950
0.180	-0.5251	0.559	0.950
0.200	-0.5162	0.561	0.940
0.220	-0.4909	0.568	0.930
0.240	-0.4990	0.566	0.940
0.260	-0.4848	0.569	0.930
0.280	-0.4689	0.573	0.920
0.300	-0.4590	0.575	0.920
0.320	-0.4511	0.578	0.920
0.340	-0.4342	0.581	0.910
0.360	-0.4154	0.585	0.910
0.380	-0.4203	0.584	0.910
0.400	-0.4198	0.585	0.910
0.450	-0.3578	0.591	0.900
0.500	-0.3545	0.601	0.880
0.550	-0.3202	0.610	0.870
0.600	-0.2939	0.618	0.850
0.650	-0.2601	0.627	0.840
0.700	-0.2181	0.639	0.820
0.750	-0.1586	0.655	0.800
0.800	-0.0901	0.674	0.770
0.850	-0.0114	0.695	0.740
0.900	0.0792	0.720	0.700
0.950	0.1970	0.753	0.650

TABLE 2.8 Force data and surface pressure distributions (con'd)

SHOCKLESS SYMMETRICAL AIRFOIL 0.1100-0.7500-1.375

RUN 768 SCAN 1
MACH NUMBER=0.789
REYNOLDS NO.=20.83*10**6
W.T.ANGLE= 0.12 DEG
CN =-0.025
CM = 0.0007
CC = 0.0063
CDW= 0.0092

PRESSURE DISTRIBUTION ON THE LOWER SURFACE

X/C	CP	P/PO	M LOC
0.004	0.7316	0.875	0.440
0.010	-0.1247	0.627	0.840
0.100	-0.7754	0.440	1.150
0.200	-0.7456	0.447	1.130
0.300	-0.4978	0.519	1.010
0.400	-0.4747	0.526	1.000
0.500	-0.4055	0.546	0.970
0.600	-0.3246	0.570	0.930
0.700	-0.2235	0.599	0.880
0.800	-0.0883	0.638	0.820
0.900	0.1052	0.694	0.742

PRESSURE DISTRIBUTION ON THE UPPER SURFACE

X/C	CP	P/PO	M LOC
0.0	1.1776	1.003	
0.002	0.9515	0.937	0.300
0.004	0.7097	0.867	0.450
0.006	0.4567	0.793	0.580
0.008	0.1887	0.716	0.700
0.010	-0.0988	0.632	0.830
0.012	-0.3835	0.549	0.960
0.014	-0.5419	0.502	1.040
0.016	-0.7801	0.433	1.160
0.018	-0.8954	0.399	1.220
0.020	-0.9555	0.381	1.260
0.022	-1.0014	0.369	1.280
0.024	-0.9913	0.374	1.270
0.025	-1.0097	0.370	1.280
0.026	-1.0066	0.371	1.280
0.028	-0.9821	0.380	1.260
0.030	-0.9891	0.378	1.260
0.035	-0.9514	0.389	1.240
0.040	-0.9611	0.388	1.240
0.050	-0.9052	0.405	1.210
0.060	-0.8636	0.418	1.180
0.080	-0.8222	0.426	1.170
0.100	-0.7734	0.439	1.150
0.120	-0.7630	0.442	1.140
0.140	-0.7349	0.451	1.130
0.160	-0.7161	0.457	1.120
0.180	-0.6965	0.462	1.110
0.200	-0.6300	0.481	1.070
0.220	-0.4903	0.521	1.010
0.240	-0.5043	0.515	1.020
0.260	-0.4739	0.522	1.010
0.280	-0.5070	0.513	1.020
0.300	-0.5231	0.509	1.030
0.320	-0.5431	0.503	1.040
0.340	-0.5256	0.508	1.030
0.360	-0.5003	0.514	1.020
0.380	-0.4894	0.517	1.010
0.400	-0.4901	0.517	1.010
0.450	-0.4565	0.526	1.000
0.500	-0.4010	0.544	0.970
0.550	-0.3507	0.560	0.950
0.600	-0.3165	0.571	0.930
0.650	-0.2705	0.584	0.910
0.700	-0.2205	0.600	0.880
0.750	-0.1596	0.618	0.860
0.800	-0.0814	0.640	0.820
0.850	0.0014	0.665	0.780
0.900	0.0997	0.694	0.740
0.950	0.2116	0.727	0.690

SHOCKLESS SYMMETRICAL AIRFOIL 0.1100-0.7500-1.375

RUN 766 SCAN 1
MACH NUMBER=0.799
REYNOLDS NO.=20.97*10**6
W.T.ANGLE= 0.29 DEG
CN = 0.003
CM = 0.0026
CC = 0.0068
CDW= 0.0091

PRESSURE DISTRIBUTION ON THE LOWER SURFACE

X/C	CP	P/PO	M LOC
0.004	0.7443	0.875	0.440
0.010	-0.0852	0.631	0.840
0.100	-0.7167	0.445	1.140
0.200	-0.7115	0.448	1.130
0.300	-0.7104	0.450	1.130
0.400	-0.4392	0.529	1.000
0.500	-0.3954	0.541	0.970
0.600	-0.3138	0.565	0.940
0.700	-0.2159	0.595	0.890
0.800	-0.0831	0.633	0.830
0.900	0.1127	0.691	0.747

PRESSURE DISTRIBUTION ON THE UPPER SURFACE

X/C	CP	P/PO	M LOC
0.0	1.1766	1.002	
0.002	0.9549	0.936	0.300
0.004	0.7038	0.862	0.460
0.006	0.4531	0.789	0.590
0.008	0.1828	0.709	0.710
0.010	-0.0918	0.627	0.840
0.012	-0.3643	0.546	0.970
0.014	-0.5392	0.495	1.050
0.016	-0.7837	0.425	1.170
0.018	-0.8930	0.392	1.230
0.020	-0.9491	0.375	1.270
0.022	-0.9955	0.361	1.300
0.024	-0.9875	0.365	1.290
0.025	-0.9920	0.365	1.290
0.026	-0.9868	0.366	1.280
0.028	-0.9866	0.367	1.280
0.030	-0.9886	0.367	1.280
0.035	-0.9649	0.374	1.270
0.040	-0.9651	0.376	1.270
0.050	-0.9129	0.392	1.230
0.060	-0.8654	0.406	1.210
0.080	-0.8184	0.418	1.190
0.100	-0.7835	0.428	1.170
0.120	-0.7847	0.428	1.170
0.140	-0.7594	0.434	1.160
0.160	-0.7513	0.435	1.150
0.180	-0.7430	0.437	1.150
0.200	-0.7499	0.436	1.150
0.220	-0.7155	0.445	1.140
0.240	-0.7582	0.432	1.160
0.260	-0.7531	0.433	1.160
0.280	-0.7558	0.433	1.160
0.300	-0.7460	0.435	1.150
0.320	-0.7323	0.438	1.150
0.340	-0.6913	0.450	1.130
0.360	-0.4844	0.512	1.020
0.380	-0.4218	0.531	0.990
0.400	-0.4272	0.529	0.990
0.450	-0.4330	0.527	1.000
0.500	-0.3907	0.540	0.980
0.550	-0.3455	0.553	0.960
0.600	-0.3148	0.564	0.940
0.650	-0.2728	0.576	0.920
0.700	-0.2187	0.593	0.890
0.750	-0.1548	0.611	0.860
0.800	-0.0773	0.634	0.830
0.850	0.0041	0.659	0.790
0.900	0.1076	0.690	0.740
0.950	0.2180	0.722	0.690

TABLE 2.8 Force data and surface pressure distributions (con'd)

SHOCKLESS SYMMETRICAL AIRFOIL 0.1100-0.7500-1.375

RUN 760 SCAN 1
MACH NUMBER=0.815
REYNOLDS NO.=21.20*10**6
W.T.ANGLE= 0.10 DEG
CN =-0.019
CM = 0.0029
CC = 0.0094
CDW= 0.0134

PRESSURE DISTRIBUTION ON THE LOWER SURFACE

X/C	CP	P/PO	M LOC
0.004	0.7616	0.874	0.443
0.010	-0.0525	0.628	0.844
0.100	-0.7105	0.429	1.170
0.200	-0.7241	0.426	1.176
0.300	-0.7646	0.415	1.196
0.400	-0.7498	0.421	1.185
0.500	-0.3670	0.536	0.988
0.600	-0.2692	0.566	0.940
0.700	-0.1982	0.588	0.906
0.800	-0.0709	0.626	0.847
0.900	0.1218	0.683	0.758

PRESSURE DISTRIBUTION ON THE UPPER SURFACE

X/C	CP	P/PO	M LOC
0.0	1.1930	1.004	
0.002	0.9707	0.936	0.308
0.004	0.7316	0.864	0.463
0.006	0.4869	0.790	0.591
0.008	0.2330	0.713	0.713
0.010	-0.0421	0.630	0.841
0.012	-0.3087	0.549	0.967
0.014	-0.4729	0.499	1.049
0.016	-0.7102	0.427	1.174
0.018	-0.8120	0.397	1.230
0.020	-0.8718	0.380	1.262
0.022	-0.9204	0.368	1.287
0.024	-0.9307	0.368	1.287
0.025	-0.9350	0.368	1.287
0.026	-0.9378	0.368	1.287
0.028	-0.9307	0.371	1.281
0.030	-0.9292	0.373	1.276
0.035	-0.9168	0.378	1.265
0.040	-0.9232	0.378	1.265
0.050	-0.8717	0.395	1.233
0.060	-0.8076	0.416	1.193
0.080	-0.7827	0.411	1.203
0.100	-0.7453	0.422	1.182
0.120	-0.7376	0.423	1.181
0.140	-0.7193	0.427	1.174
0.160	-0.7191	0.427	1.174
0.180	-0.7228	0.425	1.177
0.200	-0.7264	0.424	1.179
0.220	-0.6852	0.436	1.158
0.240	-0.7334	0.420	1.187
0.260	-0.7372	0.418	1.190
0.280	-0.7386	0.418	1.191
0.300	-0.7512	0.414	1.197
0.320	-0.7588	0.413	1.200
0.340	-0.7579	0.413	1.200
0.360	-0.7526	0.414	1.198
0.380	-0.7468	0.416	1.194
0.400	-0.7015	0.430	1.168
0.450	-0.6735	0.440	1.150
0.500	-0.4312	0.515	1.023
0.550	-0.2905	0.559	0.950
0.600	-0.2875	0.562	0.947
0.650	-0.2585	0.571	0.933
0.700	-0.2113	0.586	0.909
0.750	-0.1492	0.606	0.878
0.800	-0.0729	0.629	0.842
0.850	0.0129	0.656	0.800
0.900	0.1131	0.687	0.754
0.950	0.2222	0.720	0.702

SHOCKLESS SYMMETRICAL AIRFOIL 0.1100-0.7500-1.375

RUN 781 SCAN 3
MACH NUMBER=0.834
REYNOLDS NO.=20.97*10**6
W.T.ANGLE= 0.23 DEG
CN =-0.003
CM = 0.0023
CC = 0.0157
CDW= 0.0171

PRESSURE DISTRIBUTION ON THE LOWER SURFACE

X/C	CP	P/PO	M LOC
0.004	0.7760	0.874	0.443
0.010	-0.0248	0.627	0.845
0.100	-0.6793	0.426	1.176
0.200	-0.6914	0.421	1.185
0.300	-0.7420	0.404	1.216
0.400	-0.7865	0.390	1.243
0.500	-0.7350	0.406	1.213
0.600	-0.6704	0.425	1.177
0.700	-0.1289	0.593	0.898
0.800	-0.0153	0.627	0.845
0.900	0.1451	0.676	0.770

PRESSURE DISTRIBUTION ON THE UPPER SURFACE

X/C	CP	P/PO	M LOC
0.0	1.1893	1.001	
0.002	0.9633	0.932	0.319
0.004	0.7319	0.861	0.468
0.006	0.4949	0.788	0.594
0.008	0.2491	0.712	0.715
0.010	-0.0064	0.632	0.837
0.012	-0.2774	0.549	0.968
0.014	-0.4501	0.495	1.056
0.016	-0.6627	0.428	1.172
0.018	-0.7713	0.395	1.234
0.020	-0.8308	0.376	1.270
0.022	-0.8615	0.366	1.291
0.024	-0.8501	0.369	1.285
0.025	-0.8521	0.368	1.287
0.026	-0.8502	0.368	1.285
0.028	-0.8564	0.368	1.287
0.030	-0.8517	0.369	1.284
0.035	-0.8359	0.375	1.273
0.040	-0.8292	0.376	1.270
0.050	-0.7999	0.385	1.252
0.060	-0.7640	0.398	1.227
0.080	-0.7624	0.397	1.229
0.100	-0.7275	0.408	1.208
0.120	-0.7232	0.410	1.205
0.140	-0.7038	0.417	1.192
0.160	-0.7072	0.417	1.192
0.180	-0.7089	0.417	1.193
0.200	-0.7134	0.415	1.196
0.220	-0.6933	0.422	1.182
0.240	-0.7339	0.411	1.203
0.260	-0.7374	0.410	1.206
0.280	-0.7358	0.410	1.206
0.300	-0.7380	0.408	1.209
0.320	-0.7421	0.405	1.214
0.340	-0.7640	0.398	1.227
0.360	-0.7591	0.400	1.225
0.380	-0.7698	0.395	1.233
0.400	-0.7753	0.393	1.237
0.450	-0.7284	0.408	1.209
0.500	-0.7191	0.410	1.205
0.550	-0.7486	0.400	1.223
0.600	-0.5322	0.467	1.103
0.650	-0.1809	0.576	0.925
0.700	-0.1218	0.595	0.895
0.750	-0.0792	0.608	0.874
0.800	-0.0209	0.627	0.845
0.850	0.0574	0.650	0.809
0.900	0.1460	0.678	0.767
0.950	0.2419	0.708	0.720

TABLE 2.8 Force data and surface pressure distributions (con'd)

SHOCKLESS SYMMETRICAL AIRFOIL 0.1100-0.7500-1.375

RUN 782 SCAN 1
MACH NUMBER=0.862
REYNOLDS NO.=21.27*10**6
W.T.ANGLE= 0.17 DEG
CN =-0.005
CM = 0.0011
CC = 0.0361
CDW= 0.0343

PRESSURE DISTRIBUTION ON THE LOWER SURFACE

X/C	CP	P/PO	M LOC
0.004	0.8069	0.874	0.443
0.010	0.0344	0.627	0.845
0.100	-0.6167	0.419	1.188
0.200	-0.6440	0.411	1.202
0.300	-0.7050	0.393	1.237
0.400	-0.7544	0.377	1.268
0.500	-0.7156	0.390	1.243
0.600	-0.7732	0.372	1.278
0.700	-0.3242	0.516	1.020
0.800	-0.0335	0.609	0.873
0.900	0.1391	0.664	0.788

PRESSURE DISTRIBUTION ON THE UPPER SURFACE

X/C	CP	P/PO	M LOC
0.0	1.2087	1.002	
0.002	1.0015	0.935	0.311
0.004	0.7867	0.865	0.459
0.006	0.5549	0.790	0.590
0.008	0.3092	0.711	0.716
0.010	0.0520	0.627	0.845
0.012	-0.2115	0.542	0.978
0.014	-0.3642	0.493	1.058
0.016	-0.5691	0.427	1.174
0.018	-0.6669	0.396	1.232
0.020	-0.7207	0.378	1.265
0.022	-0.7566	0.367	1.288
0.024	-0.7568	0.369	1.285
0.025	-0.7694	0.366	1.290
0.026	-0.7744	0.366	1.291
0.028	-0.7625	0.370	1.282
0.030	-0.7769	0.367	1.289
0.035	-0.7629	0.372	1.278
0.040	-0.7594	0.376	1.269
0.050	-0.7456	0.384	1.254
0.060	-0.7056	0.398	1.227
0.080	-0.6752	0.403	1.218
0.100	-0.6555	0.409	1.207
0.120	-0.6570	0.408	1.208
0.140	-0.6438	0.412	1.202
0.160	-0.6401	0.412	1.202
0.180	-0.6360	0.412	1.201
0.200	-0.6397	0.410	1.205
0.220	-0.6122	0.417	1.192
0.240	-0.6534	0.401	1.222
0.260	-0.6583	0.398	1.227
0.280	-0.6660	0.396	1.232
0.300	-0.6696	0.394	1.235
0.320	-0.6770	0.391	1.240
0.340	-0.6878	0.388	1.247
0.360	-0.6914	0.387	1.248
0.380	-0.7095	0.381	1.260
0.400	-0.7231	0.378	1.267
0.450	-0.7409	0.372	1.279
0.500	-0.6746	0.394	1.236
0.550	-0.7100	0.384	1.255
0.600	-0.7544	0.371	1.280
0.650	-0.7790	0.364	1.295
0.700	-0.5171	0.449	1.134
0.750	-0.1770	0.559	0.951
0.800	-0.0661	0.595	0.894
0.850	0.0296	0.628	0.844
0.900	0.1290	0.661	0.792
0.950	0.2190	0.691	0.747

TABLE 2.8 Force data and surface pressure distributions (concluded)

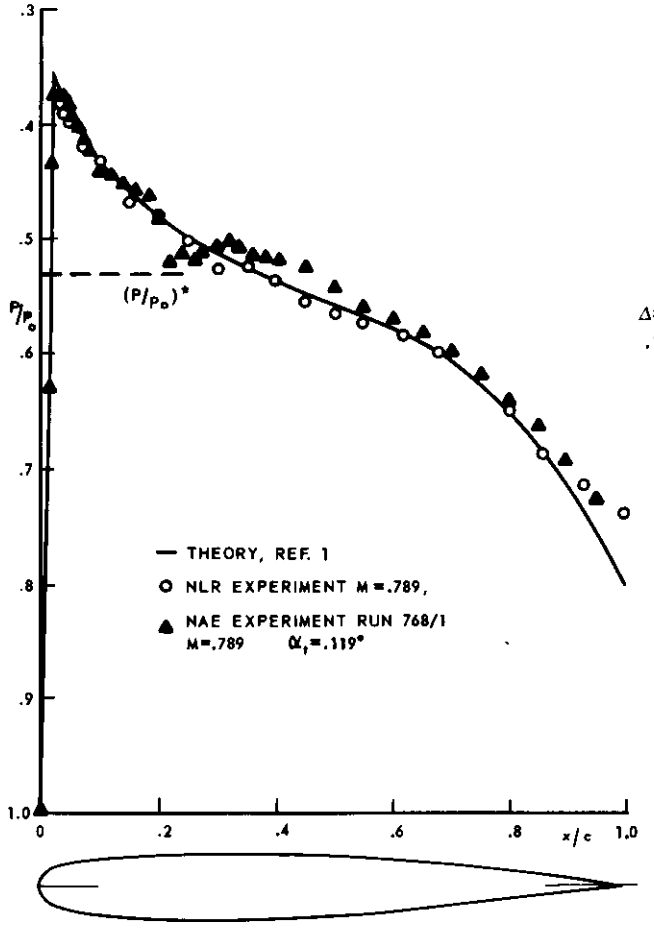


Fig.2.10Airfoil shape and design pressure distribution

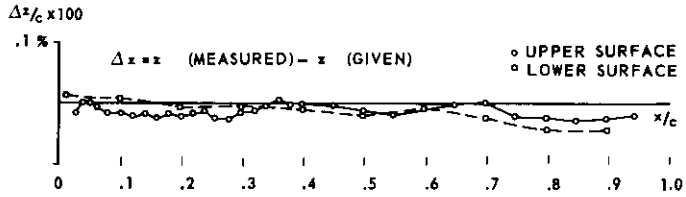


Fig. 2.11Discrepancies between actual and theoretical model thickness co-ordinates

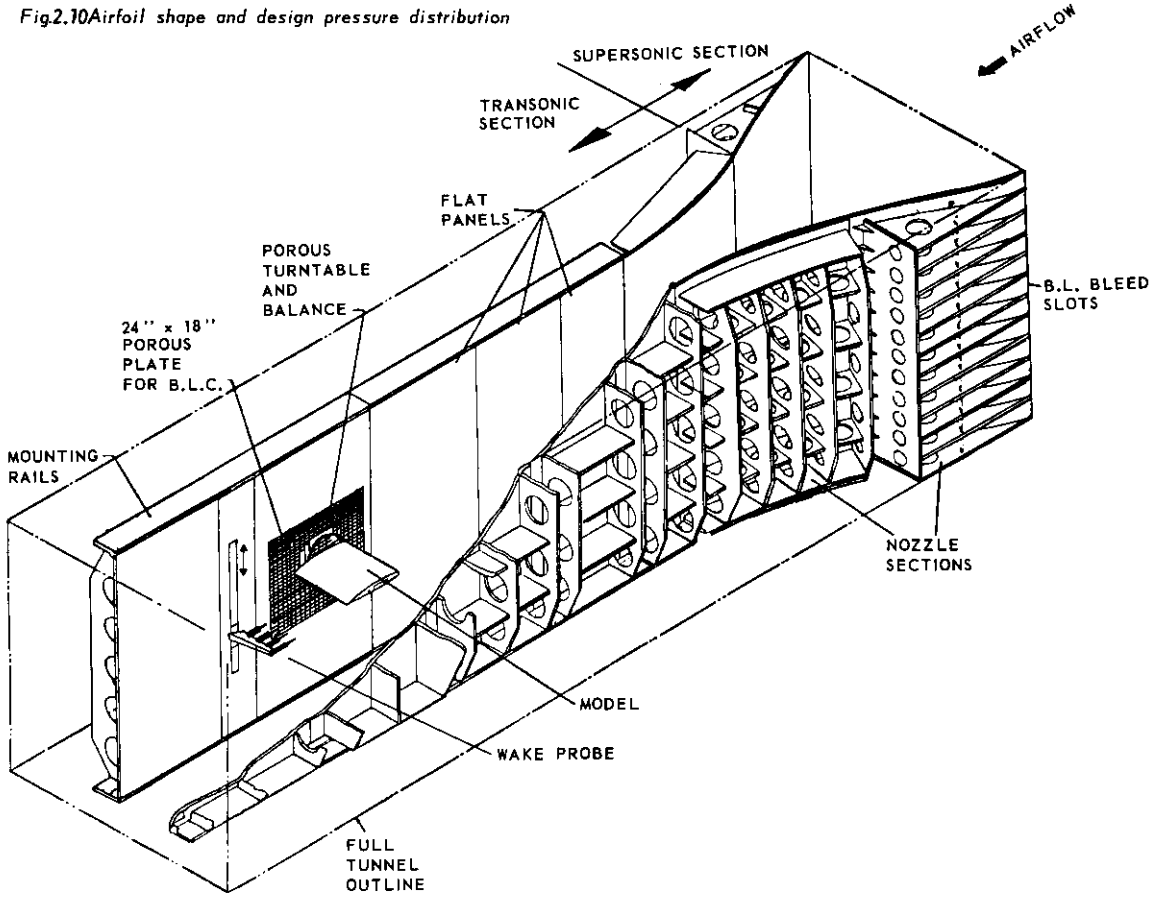


Fig.2.12The NAE 15 in x 20 in 2-D insert

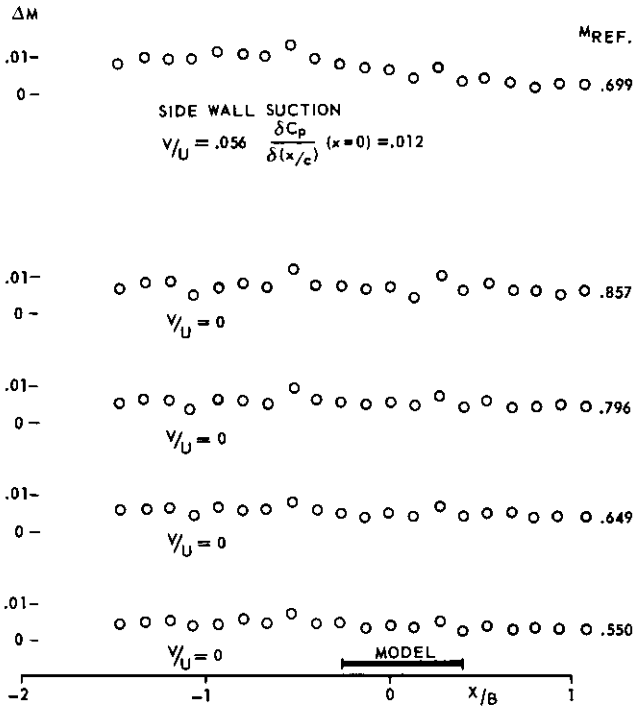


Fig. 2.13 ℄ Mach number distribution, empty test section NAE 15 in x 60 in 2-D insert

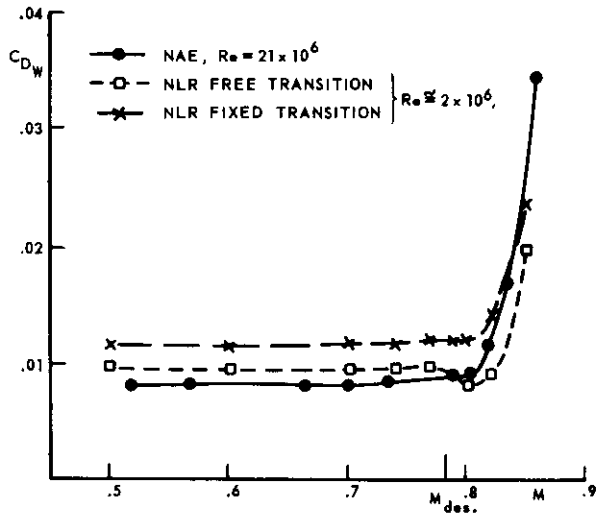


Fig. 2.14 Wake drag data

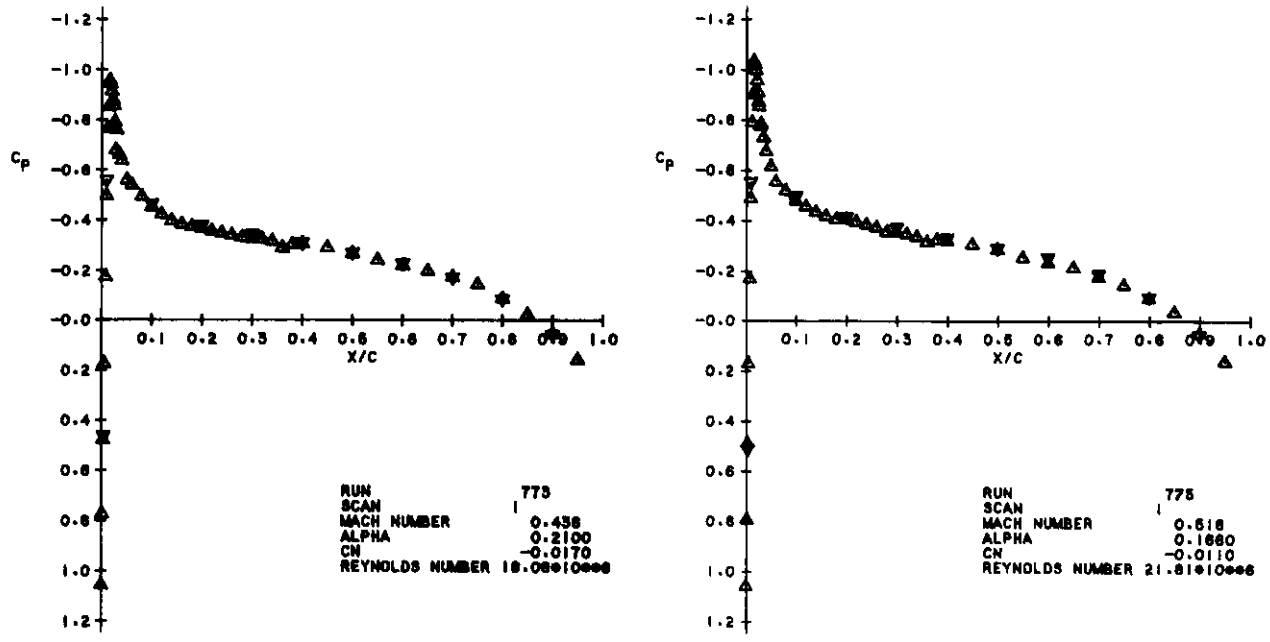


Fig. 2.15 Surface pressure distributions

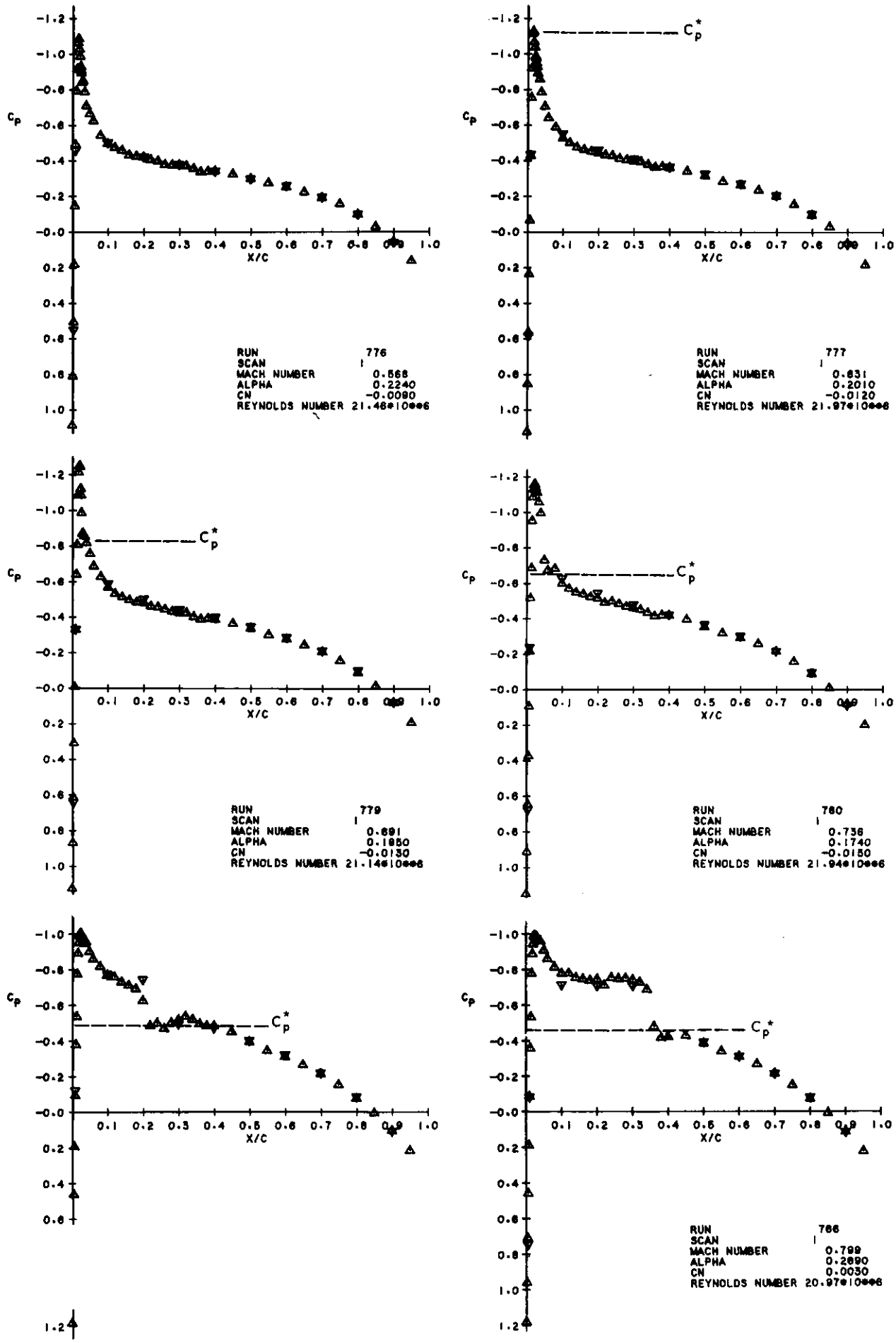
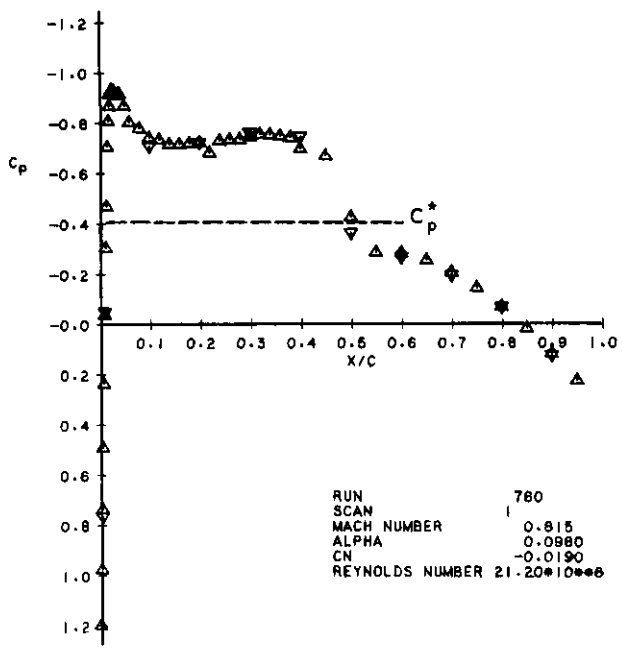
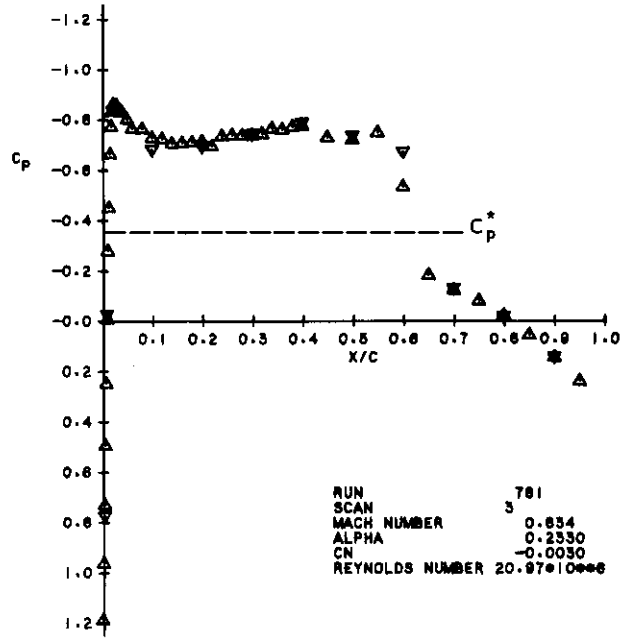


Fig.2.15 Surface pressure distributions (con'd)





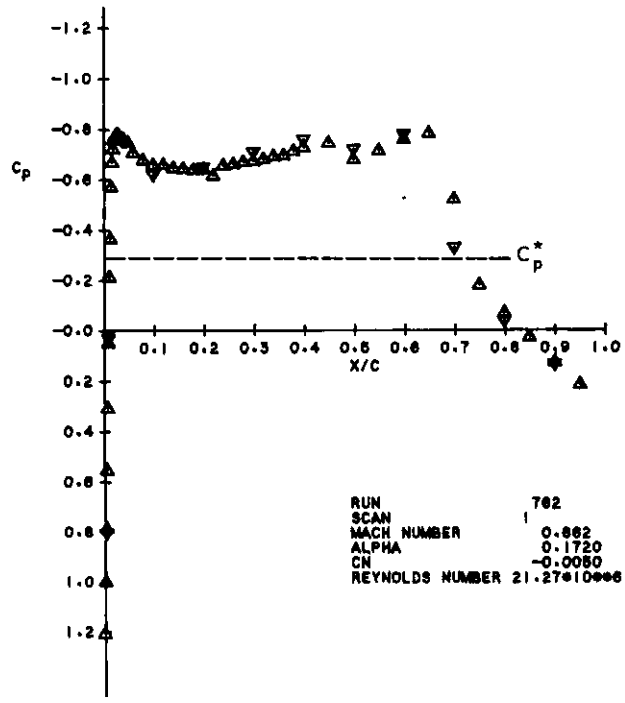


Fig. 2.15 Surface pressure distributions (concluded)

3. Supercritical Airfoil CAST 7 - Surface pressure, wake and boundary layer measurements

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3.1 Introduction

This data set contains selected experimental results for the supercritical airfoil CAST 7 from

- surface pressure, wake and wall pressure measurements in the 0.34 m x 0.60 m Transonic Wind Tunnel Braunschweig (TWB) of the DFVLR,
- surface pressure and wake measurements in the 8in x 18in (0.2 m x 0.46 m) transonic tunnel of the ARA Bedford and
- boundary layer and flow field measurements in the 1 x 1 Meter Transonic Tunnel of the DFVLR-AVA Göttingen(DFVLR 1 x 1 Meter)

The flow conditions included here are listed in Table 3.3 . All test cases presented were run with transition fixed at about 7.5 % chord on upper and lower surfaces. Tests at increasing Reynolds numbers and observation of the corresponding drag behavior indicated that transition occurred at the location of the roughness band.

The test sections of the ARA tunnel and the DFVLR-TWB consist of solid side walls and slotted top and bottom walls. Tests with different size models of the same airfoil - the NPL 3111 in the ARA tunnel and the NACA 0012 in the DFVLR-TWB - have shown that blockage corrections for these tunnels are zero up to $M_\infty = 0.80$, the highest freestream Mach number included here. Downwash (angle of attack) and curvature (lift and pitching moment) corrections derived from the ARA tests are given in Section 6.2 of this data set. The ARA data are included in corrected form. The DFVLR-TWB tests have indicated that downwash and curvature corrections are small and essentially only required at Mach numbers around $M_\infty = 0.60$. Since correction procedures for that range have not yet been finalized, only uncorrected data are included.

A description of the DFVLR 1 x 1 Meter Transonic Tunnel including correction procedures is given in Chapter A5 of this report. Since the flow about the model in the case of the present boundary layer measurements is not only affected by wall constraints but also by the cover of the probe drive mechanism, starting one chord length downstream of the model trailing edge, no attempt was made to correct the data, i.e., to find freestream conditions that would correspond to the measured surface pressure distributions in a 'free air' test environment.

The boundary layer velocity profiles were determined from the measured total and static pressures assuming constant total temperature across the boundary layer. The relations used to derive the various boundary layer parameters from the velocity profiles are given in the List of Symbols (8). All data related to the boundary layer measurements are presented in a form (Table 3.6) that allows re-analysis of the results by the user.

In condluding the Introduction it should be mentioned that the airfoil CAST 7 is extremely sensitive to small changes at freestream conditions close to the design point, i.e., $M_\infty \approx 0.76$ and $\alpha \geq 0.5$. This is demonstrated by the Mach number sweep of Figure 3.8 (p A3-30, top righthand figure) and the angle of attack sweep of Figure 3.9(p A3-32, top left hand figure). This sensitivity is also shown by the higher lift and lower drag of Run 2520, Figure 3.8(p A3-30), as compared to the corresponding data of Run 2486, Figure 3.7(p A3-28), the difference in lift and drag being mainly due to wear of the roughness band.

1. Airfoil

1.1. Airfoil designation — CAST 7

1.2. Type of airfoil — Supercritical airfoil designed by a modified Murman/Cole/Krupp-method. Shockfree design, roof-top pressure distribution, medium rear loading.

1.2.1. airfoil geometry

nose radius — $R = 1.15\ \%$

maximum thickness — $t/c = 11.8\ \%$ at $35\ \%\ c$

base thickness — $t_{TE}/c = 0.5\ \%$

} Table 3.1 and Figure 3.1

1.2.2. design condition

$M_\infty = 0.76$

$c_L = 0.573$

$\alpha = 0^o$

design pressure distribution — Table 3.2 and Figure 3.2

1.4. Reference on airfoil — Reference on design method and airfoil: [1,2]

2. Model geometry

2.1. Chord length

2.2. Span

No. 1)	Model	Chord [mm]	Span [mm]	Tested in tunnel
①	SP 120 2)	200	340	DFVLR-TWB (0.34m x 0.60m)
②	CP 7 2)	127	200	8in x 18in ARA - Bedford
③	SP 125 3)	250	1000	DFVLR 1x1 Meter

1) Numbers ① ② ③ are hereafter used to identify wind tunnels, models, etc. of ARA Bedford and DFVLR
2) Pressure distribution and wake measurements
3) Boundary layer and flow field measurements

2.3. Actual model co-ordinates and accuracy — Table 3.1 and Figure 3.1

2.4. Maximum thickness — ① ② $t/c = 11.73\ \%$

2.5. Base thickness — ① 0.36 % ② 0.50 %

2.6. Additional remarks — Models SP 120 and SP 125 were designed and built by DFVLR-AVA
Model CP 7 was designed and built by ARA Bedford

2.7. References on model — [1,2, 5]

3. Wind tunnel

3.1. Designation — 1)

① DFVLR Transonic Wind Tunnel Braunschweig (TWB)

② ARA 8in x 18in (0.2m x 0.46m)

③ DFVLR 1 x 1 Meter

3.2. Type of tunnel — Blow down

3.2.1. stagnation pressure

① Variable between 1.5 and 4.5 bar

② Variable between 1.3 and 4.0 bar

3.2.2. stagnation temperature

① ~ 260 K.

② ~ 290 K.

} Temperature decrease during a run : ① 7° ② 5°

3.2.3. humidity / dew point — ① 210 K ② 240 K

3.3. Test section — Two-dimensional (Figure 3.3)

1) All information given here applies to tunnels ① and ② For information on the DFVLR 1x1 Meter Transonic Tunnel see data set of Chapter A 5.

3.3.1. dimensions

① 0.34 m x 0.60 m

② 0.203 m x 0.457 m

3.3.2. type of walls

① ② Side walls solid, top and bottom walls slotted. ① Open area ratio 2.35 % (Figure 3.3) ② Open area ratio 3.2 %; each slotted wall has six slots 0.94 mm wide and two slots 0.46 mm wide

3.4. Flow field (empty test section)

3.4.1. reference static pressure

① Pressure orifice on top wall (Figure 3.4)

② Wall static pressure 650 mm upstream of model centreline on top wall

3.4.2. flow angularity

① $\pm 0.07^{o}$ ② : $\pm 0.05^{o}$

3.4.3. Mach number distribution

① Figure 3.4

①

M_∞	0.47	0.6	0.7	0.75	0.8
ΔM *	0.003	0.003	0.004	0.0045	0.0045

* Variation over a distance ranging from one chord length upstream to one chord length downstream of model

② $\Delta M < 0.002$ at $M_\infty \leq 0.82$ on centreline over model chord length

3.4.4. pressure gradient

① Figure 3.4

② Mach number gradient along length of model: < 0.002 at $M_\infty \leq 0.82$

3.4.5. turbulence / noise level

① Has not yet been determined.

② Under investigation using Kulite transducers

3.4.6. side wall boundary layer

① No special treatment. Boundary layer growth is compensated by diverging top and bottom walls.

② Top and bottom walls diverge. $2\,\delta^{*}/b = 0.015$ at $M_\infty = 0.70$

3.6. References on wind tunnel

[3, 4]

4. Tests

4.1. Type of measurements

① ② Surface pressure and wake measurements

① Upper and lower wall pressures

③ Boundary layer measurements

② ③ Schlieren observations

4.2. Tunnel/ model dimensions

4.2.1. height/ chord ratio

4.2.2. width / chord ratio

Tunnel	H/c	b/c
DFVLR - TWB	3	1.7
DFVLR 1 x 1 Meter	4	4
8in x 18in ARA	3.6	1.6

Table 3.3

4.3. Flow conditions included in present data base

4.3.4. transition

- transition fixing

Glass spheres

- width : ① ② ③ 1.0 % c

	- Diameter ① 0.065 mm ② 0.058 mm ③ 0.090 mm
	Note: The type and location of tripping devices is indicated in the diagrams. Example: 0.09 BA, 30 L/25 L means glass spheres with an average dia. of 0.09 mm at 30 % c on upper and 25 % c on lower surface
4.3.5. temperature equilibrium	① ② See 3.2.2. ③ yes
4.5. References on tests	[3,5]
5. Instrumentation	
5.1. Surface pressure measurements	
5.1.1. pressure holes	
- size	① ③ Diameter 0.5 mm (SP 120, SP 125) ② Diameter 0.3 mm (CP 7)
- spanwise station(s)	① Centreline orifices are staggered in the nose region over a range ± 7.5 mm wide ② Orifices are staggered in a diamond pattern over a range ± 38 mm wide
- chordwise positions	Figure 3.1 and Tables 3.4/ 3.5/ 3.6
5.1.2. type of transducers and scanning devices	① Druck Ltd. differential pressure transducers plus Scanivalves Range: ± 50 psid, Accuracy: ± 0.06 % FS ② Statham transducer plus Scanivalves Range : 49 psi ., Accuracy: ± 0.03 % FS
5.2. Wake measurements	
5.2.1. type/size of instruments	① Traversable rake consisting of 7 probes 30 mm apart. Every second probe is a static probe; the probe is traversed over a distance of 60 mm. Measuring points are 1.3 mm apart. ② Rake consisting of 48 pitot probes, spaced 1.27 mm in the center region with a diameter of 0.5 mm, and 3 static probes. Rake is adjusted for optimal position with respect to wake
5.2.2. streamwise positions	① 1 chord length ② 2 chord lengths } downstream of trailing edge
5.2.3. type of transducers and scanning devices	① Druck Ltd. differential pressure transducers. Each probe is equipped with its own transducer. Range and accuracy: same as 5.1.2. ② Statham transducer plus Scanivalve Range: 7.25 psi, Accuracy: ± 0.04 % FS
5.3. Boundary layer measurements	Tunnel: DFVLR 1 x 1 Meter Model: SP 125 (c = 250 mm)
5.3.1. type/size of instruments	Boundary layer probe, consisting of a 0.15 mm pitot probe, a static probe and a probe to measure the flow direction (Figure 3.5)
5.3.2. locations	Upper surface: x/c = 0.3 to 0.99 (probe traverses in x)
5.3.3. type of transducers and scanning devices	CEC and Statham differential pressure transducers Range: ± 10 and ± 15 psid. Accuracy: ≈ ± 0.4 % FS

5.4. Skin friction measurements	Skin friction was determined from measured boundary layer profiles using a modified Ludwieg - Tillmann formulation [6]. See List of Symbols (8).
5.5. Flow visualization	
5.5.1. flow field	② ③ Schlieren observation with single pass system

6. Data

6.1. Accuracy (wall interference excluded)	
6.1.1. angle of attack setting	① $\pm 0.02^{o}$ ② : $\pm 0.01^{o}$
6.1.2. free stream Mach number:	
- setting	① ± 0.002 ② : ± 0.001
- variation during one pressure scan	① ± 0.002 ② : Negligible
6.1.3. pressure coefficients	① $\Delta c_p \approx \pm 1\,\%$ including an error of $\Delta M = \pm 0.002$, evaluated at $M_\infty = 0.76$ and max. $\lvert c_p \rvert$ ② $\Delta c_p \approx \pm 0.5\,\%$
6.1.4. aerodynamic coefficients	Obtained by integrating pressure distribution
6.1.5. boundary layer quantities	③ Probe position: Δz (normal to surface) $= \pm 0.01$ mm. The boundary layer thickness upstream of the shock is about 1.8 mm. Δx (chordwise) $= \pm 1$ mm.
6.1.6. repeatability	① Average values for the range of freestream conditions included: $\Delta c_p \approx \pm 0.5\,\%$, $\Delta c_L \approx \pm 0.3\,\%$, $\Delta c_m \approx \pm 0.5\,\%$, $\Delta c_D \approx \pm 2\,\%$ ② $\Delta c_p = \pm 0.5\,\%$, $\Delta c_L = \pm 0.5\,\%$, $\Delta c_m = \pm 0.5\,\%$ $\Delta c_D = \pm 2\,\%$
6.2. Wall interference corrections	
6.2.1. angle of attack	① See 6.2.3. ② $\Delta\alpha = \frac{c \cdot c_L \cdot \delta_o}{h} + \frac{c^2 \cdot \delta_1}{\beta \cdot h^2}\left[\frac{c_L}{4} + c_m\right]$ $h = 457$ mm, $c = 127$ mm, $\delta_o = -0.03$, $\delta_1 = 0.11$
6.2.2. blockage (solid/wake)	① ② Slot width was selected experimentally to give zero blockage corrections
6.2.3. streamline curvature (lift)	① Experiments with three different size models of the airfoils NACA 0012 and DFVLR - R2 showed that only small corrections are required. Data are not yet sufficiently analysed to establish final correction procedures. ② $\Delta c_L = -\frac{\pi}{2} \cdot \left(\frac{c}{\beta h}\right)^2 \delta_1 c_L$ $\Delta c_m = -\frac{1}{4} \cdot \Delta c_L$ $\alpha = \alpha_g + \Delta\alpha$ corrected $c_i = c_i + \Delta c_i$
6.2.5. remarks	See the Introduction
6.2.6. references on wall interference correction	[3, 4]

6.3. Presentation of data	
6.3.1. aerodynamic coefficients	Tables: 3.4/ 3.5 Figure : 3.6
6.3.2. surface pressure	Tables: 3.4/ 3.5 Figures: 3.7/3.8/3.9
6.3.3. boundary layer quantities	Table: 3.6 Figure: 3.10 Schlieren pictures: Figure 3.10
6.3.4. wall interference corrections included?	① ③ No ② Yes
6.3.5. corrections for model deflection	No
6.3.6. Empty test section calibration taken into account?	Yes
6.3.8. additional remarks	No special notation is used to identify corrected and uncorrected data.
6.4. Were tests carried out in different facilities on the current aerofoil? If so, what facilities. Are data included in the present data base?	See 2.1. of this questionnaire and Table 3.3 A comparison of ARA and DFVLR-TWB pressure distributions is given in Figure 3.7
6.5. To be contacted for further information on tests	① W. Puffert DFVLR D-3300 Braunschweig ② T.E.B. Bateman Aircraft Research Association (ARA) Manton Lane Bedford, MK41 7PF England ③ E. Stanewsky DFVLR-AVA Bunsenstraße 10 D-3400 Göttingen

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8. List of symbols

b	span, tunnel width
c, l, L	model chord
c_p	pressure coefficient
c_p^*	pressure coefficient at $M_L = 1$
c_A, c_L	lift coefficient
c_m, c_{m25}	pitching moment coefficient (based on 0.25 c)
c_W, c_D	drag coefficient
M, Ma, M_∞	freestream Mach number
ML	local Mach number (airfoil surface, $f(p / p_o)$)
MB	local Mach number (boundary layer, $f(p_B/p_T)$)
H, h	tunnel height, shape factor
p	static pressure
p_o, H	freestream total pressure
p_T	total pressure in the boundary layer
Re, R, E-6* RE	Reynolds number, based on freestream conditions and chord length
R	nose radius
T_o	freestream total temperature
u	velocity in the boundary layer
t	maximum thickness
x, y, z	coordinates (Figure 3.1) (z is in the case of the boundary layer measurements taken normal to the airfoil surface)
α	angle of attack
δ, DEL	boundary layer thickness ($u/u_e = 0.99$)
δ^*, DEL*	displacement thickness
Θ, THETA	momentum thickness
γ	ratio of specific heats

Relations used in the reduction of the boundary layer data

$$\delta^* = \int_0^\delta \left(1 - \frac{\rho}{\rho_e} \cdot \frac{u}{u_e}\right) \cdot dz$$

$$\Theta = \int_0^\delta \frac{\rho}{\rho_e} \cdot \frac{u}{u_e} \left(1 - \frac{u}{u_e}\right) \cdot dz$$

$$H = \delta^* / \Theta$$

$$c_f = \{0.246 \cdot e^{(-1.561 \cdot Hi)} \cdot Re_\Theta^{-0.268}\} / \left\{\frac{\bar{\tau}}{\tau_o}\left(1 + \frac{\gamma - 1}{2} \cdot Me^2\right)\right\}^{0.7963}$$

$$\bar{\tau}/\tau_o = 0.5 \cdot \frac{T_w}{T_{te}} + 0.22 \cdot P_r^{1/3} + \frac{0.5 - 0.22 \cdot P_r^{1/3}}{1 + \frac{\gamma - 1}{2} \cdot Me^2}$$

$$Hi = \left(H - \frac{\gamma - 1}{2} \cdot Me^2\right) / \left(\frac{T_w}{T_{te}} \left[1 + \frac{\gamma - 1}{2} \cdot Me^2\right]\right)$$

Assumptions: $P_r = 1$

$T_w / T_{te} = 1$

T_w Wall temperature

T_{te} total temperature at edge of boundary layer ($T_{te} = T_o$)

Subscripts

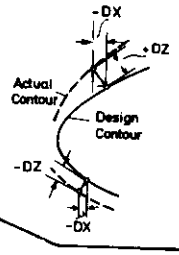
∞	freestream conditions
TE	trailing edge
u	upper surface
l	lower surface
e, E	edge of boundary layer
B	boundary layer

Table 3.1 Coordinates of the airfoil CAST 7

a. Model: SP 120 (TWB tests)

Upper surface				Lower suface			
XUS (mm)	ZUS (mm)	DX (mm)	DZUS (mm)	XLS (mm)	ZLS (mm)	DX (mm)	DZLS (mm)
Design	Design			Design	Design		
0.000	0.000			200.000	-0.931		0.102
0.033	0.428	-0.043	0.007	192.389	-0.286	0.008	0.107
0.711	2.041	-0.082	0.053	188.578	-0.043	0.007	0.130
1.152	2.653	-0.063	0.050	184.763	0.130	0.005	0.130
2.001	3.581	-0.010	0.011	180.946	0.227	0.002	0.129
3.591	4.813	0.021	-0.032	177.127	0.237	-0.001	0.132
6.261	6.220	-0.001	0.003	173.310	0.164	-0.004	0.133
9.052	7.374	-0.001	0.002	169.494	0.009	-0.007	0.132
13.678	8.788	-0.002	0.008	161.875	-0.511	-0.010	0.125
17.413	9.636	-0.002	0.012	158.072	-0.858	-0.013	0.131
24.970	10.886	0.000	-0.001	150.480	-1.681	-0.016	0.137
32.578	11.781	0.003	-0.026	146.689	-2.140	-0.017	0.136
40.211	12.433	0.001	-0.017	139.114	-3.117	-0.020	0.148
47.857	12.909	0.001	-0.022	135.329	-3.623	-0.019	0.142
55.511	13.252	0.001	-0.031	127.760	-4.641	-0.019	0.140
63.168	13.488	0.001	-0.046	120.189	-5.642	-0.018	0.140
70.828	13.634	0.001	-0.057	112.612	-6.599	-0.016	0.132
82.319	13.703	-0.000	-0.069	105.026	-7.485	-0.015	0.133
89.980	13.645	-0.001	-0.069	97.431	-8.379	-0.013	0.130
97.640	13.504	-0.002	-0.073	93.629	-8.634	-0.011	0.120
105.298	13.273	-0.002	-0.054	86.016	-9.243	-0.008	0.109
112.951	12.939	-0.002	-0.040	78.393	-9.702	-0.005	0.101
120.599	12.490	-0.003	-0.047	70.761	-9.985	-0.002	0.088
128.238	11.911	-0.005	-0.057	63.124	-10.071	-0.000	0.069
139.672	10.767	-0.008	-0.065	55.488	-9.943	-0.001	0.043
147.273	9.807	-0.011	-0.083	47.859	-9.597	0.001	0.019
154.852	8.687	-0.015	-0.091	40.243	-9.034	0.001	0.007
162.409	7.427	-0.019	-0.107	32.645	-8.269	-0.002	-0.013
166.179	6.752	-0.025	-0.137	25.066	-7.324	-0.004	-0.032
173.707	5.332	-0.029	-0.152	13.748	-5.562	-0.006	-0.035
181.225	3.854	-0.032	-0.161	9.015	-4.619	-0.013	-0.059
188.737	2.354	-0.034	-0.171	4.109	-3.486	-0.013	-0.049
192.493	1.598	-0.034	-0.167	1.733	-2.673	-0.008	-0.015
196.247	0.838	-0.032	-0.157	0.217	-1.052	-0.091	-0.038
200.000	0.071		-0.150	0.000	0.000		

For plot of measured error of manufactured airfoil see Fig. 3.1



Definition of DX and DZ

b. Model: CP 7 (ARA tests)

		Upper Surface (mm)			Lower Surface (mm)		
		z	z	Δz	z	z	Δz
x/c	x (mm)	Design	Actual	Error	Design	Actual	Error
0.115	14.605	6.734	6.739	+0.005	-4.468	-4.496	+0.028
0.155	19.685	7.376	7.376	0	-5.131	-5.156	+0.025
0.215	27.305	8.016	7.998	-0.018	-5.883	-5.893	+0.010
0.275	34.925	8.402	8.379	-0.023	-6.304	-6.312	+0.008
0.335	42.545	8.618	8.603	-0.015	-6.383	-6.383	0
0.395	50.165	8.700	8.694	-0.006	-6.142	-6.137	-0.005
0.455	57.785	8.656	8.651	-0.005	-5.626	-5.618	-0.008
0.515	65.405	8.479	8.476	-0.003	-4.895	-4.879	-0.016
0.575	73.025	8.146	8.146	0	-4.003	-3.980	-0.023
0.635	80.645	7.630	7.628	-0.002	-3.010	-2.985	-0.025
0.695	88.265	6.886	6.891	+0.005	-1.989	-1.958	-0.031
0.755	95.885	5.890	5.883	-0.007	-1.026	-0.991	-0.035
0.815	103.125	4.651	4.641	-0.010	-0.264	-0.221	-0.043
0.875	111.125	3.226	3.221	-0.005	0.132	0.168	-0.036
0.920	116.840	2.096	2.088	-0.008	0.099	0.117	-0.018
0.950	120.650	1.334	1.334	0	-0.079	-0.081	+0.002
0.978	124.143	0.627	0.625	-0.002	-0.333	-0.356	+0.023
1.000	127.000	0.043	0.038	-0.005	-0.589	-0.599	+0.010

Leading edge inspected by Acrulite templates and Shadowgraph technique.

Accuracy: ±0.007 mm

Table 3.2 Design pressure distribution

Theory:

Pressure distribution at (x, o + -)

Re = 6 · 10^6 Boundary layer: turbulent

M_∞ = 0.760 α = 0.0

C_L = 0.573 C_m = -0.13551

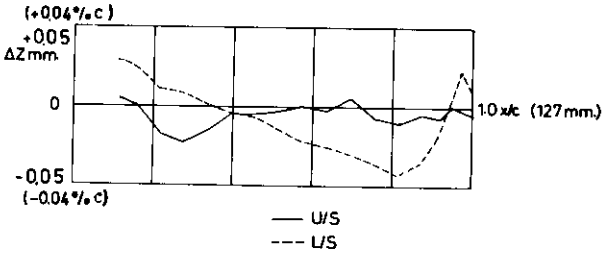
C_D = 0.00458 C_p^* =-0.5587

X/C	CPU	CPL
-0.82500	0.04514	0.04514
-0.57500	0.07580	0.07580
-0.35000	0.12695	0.12695
-0.17500	0.24443	0.24443
-0.07500	0.46224	0.46230
-0.03500	0.70025	0.70054
-0.01500	0.92820	0.92899
-0.00250	1.13935	1.14075
0.00250	0.91234	0.91148
0.00750	0.53289	0.55421
0.01250	0.35106	0.43495
0.01750	0.20055	0.36309
0.02500	0.00269	0.27578
0.03500	-0.21409	0.18454
0.04750	-0.43172	0.10294
0.06500	-0.63032	0.03330
0.08750	-0.75432	-0.02564
0.11500	-0.82036	-0.09227
0.15500	-0.88311	-0.19051
0.21500	-0.93414	-0.32130
0.27500	-0.90771	-0.39377
0.33500	-0.89268	-0.39120
0.39500	-0.88736	-0.32924
0.45500	-0.86930	-0.23556
0.51500	-0.79762	-0.12840
0.57500	-0.63271	-0.01747
0.63500	-0.55594	0.09305
0.69500	-0.52752	0.19929
0.75500	-0.39832	0.29214
0.81500	-0.24718	0.36020
0.87500	-0.10430	0.39477
0.92000	-0.00883	0.39337
0.95000	0.05860	0.37630
0.97750	0.13893	0.34661
1.00000	0.24843	0.32973
1.02500	0.29324	0.29335
1.09000	0.17804	0.17779
1.22500	0.10612	0.10588
1.47500	0.06025	0.06001
1.85000	0.03618	0.03595
2.40000	0.01785	0.01765

Experiment ARA: Table 3.5 and Figure 3.2

Experiment DFVLR-TWB: Figure 3.2

Note: The location of the pressure orifices is given with the surface pressure distributions in Tables 3.4, 3.5 and 3.6 and in Figure 3.1



ARA CAST 7 airfoil (Model CP 7)
Measured errors of manufactured airfoil

Table 3.3 Flow conditions included in present data set

M_∞	α^o	$Re \cdot 10^{-6}$	Transition	Wind Tunnel	Model	Run
1. Pressure distribution and wake rake measurements						
0.70	-2 to 5	6	.06 BA, 7/7 L	DFVLR - TWB	SP120	2495-2502
0.76	-2 to 3	↑		↑	↑	2484-2493
0.4 to 0.8	0.5	6				2511-2524
0.76	0, 5; 2.0	4.1 to 13.5	.06 BA, 7/7 L	DFVLR - TWB	SP 120	2504-2510; 2525-2531
0.70	-0.19 to 4.59 [1]	6	.06 BA, 8/8L	ARA 18 in x 8 in	CP 7	58 - 63
0.76	0.26 to 2.68 [1]	↑		↑	↑	106 - 112, 154 [2]
0.60 to 0.80	≈ 0.74 [1]	6	.06 BA, 8/8L	ARA 18 in x 8 in	CP 7	37, 59, 69, 89, 109 119, 131, 150
2. Boundary layer measurements						
0.765	2.5	2.4	.09 BA, 7.5/7.5L	DFVLR 1x1 Meter	SP 125	157-166, 193-195
0.765	2.5	2.4	.09 BA, 7.5/7.5L	DFVLR 1x1 Meter	SP 125	167-177, 197-199

Transition .06BA, 7/7L means: Roughness band of .06 mm diameter glass spheres in 7 % c on upper and lower surface.

1) Corrected angles of attack

2) Compared to design pressure distribution (Figure 3.2)

Table 3.4 DFVLR-TWB tests. Aerodynamic coefficients, airfoil surface and top and bottom wall pressure distributions

Transition at 7 % c on upper and lower surface.

a. Aerodynamic coefficients

NR.	MACH	E-6*RE	ALPHA	CA	CM	CW
2493	.697	5.80	-2.00	.1083	-.10867	.009632
2495	.701	6.06	-1.00	.2478	-.11850	.009341
2496	.703	5.90	.00	.3910	-.11076	.009554
2497	.701	5.97	1.00	.5422	-.11077	.010476
2498	.701	5.94	2.00	.7088	-.10979	.012468
2499	.702	5.96	3.00	.9057	-.11369	.021677
2500	.699	5.95	4.00	1.0637	-.12300	.039833
2501	.700	5.91	4.50	1.0297	-.11697	.060949
2502	.699	5.90	5.00	1.0187	-.11890	
2490	.761	5.98	-2.00	.1067	-.11769	.010196
2484	.761	5.97	-1.00	.2627	-.11974	.010101
2485	.759	5.98	.00	.4268	-.12195	.010441
2486	.761	6.00	.50	.5164	-.12232	.011146
2491	.760	5.99	.75	.5709	-.12591	.011030
2487	.760	5.92	1.00	.6297	-.13114	.013638
2488	.759	6.00	1.50	.7187	-.14159	.019940
2489	.760	5.94	2.00	.7258	-.13538	.041963
2492	.761	5.99	3.00	.7384	-.12548	.061552
2511	.407	5.40	.50	.3818	-.09001	.009730
2512	.499	5.76	.50	.3997	-.09495	.008745
2514	.602	5.86	.50	.4272	-.10208	.008973
2515	.650	5.80	.50	.4448	-.10659	.009466
2516	.702	5.88	.50	.4674	-.11216	.010174
2517	.717	5.81	.50	.4801	-.11450	.009983
2518	.739	5.87	.50	.4965	-.11774	.010352
2519	.751	5.96	.50	.5126	-.12174	.011314
2520	.759	5.97	.50	.5228	-.12355	.010731
2524	.765	5.88	.50	.5270	-.12508	.011194
2521	.770	5.99	.50	.5470	-.13383	.012007
2522	.779	5.89	.50	.5340	-.13716	.016398
2523	.801	5.92	.50	.4506	-.13480	.022780
2504	.759	4.11	.50	.5160	-.12051	.012377
2505	.761	5.10	.50	.5228	-.12249	.011555
2506	.760	5.81	.50	.5263	-.12340	.010599
2507	.763	7.63	.50	.5387	-.12652	.010580
2508	.762	10.07	.50	.5426	-.12923	.009927
2509	.758	11.77	.50	.5408	-.12904	.010398
2510	.760	13.41	.50	.5413	-.12921	.010124
2525	.760	4.09	2.00	.7116	-.13192	.042354
2526	.760	5.03	2.00	.7279	-.13535	.038594
2527	.760	5.94	2.00	.7387	-.13966	.038199
2531	.762	7.81	2.00	.7402	-.14236	.039436
2530	.759	9.96	2.00	.7710	-.14771	.031793
2529	.758	11.78	2.00	.7736	-.14793	.032559
2528	.759	13.49	2.00	.7772	-.14957	.031563

CP airfoil surface pressure coefficients

b. Airfoil surface and top and bottom wall pressures

Note: The upper surface and top wall pressures are listed first.

NR.	MACH	E-6*RE	ALPHA
2484	.761	5.97	-1.00

X/L	CP	XW/L	CPW
.000	1.0890	-5.25	-.0079
.004	.8990	-4.50	-.0076
.008	.6525	-3.75	-.0047
.015	.3836	-3.00	-.0012
.025	.1362	-2.25	.0021
.040	-.1296	-1.50	.0106
.060	-.2658	-1.25	.0078
.080	-.5417	-1.00	.0060
.100	-.5497	-.75	.0021
.140	-.5488	-.50	-.0054
.180	-.5763	-.25	-.0241
.220	-.5883	.00	-.0556
.260	-.5838	.25	-.0952
.300	-.5722	.50	-.1191
.340	-.5528	.75	-.1087
.380	-.5607	1.00	-.1112
.420	-.5733	1.25	-.0862
.460	-.5840	1.50	-.0700
.500	-.5925	1.75	-.0571
.540	-.6585	2.00	-.0487
.580	-.6895	2.25	-.0424
.620	-.6546	2.50	-.0392
.700	-.5328	2.75	-.0393
.800	-.2892	3.50	-.0299
.900	-.0640	-5.25	-.0030
.950	.0359	-4.50	-.0058
.975	.0740	-3.75	.0002
1.000	.1059	-3.00	.0034
.000	1.0890	-2.25	.0101
.004	-.1618	-1.50	.0189
.008	-.4822	-1.25	.0189
.020	-.4556	-1.00	.0220
.050	-.1968	-.75	.0192
.100	-.3150	-.50	.0189
.150	-.4042	-.25	.0089
.200	-.5113	.00	-.0023
.250	-.6211	.25	-.0117
.350	-.5550	.50	-.0092
.450	-.3376	.75	-.0061
.550	-.1370	1.00	.0033
.650	.0454	1.25	.0158
.750	.1967	1.50	.0096
.850	.2921	1.75	.0065
1.000	.1059	2.00	.0033
		2.25	-.0079
		2.50	-.0076
		2.75	-.0047
		3.50	-.0012

NR.	MACH	E-6*RE	ALPHA
2485	.759	5.98	.00

X/L	CP	XW/L	CPW
.000	1.1379	-5.25	-.0060
.004	.7756	-4.50	-.0052
.008	.5819	-3.75	-.0008
.015	.2197	-3.00	.0046
.025	-.0229	-2.25	.0050
.040	-.2627	-1.50	.0064
.060	-.4000	-1.25	.0069
.080	-.5358	-1.00	.0019
.100	-.6331	-.75	-.0063
.140	-.7663	-.50	-.0175
.180	-.6658	-.25	-.0427
.220	-.7871	.00	-.0638
.260	-.8052	.25	-.1378
.300	-.8074	.50	-.1706
.340	-.6161	.75	-.1407
.380	-.6068	1.00	-.1390
.420	-.6430	1.25	-.1125
.460	-.6692	1.50	-.0852
.500	-.6636	1.75	-.0648
.540	-.6931	2.00	-.0539
.580	-.7712	2.25	-.0466
.620	-.7893	2.50	-.0443
.700	-.5325	2.75	-.0438
.800	-.2920	3.50	-.0349
.900	-.0650	-5.25	-.0015
.950	.0324	-4.50	-.0006
.975	.0661	-3.75	.0063
1.000	.0940	-3.00	.0096
.000	1.1379	-2.25	.0162
.004	.1296	-1.50	.0254
.008	-.1208	-1.25	.0283
.020	-.1620	-1.00	.0318
.050	-.0542	-.75	.0318
.100	-.1726	-.50	.0350
.150	-.2725	-.25	.0316
.200	-.3786	.00	.0301
.250	-.4686	.25	.0223
.350	-.4604	.50	.0206
.450	-.2861	.75	.0265
.550	-.1065	1.00	.0314
.650	.0680	1.25	.0328
.750	.2183	1.50	.0279
.850	.3129	1.75	.0197
1.000	.0940	2.00	.0144
		2.25	-.0080
		2.50	-.0052
		2.75	-.0008
		3.50	.0046

L model chord

XW location of wall orifices (with reference to model leading edge)

CPW wall pressure coefficient

Table 3.4 Continued

NR.	MACH	E-6*RE	ALPHA
2486	.761	6.00	.50

X/L	CP	XW/L	CPW
.000	1.1486	-5.25	-.0079
.004	.7052	-4.50	-.0048
.008	.4244	-3.75	.0008
.015	.1400	-3.00	.0055
.025	-.0975	-2.25	.0075
.040	-.3547	-1.50	.0110
.060	-.4520	-1.25	.0117
.080	-.8573	-1.00	.0068
.100	-.9001	-.75	-.0082
.140	-.9237	-.50	-.0035
.180	-.8923	-.25	-.0555
.220	-.9075	.00	-.1106
.260	-.8975	.25	-.1728
.300	-.8516	.50	-.2044
.340	-.8994	.75	-.1626
.380	-.9082	1.00	-.1632
.420	-.8986	1.25	-.1269
.460	-.6211	1.50	-.0953
.500	-.5792	1.75	-.0741
.540	-.6467	2.00	-.0611
.580	-.7438	2.25	-.0516
.620	-.7973	2.50	-.0479
.700	-.5327	2.75	-.0477
.800	-.2893	3.50	-.0379
.900	-.0669	-5.25	-.0039
.950	.0253	-4.50	-.0061
.975	.0640	-3.75	.0032
1.000	.0888	-3.00	.0114
.000	1.1486	-2.25	.0158
.004	.2741	-1.50	.0287
.008	.0274	-1.25	.0355
.020	-.0444	-1.00	.0407
.050	.0183	-.75	.0421
.100	-.1071	-.50	.0465
.150	-.2141	-.25	.0440
.200	-.3208	.00	.0430
.250	-.4143	.25	.0393
.350	-.4126	.50	.0400
.450	-.2615	.75	.0408
.550	-.0892	1.00	.0410
.650	.0796	1.25	.0409
.750	.2307	1.50	.0314
.850	.3186	1.75	.0245
1.000	.0888	2.00	.0158
		2.25	-.0079
		2.50	-.0048
		2.75	.0008
		3.50	.0055

NR.	MACH	E-6*RE	ALPHA
2487	.760	5.92	1.00

X/L	CP	XW/L	CPW
.000	1.1487	-5.25	-.0097
.004	.6380	-4.50	-.0050
.008	.3432	-3.75	.0004
.015	.0609	-3.00	.0045
.025	-.1792	-2.25	.0108
.040	-.4249	-1.50	.0139
.060	-.5022	-1.25	.0060
.080	-.9080	-1.00	.0023
.100	-.9478	-.75	-.0135
.140	-1.0139	-.50	-.0337
.180	-.9809	-.25	-.0711
.220	-.9992	.00	-.1384
.260	-1.0240	.25	-.2226
.300	-1.0160	.50	-.2552
.340	-1.0020	.75	-.1912
.380	-1.0130	1.00	-.1932
.420	-1.0219	1.25	-.1462
.460	-1.0295	1.50	-.1126
.500	-1.0106	1.75	-.0850
.540	-1.0113	2.00	-.0760
.580	-1.0085	2.25	-.0644
.620	-.6019	2.50	-.0556
.700	-.4815	2.75	-.0496
.800	-.2778	3.50	-.0433
.900	-.0719	-5.25	-.0000
.950	.0174	-4.50	-.0003
.975	.0570	-3.75	.0053
1.000	.0777	-3.00	.0126
.000	1.1487	-2.25	.0217
.004	.4061	-1.50	.0346
.008	.1768	-1.25	.0411
.020	.0751	-1.00	.0474
.050	.0907	-.75	.0503
.100	-.0453	-.50	.0538
.150	-.1544	-.25	.0601
.200	-.2607	.00	.0597
.250	-.3521	.25	.0513
.350	-.3673	.50	.0525
.450	-.2392	.75	.0520
.550	-.0723	1.00	.0511
.650	.0869	1.25	.0501
.750	.2352	1.50	.0368
.850	.3238	1.75	.0255
1.000	.0777	2.00	.0135
		2.25	-.0097
		2.50	-.0050
		2.75	.0004
		3.50	.0045

NR.	MACH	E-6*RE	ALPHA
2488	.759	6.00	1.50

X/L	CP	XW/L	CPW
.000	1.1416	-5.25	-.0102
.004	.5594	-4.50	-.0046
.008	.2679	-3.75	.0001
.015	-.0224	-3.00	.0061
.025	-.2583	-2.25	.0141
.040	-.4998	-1.50	.0114
.060	-.5605	-1.25	.0082
.080	-.9362	-1.00	.0017
.100	-.9954	-.75	-.0114
.140	-1.0733	-.50	-.0332
.180	-1.0618	-.25	-.0763
.220	-1.0685	.00	-.1527
.260	-1.0945	.25	-.2509
.300	-1.0993	.50	-.3042
.340	-1.0910	.75	-.2188
.380	-1.0644	1.00	-.2184
.420	-1.0990	1.25	-.1663
.460	-1.1248	1.50	-.1201
.500	-1.1157	1.75	-.0926
.540	-1.1353	2.00	-.0793
.580	-1.1534	2.25	-.0679
.620	-.8565	2.50	-.0579
.700	-.4735	2.75	-.0564
.800	-.2707	3.50	-.0486
.900	-.0917	-5.25	-.0037
.950	-.0120	-4.50	-.0029
.975	.0159	-3.75	.0060
1.000	.0508	-3.00	.0135
.000	1.1416	-2.25	.0280
.004	.5020	-1.50	.0384
.008	.2807	-1.25	.0433
.020	.1556	-1.00	.0511
.050	.1435	-.75	.0605
.100	-.0004	-.50	.0650
.150	-.1130	-.25	.0682
.200	-.2193	.00	.0701
.250	-.3116	.25	.0656
.350	-.3331	.50	.0622
.450	-.2215	.75	.0599
.550	-.0615	1.00	.0584
.650	.0954	1.25	.0531
.750	.2370	1.50	.0487
.850	.3254	1.75	.0296
1.000	.0508	2.00	.0154
		2.25	-.0102
		2.50	-.0046
		2.75	.0001
		3.50	.0061

NR.	MACH	E-6*RE	ALPHA
2489	.760	5.94	2.00

X/L	CP	XW/L	CPW
.000	1.1551	-5.25	-.0087
.004	.5241	-4.50	-.0015
.008	.2201	-3.75	.0001
.015	-.0607	-3.00	.0112
.025	-.2995	-2.25	.0150
.040	-.5332	-1.50	.0156
.060	-.6103	-1.25	.0113
.080	-.9431	-1.00	.0054
.100	-1.0175	-.75	-.0127
.140	-1.0985	-.50	-.0357
.180	-1.0947	-.25	-.0792
.220	-1.1113	.00	-.1598
.260	-1.1287	.25	-.2634
.300	-1.1339	.50	-.3231
.340	-1.1385	.75	-.2319
.380	-1.1231	1.00	-.2333
.420	-1.1436	1.25	-.1727
.460	-1.1621	1.50	-.1274
.500	-1.1713	1.75	-.0976
.540	-1.1676	2.00	-.0778
.580	-.7120	2.25	-.0690
.620	-.5865	2.50	-.0607
.700	-.4674	2.75	-.0605
.800	-.3218	3.50	-.0485
.900	-.1974	-5.25	-.0007
.950	-.1272	-4.50	-.0013
.975	-.0837	-3.75	.0046
1.000	-.0760	-3.00	.0157
.000	1.1551	-2.25	.0289
.004	.5810	-1.50	.0429
.008	.3623	-1.25	.0474
.020	.2241	-1.00	.0599
.050	.1912	-.75	.0625
.100	.0389	-.50	.0696
.150	-.0784	-.25	.0739
.200	-.1846	.00	.0736
.250	-.2787	.25	.0689
.350	-.3194	.50	.0626
.450	-.2130	.75	.0686
.550	-.0670	1.00	.0568
.650	.0831	1.25	.0516
.750	.2282	1.50	.0380
.850	.3048	1.75	.0283
1.000	-.0760	2.00	.0168
		2.25	-.0087
		2.50	-.0015
		2.75	.0001
		3.50	.0112

NR.	MACH	E-6*RE	ALPHA
2493	.697	5.80	-2.00

X/L	CP	XW/L	CPW
.000	.9882	-5.25	-.0072
.004	.9725	-4.50	-.0072
.008	.7474	-3.75	-.0072
.015	.4930	-3.00	-.0021
.025	.2541	-2.25	.0006
.040	-.0140	-1.50	.0064
.060	-.1524	-1.25	.0079
.080	-.3146	-1.00	.0064
.100	-.3593	-.75	.0012
.140	-.3707	-.50	-.0032
.180	-.3919	-.25	-.0146
.220	-.4010	.00	-.0338
.260	-.4027	.25	-.0494
.300	-.4088	.50	-.0614
.340	-.4040	.75	-.0646
.380	-.4123	1.00	-.0629
.420	-.4231	1.25	-.0553
.460	-.4326	1.50	-.0474
.500	-.4528	1.75	-.0402
.540	-.4828	2.00	-.0407
.580	-.4940	2.25	-.0364
.620	-.4891	2.50	-.0328
.700	-.4497	2.75	-.0348
.800	-.2794	3.50	-.0244
.900	-.0721	-5.25	-.0038
.950	.0340	-4.50	-.0055
.975	.0782	-3.75	-.0024
1.000	.1189	-3.00	.0030
.000	.9882	-2.25	.0068
.004	-.5967	-1.50	.0115
.008	-.9605	-1.25	.0107
.020	-.8075	-1.00	.0087
.050	-.3738	-.75	.0030
.100	-.4316	-.50	-.0015
.150	-.4881	-.25	-.0110
.200	-.5503	.00	-.0195
.250	-.5935	.25	-.0284
.350	-.5290	.50	-.0256
.450	-.3471	.75	-.0289
.550	-.1650	1.00	-.0157
.650	.0151	1.25	-.0075
.750	.1715	1.50	-.0079
.850	.2693	1.75	-.0086
1.000	.1189	2.00	-.0083
		2.25	-.0072
		2.50	-.0072
		2.75	-.0072
		3.50	-.0021

NR.	MACH	E-6*RE	ALPHA
2490	.761	5.98	-2.00

X/L	CP	XW/L	CPW
.000	1.0231	-5.25	-.0105
.004	1.0012	-4.50	-.0077
.008	.7827	-3.75	-.0034
.015	.5300	-3.00	.0010
.025	.2977	-2.25	.0058
.040	.0311	-1.50	.0119
.060	-.1190	-1.25	.0137
.080	-.3223	-1.00	.0141
.100	-.3662	-.75	.0109
.140	-.3899	-.50	.0056
.180	-.4226	-.25	-.0077
.220	-.4445	.00	-.0327
.260	-.4476	.25	-.0567
.300	-.4552	.50	-.0795
.340	-.4529	.75	-.0806
.380	-.4666	1.00	-.0769
.420	-.4824	1.25	-.0671
.460	-.4991	1.50	-.0513
.500	-.5199	1.75	-.0410
.540	-.5728	2.00	-.0395
.580	-.6053	2.25	-.0358
.620	-.5926	2.50	-.0359
.700	-.5128	2.75	-.0359
.800	-.2637	3.50	-.0354
.900	-.0609	-5.25	-.0050
.950	.0458	-4.50	-.0060
.975	.0926	-3.75	.0021
1.000	.1269	-3.00	.0043
.000	1.0231	-2.25	.0096
.004	-.4685	-1.50	.0158
.008	-.8746	-1.25	.0155
.020	-.8852	-1.00	.0158
.050	-.3486	-.75	.0096
.100	-.4568	-.50	.0033
.150	-.5272	-.25	-.0091
.200	-.6225	.00	-.0243
.250	-.7634	.25	-.0393
.350	-.7538	.50	-.0384
.450	-.3623	.75	-.0321
.550	-.1596	1.00	-.0209
.650	.0293	1.25	-.0097
.750	.1828	1.50	-.0075
.850	.2805	1.75	-.0038
1.000	.1269	2.00	-.0053
		2.25	-.0105
		2.50	-.0077
		2.75	-.0034
		3.50	.0010

NR.	MACH	E-6*RE	ALPHA
2491	.760	5.99	.75

X/L	CP	XW/L	CPW
.000	1.1552	-5.25	-.0109
.004	.6731	-4.50	-.0078
.008	.3646	-3.75	-.0016
.015	.1006	-3.00	.0016
.025	-.1359	-2.25	.0082
.040	-.3846	-1.50	.0110
.060	-.4687	-1.25	.0056
.080	-.8029	-1.00	.0015
.100	-.9254	-.75	-.0135
.140	-.9728	-.50	-.0297
.180	-.9376	-.25	-.0646
.220	-.9605	.00	-.1271
.260	-.9668	.25	-.1983
.300	-.9463	.50	-.2316
.340	-.9416	.75	-.1773
.380	-.9588	1.00	-.1804
.420	-.9563	1.25	-.1386
.460	-.9644	1.50	-.1020
.500	-.9878	1.75	-.0807
.540	-.7612	2.00	-.0716
.580	-.6091	2.25	-.0603
.620	-.6313	2.50	-.0518
.700	-.5496	2.75	-.0513
.800	-.2974	3.50	-.0474
.900	-.0712	-5.25	-.0019
.950	.0235	-4.50	-.0042
.975	.0605	-3.75	.0033
1.000	.0895	-3.00	.0129
.000	1.1552	-2.25	.0190
.004	.3390	-1.50	.0315
.008	.1001	-1.25	.0394
.020	.0152	-1.00	.0440
.050	-.0543	-.75	.0444
.100	-.0754	-.50	.0503
.150	-.1662	-.25	.0504
.200	-.2986	.00	.0506
.250	-.3813	.25	.0486
.350	-.3941	.50	.0442
.450	-.2525	.75	.0485
.550	-.0821	1.00	.0473
.650	.0880	1.25	.0443
.750	.2300	1.50	.0354
.850	.3226	1.75	.0254
1.000	.0895	2.00	.0134
		2.25	-.0109
		2.50	-.0078
		2.75	-.0016
		3.50	.0018

NR.	MACH	E-6*RE	ALPHA
2492	.761	5.99	3.00

X/L	CP	XW/L	CPW
.000	1.1449	-5.25	-.0107
.004	.4119	-4.50	-.0036
.008	.1023	-3.75	.0017
.015	-.1709	-3.00	.0125
.025	-.4097	-2.25	.0181
.040	-.6304	-1.50	.0224
.060	-.7957	-1.25	.0141
.080	-.9577	-1.00	.0097
.100	-1.0631	-.75	-.0107
.140	-1.1657	-.50	-.0346
.180	-1.1679	-.25	-.0804
.220	-1.1869	.00	-.1593
.260	-1.2095	.25	-.2746
.300	-1.2216	.50	-.3468
.340	-1.2248	.75	-.2460
.380	-1.2250	1.00	-.2463
.420	-1.2189	1.25	-.1876
.460	-1.0979	1.50	-.1386
.500	-.6832	1.75	-.1073
.540	-.6050	2.00	-.0882
.580	-.5728	2.25	-.0725
.620	-.5379	2.50	-.0675
.700	-.4794	2.75	-.0612
.800	-.3845	3.50	-.0542
.900	-.3266	-5.25	-.0059
.950	-.2857	-4.50	-.0019
.975	-.2714	-3.75	.0053
1.000	-.2176	-3.00	.0176
.000	1.1449	-2.25	.0298
.004	.6974	-1.50	.0594
.008	.4819	-1.25	.0530
.020	.3286	-1.00	.0665
.050	.2545	-.75	.0706
.100	.0962	-.50	.0777
.150	-.0308	-.25	.0790
.200	-.1404	.00	.0801
.250	-.2431	.25	.0761
.350	-.3026	.50	.0653
.450	-.2138	.75	.0608
.550	-.0768	1.00	.0493
.650	.0677	1.25	.0462
.750	.2022	1.50	.0326
.850	.2745	1.75	.0175
1.000	-.2176	2.00	.0096
		2.25	-.0107
		2.50	-.0036
		2.75	.0017
		3.50	.0125

Table 3.4 Continued

NR.	MACH	E-6*RE	ALPHA
2495	.701	6.06	-1.00

X/L	CP	XW/L	CPW
.000	1.0689	-5.25	-.0065
.004	.8566	-4.50	-.0036
.008	.5941	-3.75	-.0009
.015	.3159	-3.00	.0057
.025	.0722	-2.25	.0068
.040	-.1910	-1.50	.0064
.060	-.3217	-1.25	.0045
.080	-.5244	-1.00	.0061
.100	-.5487	-.75	-.0035
.140	-.5233	-.50	-.0108
.180	-.5235	-.25	-.0234
.220	-.5189	.00	-.0473
.260	-.5110	.25	-.0718
.300	-.5091	.50	-.0895
.340	-.4946	.75	-.0841
.380	-.4974	1.00	-.0865
.420	-.5008	1.25	-.0736
.460	-.4993	1.50	-.0617
.500	-.5097	1.75	-.0468
.540	-.5423	2.00	-.0477
.580	-.5512	2.25	-.0368
.620	-.5405	2.50	-.0367
.700	-.4829	2.75	-.0347
.800	-.2916	3.50	-.0271
.900	-.0755	-5.25	-.0012
.950	.0341	-4.50	-.0020
.975	.0752	-3.75	.0014
1.000	.1126	-3.00	.0073
.000	1.0689	-2.25	.0111
.004	-.2143	-1.50	.0169
.008	-.4821	-1.25	.0185
.020	-.4272	-1.00	.0200
.050	-.2030	-.75	.0167
.100	-.2946	-.50	.0157
.150	-.3649	-.25	.0115
.200	-.4427	.00	.0074
.250	-.4971	.25	.0081
.350	-.4593	.50	.0021
.450	-.3082	.75	.0054
.550	-.1337	1.00	.0081
.650	.0397	1.25	.0173
.750	.1927	1.50	.0118
.850	.2883	1.75	.0089
1.000	.1126	2.00	.0055
		2.25	-.0065
		2.50	-.0036
		2.75	-.0009
		3.50	.0057

NR.	MACH	E-6*RE	ALPHA
2496	.703	5.98	.00

X/L	CP	XW/L	CPW
.000	1.1251	-5.25	-.0073
.004	.7036	-4.50	-.0037
.008	.4117	-3.75	-.0004
.015	.1210	-3.00	.0039
.025	-.1279	-2.25	.0049
.040	-.3874	-1.50	.0036
.060	-.5109	-1.25	.0010
.080	-.6129	-1.00	-.0037
.100	-.7515	-.75	-.0123
.140	-.6902	-.50	-.0212
.180	-.6677	-.25	-.0435
.220	-.6441	.00	-.0736
.260	-.6187	.25	-.1095
.300	-.6025	.50	-.1255
.340	-.5808	.75	-.1151
.380	-.5715	1.00	-.1140
.420	-.5646	1.25	-.0978
.460	-.5683	1.50	-.0747
.500	-.5776	1.75	-.0625
.540	-.6043	2.00	-.0552
.580	-.6041	2.25	-.0463
.620	-.5856	2.50	-.0433
.700	-.5069	2.75	-.0406
.800	-.3022	3.50	-.0347
.900	-.0619	-5.25	-.0014
.950	.0262	-4.50	-.0020
.975	.0667	-3.75	.0046
1.000	.0995	-3.00	.0075
.000	1.1251	-2.25	.0138
.004	.1626	-1.50	.0212
.008	-.0759	-1.25	.0212
.020	-.1246	-1.00	.0255
.050	-.0383	-.75	.0275
.100	-.1471	-.50	.0331
.150	-.2370	-.25	.0312
.200	-.3234	.00	.0317
.250	-.3929	.25	.0244
.350	-.3791	.50	.0301
.450	-.2521	.75	.0281
.550	-.1046	1.00	.0318
.650	.0588	1.25	.0329
.750	.2116	1.50	.0268
.850	.3025	1.75	.0199
1.000	.0995	2.00	.0139
		2.25	-.0073
		2.50	-.0037
		2.75	-.0004
		3.50	.0039

NR.	MACH	E-6*RE	ALPHA
2497	.701	5.97	1.00

X/L	CP	XW/L	CPW
.000	1.1343	-5.25	-.0059
.004	.5109	-4.50	-.0022
.008	.1967	-3.75	-.0008
.015	-.0977	-3.00	.0038
.025	-.3483	-2.25	.0070
.040	-.5981	-1.50	.0045
.060	-.6716	-1.25	-.0002
.080	-1.1153	-1.00	-.0075
.100	-1.1432	-.75	-.0176
.140	-.9924	-.50	-.0351
.180	-.7980	-.25	-.0676
.220	-.7883	.00	-.1101
.260	-.7362	.25	-.1493
.300	-.7058	.50	-.1717
.340	-.6685	.75	-.1428
.380	-.6541	1.00	-.1425
.420	-.6419	1.25	-.1172
.460	-.6421	1.50	-.0959
.500	-.6408	1.75	-.0726
.540	-.6668	2.00	-.0634
.580	-.6534	2.25	-.0540
.620	-.6273	2.50	-.0535
.700	-.5330	2.75	-.0467
.800	-.3116	3.50	-.0381
.900	-.0855	-5.25	.0014
.950	.0287	-4.50	-.0019
.975	.0639	-3.75	.0041
1.000	.0926	-3.00	.0084
.000	1.1343	-2.25	.0212
.004	.4679	-1.50	.0291
.008	.2417	-1.25	.0344
.020	.1212	-1.00	.0346
.050	.1144	-.75	.0407
.100	-.0183	-.50	.0492
.150	-.1272	-.25	.0503
.200	-.2178	.00	.0514
.250	-.2887	.25	.0525
.350	-.3056	.50	.0493
.450	-.2041	.75	.0515
.550	-.0662	1.00	.0513
.650	.0815	1.25	.0488
.750	.2271	1.50	.0347
.850	.3167	1.75	.0267
1.000	.0926	2.00	.0214
		2.25	-.0059
		2.50	-.0022
		2.75	-.0008
		3.50	.0038

NR.	MACH	E-6*RE	ALPHA
2498	.701	5.94	2.00

X/L	CP	XW/L	CPW
.000	1.1169	-5.25	-.0089
.004	.3846	-4.50	-.0056
.008	-.0245	-3.75	-.0020
.015	-.3168	-3.00	.0046
.025	-.5620	-2.25	.0064
.040	-.7902	-1.50	.0027
.060	-.8428	-1.25	-.0019
.080	-1.1977	-1.00	-.0126
.100	-1.2833	-.75	-.0273
.140	-1.3540	-.50	-.0541
.180	-1.3168	-.25	-.1001
.220	-1.2779	.00	-.1534
.260	-1.2778	.25	-.2069
.300	-.7169	.50	-.2212
.340	-.6552	.75	-.1769
.380	-.6643	1.00	-.1797
.420	-.6790	1.25	-.1464
.460	-.6804	1.50	-.1088
.500	-.6874	1.75	-.0903
.540	-.7071	2.00	-.0736
.580	-.6989	2.25	-.0660
.620	-.6669	2.50	-.0509
.700	-.5583	2.75	-.0533
.800	-.3253	3.50	-.0402
.900	-.0888	-5.25	-.0003
.950	.0172	-4.50	-.0013
.975	.0582	-3.75	.0063
1.000	.0890	-3.00	.0126
.000	1.1169	-2.25	.0213
.004	.6983	-1.50	.0346
.008	.4905	-1.25	.0435
.020	.3204	-1.00	.0517
.050	.2469	-.75	.0607
.100	.0962	-.50	.0655
.150	-.0214	-.25	.0726
.200	-.1162	.00	.0792
.250	-.1962	.25	.0781
.350	-.2292	.50	.0751
.450	-.1493	.75	.0745
.550	-.0330	1.00	.0678
.650	.1050	1.25	.0605
.750	.2452	1.50	.0482
.850	.3276	1.75	.0361
1.000	.0890	2.00	.0281
		2.25	-.0089
		2.50	-.0056
		2.75	-.0020
		3.50	.0046

NR.	MACH	E-6*RE	ALPHA
2499	.702	5.96	3.00

X/L	CP	XW/L	CPW
.000	1.0738	-5.25	-.0062
.004	.0900	-4.50	-.0010
.008	-.2490	-3.75	.0062
.015	-.5162	-3.00	.0066
.025	-.7536	-2.25	.0068
.040	-.9829	-1.50	.0043
.060	-1.1705	-1.25	-.0052
.080	-1.3364	-1.00	-.0186
.100	-1.3837	-.75	-.0363
.140	-1.4741	-.50	-.0737
.180	-1.4569	-.25	-.1312
.220	-1.4947	.00	-.2121
.260	-1.4942	.25	-.2891
.300	-1.4995	.50	-.2991
.340	-1.4821	.75	-.2239
.380	-1.4627	1.00	-.2215
.420	-.9752	1.25	-.1772
.460	-.7775	1.50	-.1395
.500	-.6467	1.75	-.1051
.540	-.6195	2.00	-.0860
.580	-.6142	2.25	-.0725
.620	-.6043	2.50	-.0601
.700	-.5366	2.75	-.0573
.800	-.3232	3.50	-.0439
.900	-.0977	-5.25	-.0004
.950	.0189	-4.50	.0006
.975	.0562	-3.75	.0094
1.000	.0855	-3.00	.0148
.000	1.0738	-2.25	.0241
.004	.8595	-1.50	.0478
.008	.6731	-1.25	.0532
.020	.4783	-1.00	.0639
.050	.3581	-.75	.0750
.100	.1913	-.50	.0854
.150	.0704	-.25	.0979
.200	-.0342	.00	.1029
.250	-.1206	.25	.1004
.350	-.1694	.50	.1002
.450	-.1068	.75	.0950
.550	-.0004	1.00	.0848
.650	.1287	1.25	.0741
.750	.2609	1.50	.0551
.850	.3422	1.75	.0437
1.000	.0855	2.00	.0305
		2.25	-.0062
		2.50	-.0010
		2.75	.0062
		3.50	.0066

NR.	MACH	E-6*RE	ALPHA
2500	.699	5.95	4.00

X/L	CP	XW/L	CPW
.000	1.0030	-5.25	-.0095
.004	-.0916	-4.50	-.0032
.008	-.4461	-3.75	.0053
.015	-.7020	-3.00	.0084
.025	-.9193	-2.25	.0117
.040	-1.1691	-1.50	.0034
.060	-1.3133	-1.25	-.0032
.080	-1.4548	-1.00	-.0168
.100	-1.5246	-.75	-.0462
.140	-1.5943	-.50	-.0840
.180	-1.5789	-.25	-.1574
.220	-1.5931	.00	-.2521
.260	-1.6222	.25	-.3561
.300	-1.6169	.50	-.3795
.340	-1.6133	.75	-.2722
.380	-1.6231	1.00	-.2722
.420	-1.6169	1.25	-.2118
.460	-1.2178	1.50	-.1587
.500	-.9600	1.75	-.1276
.540	-.8791	2.00	-.1117
.580	-.7762	2.25	-.0833
.620	-.6650	2.50	-.0806
.700	-.4725	2.75	-.0732
.800	-.2775	3.50	-.0557
.900	-.0997	-5.25	-.0016
.950	-.0156	-4.50	-.0003
.975	.0212	-3.75	.0122
1.000	.0478	-3.00	.0212
.000	1.0030	-2.25	.0348
.004	.9597	-1.50	.0542
.008	.8000	-1.25	.0644
.020	.5956	-1.00	.0782
.050	.4464	-.75	.0877
.100	.2704	-.50	.1012
.150	.1411	-.25	.1138
.200	.0329	.00	.1200
.250	-.0538	.25	.1206
.350	-.1144	.50	.1143
.450	-.0728	.75	.1054
.550	.0286	1.00	.0933
.650	.1406	1.25	.0774
.750	.2685	1.50	.0575
.850	.3430	1.75	.0408
1.000	.0478	2.00	.0217
		2.25	-.0095
		2.50	-.0032
		2.75	.0053
		3.50	.0084

NR.	MACH	E-6*RE	ALPHA
2501	.700	5.91	4.50

X/L	CP	XW/L	CPW
.000	.9812	-5.25	-.0043
.004	-.1403	-4.50	-.0042
.008	-.4968	-3.75	.0066
.015	-.7477	-3.00	.0120
.025	-.9665	-2.25	.0068
.040	-1.2106	-1.50	.0061
.060	-1.3542	-1.25	-.0038
.080	-1.4977	-1.00	-.0125
.100	-1.5503	-.75	-.0404
.140	-1.6329	-.50	-.0791
.180	-1.6249	-.25	-.1502
.220	-1.6328	.00	-.2373
.260	-1.6459	.25	-.3232
.300	-1.6189	.50	-.3879
.340	-1.4903	.75	-.2788
.380	-1.3415	1.00	-.2570
.420	-1.1095	1.25	-.2170
.460	-.9726	1.50	-.1678
.500	-.8681	1.75	-.1365
.540	-.8284	2.00	-.1108
.580	-.7596	2.25	-.0857
.620	-.6675	2.50	-.0858
.700	-.5180	2.75	-.0677
.800	-.3249	3.50	-.0534
.900	-.1660	-5.25	-.0017
.950	-.1195	-4.50	-.0022
.975	-.0799	-3.75	.0141
1.000	-.0526	-3.00	.0232
.000	.9812	-2.25	.0279
.004	.9794	-1.50	.0556
.008	.8236	-1.25	.0663
.020	.6279	-1.00	.0882
.050	.4617	-.75	.0965
.100	.2861	-.50	.1125
.150	.1522	-.25	.1146
.200	.0362	.00	.1070
.250	-.0451	.25	.1032
.350	-.1151	.50	.1247
.450	-.0743	.75	.1103
.550	.0097	1.00	.0745
.650	.1272	1.25	.0789
.750	.2588	1.50	.0593
.850	.3170	1.75	.0369
1.000	-.0526	2.00	.0218
		2.25	-.0043
		2.50	-.0042
		2.75	.0066
		3.50	.0120

NR.	MACH	E-6*RE	ALPHA
2502	.699	5.90	5.00

X/L	CP	XW/L	CPW
.000	.9543	-5.25	-.0038
.004	-.2058	-4.50	.0037
.008	-.5448	-3.75	.0038
.015	-.7994	-3.00	.0068
.025	-1.0235	-2.25	.0202
.040	-1.2631	-1.50	.0153
.060	-1.3960	-1.25	.0038
.080	-1.5837	-1.00	-.0188
.100	-1.5973	-.75	-.0442
.140	-1.6673	-.50	-.0753
.180	-1.6184	-.25	-.1446
.220	-1.5497	.00	-.2273
.260	-1.4566	.25	-.3200
.300	-1.3911	.50	-.3816
.340	-1.2599	.75	-.2879
.380	-1.1489	1.00	-.2873
.420	-1.0631	1.25	-.2328
.460	-.9440	1.50	-.1765
.500	-.8554	1.75	-.1416
.540	-.8000	2.00	-.1210
.580	-.7517	2.25	-.0974
.620	-.6841	2.50	-.0871
.700	-.5501	2.75	-.0844
.800	-.3784	3.50	-.0589
.900	-.2299	-5.25	-.0032
.950	-.1524	-4.50	.0020
.975	-.1603	-3.75	.0070
1.000	-.1334	-3.00	.0163
.000	.9543	-2.25	.0421
.004	.9973	-1.50	.0680
.008	.8586	-1.25	.0762
.020	.6359	-1.00	.0670
.050	.4799	-.75	.0804
.100	.2984	-.50	.1109
.150	.1691	-.25	.1160
.200	.0534	.00	.1100
.250	-.0343	.25	.1054
.350	-.1076	.50	.1275
.450	-.0709	.75	.1097
.550	.0108	1.00	.0975
.650	.1261	1.25	.0778
.750	.2490	1.50	.0515
.850	.3118	1.75	.0347
1.000	-.1334	2.00	.0181
		2.25	-.0038
		2.50	.0037
		2.75	.0038
		3.50	.0068

Table 3.4 Continued

NR.	MACH	E-6*RE	ALPHA
2504	.759	4.11	.50

X/L	CP	XW/L	CPW
.000	1.1454	-5.25	-.0095
.004	.6958	-4.50	-.0059
.008	.4124	-3.75	.0011
.015	.1278	-3.00	.0030
.025	-.1086	-2.25	.0074
.040	-.3799	-1.50	.0118
.060	-.4911	-1.25	.0077
.080	-.6429	-1.00	.0038
.100	-.8979	-.75	-.0104
.140	-.9984	-.50	-.0236
.180	-.9040	-.25	-.0587
.220	-.9217	.00	-.1139
.260	-.9027	.25	-.1741
.300	-.8734	.50	-.2042
.340	-.9126	.75	-.1653
.380	-.9268	1.00	-.1658
.420	-.9243	1.25	-.1300
.460	-.8393	1.50	-.0949
.500	-.6186	1.75	-.0768
.540	-.6083	2.00	-.0682
.580	-.7230	2.25	-.0561
.620	-.7547	2.50	-.0546
.700	-.5357	2.75	-.0503
.800	-.2904	3.50	-.0414
.900	-.0685	-5.25	-.0044
.950	.0160	-4.50	-.0026
.975	.0478	-3.75	.0058
1.000	.0703	-3.00	.0076
.000	1.1454	-2.25	.0160
.004	.2679	-1.50	.0293
.008	.0347	-1.25	.0380
.020	-.0459	-1.00	.0368
.050	.0038	-.75	.0415
.100	-.1152	-.50	.0461
.150	-.2251	-.25	.0440
.200	-.3313	.00	.0416
.250	-.4268	.25	.0337
.350	-.4290	.50	.0337
.450	-.2761	.75	.0372
.550	-.0897	1.00	.0330
.650	.0727	1.25	.0372
.750	.2163	1.50	.0327
.850	.3031	1.75	.0195
1.000	.0703	2.00	.0106
		2.25	-.0095
		2.50	-.0059
		2.75	.0011
		3.50	.0030

NR.	MACH	E-6*RE	ALPHA
2505	.761	5.10	.50

X/L	CP	XW/L	CPW
.000	1.1460	-5.25	-.0084
.004	.7001	-4.50	-.0073
.008	.4160	-3.75	-.0016
.015	.1356	-3.00	.0027
.025	-.1074	-2.25	.0084
.040	-.3642	-1.50	.0099
.060	-.4714	-1.25	.0060
.080	-.6531	-1.00	.0021
.100	-.6972	-.75	-.0087
.140	-.9196	-.50	-.0299
.180	-.8908	-.25	-.0605
.220	-.9121	.00	-.1132
.260	-.9024	.25	-.1770
.300	-.8627	.50	-.2112
.340	-.9044	.75	-.1676
.380	-.9189	1.00	-.1660
.420	-.9130	1.25	-.1283
.460	-.8467	1.50	-.0976
.500	-.6112	1.75	-.0770
.540	-.6130	2.00	-.0651
.580	-.7186	2.25	-.0544
.620	-.7614	2.50	-.0494
.700	-.5366	2.75	-.0455
.800	-.2932	3.50	-.0407
.900	-.0686	-5.25	-.0025
.950	.0224	-4.50	-.0021
.975	.0553	-3.75	.0068
1.000	.0821	-3.00	.0111
.000	1.1460	-2.25	.0201
.004	.2799	-1.50	.0301
.008	.0385	-1.25	.0344
.020	-.0363	-1.00	.0396
.050	.0151	-.75	.0413
.100	-.1091	-.50	.0441
.150	-.2163	-.25	.0432
.200	-.3212	.00	.0441
.250	-.4143	.25	.0405
.350	-.4189	.50	.0371
.450	-.2644	.75	.0412
.550	-.0896	1.00	.0405
.650	.0771	1.25	.0427
.750	.2246	1.50	.0332
.850	.3112	1.75	.0255
1.000	.0821	2.00	.0155
		2.25	-.0084
		2.50	-.0073
		2.75	-.0016
		3.50	.0027

NR.	MACH	E-6*RE	ALPHA
2506	.760	5.81	.50

X/L	CP	XW/L	CPW
.000	1.1518	-5.25	-.0082
.004	.7077	-4.50	-.0050
.008	.4220	-3.75	.0013
.015	.1368	-3.00	.0055
.025	-.1021	-2.25	.0108
.040	-.3552	-1.50	.0109
.060	-.4685	-1.25	.0093
.080	-.6586	-1.00	.0039
.100	-.9013	-.75	-.0112
.140	-.9200	-.50	-.0252
.180	-.8913	-.25	-.0548
.220	-.9101	.00	-.1146
.260	-.9010	.25	-.1757
.300	-.8698	.50	-.2092
.340	-.9002	.75	-.1662
.380	-.9093	1.00	-.1687
.420	-.9048	1.25	-.1303
.460	-.7565	1.50	-.0959
.500	-.5852	1.75	-.0745
.540	-.6230	2.00	-.0618
.580	-.7322	2.25	-.0524
.620	-.8052	2.50	-.0514
.700	-.5396	2.75	-.0442
.800	-.2910	3.50	-.0394
.900	-.0685	-5.25	-.0032
.950	.0253	-4.50	-.0048
.975	.0615	-3.75	.0031
1.000	.0902	-3.00	.0095
.000	1.1518	-2.25	.0158
.004	.2624	-1.50	.0254
.008	.0387	-1.25	.0333
.020	-.0325	-1.00	.0378
.050	.0245	-.75	.0380
.100	-.1052	-.50	.0439
.150	-.2109	-.25	.0441
.200	-.3148	.00	.0383
.250	-.4075	.25	.0380
.350	-.4100	.50	.0379
.450	-.2613	.75	.0393
.550	-.0878	1.00	.0384
.650	.0772	1.25	.0398
.750	.2293	1.50	.0323
.850	.3175	1.75	.0244
1.000	.0902	2.00	.0158
		2.25	-.0082
		2.50	-.0050
		2.75	.0013
		3.50	.0055

NR.	MACH	E-6*RE	ALPHA
2507	.763	7.83	.50

X/L	CP	XW/L	CPW
.000	1.1498	-5.25	-.0078
.004	.7117	-4.50	-.0055
.008	.4260	-3.75	-.0003
.015	.1491	-3.00	.0038
.025	-.0877	-2.25	.0106
.040	-.3446	-1.50	.0093
.060	-.4168	-1.25	.0069
.080	-.5624	-1.00	.0033
.100	-.6956	-.75	-.0077
.140	-.9260	-.50	-.0227
.180	-.8883	-.25	-.0588
.220	-.9128	.00	-.1154
.260	-.9003	.25	-.1814
.300	-.8697	.50	-.2116
.340	-.8910	.75	-.1699
.380	-.9141	1.00	-.1699
.420	-.9122	1.25	-.1333
.460	-.8881	1.50	-.0995
.500	-.7493	1.75	-.0763
.540	-.6479	2.00	-.0669
.580	-.6766	2.25	-.0512
.620	-.7431	2.50	-.0503
.700	-.5529	2.75	-.0462
.800	-.2985	3.50	-.0394
.900	-.0689	-5.25	-.0032
.950	.0333	-4.50	-.0053
.975	.0716	-3.75	.0019
1.000	.1026	-3.00	.0084
.000	1.1498	-2.25	.0168
.004	.2692	-1.50	.0281
.008	.0286	-1.25	.0310
.020	-.0374	-1.00	.0382
.050	.0246	-.75	.0398
.100	-.1073	-.50	.0449
.150	-.2131	-.25	.0440
.200	-.3157	.00	.0428
.250	-.4111	.25	.0372
.350	-.4111	.50	.0369
.450	-.2628	.75	.0397
.550	-.0932	1.00	.0403
.650	.0768	1.25	.0375
.750	.2330	1.50	.0313
.850	.3249	1.75	.0221
1.000	.1026	2.00	.0141
		2.25	-.0078
		2.50	-.0055
		2.75	-.0003
		3.50	.0038

NR.	MACH	E-6*RE	ALPHA
2508	.762	10.07	.50

X/L	CP	XW/L	CPW
.000	1.1543	-5.25	-.0066
.004	.7110	-4.50	-.0059
.008	.4294	-3.75	.0002
.015	.1445	-3.00	.0050
.025	-.0919	-2.25	.0104
.040	-.3452	-1.50	.0086
.060	-.4165	-1.25	.0090
.080	-.6683	-1.00	.0063
.100	-.9037	-.75	-.0075
.140	-.9226	-.50	-.0236
.180	-.8819	-.25	-.0549
.220	-.9148	.00	-.1127
.260	-.9077	.25	-.1805
.300	-.8773	.50	-.2186
.340	-.8890	.75	-.1709
.380	-.9119	1.00	-.1718
.420	-.9068	1.25	-.1307
.460	-.8566	1.50	-.0979
.500	-.6483	1.75	-.0741
.540	-.6297	2.00	-.0609
.580	-.6822	2.25	-.0523
.620	-.7524	2.50	-.0486
.700	-.5572	2.75	-.0447
.800	-.3004	3.50	-.0413
.900	-.0674	-5.25	-.0064
.950	.0374	-4.50	-.0068
.975	.0800	-3.75	.0024
1.000	.1113	-3.00	.0094
.000	1.1543	-2.25	.0183
.004	.2761	-1.50	.0259
.008	.0376	-1.25	.0330
.020	-.0326	-1.00	.0398
.050	.0286	-.75	.0422
.100	-.1085	-.50	.0451
.150	-.2073	-.25	.0475
.200	-.3186	.00	.0445
.250	-.4065	.25	.0386
.350	-.4052	.50	.0391
.450	-.2593	.75	.0389
.550	-.0890	1.00	.0431
.650	.0827	1.25	.0417
.750	.2393	1.50	.0311
.850	.3323	1.75	.0249
1.000	.1113	2.00	.0144
		2.25	-.0066
		2.50	-.0059
		2.75	.0002
		3.50	.0050

NR.	MACH	E-6*RE	ALPHA
2509	.758	11.77	.50

X/L	CP	XW/L	CPW
.000	1.1547	-5.25	-.0104
.004	.7139	-4.50	-.0081
.008	.4324	-3.75	-.0005
.015	.1439	-3.00	.0045
.025	-.0840	-2.25	.0060
.040	-.3459	-1.50	.0079
.060	-.4546	-1.25	.0059
.080	-.6477	-1.00	-.0001
.100	-.9233	-.75	-.0100
.140	-.9069	-.50	-.0277
.180	-.9038	-.25	-.0590
.220	-.9161	.00	-.1136
.260	-.9061	.25	-.1826
.300	-.8559	.50	-.2147
.340	-.9028	.75	-.1678
.380	-.9113	1.00	-.1659
.420	-.9022	1.25	-.1356
.460	-.8847	1.50	-.0998
.500	-.5832	1.75	-.0771
.540	-.6571	2.00	-.0668
.580	-.7664	2.25	-.0502
.620	-.8049	2.50	-.0485
.700	-.5458	2.75	-.0442
.800	-.3058	3.50	-.0396
.900	-.0686	-5.25	-.0055
.950	.0404	-4.50	-.0071
.975	.0831	-3.75	.0017
1.000	.1151	-3.00	.0087
.000	1.1547	-2.25	.0152
.004	.2818	-1.50	.0273
.008	.0409	-1.25	.0316
.020	-.0296	-1.00	.0361
.050	.0241	-.75	.0400
.100	-.1029	-.50	.0442
.150	-.2022	-.25	.0437
.200	-.3088	.00	.0449
.250	-.3991	.25	.0392
.350	-.4053	.50	.0384
.450	-.2578	.75	.0425
.550	-.0889	1.00	.0463
.650	.0809	1.25	.0428
.750	.2407	1.50	.0310
.850	.3332	1.75	.0217
1.000	.1151	2.00	.0157
		2.25	-.0104
		2.50	-.0081
		2.75	-.0005
		3.50	.0045

NR.	MACH	E-6*RE	ALPHA
2510	.760	13.41	.50

X/L	CP	XW/L	CPW
.000	1.1569	-5.25	-.0118
.004	.7113	-4.50	-.0064
.008	.4252	-3.75	-.0019
.015	.1458	-3.00	.0050
.025	-.0828	-2.25	.0080
.040	-.3471	-1.50	.0110
.060	-.4624	-1.25	.0085
.080	-.6324	-1.00	.0018
.100	-.9158	-.75	-.0063
.140	-.9124	-.50	-.0256
.180	-.8990	-.25	-.0556
.220	-.9127	.00	-.1136
.260	-.9063	.25	-.1663
.300	-.8652	.50	-.2156
.340	-.8963	.75	-.1682
.380	-.9110	1.00	-.1709
.420	-.9020	1.25	-.1306
.460	-.8773	1.50	-.0959
.500	-.5874	1.75	-.0749
.540	-.6260	2.00	-.0623
.580	-.7464	2.25	-.0548
.620	-.8096	2.50	-.0472
.700	-.5494	2.75	-.0456
.800	-.3044	3.50	-.0394
.900	-.0678	-5.25	-.0036
.950	.0416	-4.50	-.0049
.975	.0841	-3.75	.0029
1.000	.1188	-3.00	.0097
.000	1.1569	-2.25	.0180
.004	.2895	-1.50	.0297
.008	.0472	-1.25	.0352
.020	-.0224	-1.00	.0387
.050	.0221	-.75	.0453
.100	-.0997	-.50	.0463
.150	-.2046	-.25	.0493
.200	-.3069	.00	.0485
.250	-.3964	.25	.0392
.350	-.4020	.50	.0433
.450	-.2520	.75	.0430
.550	-.0899	1.00	.0448
.650	.0828	1.25	.0460
.750	.2435	1.50	.0356
.850	.3363	1.75	.0272
1.000	.1186	2.00	.0173
		2.25	-.0118
		2.50	-.0064
		2.75	-.0019
		3.50	.0050

NR.	MACH	E-6*RE	ALPHA
2511	.407	5.40	.50

X/L	CP	XW/L	CPW
.000	1.0354	-5.25	-.0138
.004	.3556	-4.50	-.0160
.008	.0385	-3.75	-.0127
.015	-.2387	-3.00	-.0041
.025	-.4227	-2.25	-.0013
.040	-.5772	-1.50	-.0076
.060	-.6214	-1.25	-.0162
.080	-.6737	-1.00	-.0190
.100	-.6578	-.75	-.0316
.140	-.5898	-.50	-.0381
.180	-.5545	-.25	-.0516
.220	-.5188	.00	-.0658
.260	-.5012	.25	-.0827
.300	-.4814	.50	-.0840
.340	-.4638	.75	-.0840
.380	-.4625	1.00	-.0855
.420	-.4568	1.25	-.0791
.460	-.4440	1.50	-.0636
.500	-.4537	1.75	-.0623
.540	-.4783	2.00	-.0610
.580	-.4786	2.25	-.0515
.620	-.4516	2.50	-.0374
.700	-.4083	2.75	-.0398
.800	-.2574	3.50	-.0306
.900	-.0807	-5.25	-.0042
.950	.0191	-4.50	-.0053
.975	.0628	-3.75	-.0019
1.000	.0992	-3.00	.0060
.000	1.0354	-2.25	.0077
.004	.3555	-1.50	.0178
.008	.1397	-1.25	.0181
.020	.0440	-1.00	.0261
.050	.0517	-.75	.0211
.100	-.0476	-.50	.0290
.150	-.1242	-.25	.0327
.200	-.1892	.00	.0328
.250	-.2356	.25	.0324
.350	-.2435	.50	.0412
.450	-.1635	.75	.0322
.550	-.0879	1.00	.0306
.650	.0540	1.25	.0340
.750	.1980	1.50	.0289
.850	.2836	1.75	.0205
1.000	.0992	2.00	.0107
		2.25	-.0138
		2.50	-.0160
		2.75	-.0127
		3.50	-.0041

Table 3.4 Continued

NR.	MACH	E-6*RE	ALPHA
2512	.499	5.76	.50

X/L	CP	XW/L	CPW
.000	1.0631	-5.25	-.0106
.004	.4047	-4.50	-.0093
.008	.0889	-3.75	-.0053
.015	-.1958	-3.00	-.0008
.025	-.4112	-2.25	-.0048
.040	-.5878	-1.50	-.0062
.060	-.6494	-1.25	-.0151
.080	-.7145	-1.00	-.0152
.100	-.6951	-.75	-.0265
.140	-.6306	-.50	-.0391
.180	-.5881	-.25	-.0502
.220	-.5601	.00	-.0709
.260	-.5324	.25	-.0866
.300	-.5157	.50	-.0954
.340	-.4936	.75	-.0946
.380	-.4869	1.00	-.0906
.420	-.4808	1.25	-.0840
.460	-.4735	1.50	-.0729
.500	-.4810	1.75	-.0626
.540	-.4983	2.00	-.0544
.580	-.4977	2.25	-.0457
.620	-.4798	2.50	-.0485
.700	-.4347	2.75	-.0489
.800	-.2764	3.50	-.0264
.900	-.0900	-5.25	-.0045
.950	.0126	-4.50	-.0045
.975	.0565	-3.75	-.0000
1.000	.0965	-3.00	.0040
.000	1.0631	-2.25	.0063
.004	.3448	-1.50	.0176
.008	.1269	-1.25	.0171
.020	.0372	-1.00	.0284
.050	.0465	-.75	.0280
.100	-.0528	-.50	.0280
.150	-.1370	-.25	.0332
.200	-.2060	.00	.0341
.250	-.2587	.25	.0350
.350	-.2618	.50	.0388
.450	-.1806	.75	.0352
.550	-.0762	1.00	.0395
.650	.0574	1.25	.0338
.750	.2002	1.50	.0289
.850	.2868	1.75	.0208
1.000	.0965	2.00	.0158
		2.25	-.0106
		2.50	-.0093
		2.75	-.0053
		3.50	-.0008

NR.	MACH	E-6*RE	ALPHA
2514	.602	5.86	.50

X/L	CP	XW/L	CPW
.000	1.0882	-5.25	-.0058
.004	.4805	-4.50	-.0024
.008	.1615	-3.75	-.0028
.015	-.1301	-3.00	-.0001
.025	-.3766	-2.25	-.0001
.040	-.5927	-1.50	-.0001
.060	-.6840	-1.25	-.0028
.080	-.7742	-1.00	-.0096
.100	-.7630	-.75	-.0195
.140	-.6905	-.50	-.0323
.180	-.6461	-.25	-.0488
.220	-.6152	.00	-.0784
.260	-.5877	.25	-.0982
.300	-.5687	.50	-.1111
.340	-.5441	.75	-.1044
.380	-.5350	1.00	-.1006
.420	-.5342	1.25	-.0892
.460	-.5263	1.50	-.0742
.500	-.5261	1.75	-.0689
.540	-.5428	2.00	-.0565
.580	-.5406	2.25	-.0516
.620	-.5205	2.50	-.0468
.700	-.4690	2.75	-.0385
.800	-.3018	3.50	-.0298
.900	-.0907	-5.25	.0046
.950	.0197	-4.50	-.0006
.975	.0623	-3.75	.0066
1.000	.1034	-3.00	.0112
.000	1.0882	-2.25	.0167
.004	.3457	-1.50	.0237
.008	.1167	-1.25	.0277
.020	.0236	-1.00	.0319
.050	.0394	-.75	.0324
.100	-.0669	-.50	.0373
.150	-.1535	-.25	.0409
.200	-.2336	.00	.0416
.250	-.2872	.25	.0441
.350	-.2871	.50	.0463
.450	-.2052	.75	.0418
.550	-.0781	1.00	.0445
.650	.0669	1.25	.0437
.750	.2899	1.50	.0337
.850	.2962	1.75	.0269
1.000	.1034	2.00	.0177
		2.25	-.0058
		2.50	-.0024
		2.75	-.0028
		3.50	-.0001

NR.	MACH	E-6*RE	ALPHA
2515	.650	5.80	.50

X/L	CP	XW/L	CPW
.000	1.1056	-5.25	-.0075
.004	.5319	-4.50	-.0060
.008	.2136	-3.75	-.0028
.015	-.0837	-3.00	-.0007
.025	-.3334	-2.25	-.0003
.040	-.5743	-1.50	-.0018
.060	-.6938	-1.25	-.0064
.080	-.8393	-1.00	-.0071
.100	-.8133	-.75	-.0200
.140	-.7278	-.50	-.0333
.180	-.6914	-.25	-.0526
.220	-.6608	.00	-.0873
.260	-.6342	.25	-.1147
.300	-.6109	.50	-.1286
.340	-.5828	.75	-.1171
.380	-.5733	1.00	-.1169
.420	-.5667	1.25	-.1000
.460	-.5637	1.50	-.0795
.500	-.5617	1.75	-.0711
.540	-.5800	2.00	-.0625
.580	-.5789	2.25	-.0532
.620	-.5571	2.50	-.0498
.700	-.4986	2.75	-.0432
.800	-.3071	3.50	-.0350
.900	-.0898	-5.25	-.0004
.950	.0186	-4.50	-.0019
.975	.0629	-3.75	.0075
1.000	.0994	-3.00	.0084
.000	1.1056	-2.25	.0158
.004	.3366	-1.50	.0224
.008	.1041	-1.25	.0257
.020	.0147	-1.00	.0318
.050	.0348	-.75	.0318
.100	-.0758	-.50	.0382
.150	-.1670	-.25	.0414
.200	-.2502	.00	.0398
.250	-.3161	.25	.0418
.350	-.3172	.50	.0395
.450	-.2166	.75	.0415
.550	-.0821	1.00	.0411
.650	.0711	1.25	.0402
.750	.2154	1.50	.0348
.850	.3027	1.75	.0237
1.000	.0994	2.00	.0177
		2.25	-.0075
		2.50	-.0060
		2.75	-.0028
		3.50	-.0007

NR.	MACH	E-6*RE	ALPHA
2516	.702	5.88	.50

X/L	CP	XW/L	CPW
.000	1.1260	-5.25	-.0089
.004	.6074	-4.50	-.0039
.008	.2984	-3.75	-.0035
.015	.0019	-3.00	-.0005
.025	-.2499	-2.25	-.0002
.040	-.5101	-1.50	.0001
.060	-.6554	-1.25	.0024
.080	-1.0154	-1.00	-.0069
.100	-.8174	-.75	-.0142
.140	-.7903	-.50	-.0294
.180	-.7567	-.25	-.0563
.220	-.7292	.00	-.0929
.260	-.6900	.25	-.1361
.300	-.6634	.50	-.1536
.340	-.6284	.75	-.1286
.380	-.6214	1.00	-.1314
.420	-.6138	1.25	-.1097
.460	-.6119	1.50	-.0850
.500	-.6123	1.75	-.0667
.540	-.6361	2.00	-.0614
.580	-.6367	2.25	-.0530
.620	-.6121	2.50	-.0483
.700	-.5269	2.75	-.0438
.800	-.3115	3.50	-.0370
.900	-.0829	-5.25	-.0020
.950	.0238	-4.50	-.0023
.975	.0646	-3.75	.0021
1.000	.0970	-3.00	.0038
.000	1.1260	-2.25	.0137
.004	.3166	-1.50	.0240
.008	.0862	-1.25	.0279
.020	-.0020	-1.00	.0311
.050	.0280	-.75	.0361
.100	-.0880	-.50	.0390
.150	-.1815	-.25	.0415
.200	-.2741	.00	.0430
.250	-.3445	.25	.0378
.350	-.3484	.50	.0386
.450	-.2334	.75	.0412
.550	-.0834	1.00	.0397
.650	.0707	1.25	.0385
.750	.2204	1.50	.0321
.850	.3124	1.75	.0274
1.000	.0970	2.00	.0176
		2.25	-.0089
		2.50	-.0039
		2.75	-.0035
		3.50	-.0005

NR.	MACH	E-6*RE	ALPHA
2517	.717	5.81	.50

X/L	CP	XW/L	CPW
.000	1.1355	-5.25	-.0052
.004	.6263	-4.50	-.0020
.008	.3268	-3.75	.0010
.015	.0297	-3.00	.0030
.025	-.2151	-2.25	.0057
.040	-.4782	-1.50	.0077
.060	-.6255	-1.25	.0011
.080	-.9694	-1.00	.0003
.100	-1.0128	-.75	-.0144
.140	-.7779	-.50	-.0276
.180	-.7876	-.25	-.0560
.220	-.7697	.00	-.0973
.260	-.7160	.25	-.1354
.300	-.6855	.50	-.1602
.340	-.6477	.75	-.1365
.380	-.6411	1.00	-.1376
.420	-.6394	1.25	-.1107
.460	-.6399	1.50	-.0865
.500	-.6382	1.75	-.0685
.540	-.6660	2.00	-.0581
.580	-.6634	2.25	-.0535
.620	-.6358	2.50	-.0416
.700	-.5374	2.75	-.0415
.800	-.3187	3.50	-.0326
.900	-.0812	-5.25	-.0002
.950	.0236	-4.50	-.0009
.975	.0649	-3.75	.0060
1.000	.0954	-3.00	.0081
.000	1.1355	-2.25	.0150
.004	.3200	-1.50	.0257
.008	.0794	-1.25	.0293
.020	-.0038	-1.00	.0366
.050	.0271	-.75	.0365
.100	-.0871	-.50	.0404
.150	-.1885	-.25	.0400
.200	-.2800	.00	.0397
.250	-.3575	.25	.0395
.350	-.3610	.50	.0410
.450	-.2369	.75	.0405
.550	-.0855	1.00	.0424
.650	.0764	1.25	.0399
.750	.2236	1.50	.0325
.850	.3116	1.75	.0236
1.000	.0954	2.00	.0164
		2.25	-.0052
		2.50	-.0020
		2.75	.0010
		3.50	.0030

NR.	MACH	E-6*RE	ALPHA
2518	.739	5.87	.50

X/L	CP	XW/L	CPW
.000	1.1398	-5.25	-.0096
.004	.6587	-4.50	-.0049
.008	.3681	-3.75	-.0003
.015	.0782	-3.00	.0040
.025	-.1704	-2.25	.0070
.040	-.4244	-1.50	.0070
.060	-.5678	-1.25	.0056
.080	-.8896	-1.00	.0016
.100	-.9703	-.75	-.0132
.140	-.9287	-.50	-.0272
.180	-.9005	-.25	-.0577
.220	-.8575	.00	-.1027
.260	-.7998	.25	-.1535
.300	-.6767	.50	-.1773
.340	-.6681	.75	-.1478
.380	-.6673	1.00	-.1472
.420	-.6739	1.25	-.1182
.460	-.6736	1.50	-.0870
.500	-.6736	1.75	-.0716
.540	-.7122	2.00	-.0609
.580	-.7243	2.25	-.0536
.620	-.6713	2.50	-.0488
.700	-.5557	2.75	-.0458
.800	-.3854	3.50	-.0373
.900	-.0740	-5.25	-.0047
.950	.0262	-4.50	-.0016
.975	.0674	-3.75	.0062
1.000	.0936	-3.00	.0106
.000	1.1398	-2.25	.0179
.004	.3061	-1.50	.0298
.008	.0620	-1.25	.0331
.020	-.0145	-1.00	.0362
.050	.0256	-.75	.0376
.100	-.0956	-.50	.0435
.150	-.1978	-.25	.0421
.200	-.2936	.00	.0429
.250	-.3795	.25	.0411
.350	-.3819	.50	.0394
.450	-.2502	.75	.0417
.550	-.0881	1.00	.0423
.650	.0786	1.25	.0410
.750	.2257	1.50	.0352
.850	.3159	1.75	.0243
1.000	.0936	2.00	.0183
		2.25	-.0096
		2.50	-.0049
		2.75	-.0003
		3.50	.0040

NR.	MACH	E-6*RE	ALPHA
2519	.751	5.96	.50

X/L	CP	XW/L	CPW
.000	1.1453	-5.25	-.0094
.004	.6831	-4.50	-.0063
.008	.3919	-3.75	-.0026
.015	.1111	-3.00	.0051
.025	-.1378	-2.25	.0074
.040	-.3985	-1.50	.0082
.060	-.5370	-1.25	.0060
.080	-.8466	-1.00	.0026
.100	-.9285	-.75	-.0097
.140	-.9139	-.50	-.0246
.180	-.9032	-.25	-.0578
.220	-.9096	.00	-.1084
.260	-.8672	.25	-.1619
.300	-.8811	.50	-.1851
.340	-.8641	.75	-.1546
.380	-.6438	1.00	-.1544
.420	-.6321	1.25	-.1200
.460	-.6474	1.50	-.0928
.500	-.6712	1.75	-.0722
.540	-.7345	2.00	-.0618
.580	-.7962	2.25	-.0528
.620	-.7729	2.50	-.0478
.700	-.5483	2.75	-.0466
.800	-.3016	3.50	-.0373
.900	-.0724	-5.25	-.0037
.950	.0265	-4.50	-.0043
.975	.0655	-3.75	.0040
1.000	.0926	-3.00	.0073
.000	1.1453	-2.25	.0180
.004	.2916	-1.50	.0280
.008	.0536	-1.25	.0307
.020	-.0251	-1.00	.0411
.050	.0207	-.75	.0411
.100	-.0975	-.50	.0444
.150	-.2049	-.25	.0436
.200	-.3053	.00	.0436
.250	-.3928	.25	.0400
.350	-.3965	.50	.0417
.450	-.2551	.75	.0398
.550	-.0981	1.00	.0431
.650	.0771	1.25	.0442
.750	.2284	1.50	.0320
.850	.3173	1.75	.0250
1.000	.0926	2.00	.0166
		2.25	-.0094
		2.50	-.0063
		2.75	-.0026
		3.50	.0051

NR.	MACH	E-6*RE	ALPHA
2520	.759	5.97	.50

X/L	CP	XW/L	CPW
.000	1.1476	-5.25	-.0084
.004	.6958	-4.50	-.0052
.008	.4149	-3.75	-.0003
.015	.1319	-3.00	.0055
.025	-.1116	-2.25	.0107
.040	-.3656	-1.50	.0112
.060	-.5148	-1.25	.0110
.080	-.8160	-1.00	.0040
.100	-.9087	-.75	-.0073
.140	-.8958	-.50	-.0258
.180	-.8929	-.25	-.0582
.220	-.9124	.00	-.1092
.260	-.8951	.25	-.1733
.300	-.8845	.50	-.2066
.340	-.9081	.75	-.1620
.380	-.9062	1.00	-.1631
.420	-.8963	1.25	-.1264
.460	-.5831	1.50	-.0977
.500	-.5788	1.75	-.0723
.540	-.6447	2.00	-.0648
.580	-.7539	2.25	-.0524
.620	-.8167	2.50	-.0515
.700	-.5402	2.75	-.0488
.800	-.2962	3.50	-.0400
.900	-.0694	-5.25	-.0011
.950	.0282	-4.50	-.0023
.975	.0643	-3.75	.0042
1.000	.0951	-3.00	.0124
.000	1.1476	-2.25	.0200
.004	.2836	-1.50	.0283
.008	.0406	-1.25	.0366
.020	-.0307	-1.00	.0398
.050	.0177	-.75	.0415
.100	-.0992	-.50	.0468
.150	-.2088	-.25	.0465
.200	-.3128	.00	.0483
.250	-.4060	.25	.0379
.350	-.4089	.50	.0375
.450	-.2601	.75	.0407
.550	-.0883	1.00	.0423
.650	.0792	1.25	.0406
.750	.2284	1.50	.0319
.850	.3212	1.75	.0252
1.000	.0951	2.00	.0157
		2.25	-.0084
		2.50	-.0052
		2.75	-.0003
		3.50	.0055

Table 3.4 Continued

NR.	MACH	E-6*RE	ALPHA
2521	.770	5.99	.50

X/L	CP	XW/L	CPW
.000	1.1567	-5.25	-.0077
.004	.7184	-4.50	-.0037
.008	.4418	-3.75	.0017
.015	.1583	-3.00	.0072
.025	-.0800	-2.25	.0118
.040	-.3355	-1.50	.0103
.060	-.4790	-1.25	.0103
.080	-.7804	-1.00	.0073
.100	-.8647	-.75	-.0049
.140	-.8662	-.50	-.0186
.180	-.8702	-.25	-.0535
.220	-.8957	.00	-.1122
.260	-.8958	.25	-.1912
.300	-.8845	.50	-.2272
.340	-.9040	.75	-.1780
.380	-.9203	1.00	-.1783
.420	-.9236	1.25	-.1357
.460	-.9273	1.50	-.1044
.500	-.8953	1.75	-.0811
.540	-.9060	2.00	-.0656
.580	-.9154	2.25	-.0523
.620	-.8150	2.50	-.0505
.700	-.5014	2.75	-.0463
.800	-.2815	3.50	-.0429
.900	-.0674	-5.25	-.0008
.950	.0227	-4.50	-.0020
.975	.0579	-3.75	.0068
1.000	.0865	-3.00	.0125
.000	1.1567	-2.25	.0233
.004	.2724	-1.50	.0332
.008	.0243	-1.25	.0377
.020	-.0418	-1.00	.0427
.050	.0138	-.75	.0483
.100	-.1077	-.50	.0511
.150	-.2128	-.25	.0484
.200	-.3264	.00	.0475
.250	-.4233	.25	.0371
.350	-.4290	.50	.0381
.450	-.2671	.75	.0432
.550	-.0907	1.00	.0412
.650	.0810	1.25	.0454
.750	.2321	1.50	.0303
.850	.3223	1.75	.0213
1.000	.0865	2.00	.0142
		2.25	-.0077
		2.50	-.0037
		2.75	.0017
		3.50	.0072

NR.	MACH	E-6*RE	ALPHA
2522	.779	5.89	.50

X/L	CP	XW/L	CPW
.000	1.1597	-5.25	-.0088
.004	.7649	-4.50	-.0057
.008	.4790	-3.75	.0001
.015	.2053	-3.00	.0087
.025	-.0414	-2.25	.0098
.040	-.2886	-1.50	.0150
.060	-.4464	-1.25	.0155
.080	-.7373	-1.00	.0092
.100	-.8247	-.75	.0003
.140	-.8282	-.50	-.0182
.180	-.8287	-.25	-.0494
.220	-.8571	.00	-.1089
.260	-.8649	.25	-.1935
.300	-.8523	.50	-.2446
.340	-.8795	.75	-.1879
.380	-.8987	1.00	-.1666
.420	-.9080	1.25	-.1445
.460	-.9235	1.50	-.1041
.500	-.9058	1.75	-.0784
.540	-.9213	2.00	-.0648
.580	-.9631	2.25	-.0515
.620	-.9811	2.50	-.0516
.700	-.5082	2.75	-.0482
.800	-.2563	3.50	-.0442
.900	-.0868	-5.25	-.0040
.950	-.0030	-4.50	-.0040
.975	.0288	-3.75	.0049
1.000	.0581	-3.00	.0140
.000	1.1597	-2.25	.0176
.004	.2457	-1.50	.0325
.008	-.0012	-1.25	.0384
.020	-.0593	-1.00	.0412
.050	.0046	-.75	.0424
.100	-.1138	-.50	.0450
.150	-.2277	-.25	.0441
.200	-.3369	.00	.0426
.250	-.4440	.25	.0344
.350	-.4505	.50	.0335
.450	-.2731	.75	.0350
.550	-.0989	1.00	.0414
.650	.0745	1.25	.0382
.750	.2273	1.50	.0307
.850	.3170	1.75	.0223
1.000	.0581	2.00	.0130
		2.25	-.0088
		2.50	-.0057
		2.75	.0001
		3.50	.0087

NR.	MACH	E-6*RE	ALPHA
2523	.801	5.92	.50

X/L	CP	XW/L	CPW
.000	1.1559	-5.25	-.0124
.004	.8189	-4.50	-.0059
.008	.5472	-3.75	-.0012
.015	.2804	-3.00	.0077
.025	.0440	-2.25	.0139
.040	-.2071	-1.50	.0208
.060	-.3601	-1.25	.0223
.080	-.6617	-1.00	.0225
.100	-.7372	-.75	.0105
.140	-.7301	-.50	-.0015
.180	-.7503	-.25	-.0328
.220	-.7793	.00	-.0876
.260	-.7888	.25	-.1728
.300	-.7822	.50	-.2440
.340	-.8162	.75	-.1844
.380	-.8382	1.00	-.1846
.420	-.8510	1.25	-.1388
.460	-.8688	1.50	-.0972
.500	-.8661	1.75	-.0733
.540	-.8830	2.00	-.0622
.580	-.9236	2.25	-.0516
.620	-.9529	2.50	-.0516
.700	-.4409	2.75	-.0516
.800	-.2823	3.50	-.0472
.900	-.1908	-5.25	-.0053
.950	-.1403	-4.50	-.0032
.975	-.1211	-3.75	.0018
1.000	-.0765	-3.00	.0100
.000	1.1559	-2.25	.0212
.004	.1741	-1.50	.0332
.008	-.0832	-1.25	.0380
.020	-.1295	-1.00	.0449
.050	-.0285	-.75	.0452
.100	-.1459	-.50	.0447
.150	-.2613	-.25	.0363
.200	-.3856	.00	.0278
.250	-.5078	.25	.0176
.350	-.6885	.50	.0161
.450	-.3107	.75	.0175
.550	-.1217	1.00	.0220
.650	.0514	1.25	.0276
.750	.2077	1.50	.0231
.850	.2926	1.75	.0188
1.000	-.0765	2.00	.0078
		2.25	-.0124
		2.50	-.0059
		2.75	-.0012
		3.50	.0077

NR.	MACH	E-6*RE	ALPHA
2524	.765	5.88	.50

X/L	CP	XW/L	CPW
.000	1.1450	-5.25	-.0100
.004	.7175	-4.50	-.0048
.008	.4372	-3.75	.0001
.015	.1515	-3.00	.0038
.025	-.0890	-2.25	.0078
.040	-.3436	-1.50	.0123
.060	-.4890	-1.25	.0063
.080	-.7925	-1.00	.0042
.100	-.8810	-.75	-.0078
.140	-.8758	-.50	-.0231
.180	-.8733	-.25	-.0582
.220	-.8970	.00	-.1110
.260	-.8931	.25	-.1835
.300	-.8706	.50	-.2136
.340	-.9041	.75	-.1717
.380	-.9158	1.00	-.1692
.420	-.9121	1.25	-.1347
.460	-.9106	1.50	-.1038
.500	-.8611	1.75	-.0755
.540	-.7637	2.00	-.0634
.580	-.6552	2.25	-.0539
.620	-.6409	2.50	-.0479
.700	-.5275	2.75	-.0468
.800	-.2884	3.50	-.0363
.900	-.0688	-5.25	-.0030
.950	.0287	-4.50	-.0030
.975	.0629	-3.75	.0058
1.000	.0879	-3.00	.0094
.000	1.1450	-2.25	.0181
.004	.2830	-1.50	.0293
.008	.0392	-1.25	.0313
.020	-.0335	-1.00	.0403
.050	.0181	-.75	.0409
.100	-.1010	-.50	.0469
.150	-.2075	-.25	.0474
.200	-.3155	.00	.0459
.250	-.4150	.25	.0394
.350	-.4161	.50	.0375
.450	-.2586	.75	.0398
.550	-.0895	1.00	.0430
.650	.0794	1.25	.0403
.750	.2297	1.50	.0289
.850	.3214	1.75	.0254
1.000	.0879	2.00	.0173
		2.25	-.0100
		2.50	-.0048
		2.75	.0001
		3.50	.0038

NR.	MACH	E-6*RE	ALPHA
2525	.760	4.09	2.00

X/L	CP	XW/L	CPW
.000	1.1506	-5.25	-.0102
.004	.5176	-4.50	-.0027
.008	.2091	-3.75	.0021
.015	-.0702	-3.00	.0086
.025	-.3153	-2.25	.0160
.040	-.5691	-1.50	.0160
.060	-.7521	-1.25	.0117
.080	-.8654	-1.00	.0059
.100	-1.0113	-.75	-.0133
.140	-1.0943	-.50	-.0366
.180	-1.0907	-.25	-.0813
.220	-1.0943	.00	-.1566
.260	-1.1197	.25	-.2609
.300	-1.1429	.50	-.3174
.340	-1.1389	.75	-.2260
.380	-1.1385	1.00	-.2252
.420	-1.1484	1.25	-.1733
.460	-1.1655	1.50	-.1284
.500	-1.1638	1.75	-.0987
.540	-1.0142	2.00	-.0812
.580	-.6348	2.25	-.0675
.620	-.5487	2.50	-.0623
.700	-.4607	2.75	-.0555
.800	-.3288	3.50	-.0456
.900	-.2181	-5.25	-.0025
.950	-.1607	-4.50	.0005
.975	-.1268	-3.75	.0093
1.000	-.0853	-3.00	.0163
.000	1.1506	-2.25	.0276
.004	.5687	-1.50	.0443
.008	.3527	-1.25	.0470
.020	.2159	-1.00	.0582
.050	.1678	-.75	.0611
.100	.0375	-.50	.0632
.150	-.0864	-.25	.0663
.200	-.1968	.00	.0719
.250	-.2969	.25	.0657
.350	-.3305	.50	.0635
.450	-.2250	.75	.0586
.550	-.0668	1.00	.0587
.650	.0764	1.25	.0512
.750	.2158	1.50	.0413
.850	.2937	1.75	.0271
1.000	-.0853	2.00	.0151
		2.25	-.0102
		2.50	-.0027
		2.75	.0021
		3.50	.0086

NR.	MACH	E-6*RE	ALPHA
2526	.760	5.03	2.00

X/L	CP	XW/L	CPW
.000	1.1497	-5.25	-.0084
.004	.5074	-4.50	-.0015
.008	.2056	-3.75	.0003
.015	-.0791	-3.00	.0065
.025	-.3227	-2.25	.0131
.040	-.5602	-1.50	.0167
.060	-.7528	-1.25	.0126
.080	-.8581	-1.00	.0057
.100	-1.0110	-.75	-.0131
.140	-1.0987	-.50	-.0306
.180	-1.0925	-.25	-.0800
.220	-1.0894	.00	-.1603
.260	-1.1171	.25	-.2625
.300	-1.1474	.50	-.3226
.340	-1.1446	.75	-.2345
.380	-1.1428	1.00	-.2298
.420	-1.1537	1.25	-.1767
.460	-1.1713	1.50	-.1290
.500	-1.1684	1.75	-.0995
.540	-1.1586	2.00	-.0841
.580	-.6774	2.25	-.0708
.620	-.5780	2.50	-.0673
.700	-.4660	2.75	-.0599
.800	-.3363	3.50	-.0489
.900	-.1930	-5.25	.0009
.950	-.1328	-4.50	.0012
.975	-.1092	-3.75	.0082
1.000	-.0743	-3.00	.0155
.000	1.1497	-2.25	.0296
.004	.5834	-1.50	.0463
.008	.3680	-1.25	.0500
.020	.2240	-1.00	.0601
.050	.1775	-.75	.0633
.100	.0421	-.50	.0772
.150	-.0744	-.25	.0750
.200	-.1876	.00	.0780
.250	-.2825	.25	.0737
.350	-.3169	.50	.0664
.450	-.2180	.75	.0660
.550	-.0654	1.00	.0595
.650	.0847	1.25	.0520
.750	.2240	1.50	.0373
.850	.3047	1.75	.0299
1.000	-.0743	2.00	.0160
		2.25	-.0084
		2.50	-.0015
		2.75	.0003
		3.50	.0065

NR.	MACH	E-6*RE	ALPHA
2527	.760	5.94	2.00

X/L	CP	XW/L	CPW
.000	1.1524	-5.25	-.0098
.004	.5132	-4.50	-.0045
.008	.2072	-3.75	.0044
.015	-.0732	-3.00	.0112
.025	-.3135	-2.25	.0161
.040	-.5501	-1.50	.0168
.060	-.7416	-1.25	.0116
.080	-.8860	-1.00	.0018
.100	-1.0101	-.75	-.0113
.140	-1.0939	-.50	-.0364
.180	-1.0864	-.25	-.0794
.220	-1.0944	.00	-.1595
.260	-1.1156	.25	-.2663
.300	-1.1405	.50	-.3299
.340	-1.1465	.75	-.2326
.380	-1.1400	1.00	-.2325
.420	-1.1439	1.25	-.1780
.460	-1.1679	1.50	-.1259
.500	-1.1655	1.75	-.0975
.540	-1.1997	2.00	-.0824
.580	-.7997	2.25	-.0694
.620	-.6161	2.50	-.0604
.700	-.4784	2.75	-.0602
.800	-.3306	3.50	-.0478
.900	-.1952	-5.25	-.0018
.950	-.1175	-4.50	.0003
.975	-.1013	-3.75	.0092
1.000	-.0551	-3.00	.0188
.000	1.1524	-2.25	.0295
.004	.5777	-1.50	.0463
.008	.3592	-1.25	.0523
.020	.2291	-1.00	.0586
.050	.1820	-.75	.0654
.100	.0416	-.50	.0688
.150	-.0767	-.25	.0778
.200	-.1836	.00	.0776
.250	-.2801	.25	.0713
.350	-.3176	.50	.0685
.450	-.2102	.75	.0657
.550	-.0670	1.00	.0631
.650	.0886	1.25	.0530
.750	.2289	1.50	.0426
.850	.3093	1.75	.0295
1.000	-.0551	2.00	.0187
		2.25	-.0098
		2.50	-.0045
		2.75	.0044
		3.50	.0112

NR.	MACH	E-6*RE	ALPHA
2528	.759	13.49	2.00

X/L	CP	XW/L	CPW
.000	1.1550	-5.25	-.0084
.004	.5193	-4.50	-.0047
.008	.2235	-3.75	.0047
.015	-.0366	-3.00	.0103
.025	-.2803	-2.25	.0149
.040	-.5309	-1.50	.0158
.060	-.7227	-1.25	.0149
.080	-.8679	-1.00	.0078
.100	-1.0119	-.75	-.0094
.140	-1.0983	-.50	-.0331
.180	-1.0905	-.25	-.0787
.220	-1.0984	.00	-.1572
.260	-1.1319	.25	-.2703
.300	-1.1396	.50	-.3434
.340	-1.1480	.75	-.2389
.380	-1.1342	1.00	-.2392
.420	-1.1446	1.25	-.1779
.460	-1.1642	1.50	-.1323
.500	-1.1763	1.75	-.0974
.540	-1.2077	2.00	-.0787
.580	-1.2357	2.25	-.0695
.620	-.8851	2.50	-.0640
.700	-.5087	2.75	-.0547
.800	-.2965	3.50	-.0513
.900	-.1308	-5.25	-.0031
.950	-.0448	-4.50	-.0033
.975	-.0044	-3.75	.0094
1.000	.0186	-3.00	.0157
.000	1.1550	-2.25	.0278
.004	.5716	-1.50	.0432
.008	.3685	-1.25	.0523
.020	.2329	-1.00	.0630
.050	.1906	-.75	.0663
.100	.0501	-.50	.0743
.150	-.0651	-.25	.0774
.200	-.1758	.00	.0819
.250	-.2666	.25	.0716
.350	-.2984	.50	.0723
.450	-.2018	.75	.0669
.550	-.0639	1.00	.0632
.650	.0926	1.25	.0552
.750	.2465	1.50	.0427
.850	.3333	1.75	.0317
1.000	.0186	2.00	.0197
		2.25	-.0084
		2.50	-.0047
		2.75	.0047
		3.50	.0103

Table 3.4 Concluded

NR.	MACH	E-6*RE	ALPHA
2529	.758	11.78	2.00

X/L	CP	XW/L	CPW
.000	1.1520	-5.25	-.0104
.004	.5245	-4.50	-.0049
.008	.2230	-3.75	.0009
.015	-.0514	-3.00	.0096
.025	-.2879	-2.25	.0128
.040	-.5370	-1.50	.0139
.060	-.7280	-1.25	.0125
.080	-.8977	-1.00	.0009
.100	-1.0184	-.75	-.0141
.140	-1.1018	-.50	-.0344
.180	-1.1021	-.25	-.0843
.220	-1.1053	.00	-.1638
.260	-1.1384	.25	-.2712
.300	-1.1514	.50	-.3429
.340	-1.1492	.75	-.2394
.380	-1.1427	1.00	-.2423
.420	-1.1473	1.25	-.1789
.460	-1.1723	1.50	-.1312
.500	-1.1677	1.75	-.1017
.540	-1.2098	2.00	-.0830
.580	-1.2420	2.25	-.0694
.620	-.8296	2.50	-.0629
.700	-.4961	2.75	-.0590
.800	-.3041	3.50	-.0532
.900	-.1215	-5.25	-.0034
.950	-.0538	-4.50	-.0036
.975	-.0290	-3.75	.0043
1.000	.0141	-3.00	.0149
.000	1.1520	-2.25	.0263
.004	.5813	-1.50	.0420
.008	.3615	-1.25	.0492
.020	.2341	-1.00	.0545
.050	.1913	-.75	.0609
.100	.0458	-.50	.0712
.150	-.0685	-.25	.0724
.200	-.1773	.00	.0766
.250	-.2696	.25	.0735
.350	-.3029	.50	.0672
.450	-.2021	.75	.0642
.550	-.0633	1.00	.0616
.650	.0941	1.25	.0577
.750	.2451	1.50	.0383
.850	.3274	1.75	.0272
1.000	.0141	2.00	.0148
		2.25	-.0104
		2.50	-.0049
		2.75	.0009
		3.50	.0096

NR.	MACH	E-6*RE	ALPHA
2530	.759	9.96	2.00

X/L	CP	XW/L	CPW
.000	1.1495	-5.25	-.0103
.004	.5143	-4.50	-.0051
.008	.2265	-3.75	.0018
.015	-.0753	-3.00	.0112
.025	-.2968	-2.25	.0161
.040	-.5342	-1.50	.0170
.060	-.7309	-1.25	.0118
.080	-.8915	-1.00	.0003
.100	-1.0226	-.75	-.0116
.140	-1.1047	-.50	-.0361
.180	-1.1019	-.25	-.0784
.220	-1.1033	.00	-.1618
.260	-1.1305	.25	-.2689
.300	-1.1546	.50	-.3422
.340	-1.1537	.75	-.2405
.380	-1.1440	1.00	-.2371
.420	-1.1506	1.25	-.1816
.460	-1.1759	1.50	-.1307
.500	-1.1761	1.75	-.1020
.540	-1.2077	2.00	-.0864
.580	-1.2316	2.25	-.0684
.620	-.7653	2.50	-.0643
.700	-.5036	2.75	-.0614
.800	-.3073	3.50	-.0522
.900	-.1502	-5.25	-.0060
.950	-.0635	-4.50	-.0048
.975	-.0324	-3.75	.0055
1.000	-.0059	-3.00	.0145
.000	1.1495	-2.25	.0281
.004	.5761	-1.50	.0416
.008	.3601	-1.25	.0475
.020	.2241	-1.00	.0622
.050	.1901	-.75	.0625
.100	.0501	-.50	.0700
.150	-.0688	-.25	.0762
.200	-.1826	.00	.0789
.250	-.2720	.25	.0687
.350	-.3076	.50	.0676
.450	-.2076	.75	.0615
.550	-.0652	1.00	.0605
.650	.0928	1.25	.0509
.750	.2395	1.50	.0373
.850	.3256	1.75	.0249
1.000	-.0059	2.00	.0118
		2.25	-.0103
		2.50	-.0051
		2.75	.0018
		3.50	.0112

NR.	MACH	E-6*RE	ALPHA
2531	.762	7.81	2.00

X/L	CP	XW/L	CPW
.000	1.1538	-5.25	-.0107
.004	.5313	-4.50	-.0053
.008	.2853	-3.75	.0008
.015	-.0497	-3.00	.0086
.025	-.2838	-2.25	.0148
.040	-.5211	-1.50	.0171
.060	-.7086	-1.25	.0110
.080	-.8786	-1.00	.0042
.100	-.9986	-.75	-.0139
.140	-1.0776	-.50	-.0330
.180	-1.0793	-.25	-.0786
.220	-1.0866	.00	-.1600
.260	-1.1133	.25	-.2615
.300	-1.1294	.50	-.3297
.340	-1.1339	.75	-.2349
.380	-1.1251	1.00	-.2346
.420	-1.1327	1.25	-.1765
.460	-1.1575	1.50	-.1281
.500	-1.1622	1.75	-.0969
.540	-1.1899	2.00	-.0842
.580	-.9737	2.25	-.0686
.620	-.6275	2.50	-.0605
.700	-.4861	2.75	-.0596
.800	-.3190	3.50	-.0480
.900	-.1898	-5.25	-.0051
.950	-.1373	-4.50	-.0042
.975	-.1037	-3.75	.0052
1.000	-.0548	-3.00	.0137
.000	1.1538	-2.25	.0255
.004	.5698	-1.50	.0428
.008	.3471	-1.25	.0467
.020	.2223	-1.00	.0573
.050	.1852	-.75	.0616
.100	.0404	-.50	.0700
.150	-.0717	-.25	.0757
.200	-.1897	.00	.0705
.250	-.2797	.25	.0657
.350	-.3154	.50	.0646
.450	-.2088	.75	.0610
.550	-.0707	1.00	.0586
.650	.0836	1.25	.0513
.750	.2304	1.50	.0378
.850	.3129	1.75	.0270
1.000	-.0548	2.00	.0144
		2.25	-.0107
		2.50	-.0053
		2.75	.0008
		3.50	.0086

Table 3.5 ARA tests. Airfoil surface pressure distributions.

Note: The aerodynamic coefficients are listed in the respective plots. Transition at 8 % c on upper and lower surfaces. Re = 6 . 10^6

Run	37		58		59		60		61		62		63		69		89	
M	0.602		0.702		0.701		0.701		0.700		0.700		0.700		0.722		0.741	
α^o	0.78		-0.19		0.76		1.71		2.64		3.60		4.59		0.75		0.74	
x/c Upper	C_p	p/H	C_p	p/H	C_p	p/H	C_p	p/H	C_p	p/H	C_p	p/H	C_p	p/H	C_p	p/H	C_p	p/H
1.000	0.104	.8031	0.112	.7473	0.104	.7459	0.100	.7450	0.102	.7460	0.084	.7419	-0.021	.7160	0.103	.7336	0.106	.7227
0.953	0.017	.7858	0.027	.7262	0.024	.7261	0.023	.7257	0.022	.7262	0.015	.7249	-0.064	.7053	0.027	.7138	0.030	.7025
0.888	-0.107	.7612	-0.099	.6951	-0.101	.6950	-0.103	.6944	-0.107	.6944	-0.100	.6965	-0.136	.6875	-0.097	.6818	-0.093	.6698
0.819	-0.249	.7329	-0.251	.6572	-0.257	.6564	-0.263	.6549	-0.265	.6552	-0.241	.6615	-0.243	.6611	-0.255	.6412	-0.253	.6272
0.749	-0.389	.7052	-0.411	.6176	-0.425	.6149	-0.436	.6119	-0.433	.6136	-0.380	.6273	-0.364	.6313	-0.430	.5961	-0.433	.5792
0.698	-0.458	.6915	-0.494	.5968	-0.518	.5919	-0.537	.5869	-0.528	.5901	-0.450	.6099	-0.452	.6094	-0.531	.5700	-0.543	.5496
0.659	-0.496	.6839	-0.541	.5854	-0.572	.5783	-0.598	.5718	-0.582	.5767	-0.493	.5994	-0.530	.5901	-0.594	.5539	-0.615	.5305
0.619	-0.512	.6807	-0.559	.5808	-0.600	.5715	-0.632	.5634	-0.609	.5702	-0.536	.5888	-0.616	.5689	-0.629	.5449	-0.660	.5184
0.579	-0.532	.6768	-0.579	.5758	-0.628	.5645	-0.666	.5549	-0.625	.5661	-0.617	.5688	-0.728	.5413	-0.663	.5362	-0.709	.5055
0.540	-0.533	.6765	-0.576	.5765	-0.633	.5633	-0.677	.5523	-0.614	.5690	-0.729	.5412	-0.824	.5176	-0.669	.5344	-0.716	.5037
0.499	-0.540	.6751	-0.577	.5762	-0.640	.5615	-0.687	.5498	-0.603	.5716	-0.852	.5107	-0.904	.4976	-0.675	.5330	-0.708	.5056
0.460	-0.544	.6743	-0.575	.5769	-0.644	.5605	-0.692	.5485	-0.610	.5699	-1.047	.4625	-0.987	.4772	-0.680	.5317	-0.686	.5115
0.419	-0.555	.6722	-0.578	.5760	-0.655	.5579	-0.697	.5422	-0.679	.5529	-1.589	.3285	-1.231	.4168	-0.689	.5293	-0.641	.5236
0.379	-0.555	.6722	-0.569	.5784	-0.651	.5587	-0.681	.5513	-1.072	.4555	-1.586	.3294	-1.483	.3546	-0.680	.5316	-0.580	.5400
0.339	-0.552	.6727	-0.554	.5820	-0.643	.5607	-0.668	.5546	-1.438	.3649	-1.599	.3262	-1.672	.3080	-0.669	.5345	-0.664	.5175
0.300	-0.575	.6681	-0.566	.5791	-0.667	.5549	-0.661	.5563	-1.462	.3591	-1.609	.3237	-1.687	.3042	-0.686	.5301	-0.990	.4305
0.250	-0.608	.6617	-0.583	.5748	-0.708	.5446	-1.136	.4385	-1.465	.3582	-1.605	.3247	-1.693	.3027	-0.684	.5307	-1.018	.4230
0.199	-0.661	.6510	-0.629	.5634	-0.780	.5249	-1.281	.4025	-1.486	.3531	-1.620	.3211	-1.701	.3007	-1.010	.4465	-1.019	.4228
0.149	-0.727	.6379	-0.674	.5523	-0.868	.5049	-1.274	.4043	-1.459	.3597	-1.600	.3260	-1.671	.3081	-0.977	.4551	-1.008	.4258
0.101	-0.797	.6240	-0.676	.5517	-1.095	.4487	-1.229	.4155	-1.409	.3722	-1.534	.3423	-1.608	.3236	-1.036	.4399	-0.996	.4289
0.075	-0.885	.6066	-0.705	.5446	-0.940	.4872	-1.190	.4251	-1.360	.3843	-1.485	.3543	-1.568	.3336	-0.876	.4811	-0.822	.4752
0.050	-0.819	.6197	-0.531	.5877	-0.769	.5295	-0.973	.4790	-1.129	.4413	-1.249	.4126	-1.366	.3835	-0.722	.5209	-0.669	.5160
0.026	-0.513	.6805	-0.152	.6818	-0.381	.6256	-0.596	.5723	-0.809	.5207	-1.019	.4695	-1.139	.4396	-0.333	.6212	-0.279	.6201
0.016	-0.295	.7238	0.096	.7435	-0.141	.6853	-0.376	.6268	-0.612	.5694	-0.837	.5145	-0.998	.4744	-0.095	.6825	-0.042	.6834
0.008	0.097	.8018	0.462	.8344	0.252	.7827	0.040	.7300	-0.168	.6792	-0.351	.6344	-0.464	.6064	0.292	.7822	0.335	.7840
0.002	0.685	.9187	0.950	.9554	0.799	.9182	0.630	.8763	0.449	.8318	0.261	.7856	0.141	.7560	0.826	.9199	0.857	.9232
Lower																		
0	1.088	.9988	1.124	.9987	1.127	.9995	1.099	.9926	1.028	.9752	0.933	.9516	0.857	.9330	1.135	.9995	1.142	.9992
0.003	0.784	.9383	0.533	.8518	0.770	.9111	0.934	.9517	1.044	.9790	1.098	.9925	1.120	.9979	0.762	.9034	0.748	.8942
0.011	0.088	.8000	-0.326	.6387	0.041	.7303	0.321	.7996	0.538	.8539	0.689	.8915	0.778	.9133	0.027	.7139	0.002	.6951
0.020	0.174	.8171	-0.104	.6937	0.150	.7573	0.345	.8056	0.508	.8465	0.625	.8755	0.694	.8927	0.142	.7436	0.127	.7284
0.040	0.141	.8104	-0.043	.7089	0.128	.7518	0.278	.7891	0.410	.8221	0.507	.8464	0.569	.8617	0.124	.7388	0.114	.7250
0.070	0.047	.7919	-0.099	.6950	0.034	.7285	0.164	.7609	0.282	.7904	0.369	.8123	0.425	.8261	0.031	.7148	0.023	.7007
0.100	0.003	.7831	-0.149	.6826	-0.012	.7172	0.104	.7458	0.210	.7726	0.290	.7928	0.339	.8050	-0.016	.7029	-0.024	.6882
0.149	-0.094	.7638	-0.239	.6602	-0.118	.6909	-0.011	.7173	0.088	.7425	0.163	.7614	0.207	.7722	-0.124	.6750	-0.134	.6589
0.229	-0.210	.7407	-0.361	.6300	-0.253	.6574	-0.157	.6812	-0.066	.7045	0.003	.7220	0.040	.7310	-0.264	.6388	-0.281	.6197
0.320	-0.253	.7321	-0.391	.6225	-0.303	.6451	-0.223	.6648	-0.145	.6850	-0.087	.6998	-0.060	.7064	-0.318	.6250	-0.338	.6044
0.390	-0.227	.7374	-0.341	.6348	-0.270	.6532	-0.204	.6695	-0.138	.6865	-0.091	.6988	-0.072	.7032	-0.283	.6340	-0.298	.6151
0.459	-0.163	.7502	-0.247	.6583	-0.192	.6725	-0.140	.6854	-0.087	.6992	-0.051	.7087	-0.041	.7110	-0.200	.6553	-0.209	.6388
0.539	-0.053	.7720	-0.105	.6936	-0.065	.7040	-0.027	.7133	0.013	.7239	0.038	.7306	0.039	.7309	-0.068	.6894	-0.071	.6756
0.640	0.087	.7997	0.062	.7350	0.089	.7423	0.115	.7485	0.142	.7560	0.158	.7601	0.152	.7587	0.090	.7301	0.091	.7188
0.740	0.218	.8258	0.210	.7716	0.229	.7770	0.248	.7815	0.267	.7869	0.276	.7895	0.264	.7864	0.232	.7666	0.235	.7573
0.859	0.319	.8460	0.320	.7991	0.334	.8030	0.347	.8062	0.362	.8102	0.367	.8118	0.349	.8073	0.388	.7941	0.343	.7860
0.952	0.263	.8347	0.269	.7864	0.275	.7884	0.281	.7898	0.292	.7929	0.288	.7925	0.245	.7818	0.278	.7785	0.282	.7698

Table 3.5 Concluded

Run	98		106		107		108		154		109	
M	0.752		0.760		0.759		0.761		0.761		0.761	
α^o	0.73		-1.17		-0.22		0.26		0.49		0.71	
x/c Upper	C_p	p/H	C_p	p/H	C_p	p/H	C_p	p/H	C_p	p/H	C_p	p/H
1.000	0.107	.7165	0.123	.7163	0.112	.7136	0.107	.7106	0.106	.7105	0.104	.7101
0.953	0.033	.6964	0.040	.6935	0.036	.6926	0.034	.6905	0.035	.6908	0.033	.6906
0.888	-0.089	.6632	-0.083	.6595	-0.085	.6592	-0.084	.6578	-0.085	.6579	-0.083	.6584
0.819	-0.247	.6203	-0.239	.6165	-0.242	.6162	-0.239	.6149	-0.240	.6150	-0.233	.6170
0.749	-0.426	.5714	-0.414	.5684	-0.420	.5671	-0.414	.5666	-0.418	.5659	-0.398	.5716
0.698	-0.539	.5408	-0.517	.5398	-0.530	.5367	-0.519	.5375	-0.529	.5350	-0.487	.5469
0.659	-0.614	.5205	-0.582	.5220	-0.600	.5174	-0.602	.5146	-0.600	.5154	-0.526	.5360
0.619	-0.659	.5082	-0.616	.5127	-0.666	.4994	-0.806	.4582	-0.625	.5085	-0.562	.5263
0.579	-0.677	.5034	-0.641	.5057	-0.748	.4767	-0.793	.4618	-0.644	.5034	-0.908	.4307
0.540	-0.626	.5170	-0.622	.5109	-0.742	.4785	-0.727	.4800	-0.739	.4771	-0.969	.4137
0.499	-0.590	.5270	-0.603	.5163	-0.728	.4823	-0.666	.4969	-0.876	.4393	-0.973	.4127
0.460	-0.839	.4592	-0.587	.5206	-0.710	.4873	-0.609	.5127	-0.894	.4344	-0.990	.4080
0.419	-0.982	.4202	-0.576	.5236	-0.678	.4961	-0.754	.4728	-0.930	.4242	-0.995	.4065
0.379	-0.987	.4190	-0.547	.5316	-0.640	.5064	-0.849	.4465	-0.930	.4244	-0.986	.4091
0.339	-0.964	.4253	-0.521	.5388	-0.619	.5124	-0.823	.4535	-0.885	.4367	-0.968	.4139
0.300	-1.009	.4129	-0.522	.5385	-0.610	.5147	-0.851	.4458	-0.942	.4210	-0.997	.4061
0.250	-1.013	.4119	-0.526	.5374	-0.755	.4749	-0.887	.4357	-0.948	.4194	-0.994	.4070
0.199	-0.999	.4157	-0.543	.5329	-0.790	.4653	-0.891	.4347	-0.936	.4225	-0.975	.4121
0.149	-0.983	.4200	-0.542	.5331	-0.746	.4774	-0.840	.4489	-0.900	.4325	-0.954	.4178
0.101	-0.960	.4264	-0.476	.5512	-0.745	.4776	-0.863	.4425	-0.877	.4390	-0.927	.4253
0.075	-0.786	.4735	-0.454	.5573	-0.661	.5007	-0.712	.4843	-0.727	.4805	-0.756	.4727
0.050	-0.632	.5155	-0.255	.6122	-0.439	.5618	-0.519	.5375	-0.559	.5267	-0.600	.5158
0.026	-0.244	.6210	0.127	.7175	-0.050	.6688	-0.133	.6444	-0.173	.6333	-0.214	.6223
0.016	-0.010	.6848	0.371	.7846	0.194	.7360	0.105	.7101	0.060	.6979	0.019	.6866
0.008	0.366	.7868	0.705	.8768	0.546	.8329	0.467	.8103	0.430	.8000	0.390	.7892
0.002	0.875	.9254	1.082	.9806	1.002	.9586	0.947	.9429	0.922	.9360	0.892	.9279
Lower												
0	1.147	.9992	1.093	.9834	1.141	.9969	1.150	.9992	1.153	1.0000	1.151	.9994
0.003	0.744	.8897	0.283	.7605	0.526	.8276	0.635	.8567	0.666	.8653	0.732	.8836
0.011	-0.010	.6848	-0.921	.4287	-0.393	.5745	-0.198	.6264	-0.109	.6512	-0.033	.6724
0.020	0.122	.7206	-0.653	.5026	-0.152	.6410	-0.005	.6798	0.056	.6967	0.107	.7110
0.040	0.113	.7180	-0.234	.6180	-0.043	.6708	0.021	.6870	0.065	.6993	0.103	.7098
0.070	0.023	.6936	-0.284	.6042	-0.115	.6511	-0.056	.6655	-0.019	.6761	0.014	.6853
0.100	-0.025	.6807	-0.330	.5914	-0.174	.6347	-0.096	.6545	-0.063	.6638	-0.032	.6725
0.149	-0.136	.6504	-0.411	.5691	-0.270	.6083	-0.205	.6245	-0.173	.6335	-0.144	.6416
0.229	-0.288	.6091	-0.578	.5230	-0.425	.5656	-0.361	.5813	-0.330	.5902	-0.300	.5985
0.320	-0.348	.5927	-0.599	.5175	-0.470	.5532	-0.417	.5659	-0.389	.5738	-0.363	.5811
0.390	-0.305	.6045	-0.470	.5530	-0.394	.5743	-0.356	.5826	-0.336	.5885	-0.316	.5942
0.459	-0.212	.6297	-0.327	.5924	-0.275	.6071	-0.248	.6125	-0.234	.6167	-0.219	.6209
0.539	-0.071	.6682	-0.149	.6414	-0.113	.6516	-0.094	.6550	-0.084	.6580	-0.074	.6610
0.640	0.093	.7128	0.040	.6934	0.065	.7007	0.079	.7028	0.086	.7050	0.092	.7069
0.740	0.238	.7522	0.196	.7363	0.217	.7424	0.228	.7441	0.233	.7458	0.238	.7472
0.859	0.346	.7814	0.313	.7687	0.330	.7737	0.340	.7751	0.343	.7761	0.347	.7774
0.952	0.286	.7651	0.271	.7571	0.277	.7591	0.281	.7588	0.284	.7596	0.285	.7602

Run	110		111		119		131		150		112	
M	0.760		0.759		0.771		0.779		0.799		0.761	
α^o	1.18		1.67		0.72		0.71		0.73		2.68	
x/c Upper	C_p	p/H	C_p	p/H	C_p	p/H	C_p	p/H	C_p	p/H	C_p	p/H
1.000	0.089	.7063	0.044	.6945	0.087	.6996	0.053	.6845	-0.051	.6416	-0.154	.6385
0.953	0.024	.6884	-0.014	.6785	0.024	.6817	-0.006	.6678	-0.110	.6241	-0.227	.6183
0.888	-0.085	.6584	-0.112	.6515	-0.082	.6521	-0.102	.6405	-0.173	.6056	-0.276	.6047
0.819	-0.218	.6216	-0.237	.6171	-0.214	.6151	-0.220	.6067	-0.251	.5829	-0.341	.5868
0.749	-0.355	.5838	-0.375	.5792	-0.352	.5762	-0.357	.5677	-0.346	.5550	-0.415	.5665
0.698	-0.450	.5577	-0.482	.5496	-0.459	.5464	-0.494	.5289	-0.450	.5243	-0.471	.5508
0.659	-0.556	.5283	-0.583	.5218	-0.664	.4886	-0.877	.4197	-0.782	.4270	-0.518	.5380
0.619	-0.970	.4141	-0.876	.4411	-1.049	.3806	-1.043	.3726	-0.995	.3645	-0.567	.5244
0.579	-1.123	.3719	-1.198	.3523	-1.027	.3867	-1.015	.3805	-0.962	.3741	-0.613	.5115
0.540	-1.094	.3799	-1.160	.3627	-0.997	.3953	-0.982	.3898	-0.926	.3847	-0.721	.4819
0.499	-1.087	.3817	-1.162	.3621	-0.981	.3998	-0.961	.3959	-0.902	.3917	-1.112	.3737
0.460	-1.093	.3802	-1.155	.3641	-0.988	.3979	-0.966	.3945	-0.900	.3922	-1.232	.3406
0.419	-1.081	.3835	-1.142	.3677	-0.983	.3990	-0.958	.3969	-0.889	.3955	-1.221	.3436
0.379	-1.067	.3874	-1.131	.3708	-0.968	.4033	-0.941	.4016	-0.872	.4005	-1.205	.3480
0.339	-1.059	.3895	-1.118	.3745	-0.952	.4078	-0.923	.4068	-0.847	.4079	-1.201	.3491
0.300	-1.065	.3878	-1.126	.3720	-0.973	.4020	-0.941	.4015	-0.862	.4035	-1.203	.3485
0.250	-1.051	.3918	-1.120	.3738	-0.966	.4040	-0.932	.4042	-0.848	.4076	-1.194	.3512
0.199	-1.056	.3903	-1.102	.3788	-0.942	.4105	-0.907	.4113	-0.823	.4148	-1.175	.3563
0.149	-1.008	.4036	-1.073	.3869	-0.918	.4173	-0.879	.4194	-0.780	.4274	-1.145	.3647
0.101	-0.969	.4143	-0.984	.4112	-0.889	.4256	-0.844	.4292	-0.742	.4387	-1.076	.3837
0.075	-0.877	.4397	-0.950	.4207	-0.718	.4735	-0.678	.4764	-0.598	.4809	-1.027	.3972
0.050	-0.672	.4963	-0.731	.4809	-0.561	.5177	-0.520	.5216	-0.425	.5318	-0.804	.4588
0.026	-0.288	.6022	-0.358	.5838	-0.178	.6252	-0.138	.6301	-0.049	.6421	-0.453	.5558
0.016	-0.058	.6658	-0.139	.6441	0.053	.6901	0.091	.6953	0.182	.7098	-0.246	.6132
0.008	0.316	.7689	0.246	.7501	0.420	.7929	0.454	.7987	0.531	.8125	0.149	.7222
0.002	0.836	.9126	0.781	.8975	0.912	.9310	0.934	.9354	0.987	.9464	0.701	.8749
Lower												
0	1.151	.9994	1.144	.9977	1.155	.9994	1.159	.9995	1.167	.9991	1.129	.9931
0.003	0.813	.9061	0.875	.9234	0.718	.8768	0.680	.8630	0.618	.8379	0.950	.9439
0.011	0.103	.7101	0.206	.7393	-0.057	.6591	-0.098	.6416	-0.206	.5960	0.346	.7767
0.020	0.201	.7373	0.273	.7577	0.093	.7013	0.067	.6886	-0.003	.6557	0.371	.7838
0.040	0.174	.7298	0.229	.7456	0.094	.7015	0.077	.6913	0.036	.6669	0.306	.7656
0.070	0.077	.7029	0.124	.7166	0.007	.6770	-0.009	.6670	-0.049	.6421	0.190	.7336
0.100	0.024	.6883	0.067	.7008	-0.040	.6638	-0.055	.6538	-0.094	.6288	0.124	.7153
0.149	-0.091	.6565	-0.051	.6682	-0.153	.6322	-0.169	.6214	-0.210	.5948	-0.002	.6807
0.229	-0.248	.6132	-0.211	.6243	-0.315	.5867	-0.339	.5730	-0.406	.5374	-0.171	.6338
0.320	-0.318	.5939	-0.287	.6033	-0.382	.5677	-0.413	.5519	-0.543	.4969	-0.264	.6081
0.390	-0.282	.6040	-0.260	.6108	-0.331	.5821	-0.355	.5685	-0.423	.5322	-0.251	.6118
0.459	-0.195	.6280	-0.181	.6325	-0.229	.6108	-0.245	.5997	-0.292	.5708	-0.184	.6303
0.539	-0.058	.6657	-0.051	.6684	-0.080	.6527	-0.091	.6437	-0.122	.6206	-0.063	.6637
0.640	0.102	.7099	0.104	.7109	0.089	.7000	0.081	.6926	0.057	.6733	0.084	.7042
0.740	0.244	.7492	0.243	.7492	0.236	.7413	0.229	.7347	0.209	.7177	0.217	.7410
0.859	0.350	.7784	0.345	.7776	0.345	.7718	0.337	.7654	0.314	.7488	0.308	.7664
0.952	0.284	.7600	0.267	.7560	0.280	.7536	0.267	.7454	0.225	.7227	0.188	.7330

Table 3.6 DFVLR 1 x 1 Meter tests. Boundary layer data.

RUN 159 MA=0.764 ALFA= 2.52 PINF=375.3 PO=552.3 TO=305.1
RE=0.24E 07
X/C= 0.5500 ZE= 5.528 ME=0.918 UE=297.48 CPE=-0.3661

DEL= 2.362 DEL*= 0.7944 THETA= 0.3520 H=2.257 CF=0.00154
(DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALFA(DEG.))

BOUNDARY LAYER PROFILES

Z	PT/PO	CPB	U/UE	MB
0.0	0.5701	-0.3934	0.0	0.0
0.070	0.6107	-0.3930	0.3663	0.314
0.142	0.6243	-0.3927	0.4202	0.362
0.187	0.6330	-0.3925	0.4507	0.389
0.258	0.6487	-0.3922	0.4997	0.432
0.302	0.6505	-0.3920	0.5047	0.437
0.414	0.6609	-0.3914	0.5333	0.463
0.523	0.6707	-0.3909	0.5584	0.485
0.638	0.6775	-0.3903	0.5749	0.500
0.761	0.6922	-0.3898	0.6085	0.533
0.858	0.7047	-0.3893	0.6350	0.556
0.982	0.7216	-0.3878	0.6676	0.586
1.120	0.7362	-0.3888	0.6956	0.613
1.194	0.7500	-0.3900	0.7205	0.636
1.306	0.7682	-0.3920	0.7513	0.666
1.418	0.7879	-0.3939	0.7824	0.696
1.530	0.8125	-0.3934	0.8167	0.730
1.646	0.8426	-0.3937	0.8555	0.769
1.769	0.8700	-0.3941	0.8880	0.801
1.877	0.8953	-0.3928	0.9152	0.829
2.004	0.9248	-0.3914	0.9447	0.860
2.123	0.9495	-0.3903	0.9679	0.884
2.235	0.9663	-0.3913	0.9837	0.901
2.362	0.9795	-0.3902	0.9949	0.913
2.474	0.9861	-0.3891	1.0002	0.919
2.608	0.9908	-0.3885	1.0039	0.923
3.735	0.9950	-0.3733	1.0013	0.920
5.608	0.9944	-0.3680	0.9986	0.917
7.459	0.9924	-0.3635	0.9951	0.913
9.485	0.9880	-0.3600	0.9898	0.908
11.190	0.9854	-0.3571	0.9864	0.904
13.534	0.9843	-0.3542	0.9842	0.901
14.952	0.9838	-0.3527	0.9831	0.900
18.918	0.9836	-0.3454	0.9799	0.897
22.396	0.9832	-0.3388	0.9769	0.894
26.116	0.9835	-0.3310	0.9739	0.891
29.862	0.9842	-0.3224	0.9709	0.887
33.731	0.9844	-0.3155	0.9683	0.885
37.317	0.9856	-0.3109	0.9674	0.884
40.758	0.9869	-0.3047	0.9660	0.882

SURFACE PRESSURES

X/C	CP	ML
UPPER SIDE		
0.0	1.1265	0.106
0.0040	0.4749	0.555
0.0080	-0.2056	0.852
0.0150	0.1442	0.702
0.0250	-0.4453	0.956
0.0400	-0.5779	1.015
0.0600	-0.7325	1.087
0.0800	-0.9492	1.194
0.1000	-0.9954	1.218
0.1400	-1.0333	1.238
0.1800	-1.0712	1.258
0.2200	-1.0657	1.255
0.2600	-1.0716	1.258
0.3000	-1.0792	1.262
0.3400	-1.0602	1.252
0.3800	-1.0625	1.253
0.4200	-0.9732	1.206
0.4600	-0.5116	0.985
0.5000	-0.4291	0.949
0.5400	-0.3959	0.934
0.5800	-0.3860	0.930
0.6200	-0.3752	0.925
0.6600	-0.3548	0.916
0.7000	-0.3134	0.898
0.7500	-0.2327	0.863
0.8000	-0.1315	0.820
0.8500	-0.0185	0.772
0.9000	0.0859	0.727
0.9500	0.1742	0.689
0.9750	0.2097	0.674
1.0000	0.2389	0.661
LOWER SIDE		
1.0000	0.2389	0.661
0.9500	0.4125	0.584
0.9000	0.4550	0.564
0.8500	0.4494	0.567
0.8000	0.4222	0.579
0.7500	0.3672	0.604
0.6500	0.2433	0.659
0.5500	0.1075	0.718
0.4500	-0.0348	0.779
0.3500	-0.1233	0.817
0.2500	-0.1035	0.808
0.2000	-0.0358	0.779
0.1500	0.0499	0.743
0.1000	0.1671	0.692
0.0500	0.2845	0.641
0.0200	0.3813	0.598
0.0080	0.4622	0.561
0.0040	0.7254	0.430
0.0	1.1265	0.106

RUN 158 MA=0.764 ALFA= 2.52 PINF=375.3 PO=552.4 TO=304.8
RE=0.24E 07
X/C= 0.5000 ZE= 5.527 ME=0.925 UE=299.02 CPE=-0.3901

DEL= 2.423 DEL*= 0.9179 THETA= 0.3789 H=2.423 CF=0.00122
(DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALFA(DEG.))

BOUNDARY LAYER PROFILES

Z	PT/PO	CPB	U/UE	MB
0.0	0.5641	-0.4152	0.0	0.0
0.070	0.5955	-0.4148	0.3237	0.279
0.136	0.6033	-0.4145	0.3596	0.310
0.192	0.6075	-0.4142	0.3773	0.326
0.252	0.6151	-0.4139	0.4072	0.352
0.315	0.6188	-0.4135	0.4208	0.364
0.367	0.6267	-0.4132	0.4482	0.389
0.416	0.6297	-0.4130	0.4580	0.397
0.513	0.6340	-0.4124	0.4712	0.409
0.629	0.6423	-0.4118	0.4960	0.432
0.737	0.6497	-0.4112	0.5167	0.450
0.849	0.6648	-0.4106	0.5565	0.487
0.961	0.6841	-0.4100	0.6020	0.529
1.080	0.7012	-0.4140	0.6416	0.565
1.188	0.7100	-0.4124	0.6581	0.581
1.300	0.7447	-0.4109	0.7201	0.640
1.416	0.7641	-0.4124	0.7526	0.671
1.546	0.7873	-0.4146	0.7885	0.706
1.632	0.8016	-0.4159	0.8091	0.727
1.740	0.8279	-0.4166	0.8440	0.762
1.867	0.8570	-0.4137	0.8776	0.796
1.968	0.8840	-0.4107	0.9062	0.825
2.095	0.9058	-0.4105	0.9288	0.849
2.188	0.9304	-0.4077	0.9519	0.873
2.300	0.9517	-0.4053	0.9708	0.893
2.423	0.9730	-0.4062	0.9902	0.914
2.558	0.9836	-0.4033	0.9981	0.922
2.647	0.9868	-0.4016	1.0001	0.925
3.785	0.9899	-0.3970	1.0009	0.925
5.670	0.9897	-0.3902	0.9980	0.922
7.487	0.9882	-0.3832	0.9938	0.918
11.248	0.9820	-0.3711	0.9836	0.907
15.143	0.9815	-0.3589	0.9781	0.901
18.692	0.9824	-0.3486	0.9746	0.897
22.636	0.9828	-0.3314	0.9678	0.890
26.158	0.9849	-0.3233	0.9664	0.888
29.975	0.9863	-0.3133	0.9635	0.885
33.651	0.9880	-0.3056	0.9619	0.884
37.651	0.9891	-0.2980	0.9597	0.881
40.020	0.9897	-0.2922	0.9578	0.879

SURFACE PRESSURES

X/C	CP	ML
UPPER SIDE		
0.0	1.1277	0.103
0.0040	0.4756	0.555
0.0080	-0.2030	0.851
0.0150	0.1462	0.701
0.0250	-0.4456	0.956
0.0400	-0.5793	1.016
0.0600	-0.7330	1.087
0.0800	-0.9493	1.194
0.1000	-0.9958	1.218
0.1400	-1.0321	1.237
0.1800	-1.0683	1.256
0.2200	-1.0625	1.253
0.2600	-1.0697	1.257
0.3000	-1.0772	1.261
0.3400	-1.0638	1.254
0.3800	-1.0630	1.253
0.4200	-0.9390	1.188
0.4600	-0.5211	0.990
0.5000	-0.4152	0.943
0.5400	-0.3918	0.932
0.5800	-0.3922	0.933
0.6200	-0.3928	0.933
0.6600	-0.3716	0.924
0.7000	-0.3317	0.906
0.7500	-0.2513	0.871
0.8000	-0.1369	0.822
0.8500	-0.0171	0.771
0.9000	0.0911	0.725
0.9500	0.1769	0.688
0.9750	0.2108	0.673
1.0000	0.2383	0.661
LOWER SIDE		
1.0000	0.2383	0.661
0.9500	0.4081	0.586
0.9000	0.4557	0.564
0.8500	0.4531	0.565
0.8000	0.4248	0.578
0.7500	0.3693	0.603
0.6500	0.2472	0.658
0.5500	0.1084	0.718
0.4500	-0.0331	0.778
0.3500	-0.1225	0.816
0.2500	-0.1035	0.808
0.2000	-0.0346	0.779
0.1500	0.0514	0.742
0.1000	0.1667	0.693
0.0500	0.2846	0.641
0.0200	0.3813	0.598
0.0080	0.4615	0.561
0.0040	0.7214	0.432
0.0	1.1277	0.103

RUN 157 MA=0.765 ALFA= 2.51 PINF=375.0 PO=552.6 TO=304.4
RE=0.24E 07
X/C= 0.4800 ZE= 4.425 ME=0.953 UE=306.63 CPE=-0.4069

DEL= 2.618 DEL*= 0.9411 THETA= 0.3703 H=2.542 CF=0.00108
(DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALFA(DEG.))

BOUNDARY LAYER PROFILES

Z	PT/PO	CPB	U/UE	MB
0.0	0.5443	-0.4830	0.0	0.0
0.070	0.5766	-0.4803	0.3219	0.284
0.148	0.5913	-0.4785	0.3844	0.341
0.185	0.5902	-0.4774	0.3788	0.336
0.234	0.5919	-0.4760	0.3837	0.340
0.294	0.6002	-0.4742	0.4136	0.367
0.346	0.6067	-0.4726	0.4348	0.387
0.409	0.6071	-0.4707	0.4341	0.386
0.473	0.6140	-0.4688	0.4549	0.405
0.517	0.6196	-0.4675	0.4714	0.421
0.573	0.6185	-0.4658	0.4663	0.416
0.637	0.6304	-0.4639	0.5000	0.447
0.689	0.6315	-0.4623	0.5014	0.448
0.741	0.6408	-0.4608	0.5256	0.471
0.872	0.6622	-0.4568	0.5752	0.518
0.984	0.6806	-0.4501	0.6109	0.552
1.081	0.6919	-0.4396	0.6267	0.567
1.185	0.7064	-0.4414	0.6560	0.595
1.305	0.7365	-0.4312	0.7025	0.641
1.417	0.7606	-0.4330	0.7417	0.680
1.525	0.7840	-0.4339	0.7762	0.714
1.697	0.8321	-0.4424	0.8420	0.782
1.876	0.8853	-0.4396	0.8991	0.842
2.047	0.9212	-0.4394	0.9342	0.880
2.238	0.9536	-0.4429	0.9648	0.914
2.439	0.9801	-0.4374	0.9848	0.936
2.618	0.9898	-0.4369	0.9925	0.945
3.741	0.9934	-0.4151	0.9868	0.938
5.771	0.9929	-0.3935	0.9778	0.928
7.805	0.9901	-0.3787	0.9696	0.919
9.267	0.9869	-0.3689	0.9630	0.912
11.405	0.9833	-0.3518	0.9532	0.901
13.051	0.9819	-0.3408	0.9475	0.895
15.182	0.9812	-0.3272	0.9414	0.888
18.988	0.9818	-0.3086	0.9344	0.880
22.435	0.9829	-0.2918	0.9286	0.874
26.402	0.9841	-0.2851	0.9269	0.872
30.152	0.9851	-0.2767	0.9245	0.870
33.532	0.9862	-0.2761	0.9252	0.870
37.260	0.9873	-0.2751	0.9258	0.871
39.935	0.9883	-0.2735	0.9261	0.871

SURFACE PRESSURES

X/C	CP	ML
UPPER SIDE		
0.0	1.1217	0.116
0.0040	0.4738	0.556
0.0080	-0.2058	0.853
0.0150	0.1441	0.703
0.0250	-0.4417	0.956
0.0400	-0.5759	1.016
0.0600	-0.7268	1.086
0.0800	-0.9468	1.195
0.1000	-0.9882	1.216
0.1400	-1.0259	1.236
0.1800	-1.0636	1.256
0.2200	-1.0562	1.252
0.2600	-1.0630	1.256
0.3000	-1.0676	1.258
0.3400	-1.0570	1.253
0.3800	-1.0561	1.252
0.4200	-0.9806	1.212
0.4600	-0.5399	1.000
0.5000	-0.4261	0.949
0.5400	-0.3928	0.934
0.5800	-0.3953	0.935
0.6200	-0.3926	0.934
0.6600	-0.3733	0.926
0.7000	-0.3352	0.909
0.7500	-0.2498	0.872
0.8000	-0.1389	0.825
0.8500	-0.0187	0.773
0.9000	0.0874	0.728
0.9500	0.1730	0.691
0.9750	0.2096	0.675
1.0000	0.2366	0.663
LOWER SIDE		
1.0000	0.2366	0.663
0.9500	0.4115	0.585
0.9000	0.4504	0.567
0.8500	0.4468	0.569
0.8000	0.4193	0.581
0.7500	0.3652	0.606
0.6500	0.2424	0.661
0.5500	0.1055	0.720
0.4500	-0.0329	0.779
0.3500	-0.1195	0.816
0.2500	-0.0968	0.807
0.2000	-0.0262	0.776
0.1500	0.0603	0.739
0.1000	0.1755	0.690
0.0500	0.2927	0.638
0.0200	0.3875	0.596
0.0080	0.4657	0.560
0.0040	0.7198	0.433
0.0	1.1217	0.116

RUN 160 MA=0.764 ALFA= 2.52 PINF=375.4 PO=552.5 TO=302.8
RE=0.24E 07
X/C= 0.6000 ZE= 5.693 ME=0.916 UE=295.73 CPE=-0.3558

DEL= 2.841 DEL*= 0.7979 THETA= 0.3823 H=2.087 CF=0.00188
(DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALFA(DEG.))

BOUNDARY LAYER PROFILES

Z	PT/PO	CPB	U/UE	MB
0.0	0.5741	-0.3798	0.0	0.0
0.070	0.6222	-0.3794	0.3972	0.341
0.098	0.6405	-0.3794	0.4624	0.398
0.143	0.6527	-0.3792	0.4999	0.432
0.202	0.6599	-0.3790	0.5202	0.450
0.255	0.6716	-0.3788	0.5513	0.478
0.314	0.6780	-0.3786	0.5673	0.492
0.464	0.6899	-0.3780	0.5951	0.518
0.538	0.7004	-0.3777	0.6183	0.539
0.654	0.7067	-0.3773	0.6315	0.551
0.766	0.7194	-0.3769	0.6571	0.575
0.889	0.7292	-0.3764	0.6757	0.593
0.990	0.7368	-0.3735	0.6879	0.604
1.091	0.7494	-0.3722	0.7095	0.624
1.214	0.7641	-0.3733	0.7347	0.649
1.341	0.7811	-0.3761	0.7634	0.676
1.434	0.7962	-0.3754	0.7854	0.697
1.535	0.8125	-0.3785	0.8100	0.722
1.620	0.8275	-0.3783	0.8300	0.741
1.725	0.8410	-0.3801	0.8481	0.759
1.837	0.8587	-0.3811	0.8702	0.781
1.990	0.8820	-0.3809	0.8968	0.808
2.109	0.9009	-0.3822	0.9179	0.830
2.180	0.9126	-0.3824	0.9302	0.843
2.262	0.9224	-0.3824	0.9401	0.853
2.367	0.9386	-0.3824	0.9560	0.870
2.594	0.9644	-0.3839	0.9807	0.896
2.781	0.9770	-0.3800	0.9903	0.906
2.841	0.9773	-0.3786	0.9900	0.905
2.982	0.9866	-0.3800	0.9987	0.915
3.725	0.9943	-0.3681	1.0005	0.917
5.602	0.9936	-0.3571	0.9953	0.911
7.475	0.9915	-0.3533	0.9920	0.908
9.624	0.9870	-0.3496	0.9865	0.902
11.262	0.9845	-0.3459	0.9829	0.898
13.087	0.9828	-0.3426	0.9799	0.895
14.964	0.9824	-0.3394	0.9782	0.893
18.669	0.9825	-0.3304	0.9745	0.889
22.400	0.9834	-0.3223	0.9720	0.886
26.173	0.9842	-0.3143	0.9694	0.884
29.855	0.9853	-0.3052	0.9666	0.881
33.594	0.9867	-0.2958	0.9640	0.878
37.322	0.9882	-0.2867	0.9615	0.875
41.318	0.9895	-0.2768	0.9586	0.872

SURFACE PRESSURES

X/C	CP	ML
UPPER SIDE		
0.0	1.1279	0.103
0.0040	0.4752	0.555
0.0080	-0.2058	0.852
0.0150	0.1444	0.702
0.0250	-0.4465	0.956
0.0400	-0.5780	1.015
0.0600	-0.7324	1.087
0.0800	-0.9477	1.192
0.1000	-0.9932	1.216
0.1400	-1.0299	1.235
0.1800	-1.0666	1.255
0.2200	-1.0619	1.253
0.2600	-1.0654	1.254
0.3000	-1.0741	1.259
0.3400	-1.0564	1.250
0.3800	-1.0591	1.251
0.4200	-0.9754	1.207
0.4600	-0.5138	0.986
0.5000	-0.4303	0.949
0.5400	-0.4004	0.936
0.5800	-0.3900	0.931
0.6200	-0.3695	0.922
0.6600	-0.3382	0.909
0.7000	-0.2947	0.890
0.7500	-0.2141	0.855
0.8000	-0.1215	0.816
0.8500	-0.0160	0.771
0.9000	0.0830	0.728
0.9500	0.1674	0.692
0.9750	0.2006	0.678
1.0000	0.2302	0.665
LOWER SIDE		
1.0000	0.2302	0.665
0.9500	0.4036	0.588
0.9000	0.4472	0.568
0.8500	0.4446	0.569
0.8000	0.4189	0.581
0.7500	0.3655	0.605
0.6500	0.2441	0.659
0.5500	0.1088	0.717
0.4500	-0.0338	0.778
0.3500	-0.1204	0.815
0.2500	-0.0959	0.805
0.2000	-0.0267	0.775
0.1500	0.0595	0.738
0.1000	0.1755	0.689
0.0500	0.2939	0.637
0.0200	0.3903	0.594
0.0080	0.4707	0.557
0.0040	0.7120	0.437
0.0	1.1279	0.103

Table 3.6 Continued

RUN 161 MA=0.765 ALFA= 2.52 PINF=375.2 PO=552.7 TO=304.0
RE=0.24E 07
X/C= 0.7000 ZE= 5.896 ME=0.872 UE=284.08 CPE=-0.2427

DEL= 4.101 DEL*= 1.0479 THETA= 0.5137 H=2.040 CF=0.00177
(DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALFA(DEG.))

BOUNDARY LAYER PROFILES

Z	PT/PO	CPB	U/UE	MB
0.0	0.5988	-0.2875	0.0	0.0
0.070	0.6474	-0.2857	0.4063	0.334
0.108	0.6624	-0.2854	0.4615	0.380
0.153	0.6726	-0.2845	0.4941	0.408
0.209	0.6795	-0.2834	0.5143	0.425
0.276	0.6870	-0.2820	0.5350	0.443
0.354	0.6937	-0.2805	0.5521	0.458
0.421	0.6983	-0.2791	0.5631	0.468
0.548	0.7066	-0.2766	0.5823	0.484
0.634	0.7132	-0.2749	0.5973	0.497
0.757	0.7214	-0.2724	0.6147	0.513
0.865	0.7292	-0.2703	0.6310	0.527
0.977	0.7386	-0.2694	0.6507	0.544
1.086	0.7439	-0.2729	0.6642	0.556
1.216	0.7539	-0.2745	0.6854	0.575
1.306	0.7613	-0.2763	0.7010	0.589
1.433	0.7733	-0.2764	0.7231	0.609
1.638	0.7909	-0.2755	0.7532	0.636
1.847	0.8101	-0.2754	0.7843	0.665
2.022	0.8279	-0.2755	0.8114	0.690
2.205	0.8442	-0.2761	0.8350	0.712
2.407	0.8690	-0.2748	0.8676	0.743
2.574	0.8849	-0.2739	0.8871	0.762
2.768	0.9053	-0.2733	0.9113	0.785
2.974	0.9272	-0.2719	0.9355	0.808
3.175	0.9465	-0.2698	0.9553	0.828
3.336	0.9596	-0.2684	0.9683	0.841
3.712	0.9826	-0.2624	0.9884	0.861
4.101	0.9929	-0.2561	0.9956	0.868
4.470	0.9952	-0.2521	0.9960	0.868
5.597	0.9949	-0.2449	0.9927	0.865
7.556	0.9932	-0.2433	0.9904	0.863
9.365	0.9889	-0.2393	0.9844	0.857
11.164	0.9856	-0.2345	0.9792	0.852
13.056	0.9830	-0.2301	0.9747	0.847
15.063	0.9823	-0.2258	0.9721	0.844
18.768	0.9835	-0.2175	0.9696	0.842
22.574	0.9843	-0.2068	0.9657	0.838
26.100	0.9858	-0.1992	0.9639	0.836
29.985	0.9873	-0.1898	0.9612	0.834
33.683	0.9887	-0.1821	0.9593	0.832
37.306	0.9899	-0.1764	0.9580	0.831
41.063	0.9922	-0.1671	0.9563	0.829

SURFACE PRESSURES

X/C	CP	ML
UPPER SIDE		
0.0	1.1283	0.103
0.0040	0.4786	0.554
0.0080	-0.2028	0.852
0.0150	0.1469	0.702
0.0250	-0.4856	0.957
0.0400	-0.5801	1.018
0.0600	-0.7312	1.088
0.0800	-0.9466	1.194
0.1000	-0.9941	1.219
0.1400	-1.0317	1.239
0.1800	-1.0692	1.259
0.2200	-1.0631	1.256
0.2600	-1.0691	1.259
0.3000	-1.0760	1.263
0.3400	-1.0626	1.255
0.3800	-1.0630	1.256
0.4200	-1.0171	1.231
0.4600	-0.5987	1.026
0.5000	-0.4447	0.957
0.5400	-0.4032	0.939
0.5800	-0.3937	0.934
0.6200	-0.3779	0.928
0.6600	-0.3416	0.912
0.7000	-0.2875	0.888
0.7500	-0.1959	0.849
0.8000	-0.0956	0.806
0.8500	0.0051	0.763
0.9000	0.0978	0.723
0.9500	0.1726	0.691
0.9750	0.2041	0.677
1.0000	0.2302	0.666
LOWER SIDE		
1.0000	0.2302	0.666
0.9500	0.4057	0.588
0.9000	0.4497	0.567
0.8500	0.4477	0.568
0.8000	0.4200	0.581
0.7500	0.3664	0.605
0.6500	0.2422	0.661
0.5500	0.1066	0.719
0.4500	-0.0352	0.780
0.3500	-0.1245	0.818
0.2500	-0.1016	0.808
0.2000	-0.0348	0.780
0.1500	0.0518	0.743
0.1000	0.1655	0.694
0.0500	0.2832	0.643
0.0200	0.3781	0.600
0.0080	0.4624	0.561
0.0040	0.7174	0.435
0.0	1.1283	0.103

RUN 162 MA=0.765 ALFA= 2.52 PINF=375.4 PO=552.9 TO=303.4
RE=0.24E 07
X/C= 0.8000 ZE= 7.366 ME=0.787 UE=259.31 CPE=-0.0485

DEL= 5.169 DEL*= 1.5357 THETA= 0.7397 H=2.076 CF=0.00142
(DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALFA(DEG.))

BOUNDARY LAYER PROFILES

Z	PT/PO	CPB	U/UE	MB
0.0	0.6554	-0.0842	0.0	0.0
0.070	0.6848	-0.0820	0.3325	0.248
0.128	0.6945	-0.0814	0.3815	0.286
0.180	0.6998	-0.0802	0.4045	0.303
0.240	0.7037	-0.0788	0.4201	0.315
0.292	0.7074	-0.0777	0.4342	0.326
0.400	0.7128	-0.0752	0.4528	0.340
0.535	0.7179	-0.0722	0.4689	0.353
0.624	0.7219	-0.0702	0.4815	0.362
0.736	0.7263	-0.0677	0.4943	0.372
0.848	0.7313	-0.0652	0.5090	0.383
0.975	0.7374	-0.0622	0.5260	0.397
1.109	0.7433	-0.0638	0.5464	0.413
1.266	0.7509	-0.0654	0.5707	0.432
1.479	0.7621	-0.0676	0.6039	0.458
1.684	0.7740	-0.0696	0.6367	0.484
1.841	0.7820	-0.0705	0.6570	0.500
2.024	0.7946	-0.0714	0.6870	0.524
2.214	0.8077	-0.0706	0.7150	0.547
2.412	0.8197	-0.0697	0.7390	0.566
2.594	0.8332	-0.0688	0.7649	0.587
2.818	0.8485	-0.0681	0.7927	0.610
2.964	0.8611	-0.0680	0.8148	0.628
3.322	0.8898	-0.0685	0.8618	0.668
3.718	0.9193	-0.0665	0.9043	0.704
4.087	0.9470	-0.0644	0.9409	0.736
4.449	0.9674	-0.0617	0.9656	0.757
4.826	0.9842	-0.0597	0.9851	0.774
5.169	0.9915	-0.0585	0.9931	0.781
5.579	0.9945	-0.0554	0.9952	0.783
7.434	0.9956	-0.0484	0.9930	0.781
9.344	0.9926	-0.0460	0.9883	0.777
11.218	0.9881	-0.0451	0.9825	0.772
14.900	0.9847	-0.0455	0.9787	0.768
18.632	0.9841	-0.0456	0.9779	0.768
22.643	0.9846	-0.0447	0.9782	0.768
26.098	0.9867	-0.0411	0.9789	0.769
30.023	0.9889	-0.0371	0.9795	0.769
33.665	0.9909	-0.0346	0.9807	0.770
37.314	0.9920	-0.0330	0.9812	0.771
41.482	0.9916	-0.0350	0.9818	0.771
44.680	0.9902	-0.0402	0.9826	0.772

SURFACE PRESSURES

X/C	CP	ML
UPPER SIDE		
0.0	1.1285	0.103
0.0040	0.4772	0.554
0.0080	-0.2019	0.851
0.0150	0.1486	0.701
0.0250	-0.4433	0.956
0.0400	-0.5776	1.016
0.0600	-0.7293	1.087
0.0800	-0.9463	1.194
0.1000	-0.9922	1.218
0.1400	-1.0293	1.237
0.1800	-1.0665	1.257
0.2200	-1.0587	1.253
0.2600	-1.0691	1.259
0.3000	-1.0720	1.260
0.3400	-1.0611	1.254
0.3800	-1.0634	1.256
0.4200	-1.0169	1.231
0.4600	-0.5672	1.012
0.5000	-0.4455	0.957
0.5400	-0.4067	0.940
0.5800	-0.3968	0.936
0.6200	-0.3830	0.930
0.6600	-0.3456	0.913
0.7000	-0.2869	0.888
0.7500	-0.1902	0.846
0.8000	-0.0842	0.801
0.8500	0.0205	0.756
0.9000	0.1073	0.719
0.9500	0.1767	0.689
0.9750	0.2018	0.678
1.0000	0.2234	0.669
LOWER SIDE		
1.0000	0.2234	0.669
0.9500	0.4024	0.589
0.9000	0.4492	0.567
0.8500	0.4466	0.569
0.8000	0.4200	0.581
0.7500	0.3659	0.606
0.6500	0.2420	0.661
0.5500	0.1052	0.720
0.4500	-0.0371	0.781
0.3500	-0.1249	0.818
0.2500	-0.1020	0.808
0.2000	-0.0342	0.780
0.1500	0.0520	0.743
0.1000	0.1693	0.692
0.0500	0.2872	0.641
0.0200	0.3814	0.599
0.0080	0.4647	0.560
0.0040	0.7160	0.435
0.0	1.1285	0.103

RUN 163 MA=0.764 ALFA= 2.52 PINF=375.5 PO=552.7 TO=302.3
RE=0.24E 07
X/C= 0.4500 ZE= 2.728 ME=0.968 UE=309.54 CPE=-0.4829

DEL= 2.208 DEL*= 0.7859 THETA= 0.3242 H=2.424 CF=0.00133
(DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALFA(DEG.))

BOUNDARY LAYER PROFILES

Z	PT/PO	CPB	U/UE	MB
0.0	0.5202	-0.5733	0.0	0.0
0.070	0.5626	-0.5649	0.3641	0.327
0.126	0.5725	-0.5625	0.4012	0.361
0.186	0.5697	-0.5573	0.3841	0.345
0.301	0.5832	-0.5474	0.4239	0.382
0.421	0.6006	-0.5371	0.4709	0.426
0.536	0.6207	-0.5271	0.5195	0.471
0.633	0.6390	-0.5188	0.5593	0.509
0.742	0.6575	-0.5094	0.5945	0.543
0.876	0.6831	-0.4979	0.6391	0.587
0.999	0.7049	-0.4967	0.6783	0.626
1.104	0.7310	-0.5035	0.7258	0.673
1.245	0.7594	-0.5126	0.7729	0.721
1.331	0.7914	-0.5037	0.8108	0.761
1.413	0.8125	-0.5042	0.8369	0.788
1.522	0.8291	-0.5057	0.8568	0.809
1.637	0.8619	-0.4900	0.8849	0.839
1.772	0.8884	-0.4826	0.9084	0.865
1.865	0.9058	-0.4859	0.9264	0.885
2.007	0.9432	-0.4778	0.9564	0.918
2.104	0.9643	-0.4752	0.9731	0.937
2.208	0.9769	-0.4825	0.9862	0.952
2.305	0.9839	-0.4978	0.9977	0.965
2.406	0.9885	-0.5121	1.0069	0.976
2.581	0.9924	-0.4796	0.9972	0.964
2.757	0.9937	-0.4780	0.9976	0.965
2.969	0.9935	-0.4685	0.9937	0.960
3.689	0.9938	-0.4579	0.9899	0.956
5.730	0.9937	-0.4058	0.9694	0.933
7.693	0.9932	-0.3553	0.9493	0.910
9.391	0.9883	-0.3076	0.9265	0.885
11.197	0.9867	-0.2841	0.9159	0.873
13.055	0.9836	-0.2709	0.9078	0.864
15.316	0.9844	-0.2531	0.9014	0.857
16.786	0.9829	-0.2447	0.8967	0.852
18.701	0.9827	-0.2483	0.8980	0.854
22.533	0.9834	-0.2346	0.8931	0.848
26.104	0.9837	-0.2244	0.8893	0.844
29.943	0.9855	-0.2400	0.8972	0.853
33.589	0.9849	-0.2489	0.9002	0.856
37.271	0.9851	-0.2470	0.8997	0.855
39.186	0.9866	-0.2483	0.9015	0.857

SURFACE PRESSURES

X/C	CP	ML
UPPER SIDE		
0.0	1.1195	0.118
0.0040	0.4691	0.558
0.0080	-0.2091	0.853
0.0150	0.1414	0.704
0.0250	-0.4495	0.958
0.0400	-0.5840	1.018
0.0600	-0.7363	1.089
0.0800	-0.9530	1.196
0.1000	-0.9966	1.218
0.1400	-1.0332	1.238
0.1800	-1.0698	1.257
0.2200	-1.0603	1.252
0.2600	-1.0658	1.255
0.3000	-1.0700	1.257
0.3400	-1.0560	1.250
0.3800	-1.0574	1.251
0.4200	-0.8290	1.133
0.4600	-0.4881	0.975
0.5000	-0.4190	0.944
0.5400	-0.4029	0.937
0.5800	-0.4151	0.943
0.6200	-0.4127	0.942
0.6600	-0.3977	0.935
0.7000	-0.3573	0.917
0.7500	-0.2617	0.876
0.8000	-0.1366	0.822
0.8500	-0.0147	0.770
0.9000	0.0917	0.725
0.9500	0.1765	0.688
0.9750	0.2105	0.674
1.0000	0.2367	0.662
LOWER SIDE		
1.0000	0.2367	0.662
0.9500	0.4057	0.587
0.9000	0.4553	0.564
0.8500	0.4519	0.566
0.8000	0.4256	0.578
0.7500	0.3708	0.603
0.6500	0.2490	0.657
0.5500	0.1124	0.716
0.4500	-0.0288	0.776
0.3500	-0.1169	0.814
0.2500	-0.0942	0.804
0.2000	-0.0282	0.776
0.1500	0.0575	0.740
0.1000	0.1704	0.691
0.0500	0.2872	0.640
0.0200	0.3822	0.598
0.0080	0.4629	0.561
0.0040	0.7221	0.431
0.0	1.1195	0.118

RUN 164 MA=0.764 ALFA= 2.52 PINF=375.7 PO=553.0 TO=304.3
RE=0.24E 07
X/C= 0.4200 ZE= 2.930 ME=1.106 UE=346.69 CPE=-0.7727

DEL= 1.556 DEL*= 0.4552 THETA= 0.2048 H=2.223 CF=0.00230
(DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALFA(DEG.))

BOUNDARY LAYER PROFILES

Z	PT/PO	CPB	U/UE	MB
0.0	0.4367	-0.8741	0.0	0.0
0.070	0.5241	-0.8609	0.4971	0.505
0.108	0.5339	-0.8570	0.5188	0.529
0.134	0.5428	-0.8529	0.5369	0.548
0.157	0.5556	-0.8494	0.5633	0.577
0.201	0.5654	-0.8423	0.5788	0.594
0.246	0.5803	-0.8352	0.6034	0.621
0.287	0.5838	-0.8288	0.6058	0.623
0.328	0.5976	-0.8223	0.6270	0.647
0.365	0.6043	-0.8164	0.6348	0.656
0.399	0.6168	-0.8111	0.6527	0.676
0.459	0.6329	-0.8017	0.6729	0.699
0.474	0.6344	-0.7993	0.6737	0.700
0.522	0.6464	-0.7917	0.6874	0.715
0.556	0.6599	-0.7864	0.7039	0.735
0.597	0.6779	-0.7799	0.7251	0.759
0.668	0.7079	-0.7687	0.7571	0.797
0.772	0.7436	-0.7522	0.7897	0.836
0.884	0.7949	-0.7345	0.8336	0.889
0.992	0.8404	-0.7391	0.8761	0.943
1.115	0.8731	-0.7565	0.9093	0.985
1.216	0.8900	-0.6840	0.8939	0.965
1.336	0.9237	-0.7600	0.9473	1.035
1.440	0.9321	-0.7593	0.9528	1.042
1.556	0.9643	-0.7886	0.9843	1.084
1.668	0.9724	-0.7548	0.9772	1.075
1.806	0.9881	-0.8161	1.0084	1.118
1.918	0.9922	-0.8493	1.0225	1.137
2.657	0.9915	-0.6981	0.9690	1.064
3.802	0.9925	-0.8809	1.0338	1.153
5.671	0.9903	-0.8915	1.0364	1.157
7.593	0.9901	-0.8820	1.0329	1.152
9.373	0.9876	-0.9089	1.0411	1.163
11.231	0.9884	-0.9251	1.0473	1.172
13.321	0.9884	-0.9252	1.0474	1.172
15.007	0.9884	-0.9231	1.0466	1.171
16.873	0.9884	-0.9230	1.0466	1.171
18.933	0.9893	-0.9185	1.0455	1.170
22.448	0.9891	-0.8991	1.0384	1.160
26.179	0.9896	-0.9114	1.0431	1.166
29.910	0.9898	-0.9126	1.0437	1.167
33.873	0.9894	-0.8882	1.0347	1.154
37.369	0.9887	-0.8875	1.0341	1.154

SURFACE PRESSURES

X/C	CP	ML
UPPER SIDE		
0.0	1.1202	0.117
0.0040	0.4697	0.557
0.0080	-0.2065	0.852
0.0150	0.1427	0.703
0.0250	-0.4494	0.958
0.0400	-0.5826	1.017
0.0600	-0.7338	1.088
0.0800	-0.9538	1.196
0.1000	-0.9971	1.219
0.1400	-1.0315	1.237
0.1800	-1.0660	1.255
0.2200	-1.0581	1.251
0.2600	-1.0655	1.255
0.3000	-1.0718	1.258
0.3400	-1.0573	1.251
0.3800	-1.0599	1.252
0.4200	-0.8741	1.156
0.4600	-0.4749	0.969
0.5000	-0.4203	0.945
0.5400	-0.4129	0.942
0.5800	-0.4196	0.945
0.6200	-0.4228	0.946
0.6600	-0.4129	0.942
0.7000	-0.3686	0.922
0.7500	-0.2629	0.877
0.8000	-0.1345	0.822
0.8500	-0.0157	0.771
0.9000	0.0890	0.726
0.9500	0.1707	0.691
0.9750	0.2052	0.676
1.0000	0.2331	0.664
LOWER SIDE		
1.0000	0.2331	0.664
0.9500	0.4054	0.587
0.9000	0.4480	0.567
0.8500	0.4458	0.568
0.8000	0.4192	0.581
0.7500	0.3676	0.604
0.6500	0.2465	0.658
0.5500	0.1110	0.717
0.4500	-0.0315	0.778
0.3500	-0.1195	0.815
0.2500	-0.0967	0.805
0.2000	-0.0271	0.776
0.1500	0.0595	0.739
0.1000	0.1732	0.690
0.0500	0.2908	0.638
0.0200	0.3845	0.597
0.0080	0.4578	0.563
0.0040	0.7137	0.436
0.0	1.1202	0.117

Table 3.6 Continued

RUN 165 MA=0.764 ALPA= 2.52 PINF=376.0 PO=553.5 TO=304.0
RE=0.24E 07
X/C= 0.4000 ZE= 2.825 ME=1.224 UE=375.32 CPE=-1.0132

DEL= 1.367 DEL*= 0.3485 THETA= 0.1541 H=2.262 CF=0.00273
(DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALPA(DEG.))

BOUNDARY LAYER PROFILES

Z	PT/PO	CPB	U/UE	MB
0.0	0.4154	-0.9503	0.0	0.0
0.070	0.4992	-0.9555	0.4753	0.524
0.110	0.5116	-0.9570	0.5057	0.560
0.170	0.5387	-0.9607	0.5642	0.629
0.214	0.5793	-0.9634	0.6348	0.716
0.252	0.6021	-0.9657	0.6693	0.759
0.289	0.6093	-0.9679	0.6802	0.773
0.330	0.6279	-0.9704	0.7055	0.805
0.382	0.6428	-0.9736	0.7251	0.831
0.401	0.6567	-0.9748	0.7415	0.852
0.431	0.6596	-0.9766	0.7456	0.857
0.468	0.6804	-0.9788	0.7687	0.888
0.509	0.6934	-0.9813	0.7829	0.907
0.554	0.7157	-0.9841	0.8053	0.938
0.588	0.7193	-0.9861	0.8094	0.943
0.636	0.7477	-0.9891	0.8354	0.979
0.673	0.7677	-0.9913	0.8525	1.003
0.700	0.7613	-0.9929	0.8481	0.997
0.733	0.7722	-0.9950	0.8576	1.010
0.774	0.7937	-0.9975	0.8748	1.035
0.841	0.8251	-1.0016	0.8986	1.070
0.920	0.8462	-1.0063	0.9145	1.093
0.987	0.8755	-1.0265	0.9402	1.131
1.073	0.8900	-1.0196	0.9463	1.141
1.140	0.9174	-1.0246	0.9636	1.167
1.244	0.9475	-1.0197	0.9780	1.189
1.289	0.9559	-1.0332	0.9870	1.204
1.367	0.9699	-1.0202	0.9896	1.208
1.558	0.9857	-1.0157	0.9959	1.218
1.707	0.9920	-1.0112	0.9974	1.220
1.897	0.9924	-1.0255	1.0024	1.228
2.666	0.9894	-1.0109	0.9961	1.218
3.763	0.9889	-1.0118	0.9961	1.218
5.853	0.9875	-0.9947	0.9897	1.208
7.614	0.9867	-0.9941	0.9891	1.207
11.252	0.9865	-1.0061	0.9931	1.213
15.065	0.9875	-1.0139	0.9961	1.218
18.864	0.9882	-0.9973	0.9910	1.210
22.700	0.9882	-0.9873	0.9876	1.205
26.170	0.9895	-0.9736	0.9837	1.198
30.173	0.9910	-0.9638	0.9812	1.194
33.886	0.9922	-0.9489	0.9768	1.188
37.435	0.9931	-0.9311	0.9714	1.179

SURFACE PRESSURES

X/C	CP	ML
UPPER SIDE		
0.0	1.1235	0.111
0.0040	0.4715	0.557
0.0080	-0.2080	0.853
0.0150	0.1395	0.704
0.0250	-0.4490	0.958
0.0400	-0.5827	1.018
0.0600	-0.7312	1.086
0.0800	-0.9498	1.194
0.1000	-0.9948	1.218
0.1400	-1.0314	1.237
0.1800	-1.0680	1.257
0.2200	-1.0632	1.254
0.2600	-1.0687	1.257
0.3000	-1.0733	1.259
0.3400	-1.0613	1.253
0.3800	-1.0614	1.253
0.4200	-0.8393	1.139
0.4600	-0.4753	0.969
0.5000	-0.4302	0.949
0.5400	-0.4132	0.942
0.5800	-0.4204	0.945
0.6200	-0.4287	0.949
0.6600	-0.4187	0.944
0.7000	-0.3649	0.921
0.7500	-0.2536	0.873
0.8000	-0.1331	0.821
0.8500	-0.0119	0.769
0.9000	0.0937	0.724
0.9500	0.1781	0.688
0.9750	0.2112	0.673
1.0000	0.2406	0.661
LOWER SIDE		
1.0000	0.2406	0.661
0.9500	0.4160	0.582
0.9000	0.4531	0.565
0.8500	0.4483	0.567
0.8000	0.4206	0.580
0.7500	0.3659	0.605
0.6500	0.2419	0.660
0.5500	0.1053	0.719
0.4500	-0.0361	0.780
0.3500	-0.1235	0.817
0.2500	-0.1008	0.807
0.2000	-0.0326	0.778
0.1500	0.0550	0.741
0.1000	0.1710	0.691
0.0500	0.2876	0.640
0.0200	0.3836	0.597
0.0080	0.4632	0.560
0.0040	0.7248	0.430
0.0	1.1235	0.111

RUN 166 MA=0.765 ALPA= 2.52 PINF=374.8 PO=552.3 TO=304.8
RE=0.24E 07
X/C= 0.3000 ZE= 1.900 ME=1.249 UE=381.52 CPE=-1.0548

DEL= 1.320 DEL*= 0.3369 THETA= 0.1452 H=2.320 CF=0.00267
(DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALPA(DEG.))

BOUNDARY LAYER PROFILES

Z	PT/PO	CPB	U/UE	MB
0.0	0.3789	-1.0776	0.0	0.0
0.070	0.5385	-1.0754	0.6327	0.725
0.100	0.5560	-1.0750	0.6592	0.759
0.130	0.5443	-1.0742	0.6410	0.736
0.193	0.5686	-1.0726	0.6758	0.780
0.238	0.5781	-1.0714	0.6881	0.796
0.283	0.5900	-1.0703	0.7030	0.816
0.316	0.6149	-1.0694	0.7329	0.856
0.354	0.6266	-1.0684	0.7457	0.873
0.432	0.6448	-1.0664	0.7644	0.898
0.503	0.6616	-1.0646	0.7807	0.920
0.585	0.6971	-1.0625	0.8131	0.966
0.663	0.7350	-1.0604	0.8444	1.010
0.746	0.7769	-1.0583	0.8754	1.055
0.801	0.7904	-1.0569	0.8844	1.069
0.872	0.8105	-1.0550	0.8975	1.088
0.966	0.8105	-1.0526	0.8965	1.087
1.029	0.9001	-1.0509	0.9503	1.169
1.104	0.9239	-1.0536	0.9640	1.191
1.171	0.9339	-1.0554	0.9699	1.200
1.246	0.9567	-1.0578	0.9822	1.220
1.320	0.9713	-1.0612	0.9904	1.233
1.395	0.9806	-1.0626	0.9954	1.241
1.469	0.9853	-1.0646	0.9982	1.246
1.682	0.9942	-1.0636	1.0020	1.252
1.913	0.9940	-1.0508	0.9976	1.245
2.081	0.9928	-1.0514	0.9973	1.244
2.253	0.9917	-1.0518	0.9969	1.244
2.462	0.9910	-1.0521	0.9967	1.243
2.652	0.9899	-1.0525	0.9963	1.243
3.040	0.9894	-1.0575	0.9977	1.245
3.772	0.9905	-1.0600	0.9991	1.247
5.634	0.9919	-1.0620	1.0004	1.249
7.566	0.9921	-1.0445	0.9947	1.240
9.365	0.9917	-1.0321	0.9904	1.233
11.458	0.9924	-1.0302	0.9901	1.233
15.204	0.9930	-1.0144	0.9852	1.225
18.913	0.9930	-0.9971	0.9795	1.215
22.499	0.9928	-0.9785	0.9733	1.205
26.148	0.9926	-0.9628	0.9680	1.197
31.563	0.9933	-0.9442	0.9623	1.188
34.884	0.9940	-0.9271	0.9571	1.180
36.757	0.9940	-0.9172	0.9539	1.175

SURFACE PRESSURES

X/C	CP	ML
UPPER SIDE		
0.0	1.1274	0.105
0.0040	0.4776	0.554
0.0080	-0.2040	0.852
0.0150	0.1470	0.702
0.0250	-0.4408	0.955
0.0400	-0.5748	1.015
0.0600	-0.7281	1.087
0.0800	-0.9462	1.194
0.1000	-0.9925	1.218
0.1400	-1.0308	1.239
0.1800	-1.0690	1.259
0.2200	-1.0623	1.256
0.2600	-1.0715	1.261
0.3000	-1.0776	1.264
0.3400	-1.0566	1.253
0.3800	-1.0591	1.254
0.4200	-0.7784	1.111
0.4600	-0.5208	0.991
0.5000	-0.4572	0.963
0.5400	-0.4666	0.967
0.5800	-0.4950	0.979
0.6200	-0.4840	0.975
0.6600	-0.4258	0.949
0.7000	-0.3497	0.915
0.7500	-0.2330	0.865
0.8000	-0.1053	0.810
0.8500	0.0145	0.759
0.9000	0.1082	0.719
0.9500	0.1777	0.689
0.9750	0.2044	0.677
1.0000	0.2283	0.667
LOWER SIDE		
1.0000	0.2283	0.667
0.9500	0.4095	0.586
0.9000	0.4547	0.565
0.8500	0.4534	0.566
0.8000	0.4295	0.577
0.7500	0.3743	0.602
0.6500	0.2475	0.658
0.5500	0.1008	0.722
0.4500	-0.0465	0.785
0.3500	-0.1372	0.824
0.2500	-0.1155	0.815
0.2000	-0.0442	0.784
0.1500	0.0441	0.746
0.1000	0.1602	0.696
0.0500	0.2799	0.644
0.0200	0.3760	0.601
0.0080	0.4590	0.563
0.0040	0.7252	0.430
0.0	1.1274	0.105

RUN 193 MA=0.765 ALPA= 2.50 PINF=374.9 PO=552.3 TO=304.3
RE=0.24E 07
X/C= 0.8000 ZE= 7.036 ME=0.788 UE=259.83 CPE=-0.0608

DEL= 4.414 DEL*= 1.2764 THETA= 0.6391 H=1.997 CF=0.00165
(DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALPA(DEG.))

BOUNDARY LAYER PROFILES

Z	PT/PO	CPB	U/UE	MB
0.0	0.6542	-0.0886	0.0	0.0
0.070	0.6897	-0.0880	0.3673	0.275
0.124	0.6972	-0.0877	0.4028	0.302
0.199	0.7055	-0.0871	0.4378	0.329
0.273	0.7123	-0.0866	0.4638	0.349
0.389	0.7211	-0.0858	0.4952	0.373
0.516	0.7276	-0.0848	0.5167	0.390
0.631	0.7331	-0.0840	0.5337	0.403
0.736	0.7382	-0.0833	0.5491	0.415
0.848	0.7441	-0.0825	0.5660	0.428
1.034	0.7555	-0.0797	0.5963	0.452
1.169	0.7641	-0.0788	0.6186	0.470
1.381	0.7775	-0.0775	0.6513	0.496
1.546	0.7865	-0.0778	0.6730	0.513
1.762	0.8004	-0.0777	0.7039	0.538
1.941	0.8137	-0.0778	0.7321	0.561
2.124	0.8275	-0.0781	0.7597	0.583
2.284	0.8381	-0.0767	0.7788	0.599
2.475	0.8533	-0.0760	0.8056	0.621
2.684	0.8705	-0.0761	0.8349	0.646
3.053	0.8991	-0.0760	0.8796	0.683
3.437	0.9276	-0.0755	0.9201	0.718
3.788	0.9547	-0.0748	0.9557	0.749
4.184	0.9761	-0.0743	0.9819	0.772
4.414	0.9838	-0.0733	0.9906	0.780
4.568	0.9880	-0.0717	0.9948	0.783
4.941	0.9927	-0.0690	0.9989	0.787
5.799	0.9947	-0.0640	0.9987	0.787
7.531	0.9931	-0.0610	0.9955	0.784
9.523	0.9387	-0.0579	0.9889	0.778
11.325	0.9869	-0.0559	0.9857	0.775
13.154	0.9862	-0.0546	0.9843	0.774
15.135	0.9859	-0.0531	0.9831	0.773
17.131	0.9855	-0.0522	0.9822	0.772
18.840	0.9859	-0.0520	0.9826	0.773
20.598	0.9863	-0.0508	0.9825	0.772
22.519	0.9871	-0.0493	0.9827	0.773
24.687	0.9882	-0.0468	0.9828	0.773
26.478	0.9889	-0.0445	0.9825	0.772
28.363	0.9900	-0.0426	0.9828	0.773
30.001	0.9911	-0.0412	0.9835	0.773
31.796	0.9913	-0.0403	0.9833	0.773
33.650	0.9921	-0.0396	0.9839	0.774
35.553	0.9913	-0.0401	0.9832	0.773
36.325	0.9907	-0.0407	0.9827	0.773

SURFACE PRESSURES

X/C	CP	ML
UPPER SIDE		
0.0	1.1138	0.128
0.0040	0.4657	0.560
0.0080	-0.2112	0.855
0.0150	0.1385	0.706
0.0250	-0.4472	0.958
0.0400	-0.5786	1.017
0.0600	-0.7758	1.109
0.0800	-0.9089	1.175
0.1000	-0.9670	1.204
0.1400	-1.0046	1.224
0.1800	-1.0423	1.244
0.2200	-1.0787	1.264
0.2600	-1.0518	1.249
0.3000	-1.0623	1.255
0.3400	-1.0583	1.253
0.3800	-1.0542	1.251
0.4200	-1.0345	1.240
0.4600	-0.5917	1.023
0.5000	-0.4210	0.946
0.5400	-0.4002	0.937
0.5800	-0.3982	0.936
0.6200	-0.3828	0.930
0.6600	-0.3537	0.917
0.7000	-0.2960	0.892
0.7500	-0.1987	0.850
0.8000	-0.0886	0.803
0.8500	0.0191	0.757
0.9000	0.1115	0.717
0.9500	0.1875	0.684
0.9750	0.2172	0.671
1.0000	0.2415	0.661
LOWER SIDE		
1.0000	0.2415	0.661
0.9500	0.4047	0.588
0.9000	0.4429	0.570
0.8500	0.4382	0.573
0.8000	0.4125	0.584
0.7500	0.3629	0.607
0.6500	0.2442	0.660
0.5500	0.1068	0.719
0.4500	-0.0288	0.777
0.3500	-0.1123	0.813
0.2500	-0.0947	0.805
0.2000	-0.0235	0.775
0.1500	0.0645	0.737
0.1000	0.1814	0.687
0.0500	0.2908	0.639
0.0200	0.3847	0.597
0.0080	0.4758	0.555
0.0040	0.7166	0.435
0.0	1.1138	0.128

RUN 194 MA=0.764 ALPA= 2.50 PINF=375.0 PO=552.2 TO=304.4
RE=0.24E 07
X/C= 0.9000 ZE= 8.495 ME=0.710 UE=236.55 CPE= 0.1213

DEL= 6.012 DEL*= 2.1284 THETA= 0.9601 H=2.217 CF=0.00102
(DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALPA(DEG.))

BOUNDARY LAYER PROFILES

Z	PT/PO	CPB	U/UE	MB
0.0	0.7127	0.1208	0.0	0.0
0.070	0.7287	0.1214	0.2612	0.177
0.258	0.7348	0.1221	0.3056	0.208
0.340	0.7360	0.1225	0.3128	0.213
0.489	0.7388	0.1232	0.3299	0.224
0.594	0.7408	0.1237	0.3410	0.232
0.676	0.7428	0.1241	0.3522	0.240
0.889	0.7491	0.1252	0.3861	0.263
1.064	0.7552	0.1233	0.4199	0.286
1.277	0.7632	0.1154	0.4668	0.319
1.512	0.7700	0.1119	0.4995	0.342
1.695	0.7763	0.1115	0.5241	0.359
1.889	0.7835	0.1117	0.5499	0.377
2.109	0.7928	0.1143	0.5790	0.398
2.299	0.8010	0.1159	0.6037	0.415
2.627	0.8139	0.1191	0.6393	0.441
3.015	0.8326	0.1197	0.6899	0.477
3.389	0.8520	0.1187	0.7388	0.513
3.743	0.8731	0.1187	0.7864	0.548
4.168	0.8974	0.1170	0.8371	0.585
4.493	0.9172	0.1156	0.8752	0.614
4.892	0.9422	0.1137	0.9197	0.648
5.258	0.9604	0.1127	0.9497	0.671
5.635	0.9765	0.1127	0.9744	0.690
6.012	0.9868	0.1145	0.9886	0.701
6.359	0.9932	0.1167	0.9966	0.707
6.762	0.9960	0.1185	0.9997	0.709
7.489	0.9968	0.1223	0.9987	0.709
9.370	0.9944	0.1193	0.9969	0.707
11.321	0.9901	0.1164	0.9924	0.704
14.168	0.9879	0.1110	0.9922	0.703
15.829	0.9876	0.1077	0.9936	0.705
17.534	0.9869	0.1040	0.9947	0.705
19.217	0.9865	0.1002	0.9962	0.707
20.769	0.9868	0.0979	0.9979	0.708
22.743	0.9863	0.0938	0.9995	0.709
24.676	0.9872	0.0903	1.0027	0.712
26.683	0.9881	0.0889	1.0049	0.713
30.142	0.9898	0.0865	1.0086	0.716
33.627	0.9912	0.0835	1.0122	0.719
37.359	0.9929	0.0803	1.0164	0.722

SURFACE PRESSURES

X/C	CP	ML
UPPER SIDE		
0.0	1.1219	0.115
0.0040	0.4703	0.557
0.0080	-0.2085	0.854
0.0150	0.1444	0.703
0.0250	-0.4487	0.958
0.0400	-0.5785	1.016
0.0600	-0.7771	1.109
0.0800	-0.9125	1.176
0.1000	-0.9747	1.207
0.1400	-1.0111	1.227
0.1800	-1.0476	1.246
0.2200	-1.0828	1.265
0.2600	-1.0622	1.254
0.3000	-1.0682	1.257
0.3400	-1.0609	1.253
0.3800	-1.0560	1.251
0.4200	-1.0296	1.236
0.4600	-0.5666	1.011
0.5000	-0.4179	0.944
0.5400	-0.3960	0.935
0.5800	-0.3986	0.936
0.6200	-0.3833	0.929
0.6600	-0.3560	0.917
0.7000	-0.2998	0.893
0.7500	-0.2054	0.852
0.8000	-0.0880	0.802
0.8500	0.0258	0.753
0.9000	0.1208	0.713
0.9500	0.1933	0.681
0.9750	0.2202	0.670
1.0000	0.2403	0.661
LOWER SIDE		
1.0000	0.2403	0.661
0.9500	0.4020	0.589
0.9000	0.4450	0.569
0.8500	0.4415	0.571
0.8000	0.4174	0.582
0.7500	0.3662	0.605
0.6500	0.2478	0.658
0.5500	0.1081	0.718
0.4500	-0.0270	0.776
0.3500	-0.1148	0.813
0.2500	-0.0971	0.806
0.2000	-0.0293	0.777
0.1500	0.0561	0.740
0.1000	0.1716	0.691
0.0500	0.2809	0.643
0.0200	0.3758	0.601
0.0080	0.4720	0.557
0.0040	0.7139	0.436
0.0	1.1219	0.115

Table 3.6 Continued

RUN 195 MA=0.766 ALPHA= 2.50 PINF=375.3 PO=553.3 TO=302.5
RE=0.24E 07
X/C= 0.9900 ZE=11.165 ME=0.666 UE=222.61 CPE= 0.2150

DEL= 9.363 DEL*= 3.8507 THETA= 1.4626 H=2.633 CF=0.00048
(DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALPA(DEG.))

BOUNDARY LAYER PROFILES					SURFACE PRESSURES		
Z	PT/PO	CPB	U/UE	MB	X/C	CP	ML
					UPPER SIDE		
0.0	0.7467	0.2459	0.0	0.0	0.0	1.1098	0.135
0.070	0.7478	0.2444	0.0830	0.053	0.0040	0.4633	0.562
0.107	0.7484	0.2436	0.1035	0.066	0.0080	-0.2107	0.856
0.160	0.7488	0.2425	0.1191	0.076	0.0150	0.1405	0.706
0.238	0.7491	0.2409	0.1337	0.085	0.0250	-0.4463	0.959
0.305	0.7495	0.2395	0.1459	0.093	0.0400	-0.5790	1.018
0.421	0.7504	0.2370	0.1701	0.109	0.0600	-0.7758	1.111
0.544	0.7514	0.2344	0.1918	0.123	0.0800	-0.9085	1.176
0.648	0.7525	0.2322	0.2118	0.135	0.1000	-0.9669	1.206
0.820	0.7536	0.2286	0.2338	0.150	0.1400	-1.0029	1.225
1.033	0.7555	0.2254	0.2602	0.167	0.1800	-1.0389	1.244
1.234	0.7572	0.2259	0.2735	0.175	0.2200	-1.0748	1.264
1.592	0.7608	0.2301	0.2931	0.188	0.2600	-1.0520	1.252
1.966	0.7648	0.2330	0.3166	0.203	0.3000	-1.0603	1.256
2.324	0.7706	0.2342	0.3537	0.227	0.3400	-1.0555	1.253
2.701	0.7783	0.2353	0.3973	0.255	0.3800	-1.0499	1.250
3.070	0.7857	0.2358	0.4358	0.280	0.4200	-1.0339	1.242
3.447	0.7941	0.2361	0.4758	0.307	0.4600	-0.6363	1.045
3.835	0.8044	0.2358	0.5205	0.336	0.5000	-0.4272	0.950
4.227	0.8167	0.2359	0.5682	0.368	0.5400	-0.4034	0.940
4.585	0.8268	0.2366	0.6032	0.391	0.5800	-0.4047	0.940
4.936	0.8386	0.2364	0.6418	0.417	0.6200	-0.3917	0.935
5.305	0.8536	0.2363	0.6871	0.447	0.6600	-0.3583	0.920
5.693	0.8688	0.2361	0.7292	0.476	0.7000	-0.3016	0.895
6.443	0.9019	0.2327	0.8127	0.533	0.7500	-0.2050	0.854
7.171	0.9334	0.2311	0.8807	0.581	0.8000	-0.0788	0.800
7.943	0.9655	0.2303	0.9420	0.624	0.8500	0.0348	0.751
8.742	0.9879	0.2295	0.9811	0.652	0.9000	0.1318	0.709
9.363	0.9918	0.2251	0.9903	0.659	0.9500	0.2063	0.677
9.432	0.9936	0.2257	0.9928	0.661	0.9750	0.2337	0.665
10.204	0.9955	0.2181	1.0006	0.667	1.0000	0.2541	0.656
11.271	0.9939	0.2145	1.0002	0.666	LOWER SIDE		
13.216	0.9891	0.2078	0.9965	0.664	1.0000	0.2541	0.656
15.122	0.9861	0.2022	0.9950	0.663	0.9500	0.4180	0.583
16.898	0.9852	0.1975	0.9963	0.663	0.9000	0.4590	0.564
18.887	0.9849	0.1932	0.9985	0.665	0.8500	0.4545	0.566
20.898	0.9849	0.1879	1.0017	0.667	0.8000	0.4276	0.578
22.566	0.9848	0.1829	1.0045	0.669	0.7500	0.3755	0.602
24.447	0.9852	0.1784	1.0080	0.672	0.6500	0.2544	0.656
26.630	0.9854	0.1736	1.0113	0.674	0.5500	0.1165	0.716
28.357	0.9857	0.1692	1.0145	0.677	0.4500	-0.0217	0.775
29.958	0.9862	0.1658	1.0173	0.679	0.3500	-0.1078	0.812
32.141	0.9869	0.1622	1.0206	0.681	0.2500	-0.0886	0.804
34.014	0.9872	0.1583	1.0235	0.683	0.2000	-0.0201	0.774
37.421	0.9884	0.1520	1.0291	0.687	0.1500	0.0669	0.737
37.969	0.9888	0.1511	1.0302	0.688	0.1000	0.1821	0.687
					0.0500	0.2897	0.640
					0.0200	0.3805	0.600
					0.0080	0.4707	0.558
					0.0040	0.7320	0.427
					0.0	1.1098	0.135

RUN 168 MA=0.786 ALPHA= 2.52 PINF=362.7 PO=545.0 TO=303.3
RE=0.24E 07
X/C= 0.7000 ZE= 7.192 ME=0.864 UE=281.38 CPE=-0.1721

DEL= 4.126 DEL*= 1.5513 THETA= 0.6404 H=2.422 CF=0.00099
(DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALPA(DEG.))

BOUNDARY LAYER PROFILES					SURFACE PRESSURES		
Z	PT/PO	CPB	U/UE	MB	X/C	CP	ML
					UPPER SIDE		
0.0	0.6050	-0.2105	0.0	0.0	0.0	1.1416	0.096
0.070	0.6288	-0.2098	0.2893	0.238	0.0040	0.5209	0.548
0.122	0.6381	-0.2096	0.3396	0.276	0.0080	-0.1416	0.848
0.156	0.6405	-0.2093	0.3513	0.285	0.0150	0.2058	0.694
0.204	0.6427	-0.2090	0.3612	0.294	0.0250	-0.3766	0.954
0.290	0.6440	-0.2083	0.3660	0.298	0.0400	-0.5103	1.016
0.365	0.6468	-0.2078	0.3779	0.307	0.0600	-0.6669	1.091
0.454	0.6518	-0.2071	0.3988	0.325	0.0800	-0.8760	1.198
0.521	0.6516	-0.2066	0.3972	0.323	0.1000	-0.9224	1.223
0.629	0.6575	-0.2058	0.4200	0.342	0.1400	-0.9634	1.245
0.678	0.6594	-0.2055	0.4268	0.348	0.1800	-1.0043	1.268
0.749	0.6653	-0.2050	0.4480	0.366	0.2200	-1.0063	1.269
0.850	0.6665	-0.2042	0.4513	0.369	0.2600	-1.0116	1.272
0.958	0.6708	-0.2034	0.4655	0.381	0.3000	-1.0218	1.278
1.129	0.6783	-0.2066	0.4937	0.404	0.3400	-1.0201	1.277
1.301	0.6861	-0.2099	0.5209	0.427	0.3800	-1.0244	1.280
1.484	0.7034	-0.2093	0.5687	0.468	0.4200	-1.0144	1.274
1.671	0.7135	-0.2080	0.5932	0.489	0.4600	-1.0280	1.282
1.865	0.7332	-0.2130	0.6434	0.533	0.5000	-1.0274	1.281
2.268	0.7640	-0.2127	0.7062	0.589	0.5400	-0.5568	1.037
2.622	0.8162	-0.2099	0.7942	0.668	0.5800	-0.4035	0.966
2.984	0.8624	-0.2073	0.8594	0.728	0.6200	-0.3257	0.930
3.379	0.9098	-0.2035	0.9169	0.783	0.6600	-0.2678	0.904
3.749	0.9597	-0.1984	0.9695	0.834	0.7000	-0.2105	0.879
4.126	0.9859	-0.1935	0.9935	0.858	0.7500	-0.1321	0.844
4.506	0.9941	-0.1886	0.9993	0.863	0.8000	-0.0517	0.808
5.629	0.9963	-0.1782	0.9967	0.861	0.8500	0.0333	0.771
7.484	0.9955	-0.1733	0.9938	0.858	0.9000	0.1084	0.738
9.570	0.9928	-0.1692	0.9893	0.853	0.9500	0.1740	0.708
11.335	0.9852	-0.1663	0.9805	0.845	0.9750	0.2002	0.697
13.096	0.9806	-0.1632	0.9744	0.839	1.0000	0.2311	0.683
15.025	0.9781	-0.1612	0.9710	0.835	LOWER SIDE		
16.786	0.9765	-0.1601	0.9689	0.833	1.0000	0.2311	0.683
18.958	0.9750	-0.1590	0.9668	0.831	0.9500	0.4190	0.597
21.092	0.9740	-0.1590	0.9658	0.830	0.9000	0.4638	0.576
22.648	0.9736	-0.1579	0.9649	0.829	0.8500	0.4599	0.578
24.741	0.9759	-0.1534	0.9652	0.830	0.8000	0.4323	0.591
26.335	0.9775	-0.1489	0.9647	0.829	0.7500	0.3772	0.616
30.096	0.9806	-0.1389	0.9633	0.828	0.6500	0.2541	0.673
33.622	0.9830	-0.1309	0.9620	0.827	0.5500	0.1173	0.734
37.316	0.9846	-0.1234	0.9602	0.825	0.4500	-0.0259	0.797
41.118	0.9867	-0.1172	0.9595	0.824	0.3500	-0.1119	0.835
					0.2500	-0.0919	0.826
					0.2000	-0.0234	0.796
					0.1500	0.0642	0.757
					0.1000	0.1780	0.707
					0.0500	0.2938	0.655
					0.0200	0.3850	0.613
					0.0080	0.4722	0.572
					0.0040	0.7220	0.445
					0.0	1.1416	0.096

RUN 167 MA=0.784 ALPHA= 2.52 PINF=363.3 PO=545.3 TO=304.1
RE=0.24E 07
X/C= 0.8000 ZE= 7.921 ME=0.792 UE=260.92 CPE=-0.0180

DEL= 5.876 DEL*= 1.9678 THETA= 0.8648 H=2.275 CF=0.00104
(DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALPA(DEG.))

BOUNDARY LAYER PROFILES					SURFACE PRESSURES		
Z	PT/PO	CPB	U/UE	MB	X/C	CP	ML
					UPPER SIDE		
0.0	0.6581	-0.0284	0.0	0.0	0.0	1.1213	0.132
0.070	0.6707	-0.0297	0.2240	0.168	0.0040	0.5019	0.557
0.104	0.6772	-0.0295	0.2725	0.204	0.0080	-0.1569	0.854
0.179	0.6804	-0.0303	0.2953	0.221	0.0150	0.1887	0.701
0.242	0.6822	-0.0309	0.3077	0.231	0.0250	-0.3913	0.959
0.309	0.6848	-0.0316	0.3244	0.244	0.0400	-0.5237	1.020
0.391	0.6878	-0.0325	0.3422	0.257	0.0600	-0.6788	1.095
0.481	0.6911	-0.0334	0.3608	0.271	0.0800	-0.8870	1.201
0.548	0.6909	-0.0341	0.3610	0.271	0.1000	-0.9307	1.225
0.611	0.6938	-0.0347	0.3760	0.283	0.1400	-0.9708	1.247
0.738	0.6987	-0.0360	0.4010	0.302	0.1800	-1.0109	1.269
0.835	0.7016	-0.0370	0.4151	0.313	0.2200	-1.0127	1.270
1.011	0.7079	-0.0409	0.4460	0.337	0.2600	-1.0167	1.273
1.238	0.7191	-0.0389	0.4859	0.368	0.3000	-1.0288	1.279
1.406	0.7267	-0.0362	0.5093	0.386	0.3400	-1.0274	1.279
1.559	0.7322	-0.0344	0.5253	0.398	0.3800	-1.0299	1.280
1.750	0.7395	-0.0300	0.5441	0.413	0.4200	-1.0152	1.272
2.111	0.7608	-0.0249	0.6006	0.458	0.4600	-1.0278	1.279
2.492	0.7826	-0.0225	0.6537	0.500	0.5000	-1.0111	1.269
2.880	0.8055	-0.0200	0.7035	0.540	0.5400	-0.5528	1.034
3.227	0.8313	-0.0165	0.7532	0.583	0.5800	-0.4103	0.967
3.619	0.8641	-0.0150	0.8113	0.629	0.6200	-0.3399	0.935
4.104	0.9043	-0.0192	0.8774	0.685	0.6600	-0.2807	0.909
4.369	0.9331	-0.0221	0.9197	0.721	0.7000	-0.2202	0.882
4.742	0.9560	-0.0259	0.9518	0.749	0.7500	-0.1356	0.844
5.108	0.9740	-0.0271	0.9747	0.769	0.8000	-0.0284	0.797
5.496	0.9844	-0.0268	0.9869	0.780	0.8500	0.0580	0.759
5.876	0.9910	-0.0256	0.9940	0.786	0.9000	0.1314	0.726
6.220	0.9934	-0.0253	0.9966	0.789	0.9500	0.1872	0.702
7.335	0.9953	-0.0136	0.9960	0.788	0.9750	0.2152	0.689
9.223	0.9941	-0.0135	0.9916	0.784	1.0000	0.2391	0.678
11.085	0.9896	-0.0121	0.9857	0.779	LOWER SIDE		
14.828	0.9816	-0.0090	0.9746	0.769	1.0000	0.2391	0.678
18.973	0.9814	-0.0066	0.9731	0.768	0.9500	0.4209	0.595
22.414	0.9827	-0.0062	0.9744	0.769	0.9000	0.4765	0.569
26.011	0.9836	-0.0054	0.9751	0.770	0.8500	0.4751	0.570
29.772	0.9844	-0.0057	0.9762	0.771	0.8000	0.4456	0.584
33.507	0.9847	-0.0073	0.9775	0.772	0.7500	0.3904	0.609
37.507	0.9851	-0.0091	0.9788	0.773	0.6500	0.2646	0.667
41.108	0.9854	-0.0118	0.9805	0.774	0.5500	0.1234	0.730
44.977	0.9851	-0.0135	0.9809	0.775	0.4500	-0.0229	0.794
					0.3500	-0.1167	0.836
					0.2500	-0.0972	0.827
					0.2000	-0.0281	0.797
					0.1500	0.0573	0.759
					0.1000	0.1700	0.709
					0.0500	0.2846	0.658
					0.0200	0.3715	0.618
					0.0080	0.4558	0.579
					0.0040	0.7348	0.437
					0.0	1.1213	0.132

RUN 169 MA=0.785 ALPHA= 2.52 PINF=362.8 PO=545.0 TO=304.8
RE=0.24E 07
X/C= 0.6500 ZE= 5.033 ME=0.894 UE=290.58 CPE=-0.2518

DEL= 3.484 DEL*= 1.4054 THETA= 0.5564 H=2.526 CF=0.00093
(DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALPA(DEG.))

BOUNDARY LAYER PROFILES					SURFACE PRESSURES		
Z	PT/PO	CPB	U/UE	MB	X/C	CP	ML
					UPPER SIDE		
0.0	0.5822	-0.2906	0.0	0.0	0.0	1.1314	0.116
0.070	0.6054	-0.2899	0.2827	0.236	0.0040	0.5094	0.554
0.174	0.6131	-0.2893	0.3239	0.271	0.0080	-0.1479	0.850
0.249	0.6154	-0.2888	0.3349	0.280	0.0150	0.1927	0.700
0.413	0.6232	-0.2875	0.3694	0.310	0.0250	-0.3865	0.958
0.588	0.6295	-0.2862	0.3945	0.331	0.0400	-0.5183	1.019
0.790	0.6403	-0.2847	0.4344	0.366	0.0600	-0.6719	1.093
0.976	0.6505	-0.2817	0.4662	0.393	0.0800	-0.8792	1.199
1.148	0.6675	-0.2840	0.5210	0.441	0.1000	-0.9244	1.223
1.331	0.6798	-0.2826	0.5535	0.470	0.1400	-0.9647	1.245
1.551	0.7021	-0.2833	0.6089	0.519	0.1800	-1.0050	1.268
1.719	0.7155	-0.2813	0.6371	0.545	0.2200	-1.0072	1.269
1.917	0.7363	-0.2797	0.6784	0.582	0.2600	-1.0116	1.272
2.077	0.7561	-0.2781	0.7141	0.615	0.3000	-1.0239	1.279
2.271	0.7932	-0.2782	0.7756	0.673	0.3400	-1.0206	1.277
2.465	0.8271	-0.2755	0.8235	0.718	0.3800	-1.0283	1.281
2.655	0.8547	-0.2759	0.8602	0.754	0.4200	-1.0151	1.274
3.014	0.9145	-0.2754	0.9296	0.822	0.4600	-1.0287	1.281
3.402	0.9699	-0.2707	0.9830	0.877	0.5000	-1.0198	1.276
3.484	0.9783	-0.2695	0.9904	0.884	0.5400	-0.5644	1.041
3.566	0.9830	-0.2682	0.9941	0.888	0.5800	-0.4056	0.966
3.775	0.9910	-0.2653	1.0001	0.894	0.6200	-0.3314	0.933
4.532	0.9946	-0.2564	0.9995	0.894	0.6600	-0.2770	0.908
5.286	0.9932	-0.2506	0.9957	0.890	0.7000	-0.2226	0.884
6.006	0.9920	-0.2476	0.9934	0.887	0.7500	-0.1463	0.850
6.756	0.9910	-0.2462	0.9919	0.886	0.8000	-0.0552	0.810
7.215	0.9900	-0.2468	0.9912	0.885	0.8500	0.0316	0.771
7.514	0.9904	-0.2477	0.9919	0.886	0.9000	0.1094	0.737
9.633	0.9886	-0.2421	0.9879	0.882	0.9500	0.1746	0.708
11.241	0.9823	-0.2364	0.9795	0.873	0.9750	0.2028	0.695
13.234	0.9785	-0.2292	0.9727	0.866	1.0000	0.2301	0.683
15.066	0.9781	-0.2235	0.9698	0.863	LOWER SIDE		
17.364	0.9786	-0.2167	0.9672	0.861	1.0000	0.2301	0.683
18.782	0.9792	-0.2120	0.9657	0.859	0.9500	0.4129	0.600
20.685	0.9790	-0.2064	0.9631	0.856	0.9000	0.4671	0.574
22.634	0.9790	-0.2026	0.9614	0.855	0.8500	0.4661	0.574
24.584	0.9797	-0.1984	0.9602	0.853	0.8000	0.4390	0.587
26.327	0.9806	-0.1934	0.9589	0.852	0.7500	0.3837	0.613
28.215	0.9825	-0.1867	0.9577	0.851	0.6500	0.2604	0.669
30.058	0.9845	-0.1806	0.9569	0.850	0.5500	0.1229	0.731
33.905	0.9863	-0.1725	0.9551	0.848	0.4500	-0.0258	0.797
37.424	0.9874	-0.1652	0.9529	0.846	0.3500	-0.1140	0.835
41.472	0.9878	-0.1581	0.9501	0.843	0.2500	-0.0908	0.825
					0.2000	-0.0229	0.795
					0.1500	0.0635	0.757
					0.1000	0.1785	0.706
					0.0500	0.2937	0.654
					0.0200	0.3821	0.614
					0.0080	0.4666	0.574
					0.0040	0.7185	0.447
					0.0	1.1314	0.116

Table 3.6 Continued

RUN 170 MA=0.785 ALFA= 2.52 PINF=362.9 PO=545.1 TO=303.4
RE=0.24E 07
X/C= 0.6200 ZE= 4.204 ME=0.916 UE=296.06 CPE=-0.3006

DEL= 3.403 DEL*= 1.3736 THETA= 0.5089 H=2.699 CF=0.00077
(DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALFA(DEG.))

BOUNDARY LAYER PROFILES

Z	PT/PO	CPB	U/UE	MB
0.0	0.5713	-0.3288	0.0	0.0
0.070	0.5900	-0.3284	0.2516	0.214
0.130	0.5961	-0.3282	0.2885	0.246
0.234	0.6000	-0.3277	0.3092	0.264
0.302	0.6010	-0.3274	0.3138	0.268
0.376	0.6037	-0.3270	0.3271	0.279
0.563	0.6083	-0.3261	0.3475	0.297
0.742	0.6167	-0.3252	0.3830	0.328
0.947	0.6273	-0.3242	0.4229	0.363
1.108	0.6412	-0.3222	0.4682	0.403
1.305	0.6620	-0.3246	0.5316	0.460
1.492	0.6860	-0.3270	0.5937	0.517
1.705	0.7149	-0.3286	0.6567	0.575
1.858	0.7459	-0.3284	0.7141	0.629
2.063	0.7805	-0.3267	0.7690	0.682
2.268	0.8099	-0.3227	0.8091	0.721
2.429	0.8418	-0.3189	0.8488	0.760
2.619	0.8743	-0.3195	0.8877	0.799
2.820	0.9191	-0.3175	0.9346	0.847
2.981	0.9430	-0.3187	0.9587	0.872
3.152	0.9639	-0.3188	0.9782	0.893
3.339	0.9790	-0.3154	0.9903	0.906
3.403	0.9803	-0.3135	0.9906	0.906
3.552	0.9891	-0.3129	0.9980	0.914
3.746	0.9924	-0.3081	0.9988	0.915
4.115	0.9946	-0.3011	0.9977	0.914
4.477	0.9946	-0.2975	0.9962	0.912
5.623	0.9947	-0.2861	0.9914	0.907
7.634	0.9948	-0.2762	0.9873	0.903
9.335	0.9932	-0.2676	0.9823	0.897
11.249	0.9845	-0.2610	0.9717	0.886
13.141	0.9807	-0.2556	0.9660	0.880
15.014	0.9791	-0.2499	0.9621	0.876
16.887	0.9783	-0.2450	0.9592	0.873
18.746	0.9771	-0.2406	0.9562	0.870
20.570	0.9772	-0.2361	0.9543	0.868
22.466	0.9771	-0.2308	0.9520	0.865
24.309	0.9775	-0.2251	0.9499	0.863
26.268	0.9781	-0.2198	0.9481	0.861
29.872	0.9796	-0.2098	0.9451	0.858
33.608	0.9808	-0.1996	0.9418	0.855
37.328	0.9820	-0.1910	0.9393	0.852
41.078	0.9842	-0.1831	0.9379	0.851

SURFACE PRESSURES

X/C	CP	RL
UPPER SIDE		
0.0	1.1382	0.102
0.0040	0.5152	0.551
0.0080	-0.1434	0.848
0.0150	0.2017	0.696
0.0250	-0.3794	0.954
0.0400	-0.5119	1.016
0.0600	-0.6689	1.091
0.0800	-0.8766	1.197
0.1000	-0.9239	1.222
0.1400	-0.9649	1.245
0.1800	-1.0059	1.268
0.2200	-1.0089	1.270
0.2600	-1.0142	1.273
0.3000	-1.0243	1.279
0.3400	-1.0224	1.277
0.3800	-1.0274	1.280
0.4200	-1.0156	1.274
0.4600	-1.0289	1.281
0.5000	-1.0273	1.280
0.5400	-0.5439	1.031
0.5800	-0.4041	0.966
0.6200	-0.3288	0.931
0.6600	-0.2730	0.906
0.7000	-0.2222	0.883
0.7500	-0.1506	0.852
0.8000	-0.0660	0.814
0.8500	0.0209	0.776
0.9000	0.1017	0.740
0.9500	0.1748	0.708
0.9750	0.2043	0.695
1.0000	0.2320	0.682
LOWER SIDE		
1.0000	0.2320	0.682
0.9500	0.4168	0.598
0.9000	0.4645	0.575
0.8500	0.4606	0.577
0.8000	0.4336	0.590
0.7500	0.3797	0.615
0.6500	0.2560	0.671
0.5500	0.1217	0.731
0.4500	-0.0258	0.796
0.3500	-0.1136	0.835
0.2500	-0.0945	0.827
0.2000	-0.0245	0.796
0.1500	0.0614	0.758
0.1000	0.1749	0.708
0.0500	0.2919	0.655
0.0200	0.3826	0.614
0.0080	0.4708	0.572
0.0040	0.7135	0.449
0.0	1.1382	0.102

RUN 171 MA=0.785 ALFA= 2.52 PINF=363.1 PO=545.5 TO=304.3
RE=0.24E 07
X/C= 0.6000 ZE= 4.112 ME=0.930 UE=300.12 CPE=-0.3337

DEL= 3.154 DEL*= 1.2965 THETA= 0.4824 H=2.687 CF=0.00081
(DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALFA(DEG.))

BOUNDARY LAYER PROFILES

Z	PT/PO	CPB	U/UE	MB
0.0	0.5580	-0.3742	0.0	0.0
0.070	0.5760	-0.3731	0.2450	0.211
0.150	0.5811	-0.3726	0.2763	0.238
0.217	0.5846	-0.3718	0.2952	0.255
0.284	0.5895	-0.3711	0.3201	0.277
0.363	0.5894	-0.3702	0.3182	0.275
0.549	0.5989	-0.3681	0.3603	0.312
0.743	0.6097	-0.3659	0.4018	0.349
0.978	0.6241	-0.3651	0.4523	0.394
1.109	0.6465	-0.3638	0.5192	0.455
1.296	0.6687	-0.3559	0.5698	0.501
1.490	0.6965	-0.3529	0.6298	0.557
1.669	0.7263	-0.3499	0.6855	0.610
1.870	0.7546	-0.3519	0.7350	0.658
2.046	0.7819	-0.3485	0.7748	0.697
2.258	0.8282	-0.3462	0.8361	0.758
2.437	0.8636	-0.3478	0.8791	0.802
2.628	0.9015	-0.3480	0.9200	0.844
2.792	0.9307	-0.3483	0.9489	0.875
2.975	0.9568	-0.3489	0.9734	0.901
3.154	0.9781	-0.3476	0.9914	0.920
3.363	0.9885	-0.3443	0.9988	0.928
3.553	0.9923	-0.3404	1.0004	0.930
3.747	0.9928	-0.3397	1.0005	0.930
4.098	0.9930	-0.3361	0.9991	0.929
4.493	0.9926	-0.3233	0.9935	0.922
4.844	0.9923	-0.3215	0.9925	0.921
5.240	0.9929	-0.3214	0.9929	0.922
5.616	0.9926	-0.3178	0.9911	0.920
6.333	0.9927	-0.3174	0.9911	0.920
7.094	0.9933	-0.3083	0.9878	0.916
8.053	0.9941	-0.3027	0.9861	0.914
9.322	0.9932	-0.2918	0.9808	0.909
11.217	0.9857	-0.2795	0.9691	0.896
13.247	0.9825	-0.2687	0.9617	0.888
15.124	0.9810	-0.2594	0.9564	0.883
18.773	0.9802	-0.2437	0.9490	0.875
22.601	0.9800	-0.2286	0.9423	0.868
26.142	0.9799	-0.2202	0.9386	0.864
30.120	0.9795	-0.2119	0.9347	0.860
33.982	0.9788	-0.2027	0.9301	0.855
41.411	0.9814	-0.1871	0.9258	0.850

SURFACE PRESSURES

X/C	CP	RL
UPPER SIDE		
0.0	1.1294	0.119
0.0040	0.5094	0.554
0.0080	-0.1478	0.851
0.0150	0.1947	0.699
0.0250	-0.3851	0.957
0.0400	-0.5194	1.020
0.0600	-0.6748	1.094
0.0800	-0.8787	1.199
0.1000	-0.9229	1.223
0.1400	-0.9624	1.244
0.1800	-1.0019	1.266
0.2200	-1.0061	1.269
0.2600	-1.0092	1.271
0.3000	-1.0223	1.278
0.3400	-1.0175	1.275
0.3800	-1.0258	1.280
0.4200	-1.0126	1.273
0.4600	-1.0269	1.281
0.5000	-1.0211	1.277
0.5400	-0.5588	1.038
0.5800	-0.4116	0.969
0.6200	-0.3369	0.935
0.6600	-0.2828	0.911
0.7000	-0.2311	0.888
0.7500	-0.1579	0.855
0.8000	-0.0697	0.816
0.8500	0.0196	0.777
0.9000	0.1048	0.739
0.9500	0.1780	0.707
0.9750	0.2074	0.693
1.0000	0.2330	0.682
LOWER SIDE		
1.0000	0.2330	0.682
0.9500	0.4195	0.597
0.9000	0.4679	0.574
0.8500	0.4652	0.575
0.8000	0.4375	0.588
0.7500	0.3823	0.614
0.6500	0.2610	0.669
0.5500	0.1267	0.729
0.4500	-0.0237	0.796
0.3500	-0.1099	0.834
0.2500	-0.0872	0.824
0.2000	-0.0211	0.795
0.1500	0.0675	0.756
0.1000	0.1834	0.704
0.0500	0.2968	0.653
0.0200	0.3842	0.613
0.0080	0.4692	0.573
0.0040	0.7158	0.448
0.0	1.1294	0.119

RUN 172 MA=0.785 ALFA= 2.52 PINF=363.1 PO=545.3 TO=303.9
RE=0.24E 07
X/C= 0.5800 ZE= 4.139 ME=0.948 UE=304.94 CPE=-0.3697

DEL= 3.111 DEL*= 1.3046 THETA= 0.4589 H=2.843 CF=0.00068
(DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALFA(DEG.))

BOUNDARY LAYER PROFILES

Z	PT/PO	CPB	U/UE	MB
0.0	0.5480	-0.4110	0.0	0.0
0.070	0.5631	-0.4100	0.2237	0.196
0.212	0.5677	-0.4094	0.2539	0.223
0.279	0.5700	-0.4089	0.2674	0.235
0.410	0.5759	-0.4079	0.2993	0.263
0.514	0.5840	-0.4072	0.3386	0.298
0.634	0.5902	-0.4063	0.3652	0.322
0.734	0.6002	-0.4055	0.4041	0.357
0.884	0.6085	-0.4044	0.4329	0.383
0.973	0.6155	-0.4089	0.4609	0.409
1.081	0.6277	-0.3996	0.4893	0.435
1.216	0.6392	-0.4032	0.5247	0.468
1.413	0.6673	-0.4002	0.5905	0.530
1.611	0.7034	-0.3924	0.6597	0.596
1.794	0.7386	-0.3873	0.7181	0.653
1.988	0.7755	-0.3917	0.7767	0.711
2.156	0.8149	-0.3903	0.8282	0.764
2.328	0.8506	-0.3945	0.8725	0.810
2.522	0.8966	-0.3926	0.9199	0.860
2.701	0.9331	-0.3874	0.9522	0.895
2.902	0.9619	-0.3875	0.9777	0.923
3.111	0.9804	-0.3899	0.9941	0.941
3.309	0.9881	-0.3858	0.9986	0.946
3.514	0.9911	-0.3798	0.9986	0.946
3.682	0.9923	-0.3746	0.9974	0.945
4.406	0.9937	-0.3727	0.9977	0.945
5.518	0.9951	-0.3432	0.9868	0.933
7.656	0.9952	-0.3183	0.9767	0.922
9.458	0.9944	-0.3026	0.9695	0.914
11.205	0.9877	-0.2889	0.9583	0.902
13.115	0.9854	-0.2734	0.9498	0.892
14.966	0.9847	-0.2586	0.9431	0.885
16.772	0.9842	-0.2467	0.9376	0.879
18.712	0.9838	-0.2364	0.9330	0.874
22.525	0.9838	-0.2191	0.9257	0.866
26.078	0.9832	-0.2013	0.9178	0.858
29.794	0.9833	-0.1897	0.9129	0.853
33.514	0.9822	-0.1873	0.9109	0.850
37.533	0.9819	-0.1877	0.9108	0.850
41.186	0.9821	-0.1827	0.9089	0.848

SURFACE PRESSURES

X/C	CP	RL
UPPER SIDE		
0.0	1.1279	0.121
0.0040	0.5071	0.554
0.0080	-0.1526	0.852
0.0150	0.1921	0.700
0.0250	-0.3846	0.956
0.0400	-0.5187	1.018
0.0600	-0.6754	1.094
0.0800	-0.8825	1.200
0.1000	-0.9275	1.224
0.1400	-0.9675	1.246
0.1800	-1.0076	1.268
0.2200	-1.0100	1.270
0.2600	-1.0134	1.272
0.3000	-1.0246	1.278
0.3400	-1.0240	1.278
0.3800	-1.0300	1.281
0.4200	-1.0153	1.273
0.4600	-1.0287	1.280
0.5000	-1.0233	1.277
0.5400	-0.5575	1.037
0.5800	-0.4110	0.968
0.6200	-0.3331	0.933
0.6600	-0.2831	0.910
0.7000	-0.2388	0.890
0.7500	-0.1660	0.858
0.8000	-0.0740	0.817
0.8500	0.0176	0.777
0.9000	0.1035	0.739
0.9500	0.1781	0.706
0.9750	0.2056	0.694
1.0000	0.2352	0.680
LOWER SIDE		
1.0000	0.2352	0.680
0.9500	0.4095	0.601
0.9000	0.4663	0.574
0.8500	0.4642	0.575
0.8000	0.4388	0.587
0.7500	0.3852	0.612
0.6500	0.2611	0.669
0.5500	0.1255	0.729
0.4500	-0.0262	0.796
0.3500	-0.1137	0.835
0.2500	-0.0933	0.826
0.2000	-0.0236	0.795
0.1500	0.0635	0.757
0.1000	0.1778	0.706
0.0500	0.2931	0.654
0.0200	0.3822	0.613
0.0080	0.4687	0.573
0.0040	0.7076	0.452
0.0	1.1279	0.121

RUN 173 MA=0.785 ALFA= 2.52 PINF=363.4 PO=545.5 TO=305.1
RE=0.24E 07
X/C= 0.5500 ZE= 3.425 ME=0.973 UE=312.32 CPE=-0.4272

DEL= 2.629 DEL*= 1.0649 THETA= 0.3746 H=2.843 CF=0.00075
(DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALFA(DEG.))

BOUNDARY LAYER PROFILES

Z	PT/PO	CPB	U/UE	MB
0.0	0.5242	-0.4943	0.0	0.0
0.070	0.5433	-0.4902	0.2445	0.219
0.144	0.5507	-0.4899	0.2892	0.260
0.248	0.5576	-0.4866	0.3199	0.288
0.390	0.5633	-0.4822	0.3408	0.307
0.472	0.5671	-0.4797	0.3543	0.319
0.610	0.5768	-0.4754	0.3890	0.351
0.752	0.5945	-0.4710	0.4469	0.405
0.943	0.6167	-0.4652	0.5077	0.462
1.125	0.6517	-0.4828	0.6069	0.558
1.312	0.6948	-0.4660	0.6785	0.629
1.480	0.7403	-0.4698	0.7539	0.705
1.681	0.7890	-0.4644	0.8167	0.770
1.868	0.8354	-0.4543	0.8656	0.823
2.077	0.8773	-0.4538	0.9087	0.870
2.263	0.9172	-0.4518	0.9450	0.910
2.435	0.9511	-0.4522	0.9741	0.943
2.629	0.9763	-0.4535	0.9949	0.967
2.790	0.9861	-0.4518	1.0018	0.975
2.991	0.9926	-0.4504	1.0061	0.980
3.174	0.9942	-0.4379	1.0023	0.975
3.375	0.9954	-0.4256	0.9983	0.971
3.547	0.9963	-0.4206	0.9970	0.969
4.293	0.9974	-0.4000	0.9896	0.961
5.431	0.9987	-0.3658	0.9770	0.946
7.319	0.9981	-0.3329	0.9634	0.931
9.394	0.9923	-0.2986	0.9449	0.910
11.140	0.9850	-0.2580	0.9224	0.885
12.890	0.9837	-0.2091	0.9012	0.861
14.950	0.9835	-0.1799	0.8890	0.848
16.614	0.9826	-0.1620	0.8808	0.839
18.573	0.9823	-0.1527	0.8767	0.835
20.666	0.9823	-0.1428	0.8726	0.830
22.338	0.9824	-0.1354	0.8696	0.827
26.237	0.9828	-0.1316	0.8684	0.826
29.670	0.9831	-0.1326	0.8691	0.826
33.409	0.9845	-0.1301	0.8693	0.827
37.491	0.9864	-0.1286	0.8704	0.828
40.633	0.9873	-0.1379	0.8752	0.833

SURFACE PRESSURES

X/C	CP	RL
UPPER SIDE		
0.0	1.1295	0.118
0.0040	0.5078	0.554
0.0080	-0.1512	0.851
0.0150	0.1921	0.700
0.0250	-0.3878	0.957
0.0400	-0.5190	1.018
0.0600	-0.6747	1.093
0.0800	-0.8817	1.199
0.1000	-0.9273	1.223
0.1400	-0.9674	1.245
0.1800	-1.0075	1.268
0.2200	-1.0104	1.269
0.2600	-1.0155	1.272
0.3000	-1.0265	1.279
0.3400	-1.0266	1.279
0.3800	-1.0312	1.281
0.4200	-1.0160	1.273
0.4600	-1.0291	1.280
0.5000	-1.0161	1.273
0.5400	-0.5270	1.022
0.5800	-0.3965	0.961
0.6200	-0.3387	0.935
0.6600	-0.2902	0.913
0.7000	-0.2434	0.892
0.7500	-0.1727	0.861
0.8000	-0.0807	0.820
0.8500	0.0139	0.778
0.9000	0.1033	0.739
0.9500	0.1772	0.706
0.9750	0.2055	0.694
1.0000	0.2338	0.681
LOWER SIDE		
1.0000	0.2338	0.681
0.9500	0.4185	0.596
0.9000	0.4638	0.575
0.8500	0.4638	0.575
0.8000	0.4384	0.587
0.7500	0.3839	0.612
0.6500	0.2597	0.669
0.5500	0.1244	0.730
0.4500	-0.0293	0.797
0.3500	-0.1165	0.836
0.2500	-0.0957	0.827
0.2000	-0.0260	0.796
0.1500	0.0627	0.757
0.1000	0.1782	0.706
0.0500	0.2927	0.654
0.0200	0.3838	0.613
0.0080	0.4674	0.573
0.0040	0.7149	0.448
0.0	1.1295	0.118

Table 3.6 Continued

RUN 174 MA=0.785 ALFA= 2.52 PINF=363.1 PO=545.5 TO=301.9
RE=0.24E 07
X/C= 0.5200 ZE= 2.652 ME=1.093 UE=341.99 CPE=-0.6801

DEL= 2.054 DEL*= 0.6238 THETA= 0.2471 H=2.549 CF=0.00143
(DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALFA(DEG.))

BOUNDARY LAYER PROFILES

Z	PT/PO	CPB	U/UE	MB
0.0	0.4457	-0.7659	0.0	0.0
0.070	0.5133	-0.7507	0.4375	0.438
0.132	0.5270	-0.7476	0.4752	0.477
0.166	0.5299	-0.7429	0.4792	0.481
0.207	0.5450	-0.7372	0.5139	0.518
0.252	0.5553	-0.7310	0.5336	0.539
0.293	0.5587	-0.7253	0.5370	0.542
0.319	0.5633	-0.7217	0.5446	0.551
0.349	0.5655	-0.7175	0.5462	0.552
0.446	0.5841	-0.7040	0.5761	0.585
0.502	0.6000	-0.6963	0.6019	0.613
0.572	0.6187	-0.6864	0.6294	0.643
0.651	0.6410	-0.6755	0.6598	0.677
0.714	0.6586	-0.6667	0.6817	0.701
0.807	0.6883	-0.6538	0.7166	0.741
0.863	0.7122	-0.6460	0.7434	0.772
0.946	0.7328	-0.6346	0.7625	0.794
1.076	0.7707	-0.6990	0.8352	0.881
1.143	0.7852	-0.6644	0.8333	0.879
1.266	0.8013	-0.7685	0.8958	0.957
1.393	0.8241	-0.7427	0.9039	0.967
1.505	0.8541	-0.7773	0.9428	1.017
1.628	0.8818	-0.7543	0.9538	1.031
1.849	0.9178	-0.8046	0.9989	1.091
2.054	0.9743	-0.7717	1.0214	1.122
2.263	0.9743	-0.6898	0.9908	1.080
2.412	0.9934	-0.6632	0.9927	1.083
2.610	0.9957	-0.7056	1.0096	1.106
2.964	0.9972	-0.7158	1.0142	1.112
3.737	0.9970	-0.7239	1.0170	1.116
5.647	0.9924	-0.6955	1.0039	1.098
7.546	0.9907	-0.7231	1.0131	1.111
9.371	0.9843	-0.8288	1.0486	1.160
11.386	0.9843	-0.8818	1.0685	1.188
14.968	0.9832	-0.8880	1.0702	1.190
18.733	0.9835	-0.8780	1.0666	1.185
22.636	0.9840	-0.8656	1.0622	1.179
26.296	0.9843	-0.8564	1.0589	1.174
29.994	0.9843	-0.8473	1.0555	1.169
33.591	0.9853	-0.8359	1.0518	1.164
37.479	0.9856	-0.8332	1.0510	1.163
40.195	0.9855	-0.8257	1.0481	1.159

SURFACE PRESSURES

X/C	CP	ML
UPPER SIDE		
0.0	1.1359	0.107
0.0040	0.5135	0.552
0.0080	-0.1465	0.850
0.0150	0.1979	0.697
0.0250	-0.3820	0.956
0.0400	-0.5189	1.019
0.0600	-0.6731	1.093
0.0800	-0.8806	1.199
0.1000	-0.9266	1.224
0.1400	-0.9668	1.246
0.1800	-1.0070	1.269
0.2200	-1.0100	1.271
0.2600	-1.0141	1.273
0.3000	-1.0244	1.279
0.3400	-1.0254	1.279
0.3800	-1.0301	1.282
0.4200	-1.0179	1.275
0.4600	-1.0295	1.282
0.5000	-1.0292	1.282
0.5400	-0.5026	1.011
0.5800	-0.3912	0.960
0.6200	-0.3406	0.937
0.6600	-0.2927	0.915
0.7000	-0.2492	0.896
0.7500	-0.1812	0.865
0.8000	-0.0856	0.823
0.8500	0.0128	0.779
0.9000	0.1058	0.738
0.9500	0.1834	0.704
0.9750	0.2179	0.689
1.0000	0.2479	0.675
LOWER SIDE		
1.0000	0.2479	0.675
0.9500	0.4255	0.594
0.9000	0.4705	0.572
0.8500	0.4657	0.575
0.8000	0.4372	0.588
0.7500	0.3824	0.614
0.6500	0.2594	0.670
0.5500	0.1244	0.730
0.4500	-0.0287	0.798
0.3500	-0.1162	0.836
0.2500	-0.0942	0.827
0.2000	-0.0234	0.795
0.1500	0.0614	0.758
0.1000	0.1766	0.707
0.0500	0.2903	0.656
0.0200	0.3801	0.615
0.0080	0.4663	0.574
0.0040	0.7183	0.447
0.0	1.1359	0.107

RUN 175 MA=0.785 ALFA= 2.52 PINF=363.3 PO=545.7 TO=302.4
RE=0.24E 07
X/C= 0.5000 ZE= 3.710 ME=1.243 UE=378.72 CPE=-0.9662

DEL= 2.018 DEL*= 0.5660 THETA= 0.2466 H=2.295 CF=0.00237
(DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALFA(DEG.))

BOUNDARY LAYER PROFILES

Z	PT/PO	CPB	U/UE	MB
0.0	0.3773	-1.0041	0.0	0.0
0.070	0.4804	-0.9997	0.5278	0.593
0.104	0.4875	-0.9976	0.5418	0.610
0.133	0.4909	-0.9957	0.5474	0.617
0.160	0.4936	-0.9940	0.5517	0.622
0.189	0.5012	-0.9921	0.5656	0.639
0.230	0.5167	-0.9895	0.5930	0.673
0.275	0.5266	-0.9867	0.6086	0.692
0.305	0.5288	-0.9848	0.6110	0.695
0.339	0.5313	-0.9827	0.6138	0.699
0.376	0.5427	-0.9803	0.6310	0.720
0.466	0.5712	-0.9746	0.6704	0.770
0.548	0.5928	-0.9694	0.6966	0.804
0.604	0.6083	-0.9659	0.7141	0.827
0.674	0.6228	-0.9614	0.7290	0.847
0.742	0.6516	-0.9571	0.7587	0.887
0.831	0.6699	-0.9515	0.7747	0.908
0.917	0.6879	-0.9460	0.7896	0.929
0.984	0.7092	-0.9432	0.8080	0.954
1.063	0.7308	-0.9244	0.8182	0.969
1.141	0.7556	-0.9482	0.8490	1.012
1.193	0.7656	-0.9533	0.8589	1.027
1.313	0.7882	-0.9499	0.8742	1.049
1.443	0.8213	-0.9605	0.9013	1.089
1.551	0.8627	-0.9494	0.9232	1.122
1.641	0.8845	-0.9699	0.9439	1.154
1.749	0.9089	-0.9718	0.9581	1.176
1.876	0.9422	-0.9903	0.9823	1.214
2.018	0.9798	-0.9879	0.9999	1.243
2.208	0.9916	-0.9762	1.0014	1.245
2.387	0.9970	-0.9994	1.0118	1.262
2.716	0.9931	-0.9913	1.0072	1.255
3.820	0.9931	-0.9560	0.9951	1.235
5.678	0.9873	-0.9343	0.9849	1.219
7.559	0.9854	-0.9307	0.9828	1.215
9.663	0.9860	-0.9562	0.9918	1.230
11.305	0.9877	-0.9686	0.9969	1.238
13.484	0.9874	-0.9592	0.9935	1.232
15.395	0.9880	-0.9644	0.9956	1.236
18.831	0.9887	-0.9684	0.9973	1.238
22.663	0.9889	-0.9624	0.9953	1.235
26.383	0.9902	-0.9597	0.9950	1.235
30.152	0.9905	-0.9499	0.9918	1.230
33.682	0.9906	-0.9410	0.9888	1.225
38.003	0.9910	-0.9323	0.9860	1.220

SURFACE PRESSURES

X/C	CP	ML
UPPER SIDE		
0.0	1.1376	0.104
0.0040	0.5167	0.550
0.0080	-0.1457	0.849
0.0150	0.1995	0.697
0.0250	-0.3804	0.955
0.0400	-0.5127	1.016
0.0600	-0.6695	1.091
0.0800	-0.8779	1.198
0.1000	-0.9224	1.222
0.1400	-0.9641	1.245
0.1800	-1.0058	1.268
0.2200	-1.0090	1.270
0.2600	-1.0131	1.272
0.3000	-1.0246	1.279
0.3400	-1.0256	1.279
0.3800	-1.0310	1.282
0.4200	-1.0149	1.273
0.4600	-1.0308	1.282
0.5000	-1.0041	1.267
0.5400	-0.5296	1.024
0.5800	-0.3975	0.963
0.6200	-0.3352	0.934
0.6600	-0.2925	0.915
0.7000	-0.2528	0.897
0.7500	-0.1804	0.865
0.8000	-0.0929	0.826
0.8500	0.0094	0.781
0.9000	0.1025	0.740
0.9500	0.1781	0.706
0.9750	0.2126	0.691
1.0000	0.2421	0.678
LOWER SIDE		
1.0000	0.2421	0.678
0.9500	0.4199	0.596
0.9000	0.4640	0.575
0.8500	0.4609	0.577
0.8000	0.4333	0.590
0.7500	0.3803	0.615
0.6500	0.2591	0.670
0.5500	0.1226	0.731
0.4500	-0.0278	0.797
0.3500	-0.1153	0.836
0.2500	-0.0939	0.826
0.2000	-0.0262	0.797
0.1500	0.0642	0.757
0.1000	0.1799	0.705
0.0500	0.2956	0.653
0.0200	0.3857	0.612
0.0080	0.4748	0.570
0.0040	0.7133	0.449
0.0	1.1376	0.104

RUN 176 MA=0.785 ALFA= 2.52 PINF=363.4 PO=545.9 TO=302.1
RE=0.24E 07
X/C= 0.4500 ZE= 2.586 ME=1.278 UE=386.63 CPE=-1.0299

DEL= 1.748 DEL*= 0.4520 THETA= 0.1953 H=2.315 CF=0.00258
(DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALFA(DEG.))

BOUNDARY LAYER PROFILES

Z	PT/PO	CPB	U/UE	MB
0.0	0.3714	-1.0239	0.0	0.0
0.070	0.4743	-1.0242	0.5238	0.602
0.102	0.4824	-1.0244	0.5410	0.623
0.139	0.4947	-1.0245	0.5656	0.654
0.173	0.5106	-1.0247	0.5946	0.691
0.210	0.5242	-1.0249	0.6176	0.720
0.251	0.5191	-1.0251	0.6095	0.710
0.303	0.5452	-1.0253	0.6503	0.762
0.345	0.5721	-1.0255	0.6876	0.812
0.438	0.5827	-1.0260	0.7014	0.830
0.505	0.6091	-1.0263	0.7329	0.873
0.580	0.6412	-1.0267	0.7674	0.921
0.651	0.6564	-1.0270	0.7824	0.942
0.729	0.6859	-1.0274	0.8097	0.981
0.803	0.7139	-1.0278	0.8334	1.016
0.893	0.7421	-1.0282	0.8555	1.048
0.949	0.7562	-1.0285	0.8660	1.064
1.024	0.7772	-1.0282	0.8806	1.086
1.117	0.8137	-1.0279	0.9045	1.123
1.195	0.8358	-1.0253	0.9171	1.143
1.262	0.8518	-1.0269	0.9271	1.159
1.341	0.8739	-1.0265	0.9395	1.178
1.430	0.9001	-1.0254	0.9532	1.200
1.505	0.9229	-1.0271	0.9655	1.220
1.583	0.9419	-1.0241	0.9738	1.234
1.665	0.9577	-1.0270	0.9824	1.248
1.748	0.9711	-1.0280	0.9889	1.259
1.919	0.9853	-1.0268	0.9950	1.270
2.124	0.9913	-1.0298	0.9986	1.276
2.307	0.9912	-1.0285	0.9982	1.275
2.505	0.9909	-1.0301	0.9986	1.276
3.039	0.9890	-1.0307	0.9979	1.275
3.792	0.9875	-1.0342	0.9985	1.275
5.833	0.9937	-1.0313	1.0002	1.278
7.602	0.9912	-1.0203	0.9954	1.270
9.777	0.9916	-1.0119	0.9927	1.266
11.535	0.9921	-1.0094	0.9921	1.265
15.139	0.9927	-1.0000	0.9892	1.260
18.979	0.9925	-0.9913	0.9861	1.255
22.516	0.9934	-0.9821	0.9834	1.250
26.199	0.9942	-0.9716	0.9803	1.245
29.833	0.9938	-0.9587	0.9758	1.237
38.053	0.9931	-0.9282	0.9652	1.220

SURFACE PRESSURES

X/C	CP	ML
UPPER SIDE		
0.0	1.1292	0.120
0.0040	0.5085	0.554
0.0080	-0.1480	0.851
0.0150	0.1927	0.700
0.0250	-0.3828	0.956
0.0400	-0.5180	1.019
0.0600	-0.6734	1.094
0.0800	-0.8800	1.199
0.1000	-0.9260	1.224
0.1400	-0.9667	1.247
0.1800	-1.0075	1.269
0.2200	-1.0091	1.270
0.2600	-1.0135	1.273
0.3000	-1.0238	1.279
0.3400	-1.0253	1.280
0.3800	-1.0272	1.281
0.4200	-1.0145	1.273
0.4600	-1.0270	1.281
0.5000	-0.9952	1.263
0.5400	-0.5608	1.039
0.5800	-0.4172	0.972
0.6200	-0.3467	0.940
0.6600	-0.3076	0.922
0.7000	-0.2683	0.904
0.7500	-0.1908	0.870
0.8000	-0.0841	0.822
0.8500	0.0187	0.777
0.9000	0.1111	0.736
0.9500	0.1874	0.702
0.9750	0.2204	0.688
1.0000	0.2473	0.675
LOWER SIDE		
1.0000	0.2473	0.675
0.9500	0.4224	0.595
0.9000	0.4714	0.572
0.8500	0.4690	0.573
0.8000	0.4421	0.586
0.7500	0.3888	0.611
0.6500	0.2643	0.668
0.5500	0.1272	0.729
0.4500	-0.0247	0.796
0.3500	-0.1123	0.835
0.2500	-0.0926	0.826
0.2000	-0.0234	0.796
0.1500	0.0627	0.758
0.1000	0.1769	0.707
0.0500	0.2918	0.655
0.0200	0.3810	0.614
0.0080	0.4657	0.575
0.0040	0.7150	0.448
0.0	1.1292	0.120

RUN 177 MA=0.785 ALFA= 2.52 PINF=363.5 PO=545.9 TO=301.9
RE=0.24E 07
X/C= 0.4200 ZE= 2.186 ME=1.266 UE=383.72 CPE=-1.0162

DEL= 1.521 DEL*= 0.3669 THETA= 0.1586 H=2.313 CF=0.00269
(DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALFA(DEG.))

BOUNDARY LAYER PROFILES

Z	PT/PO	CPB	U/UE	MB
0.0	0.3743	-1.0162	0.0	0.0
0.070	0.4788	-1.0162	0.5291	0.604
0.107	0.4921	-1.0162	0.5567	0.638
0.130	0.4973	-1.0162	0.5669	0.650
0.160	0.5225	-1.0162	0.6121	0.707
0.189	0.5433	-1.0162	0.6451	0.750
0.219	0.5637	-1.0162	0.6745	0.788
0.264	0.5900	-1.0162	0.7089	0.833
0.294	0.6022	-1.0162	0.7236	0.853
0.335	0.6183	-1.0162	0.7420	0.878
0.383	0.6291	-1.0162	0.7537	0.894
0.424	0.6441	-1.0162	0.7694	0.916
0.454	0.6520	-1.0162	0.7773	0.927
0.563	0.6885	-1.0162	0.8115	0.975
0.607	0.7028	-1.0162	0.8239	0.993
0.674	0.7269	-1.0162	0.8437	1.022
0.768	0.7475	-1.0162	0.8596	1.045
0.831	0.7644	-1.0162	0.8721	1.064
0.898	0.7889	-1.0162	0.8891	1.090
0.980	0.8154	-1.0162	0.9066	1.116
1.051	0.8477	-1.0162	0.9265	1.147
1.152	0.8860	-1.0162	0.9483	1.181
1.212	0.9058	-1.0162	0.9589	1.198
1.283	0.9177	-1.0162	0.9651	1.209
1.369	0.9355	-1.0162	0.9741	1.223
1.454	0.9587	-1.0162	0.9854	1.242
1.521	0.9733	-1.0162	0.9923	1.253
1.596	0.9830	-1.0162	0.9967	1.260
1.701	0.9854	-1.0162	0.9978	1.262
1.798	0.9881	-1.0162	0.9990	1.264
1.898	0.9894	-1.0162	0.9996	1.265
2.152	0.9890	-1.0162	0.9994	1.265
2.492	0.9890	-1.0162	0.9994	1.265
2.753	0.9892	-1.0162	0.9995	1.265
3.839	0.9865	-1.0162	0.9983	1.263
5.730	0.9936	-1.0162	1.0035	1.268
7.563	0.9913	-1.0162	1.0005	1.267
11.301	0.9924	-1.0162	1.0010	1.268
15.447	0.9934	-1.0162	1.0014	1.268
18.801	0.9954	-1.0162	1.0023	1.270
22.570	0.9974	-1.0162	1.0032	1.271
26.380	0.9986	-1.0162	1.0037	1.272
30.227	1.0004	-1.0162	1.0045	1.273
33.984	1.0016	-1.0162	1.0050	1.274
37.850	1.0028	-1.0162	1.0056	1.275

Note: Since a static probe leakage occured, the static pressure was set equal to the surface pressure

SURFACE PRESSURES

X/C	CP	ML
UPPER SIDE		
0.0	1.1336	0.111
0.0040	0.5114	0.552
0.0080	-0.1492	0.851
0.0150	0.1971	0.697
0.0250	-0.3856	0.957
0.0400	-0.5164	1.017
0.0600	-0.6739	1.093
0.0800	-0.8803	1.198
0.1000	-0.9235	1.222
0.1400	-0.9648	1.244
0.1800	-1.0061	1.267
0.2200	-1.0074	1.268
0.2600	-1.0128	1.271
0.3000	-1.0250	1.278
0.3400	-1.0224	1.277
0.3800	-1.0313	1.282
0.4200	-1.0162	1.273
0.4600	-1.0200	1.275
0.5000	-0.9803	1.253
0.5400	-0.5322	1.025
0.5800	-0.4124	0.969
0.6200	-0.3591	0.945
0.6600	-0.3288	0.931
0.7000	-0.2874	0.912
0.7500	-0.1964	0.871
0.8000	-0.0826	0.821
0.8500	0.0248	0.774
0.9000	0.1140	0.734
0.9500	0.1846	0.703
0.9750	0.2103	0.692
1.0000	0.2333	0.681
LOWER SIDE		
1.0000	0.2333	0.681
0.9500	0.4124	0.599
0.9000	0.4659	0.574
0.8500	0.4645	0.575
0.8000	0.4396	0.587
0.7500	0.3860	0.612
0.6500	0.2636	0.668
0.5500	0.1260	0.729
0.4500	-0.0269	0.797
0.3500	-0.1147	0.835
0.2500	-0.0924	0.825
0.2000	-0.0232	0.795
0.1500	0.0632	0.757
0.1000	0.1788	0.706
0.0500	0.2950	0.653
0.0200	0.3848	0.612
0.0080	0.4686	0.573
0.0040	0.7094	0.451
0.0	1.1336	0.111

Table 3.6 Concluded

RUN 197 MA=0.785 ALFA= 2.50 PINF=362.5 PO=544.6 TO=303.4
RE=0.24E 07
X/C= 0.8000 ZE= 6.962 ME=0.792 UE=260.67 CPE=-0.0254

DEL= 5.013 DEL*= 1.7311 THETA= 0.7812 H=2.216 CF=0.00116
(DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALFA(DEG.))

BOUNDARY LAYER PROFILES					SURFACE PRESSURES		
Z	PT/PO	CPB	U/UE	HB	X/C	CP	HL
					UPPER SIDE		
0.0	0.6530	-0.0410	0.0	0.0	0.0	1.1324	0.114
0.070	0.6769	-0.0410	0.2976	0.223	0.0040	0.5116	0.553
0.144	0.6854	-0.0410	0.3464	0.260	0.0080	-0.1485	0.851
0.222	0.6902	-0.0411	0.3714	0.279	0.0150	0.1976	0.698
0.338	0.6940	-0.0411	0.3896	0.293	0.0250	-0.3788	0.954
0.465	0.6983	-0.0412	0.4091	0.308	0.0400	-0.5140	1.017
0.562	0.7018	-0.0412	0.4243	0.320	0.0600	-0.7094	1.111
0.666	0.7042	-0.0413	0.4342	0.328	0.0800	-0.8407	1.179
0.797	0.7087	-0.0414	0.4524	0.342	0.1000	-0.9077	1.214
0.931	0.7112	-0.0414	0.4622	0.349	0.1400	-0.9461	1.235
1.125	0.7169	-0.0406	0.4823	0.365	0.1800	-0.9845	1.256
1.319	0.7253	-0.0418	0.5127	0.388	0.2200	-1.0243	1.279
1.693	0.7452	-0.0428	0.5753	0.438	0.2600	-1.0038	1.267
2.051	0.7654	-0.0432	0.6304	0.481	0.3000	-1.0155	1.274
2.431	0.7893	-0.0428	0.6870	0.527	0.3400	-1.0181	1.276
2.812	0.8164	-0.0425	0.7438	0.573	0.3800	-1.0251	1.279
3.193	0.8541	-0.0414	0.8123	0.630	0.4200	-1.0147	1.274
3.573	0.8893	-0.0400	0.8682	0.677	0.4600	-1.0275	1.281
3.939	0.9204	-0.0385	0.9125	0.715	0.5000	-1.0339	1.285
4.308	0.9483	-0.0363	0.9482	0.746	0.5400	-0.6161	1.066
4.666	0.9697	-0.0344	0.9741	0.769	0.5800	-0.4024	0.965
5.013	0.9827	-0.0328	0.9888	0.782	0.6200	-0.3232	0.929
5.405	0.9905	-0.0318	0.9975	0.790	0.6600	-0.2717	0.906
5.793	0.9929	-0.0301	0.9993	0.791	0.7000	-0.2177	0.882
6.360	0.9939	-0.0278	0.9994	0.791	0.7500	-0.1338	0.844
7.107	0.9937	-0.0246	0.9975	0.790	0.8000	-0.0410	0.803
7.920	0.9935	-0.0230	0.9965	0.789	0.8500	0.0481	0.764
9.368	0.9916	-0.0207	0.9931	0.786	0.9000	0.1285	0.728
11.566	0.9819	-0.0176	0.9802	0.774	0.9500	0.1941	0.699
13.088	0.9796	-0.0165	0.9769	0.771	0.9750	0.2209	0.687
15.181	0.9792	-0.0152	0.9757	0.770	1.0000	0.2434	0.677
17.334	0.9797	-0.0132	0.9754	0.770	LOWER SIDE		
18.946	0.9800	-0.0123	0.9752	0.770	1.0000	0.2434	0.677
21.084	0.9804	-0.0115	0.9753	0.770	0.9500	0.4124	0.600
22.476	0.9808	-0.0111	0.9756	0.770	0.9000	0.4554	0.580
24.386	0.9815	-0.0108	0.9763	0.771	0.8500	0.4512	0.582
26.312	0.9820	-0.0104	0.9767	0.771	0.8000	0.4241	0.594
28.263	0.9829	-0.0099	0.9774	0.772	0.7500	0.3751	0.617
29.875	0.9833	-0.0091	0.9775	0.772	0.6500	0.2550	0.672
33.666	0.9848	-0.0088	0.9793	0.774	0.5500	0.1168	0.734
36.289	0.9851	-0.0085	0.9794	0.774	0.4500	-0.0220	0.795
					0.3500	-0.1115	0.835
					0.2500	-0.0932	0.826
					0.2000	-0.0192	0.794
					0.1500	0.0695	0.755
					0.1000	0.1882	0.702
					0.0500	0.2931	0.655
					0.0200	0.3831	0.614
					0.0080	0.4664	0.574
					0.0040	0.7103	0.451
					0.0	1.1324	0.114

RUN 198 MA=0.785 ALFA= 2.50 PINF=362.5 PO=544.8 TO=302.9
RE=0.24E 07
X/C= 0.9000 ZE= 9.728 ME=0.725 UE=240.51 CPE= 0.1304

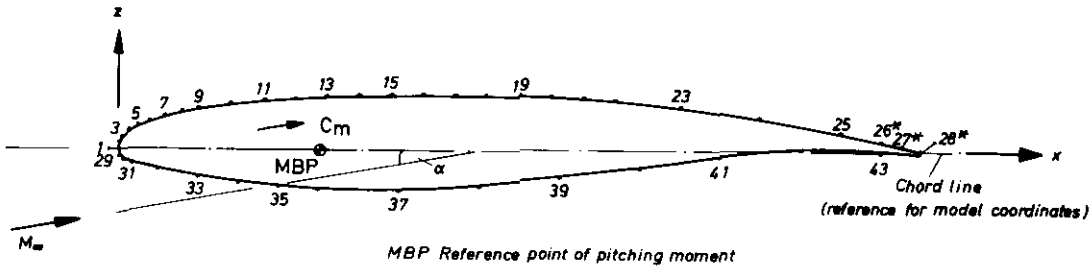
DEL= 7.559 DEL*= 2.9771 THETA= 1.2205 H=2.439 CF=0.00071
(DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALFA(DEG.))

BOUNDARY LAYER PROFILES					SURFACE PRESSURES		
Z	PT/PO	CPB	U/UE	HB	X/C	CP	HL
					UPPER SIDE		
0.0	0.7033	0.1317	0.0	0.0	0.0	1.1268	0.124
0.070	0.7147	0.1314	0.2204	0.152	0.0040	0.5049	0.556
0.115	0.7139	0.1312	0.2129	0.147	0.0080	-0.1540	0.854
0.160	0.7159	0.1311	0.2318	0.160	0.0150	0.1913	0.701
0.238	0.7179	0.1308	0.2498	0.173	0.0250	-0.3834	0.957
0.301	0.7195	0.1305	0.2640	0.183	0.0400	-0.5165	1.018
0.454	0.7219	0.1299	0.2831	0.196	0.0600	-0.7125	1.113
0.645	0.7235	0.1292	0.2959	0.205	0.0800	-0.8437	1.180
0.846	0.7259	0.1284	0.3140	0.217	0.1000	-0.9082	1.215
1.219	0.7347	0.1284	0.3668	0.254	0.1400	-0.9437	1.234
1.581	0.7407	0.1304	0.3949	0.274	0.1800	-0.9792	1.254
1.943	0.7451	0.1351	0.4100	0.285	0.2200	-1.0180	1.276
2.346	0.7524	0.1366	0.4413	0.307	0.2600	-1.0002	1.266
2.771	0.7642	0.1316	0.4968	0.347	0.3000	-1.0132	1.273
3.085	0.7759	0.1255	0.5464	0.382	0.3400	-1.0184	1.276
3.462	0.7936	0.1223	0.6065	0.426	0.3800	-1.0232	1.279
3.835	0.8119	0.1237	0.6575	0.463	0.4200	-1.0119	1.272
4.189	0.8238	0.1267	0.6861	0.484	0.4600	-1.0222	1.278
4.577	0.8452	0.1278	0.7367	0.521	0.5000	-1.0246	1.280
4.939	0.8668	0.1247	0.7861	0.559	0.5400	-0.5902	1.053
5.324	0.8878	0.1231	0.8290	0.591	0.5800	-0.4045	0.966
5.708	0.9096	0.1233	0.8689	0.622	0.6200	-0.3247	0.930
6.051	0.9271	0.1232	0.8989	0.645	0.6600	-0.2723	0.906
6.447	0.9524	0.1233	0.9394	0.677	0.7000	-0.2206	0.883
6.820	0.9695	0.1231	0.9651	0.697	0.7500	-0.1377	0.846
7.201	0.9785	0.1240	0.9776	0.707	0.8000	-0.0394	0.803
7.559	0.9869	0.1249	0.9891	0.716	0.8500	0.0524	0.762
7.939	0.9927	0.1261	0.9965	0.722	0.9000	0.1317	0.727
8.671	0.9957	0.1295	0.9986	0.724	0.9500	0.1940	0.700
9.406	0.9962	0.1303	0.9989	0.724	0.9750	0.2184	0.689
10.212	0.9960	0.1296	0.9989	0.724	1.0000	0.2386	0.680
11.305	0.9936	0.1319	0.9944	0.720	LOWER SIDE		
12.186	0.9893	0.1301	0.9895	0.716	1.0000	0.2386	0.680
13.145	0.9836	0.1249	0.9843	0.712	0.9500	0.4121	0.600
15.036	0.9806	0.1202	0.9829	0.711	0.9000	0.4541	0.580
16.999	0.9794	0.1179	0.9825	0.711	0.8500	0.4501	0.582
18.928	0.9801	0.1159	0.9847	0.712	0.8000	0.4241	0.594
20.674	0.9808	0.1163	0.9854	0.713	0.7500	0.3748	0.617
22.824	0.9811	0.1150	0.9866	0.714	0.6500	0.2594	0.670
24.689	0.9823	0.1133	0.9892	0.716	0.5500	0.1222	0.731
26.342	0.9830	0.1119	0.9909	0.717	0.4500	-0.0205	0.795
29.958	0.9842	0.1078	0.9949	0.721	0.3500	-0.1112	0.835
34.089	0.9857	0.1034	0.9995	0.724	0.2500	-0.0910	0.826
37.451	0.9867	0.1002	1.0027	0.727	0.2000	-0.0132	0.791
					0.1500	0.0803	0.750
					0.1000	0.1992	0.697
					0.0500	0.2992	0.652
					0.0200	0.3836	0.613
					0.0080	0.4649	0.575
					0.0040	0.7113	0.451
					0.0	1.1268	0.124

RUN 199 MA=0.785 ALFA= 2.50 PINF=362.8 PO=544.9 TO=303.3
RE=0.24E 07
X/C= 0.9900 ZE=12.564 ME=0.685 UE=228.65 CPE= 0.2142

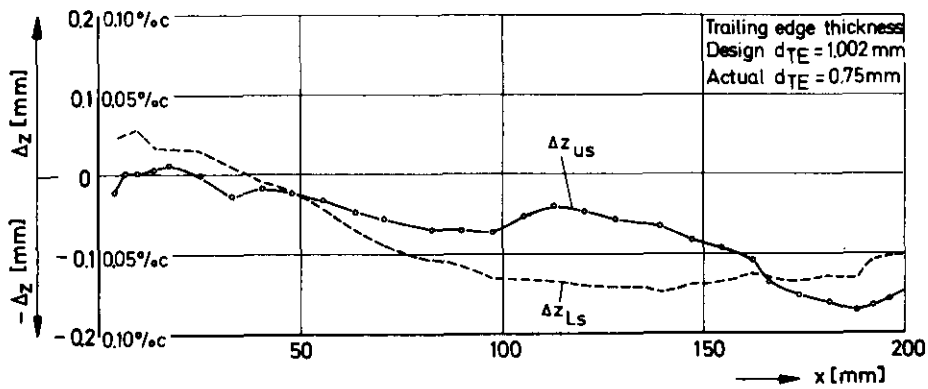
DEL=10.910 DEL*= 4.7815 THETA= 1.6995 H=2.814 CF=0.00037
(DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALFA(DEG.))

BOUNDARY LAYER PROFILES					SURFACE PRESSURES		
Z	PT/PO	CPB	U/UE	HB	X/C	CP	HL
					UPPER SIDE		
0.0	0.7324	0.2322	0.0	0.0	0.0	1.1327	0.113
0.070	0.7363	0.2314	0.1370	0.090	0.0040	0.5129	0.552
0.148	0.7368	0.2305	0.1485	0.097	0.0080	-0.1482	0.851
0.227	0.7375	0.2295	0.1630	0.107	0.0150	0.1936	0.699
0.333	0.7376	0.2285	0.1684	0.110	0.0250	-0.3812	0.955
0.432	0.7380	0.2271	0.1784	0.117	0.0400	-0.5147	1.017
0.660	0.7383	0.2244	0.1916	0.126	0.0600	-0.7104	1.112
0.999	0.7392	0.2224	0.2082	0.137	0.0800	-0.8418	1.179
1.369	0.7416	0.2210	0.2366	0.155	0.1000	-0.9086	1.214
1.753	0.7431	0.2209	0.2512	0.165	0.1400	-0.9458	1.235
2.189	0.7466	0.2221	0.2772	0.182	0.1800	-0.9831	1.255
2.518	0.7487	0.2207	0.2965	0.195	0.2200	-1.0242	1.279
3.085	0.7560	0.2202	0.3472	0.229	0.2600	-1.0049	1.268
3.633	0.7641	0.2186	0.3970	0.262	0.3000	-1.0165	1.274
4.219	0.7755	0.2184	0.4545	0.300	0.3400	-1.0185	1.275
4.943	0.7930	0.2172	0.5301	0.351	0.3800	-1.0228	1.278
5.708	0.8152	0.2157	0.6102	0.406	0.4200	-1.0142	1.273
6.466	0.8413	0.2158	0.6879	0.460	0.4600	-1.0270	1.280
7.174	0.8684	0.2155	0.7579	0.509	0.5000	-1.0316	1.283
7.947	0.8989	0.2148	0.8271	0.558	0.5400	-0.6489	1.081
8.686	0.9303	0.2121	0.8915	0.605	0.5800	-0.4034	0.965
9.428	0.9638	0.2129	0.9501	0.648	0.6200	-0.3265	0.930
10.193	0.9815	0.2147	0.9780	0.669	0.6600	-0.2743	0.907
10.910	0.9903	0.2167	0.9905	0.678	0.7000	-0.2206	0.883
11.648	0.9943	0.2159	0.9972	0.683	0.7500	-0.1381	0.846
12.413	0.9953	0.2157	0.9989	0.684	0.8000	-0.0397	0.803
13.167	0.9950	0.2131	1.0000	0.685	0.8500	0.0526	0.762
13.917	0.9920	0.2120	0.9960	0.682	0.9000	0.1303	0.728
14.663	0.9882	0.2132	0.9895	0.677	0.9500	0.1933	0.700
15.395	0.9855	0.2134	0.9851	0.674	0.9750	0.2187	0.688
16.126	0.9843	0.2108	0.9848	0.674	1.0000	0.2412	0.678
16.917	0.9833	0.2110	0.9831	0.672	LOWER SIDE		
17.660	0.9828	0.2113	0.9821	0.672	1.0000	0.2412	0.678
18.760	0.9822	0.2098	0.9821	0.672	0.9500	0.4112	0.600
20.910	0.9822	0.2055	0.9847	0.674	0.9000	0.4540	0.580
22.544	0.9826	0.2028	0.9870	0.675	0.8500	0.4496	0.582
24.387	0.9829	0.1989	0.9898	0.677	0.8000	0.4249	0.594
26.469	0.9835	0.1943	0.9937	0.680	0.7500	0.3753	0.617
28.346	0.9840	0.1915	0.9962	0.682	0.6500	0.2557	0.672
30.189	0.9851	0.1889	0.9995	0.685	0.5500	0.1156	0.734
32.163	0.9852	0.1855	1.0017	0.686	0.4500	-0.0218	0.795
33.812	0.9861	0.1828	1.0047	0.688	0.3500	-0.1105	0.834
36.051	0.9867	0.1784	1.0082	0.691	0.2500	-0.0894	0.825
37.488	0.9878	0.1760	1.0113	0.693	0.2000	-0.0192	0.794
37.980	0.9880	0.1758	1.0119	0.694	0.1500	0.0698	0.754
					0.1000	0.1875	0.702
					0.0500	0.2950	0.654
					0.0200	0.3818	0.614
					0.0080	0.4640	0.575
					0.0040	0.7089	0.452
					0.0	1.1327	0.113



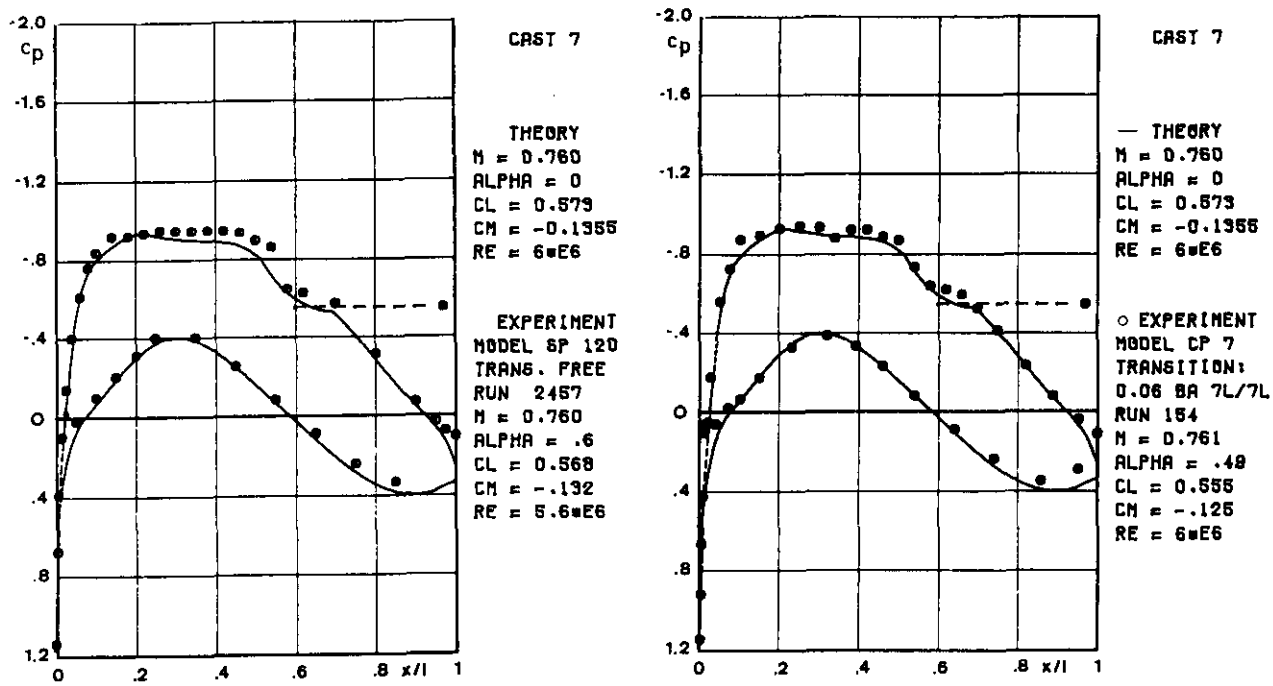
Geometric data: Chord c = 200 mm Maximum t/c = 11.8 % at x/c = 35 % Cross section $F_p \approx 3063 mm^2$
Trailing edge thickness $z_{TE}/c = 0.38\%$ Diameter of pressure orifices $d_B = 0.5$ mm

a. Contour and location of pressure orifices



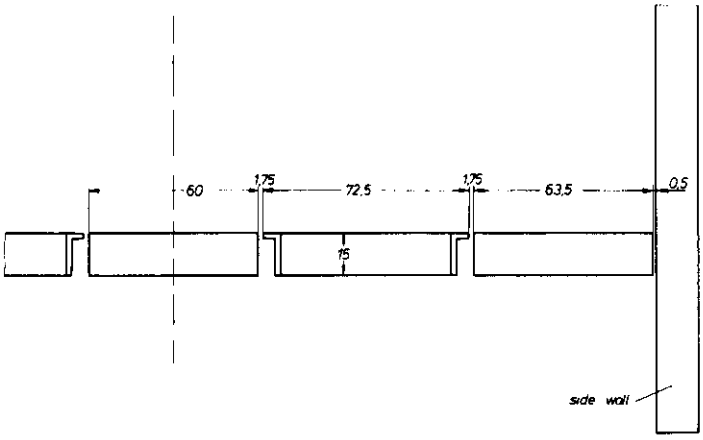
b. Measured error of manufactured airfoil (also see Table 3.1a)

Figure 3.1 Airfoil CAST 7 - Model SP 120 (c = 200 mm): Contour, location of pressure orifices and deviation from design coordinates (see Table 3.1b for deviation on ARA model)

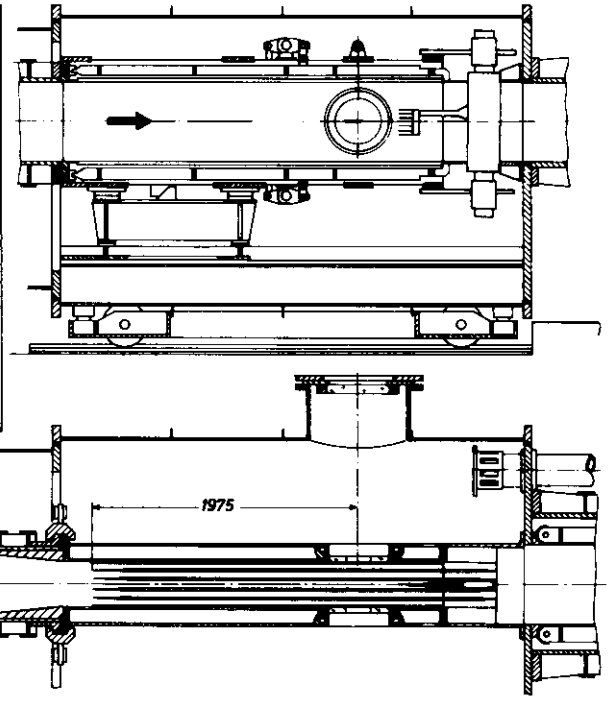


a. DFVLR - TWB tests b. ARA tests

Figure 3.2 Design pressure distribution. Comparison between theory and experiment.



a. Geometry of slotted top and bottom walls



b. Test section

Figure 3.3 Test section of the DFVLR Transonic Wind Tunnel Braunschweig (TWB)

H = 0.6 m
Wall divergence (top and bottom walls) = 0.253°

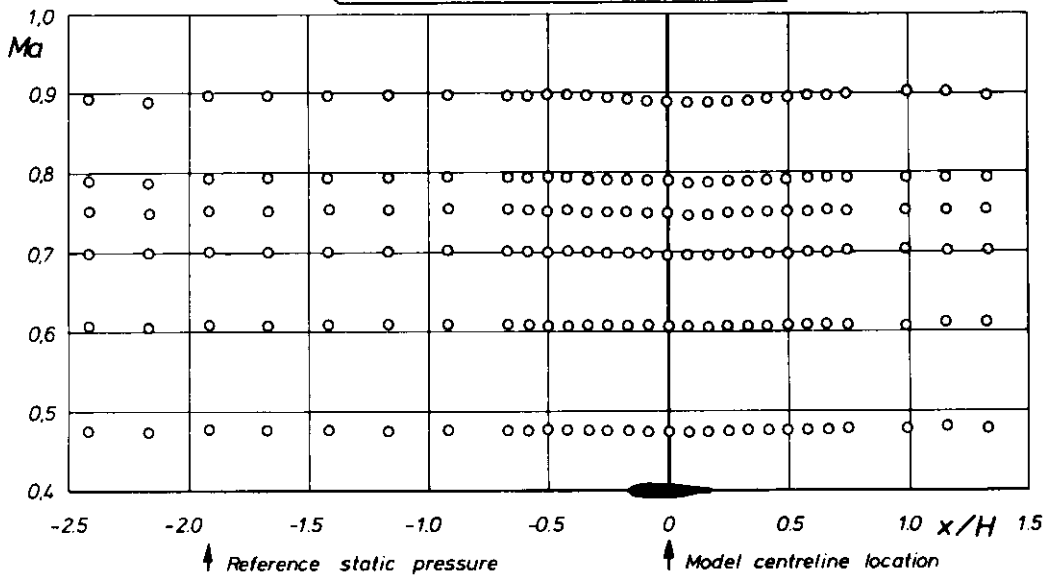


Figure 3.4 DFVLR-TWB. Mach number distribution in the test section

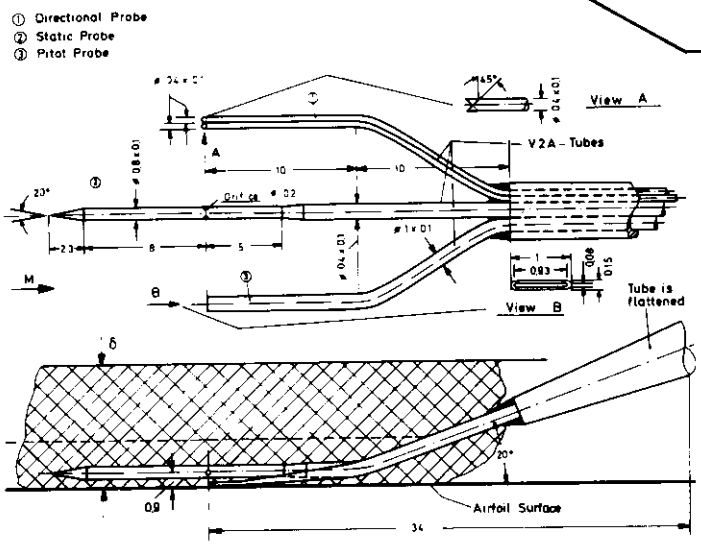
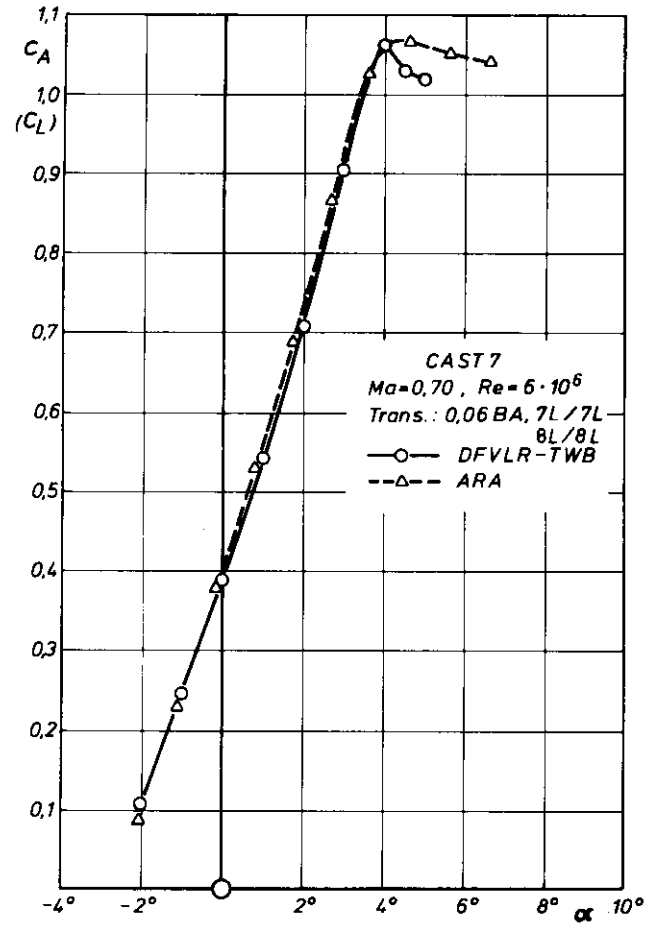
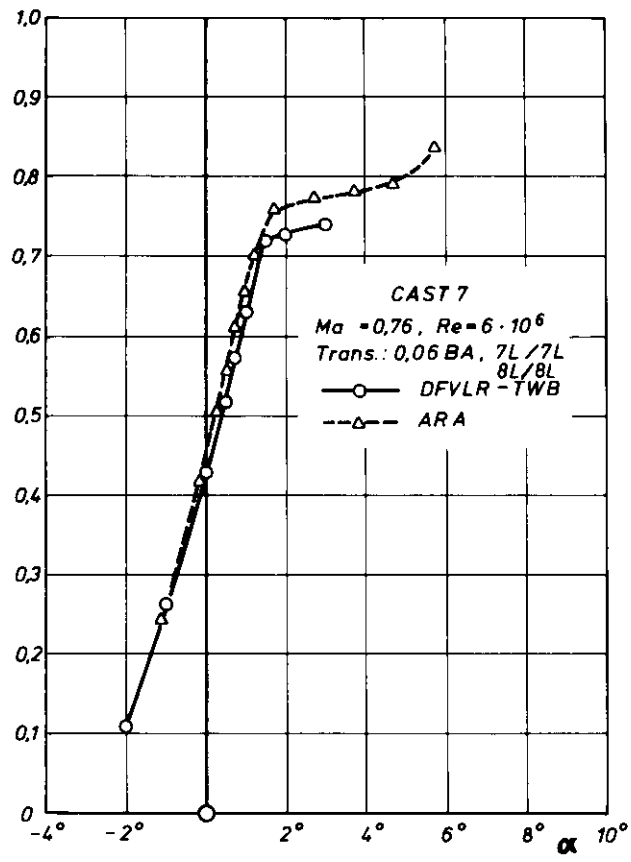
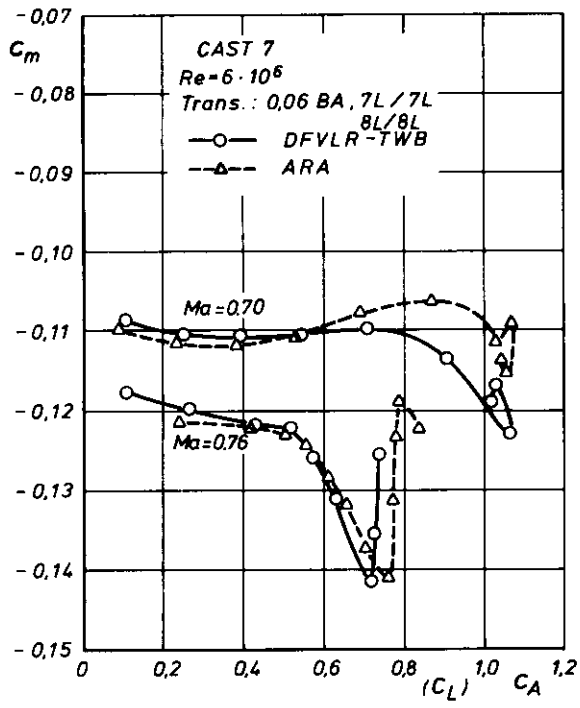


Figure 3.5 Boundary layer probe of DFVLR 1x1 Meter tests

V2A = Stainless steel
All dimensions are in millimeters







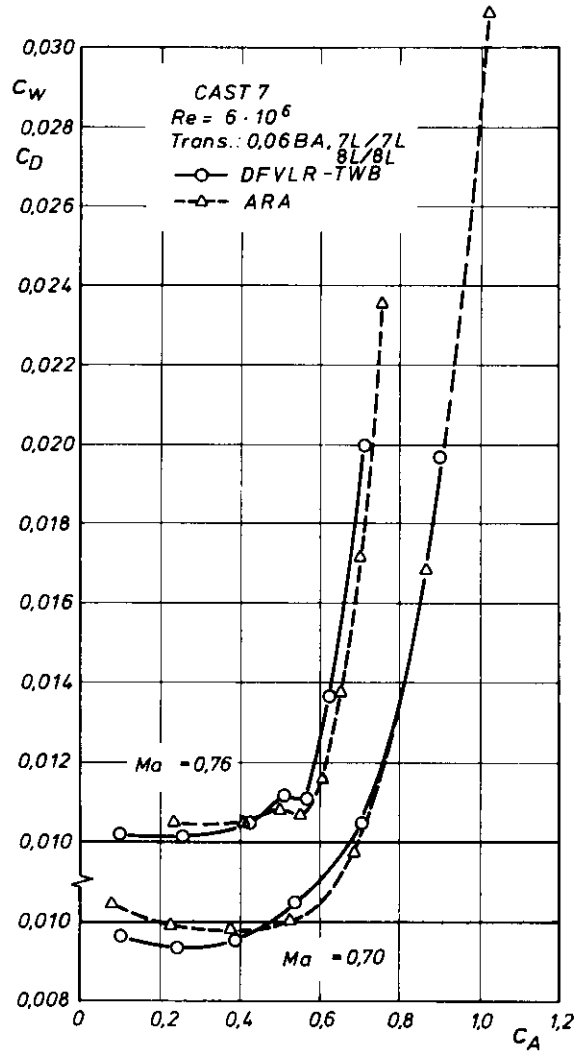


Figure 3.6 DFVLR-TWB and ARA tests. Aerodynamic coefficients.

a. Angle of attack variation

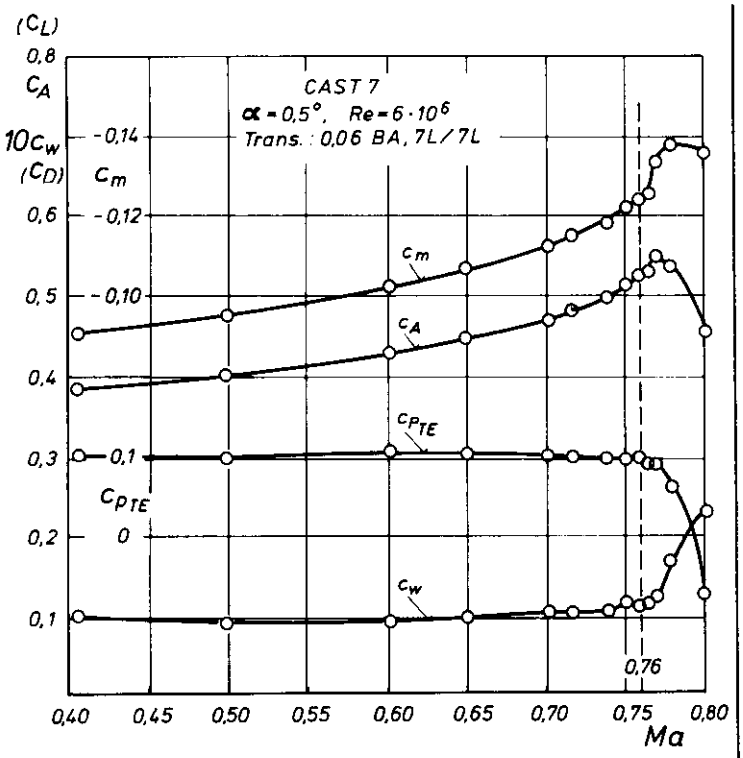
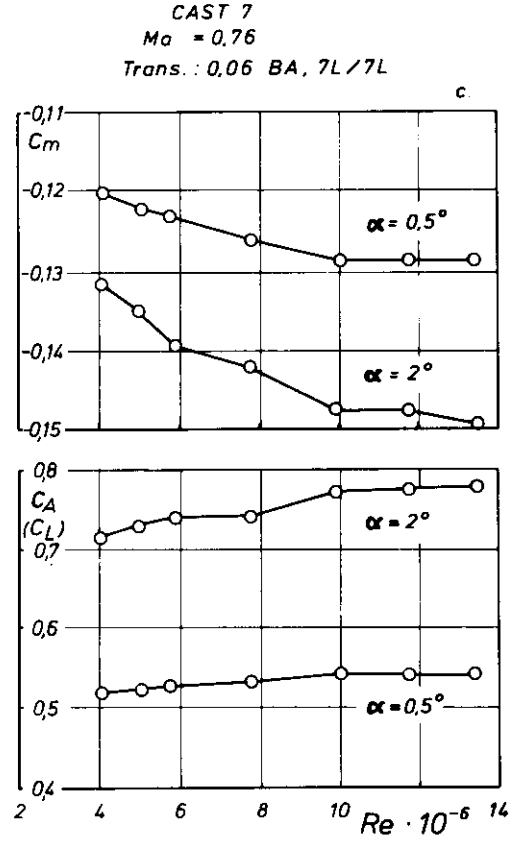
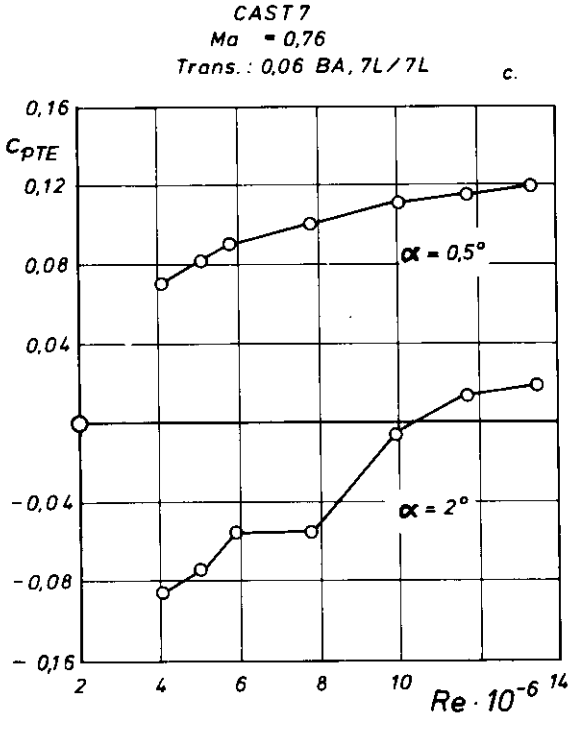


Figure 3.6 Continued

b. Mach number variation (TWB tests)





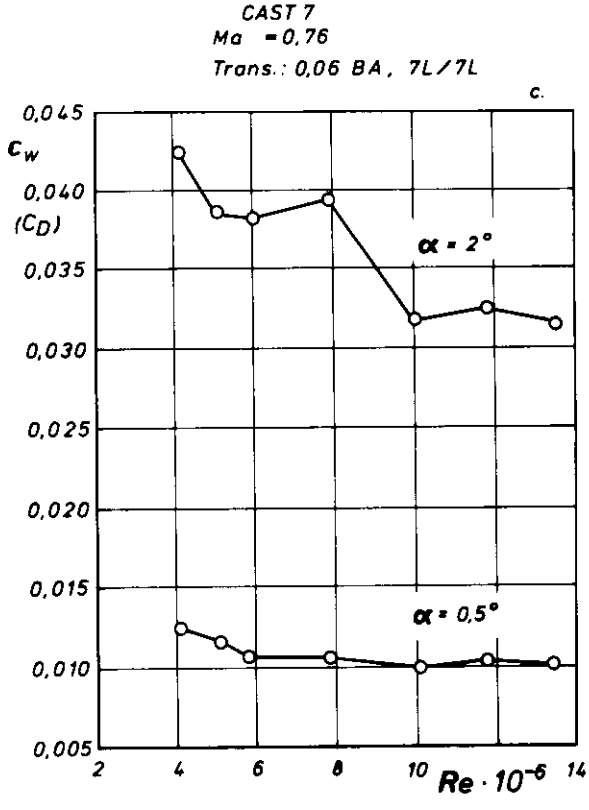
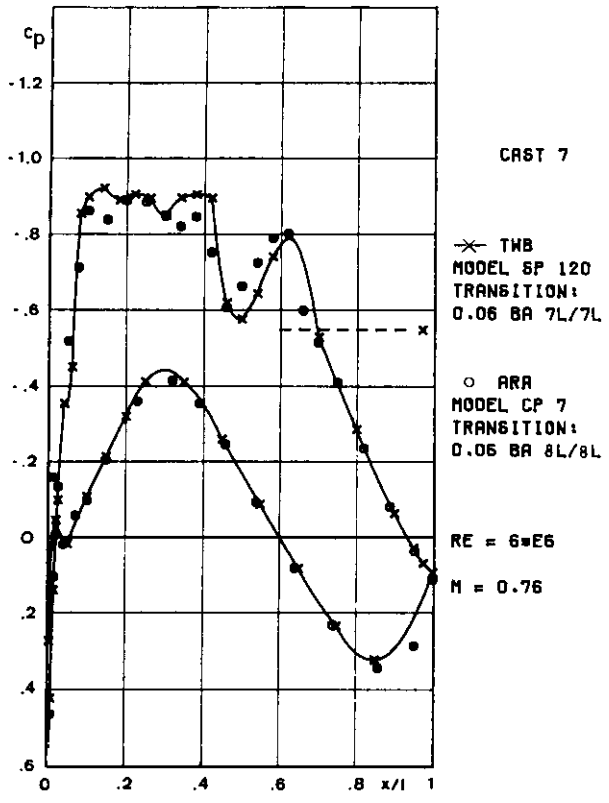


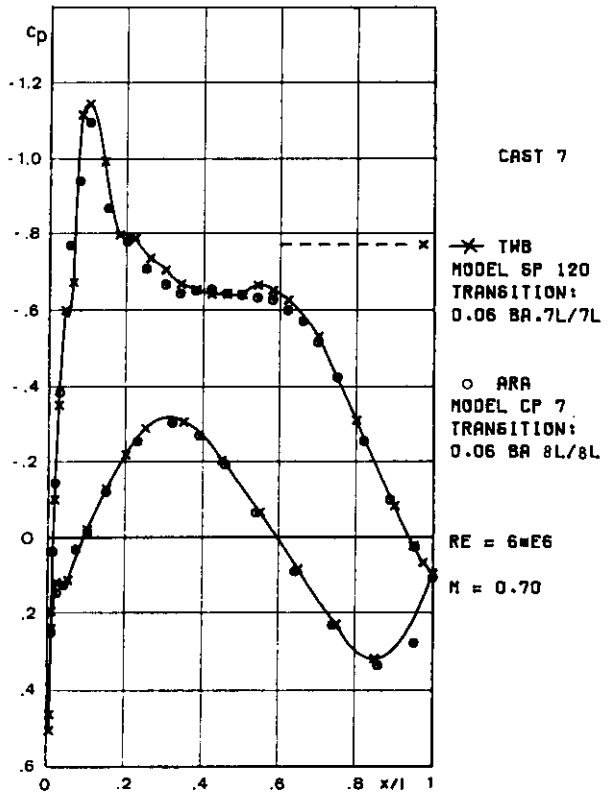
Figure 3.6 Concluded

c. Reynolds number variation (TWB tests)

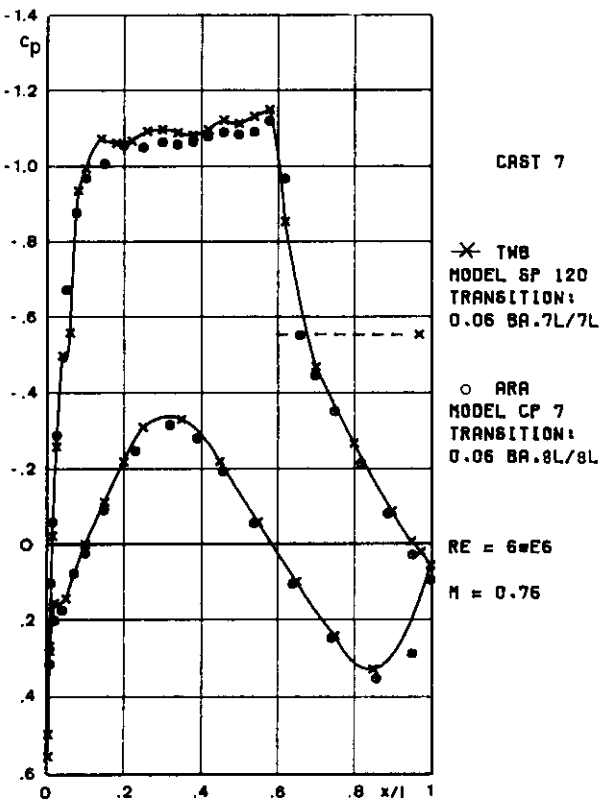


	Nr.	Ma	Re·10⁻⁶	Alpha [o]	C_A	C_{m25}	C_W
×	2486	0.761	6.00	0.50	0.516	-0.1223	0.01115
●	108	0.761	6.05	0.26	0.503	-0.1233	0.01075

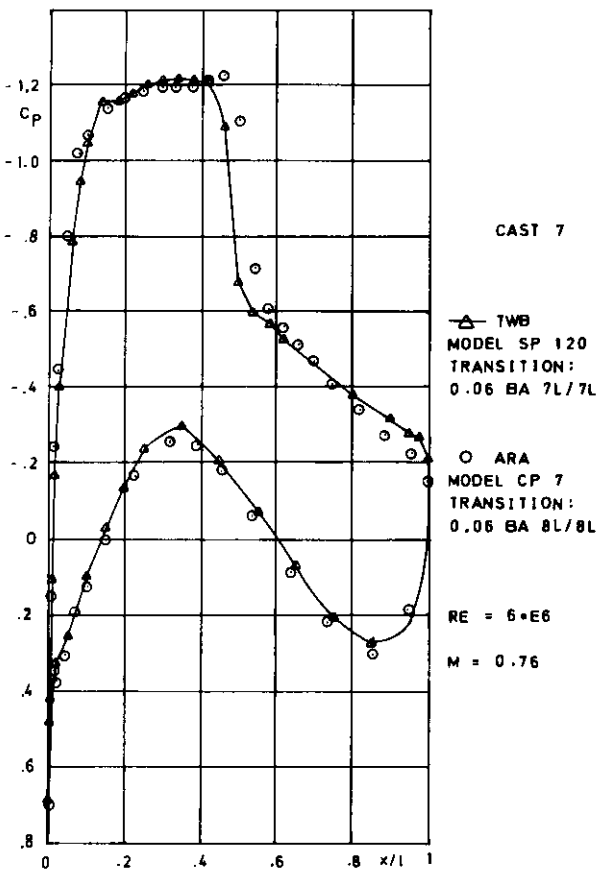
Figure 3.7 Comparison of pressure distributions from ARA and DFVLR-TWB tests



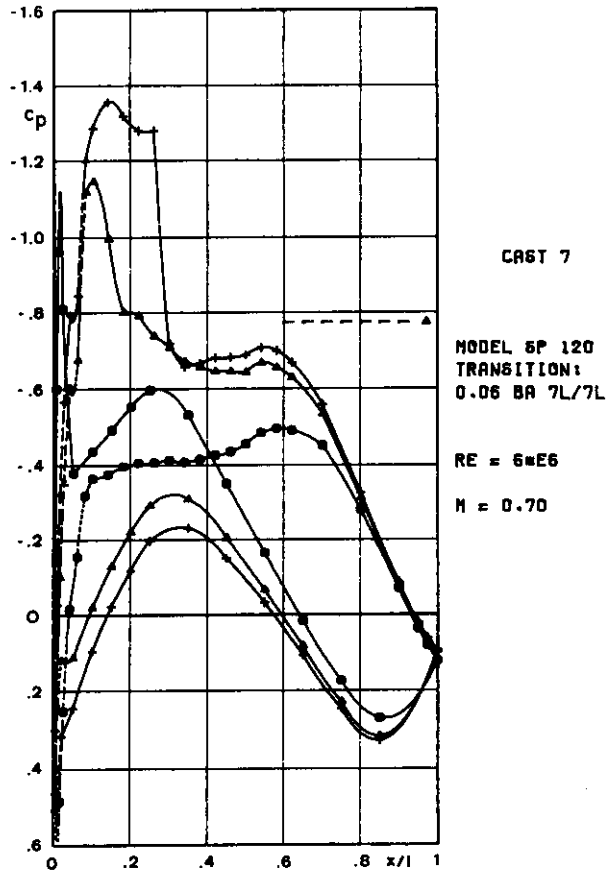
	Nr.	Ma	Re·10⁻⁶	Alpha [o]	C_A	C_{m25}	C_W
×	2487	0.701	5.97	1.00	0.642	-0.1108	0.01048
●	68	0.701	5.98	0.76	0.628	-0.1108	0.01001



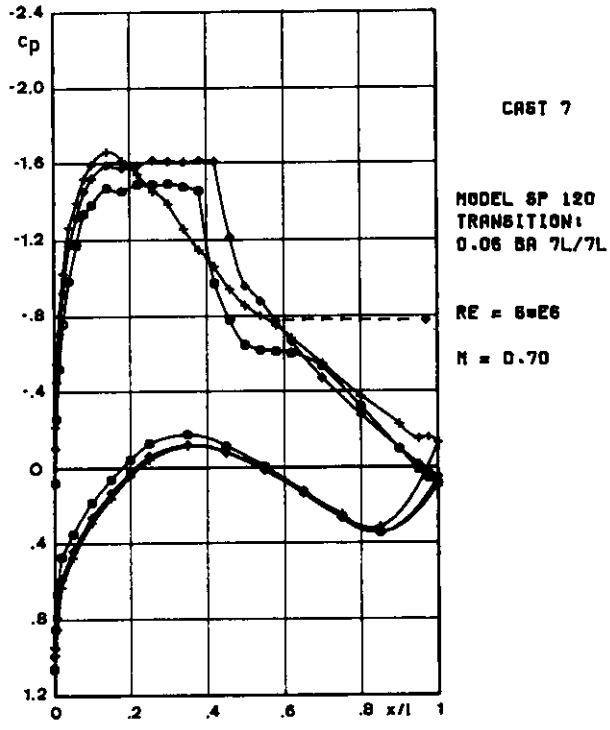
	Nr.	Ma	Re·10⁻⁶	Alpha [o]	C_A	C_{m25}	C_W
×	2488	0.759	6.00	1.50	0.719	-0.1416	0.01894
●	110	0.760	6.05	1.19	0.702	-0.1376	0.01710



	Nr.	Ma	Re 10⁻⁶	Alpha [o]	C_A	C_{m25}	C_W
△	2492	0.761	5.99	3.00	0.738	-0.1255	0.06155
○	112	0.761	6.05	2.68	0.772	-0.1316	0.04695



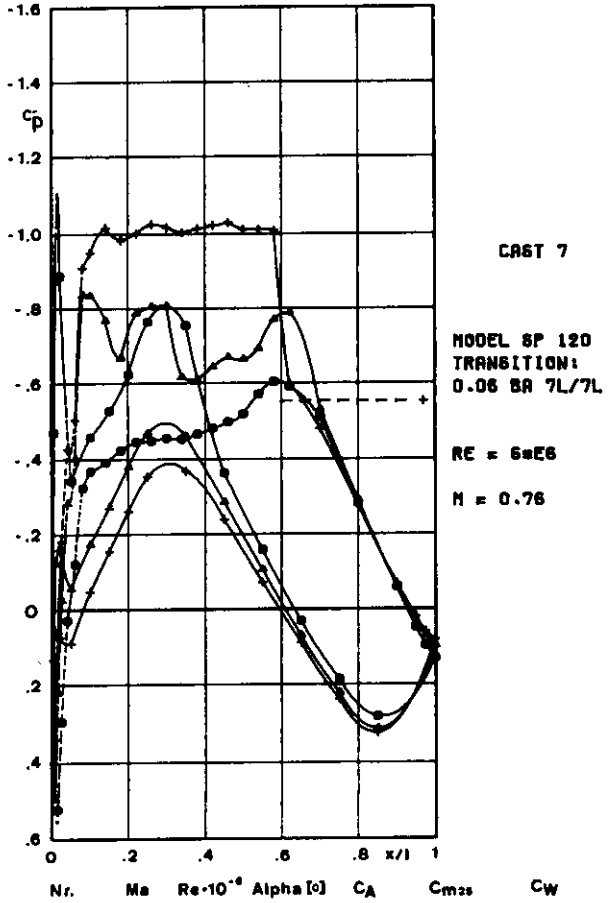
	Nr.	Ma	Re·10⁻⁶	Alpha [o]	C_A	C_{m25}	C_W
●	2493	0.697	5.80	-2.00	0.106	-0.1067	0.00963
▲	2487	0.701	5.97	1.00	0.642	-0.1106	0.01048
+	2486	0.701	5.94	2.00	0.709	-0.1096	0.01247



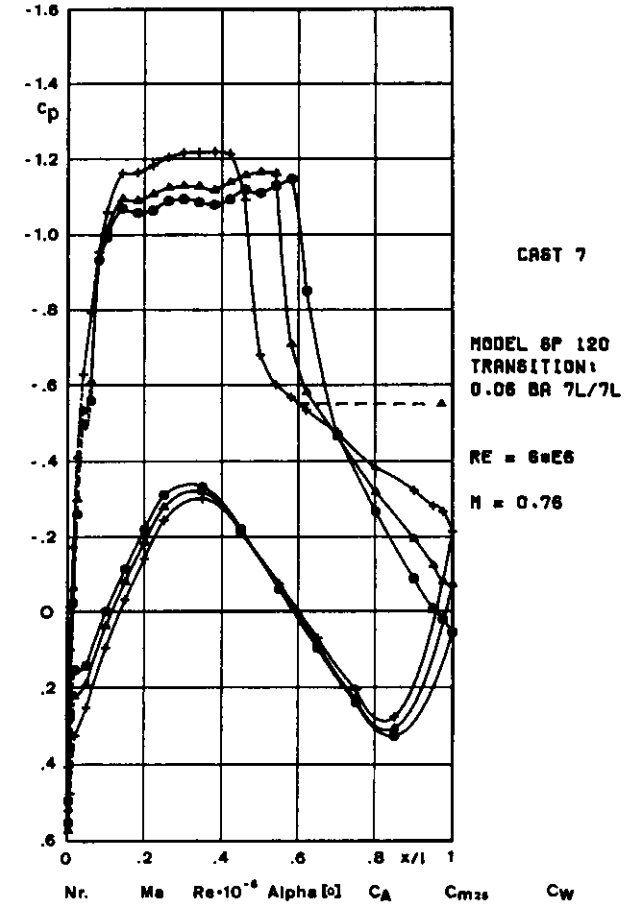
	Nr.	Ma	Re·10⁻⁶	Alpha [o]	C_A	C_{m25}	C_W
●	2499	0.702	5.95	3.00	0.906	-0.1137	0.02169
◆	2500	0.699	5.95	4.00	1.061	-0.1230	0.03883
+	2502	0.699	5.90	5.00	1.019	-0.1189	-

Figure 3.8 DFVLR-TWB tests. Surface pressure distributions

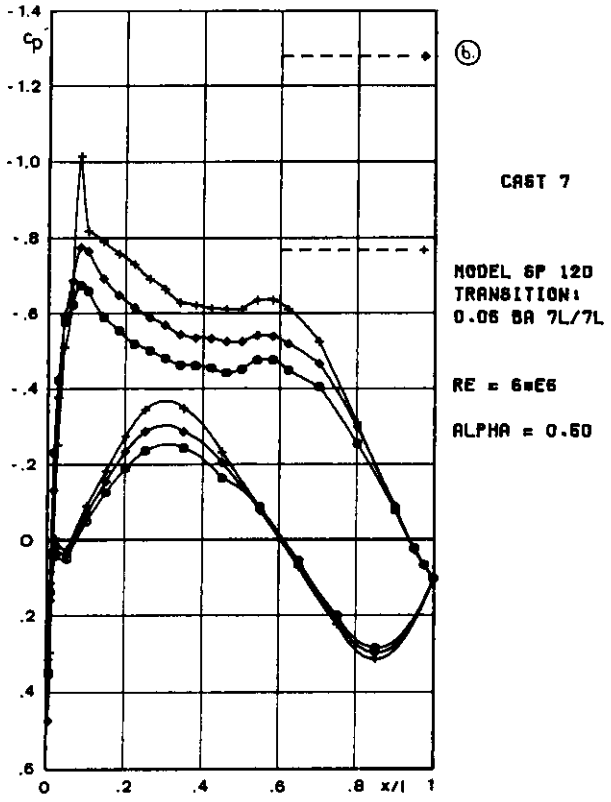
a. Angle of attack variation



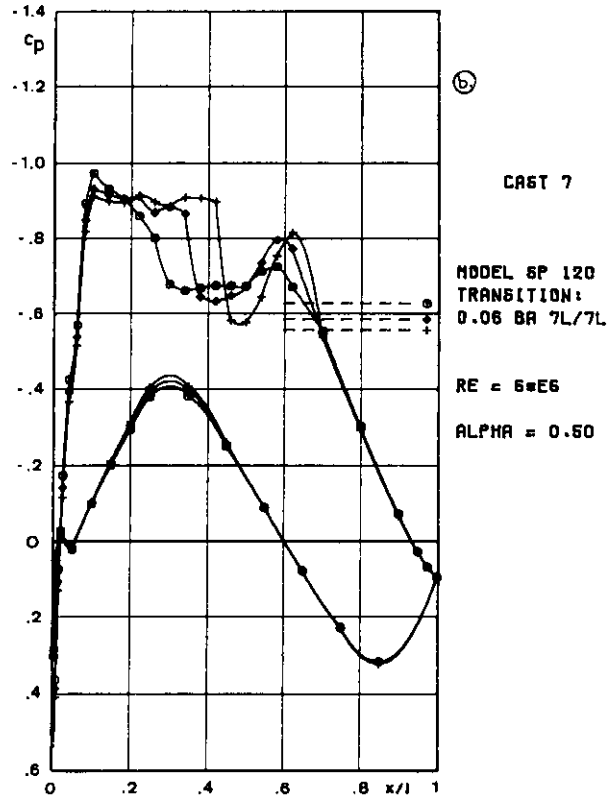
	Nr.	Ma	Re·10⁻⁶	Alpha [o]	C_A	C_{m25}	C_W
●	2490	0.761	5.98	-2.00	0.107	-0.1177	0.01020
▲	2486	0.759	5.98	0.00	0.427	-0.1220	0.01044
+	2487	0.760	5.92	1.00	0.630	-0.1311	0.01364



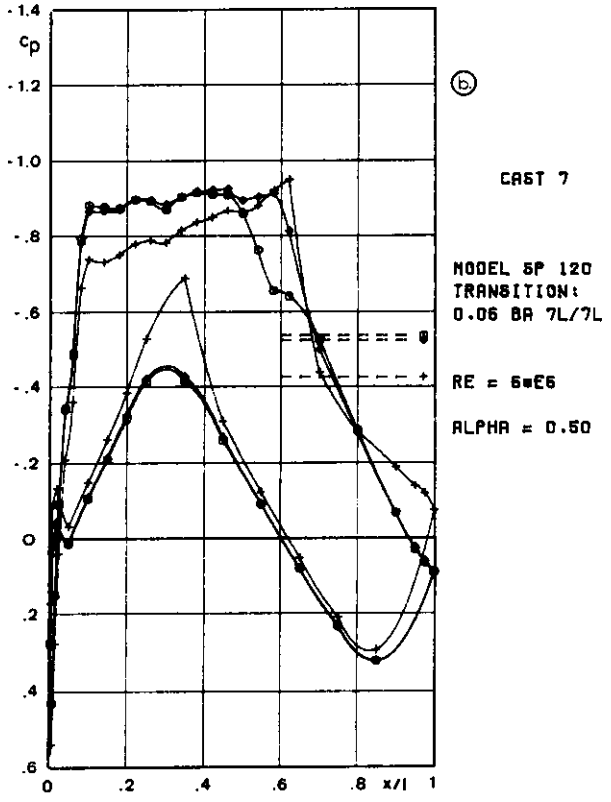
	Nr.	Ma	Re·10⁻⁶	Alpha [o]	C_A	C_{m25}	C_W
●	2496	0.759	6.00	1.50	0.719	-0.1416	0.01994
▲	2489	0.760	5.94	2.00	0.726	-0.1364	0.04196
+	2492	0.761	5.99	3.00	0.736	-0.1266	0.06155



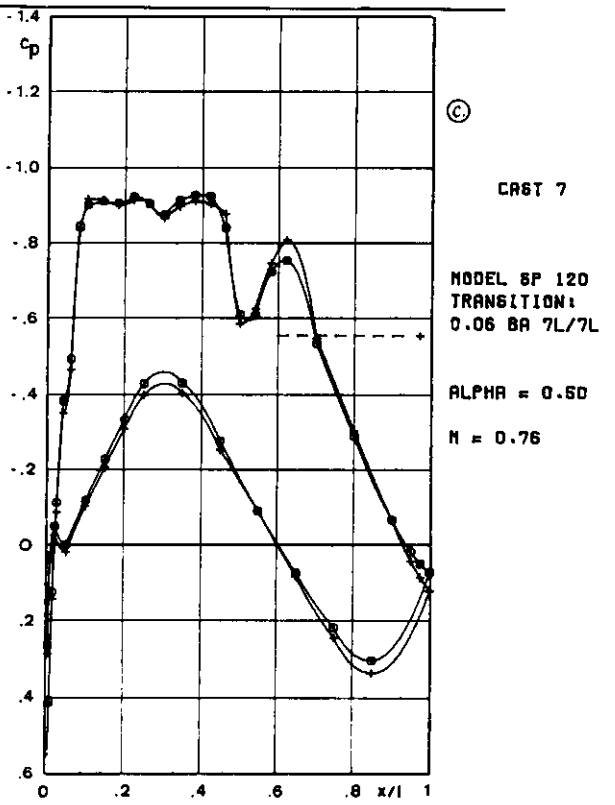
	Nr.	Ma	Re·10⁻⁶	Alpha [o]	C_A	C_{m25}	C_W
●	2511	0.407	5.40	0.50	0.382	-0.0900	0.00873
◆	2514	0.602	5.86	0.50	0.427	-0.1021	0.00887
+	2516	0.702	5.88	0.50	0.467	-0.1122	0.01017



	Nr.	Ma	Re·10⁻⁶	Alpha [o]	C_A	C_{m25}	C_W
●	2518	0.739	5.87	0.50	0.487	-0.1177	0.01035
◆	2519	0.751	5.86	0.50	0.513	-0.1217	0.01131
+	2520	0.759	5.87	0.50	0.529	-0.1235	0.01073



	Nr.	Ma	Re·10⁻⁶	Alpha [o]	C_A	C_{m25}	C_W
●	2524	0.765	5.88	0.50	0.527	-0.1251	0.01118
◆	2521	0.770	5.99	0.50	0.547	-0.1332	0.01201
+	2523	0.801	5.92	0.50	0.451	-0.1348	0.02276



	Nr.	Ma	Re·10⁻⁶	Alpha [o]	C_A	C_{m25}	C_W
●	2504	0.759	4.11	0.50	0.516	-0.1205	0.01238
+	2510	0.760	13.41	0.50	0.541	-0.1292	0.01012

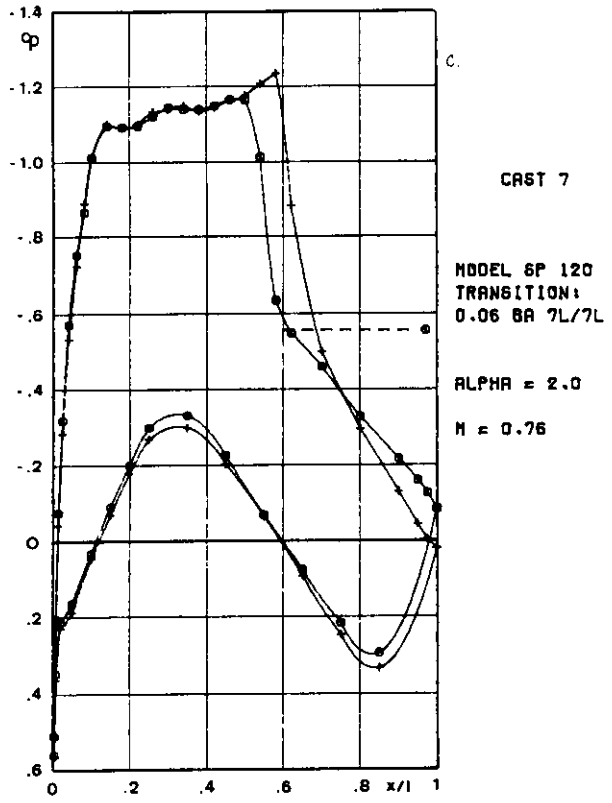
Figure 3.8 Continued.

b. Mach number variation

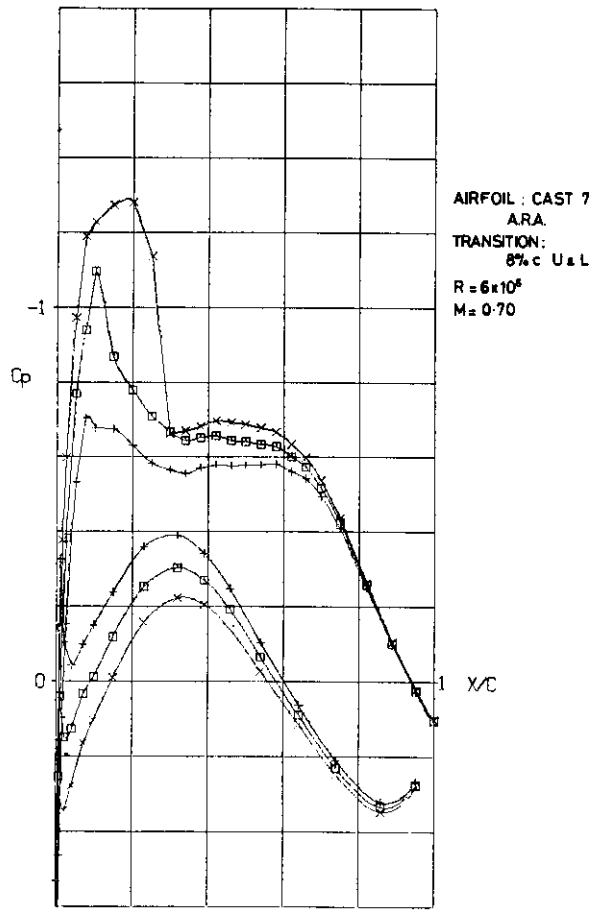
c. Reynolds number variation

Figure 3.8 Concluded

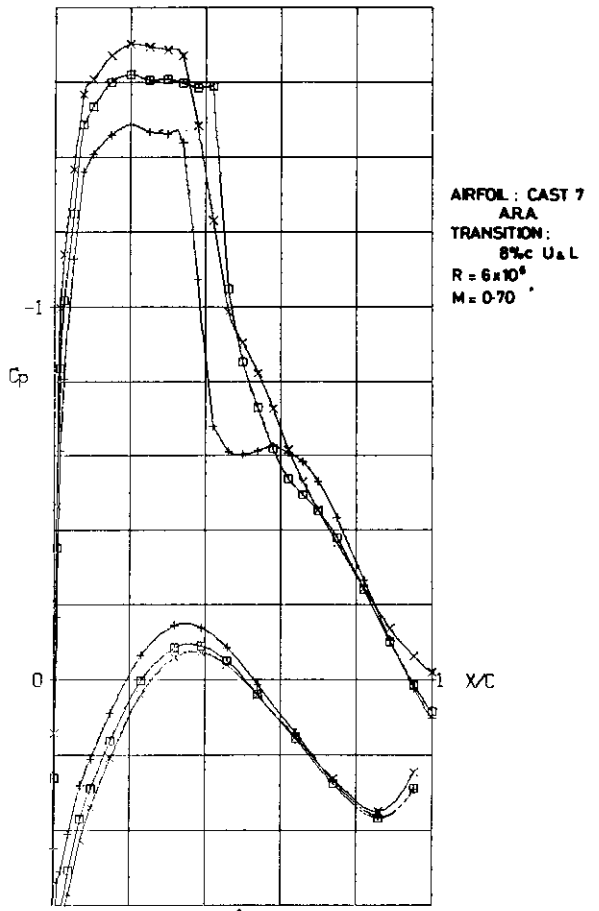
c. Reynolds number variation



	Nr.	Ma	Re·10⁻⁶	Alpha [o]	C_A	C_{m25}	C_W
●	2525	0.760	4.09	2.00	0.712	-0.1318	0.04235
+	2528	0.759	13.49	2.00	0.777	-0.1496	0.03156



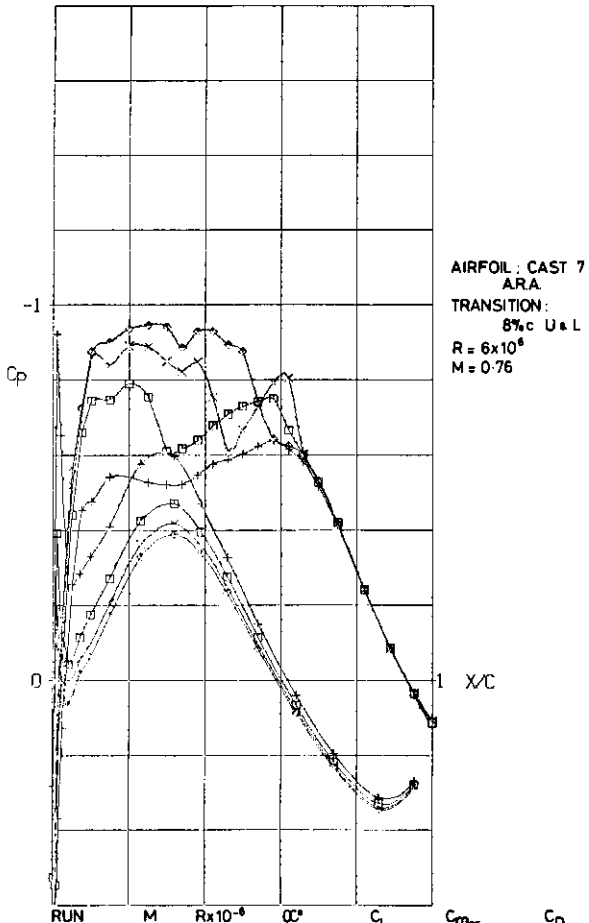
	RUN	M	Rx10⁻⁶	α°	C_L	$C_{m_{25}}$	C_D
+	58	0·702	6·00	-0·19	0·379	-0·1119	0·00976
⊡	59	0·701	5·98	0·76	0·528	-0·1108	0·01001
x	60	0·701	5·99	1·71	0·688	-0·1078	0·01172



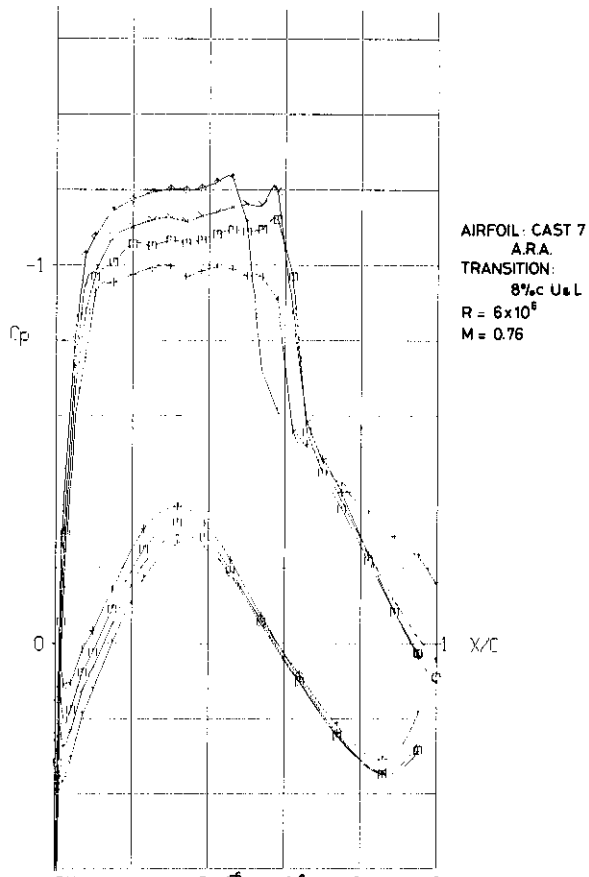
	RUN	M	Rx10⁻⁶	α°	C_L	$C_{m_{25}}$	C_D
+	61	0·700	5·97	2·64	0·867	-0·1064	0·01879
⊡	62	0·700	5·97	3·60	1·027	-0·1118	0·03286
x	63	0·700	5·96	4·59	1·066	-0·1092	0·04912

Figure 3.9 ARA tests. Surface pressure distributions

a. Angle of attack variation



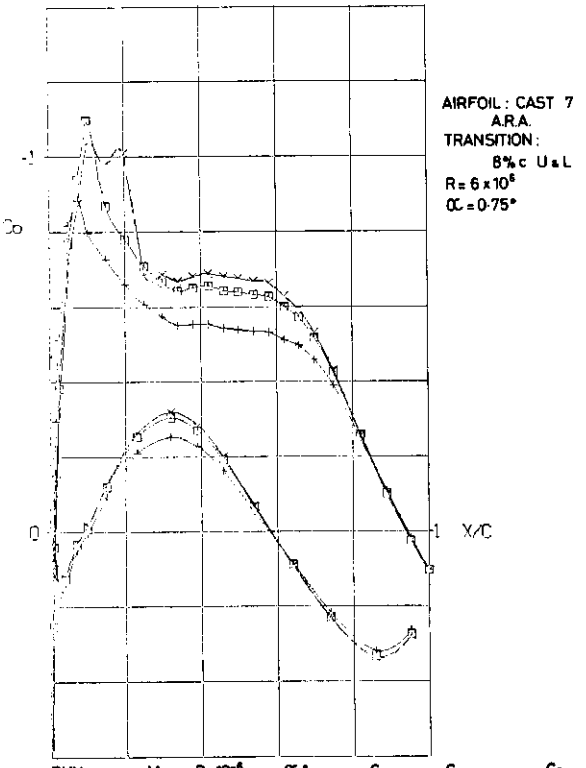
	RUN	M	Rx10^-6	α°	C_L	$C_{m_{25}}$	C_D
+	106	0·760	6·07	-1·17	0·240	-0·1217	0·01042
□	107	0·759	6·05	-0·22	0·414	-0·1224	0·01042
x	108	0·761	6·05	0·26	0·503	-0·1233	0·01075
◇	154	0·761	5·99	0·49	0·555	-0·1246	0·01061



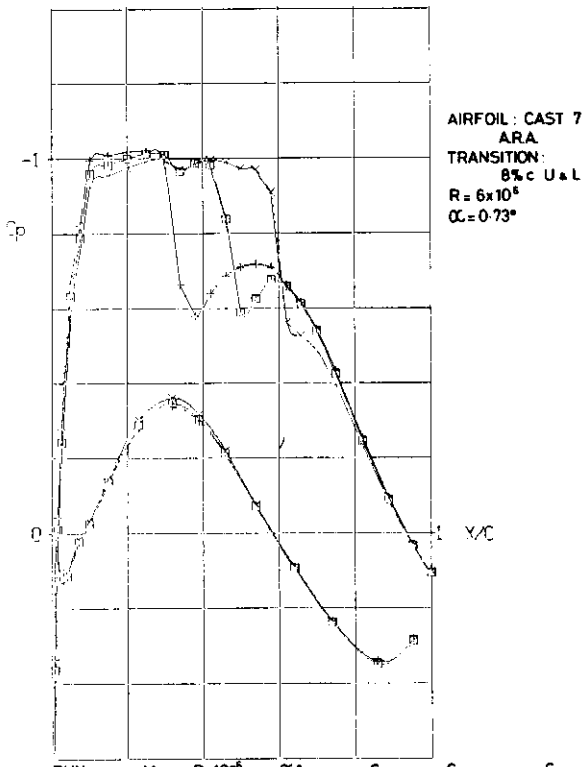
	RUN	M	Rx10^-6	α°	C_L	$C_{m_{25}}$	C_D
+	109	0.761	6.06	0.71	0.610	-0.1286	0.01156
□	110	0.760	6.06	1.18	0.702	-0.1376	0.01710
×	111	0.759	6.03	1.67	0.758	-0.1413	0.02350
◇	112	0.761	6.05	2.68	0.772	-0.1316	0.04695

Figure 3.9 Continued

a. Angle of attack variation



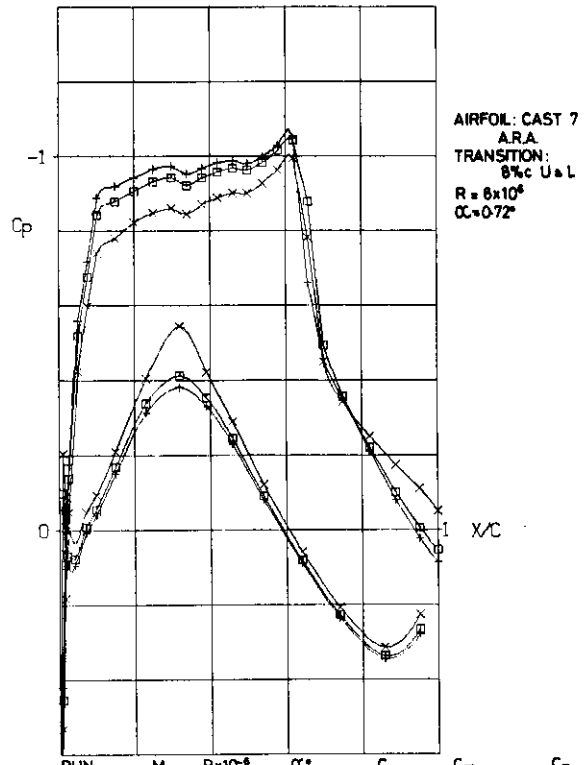
	RUN	M	R x10⁻⁶	α°	C_L	$C_{m_{25}}$	C_D
+	37	0·602	6·02	0·78	0·478	-0·1015	0·00943
⊡	59	0·701	5·98	0·76	0·528	-0·1108	0·01001
x	69	0·722	5·97	0·75	0·544	-0·1137	0·01038



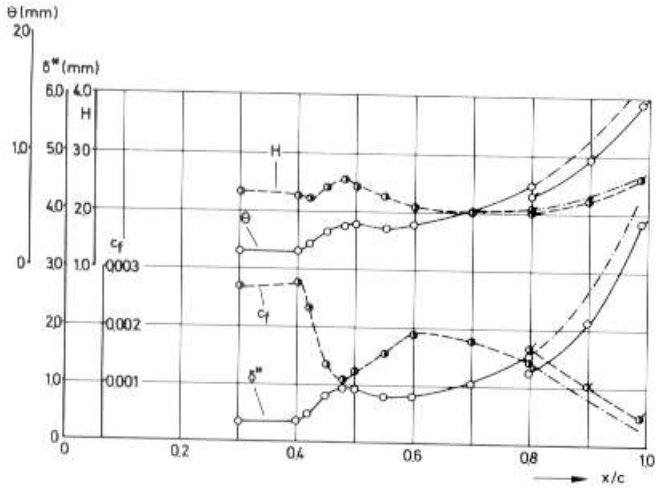
	RUN	M	R x10⁻⁶	α°	C_L	$C_{m_{25}}$	C_D
+	89	0·741	5·98	0·74	0·565	-0·1168	0·01107
⊡	98	0·752	6·03	0·73	0·593	-0·1213	0·01108
x	109	0·761	6·06	0·71	0·610	-0·1286	0·01156

Figure 3.9 Concluded

b. Mach number variation

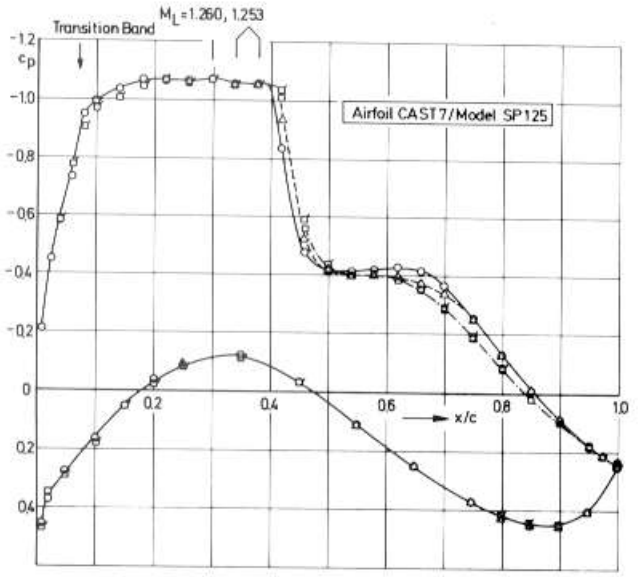


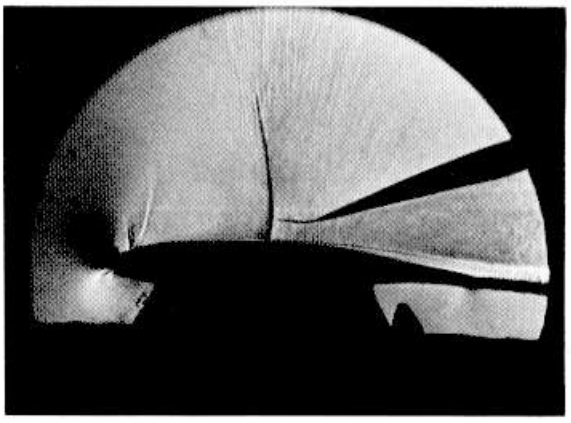
	RUN	M	R x10⁻⁶	α°	C_L	$C_{m_{25}}$	C_D
+	119	0·771	6·02	0·72	0·615	-0·1370	0·01490
⊡	131	0·779	5·97	0·71	0·595	-0·1413	0·01851
x	150	0·799	5·97	0·73	0·509	-0·1387	0·02401



Sym.	Run	M_∞	$\alpha°$	Probe location x/c	c_N
o	165	0.764	2.52	0.40	0.695
Δ	158	0.764	2.52	0.50	0.695
□	162	0.765	2.52	0.80	0.689
◫	193*	0.765	2.50	0.80	0.687

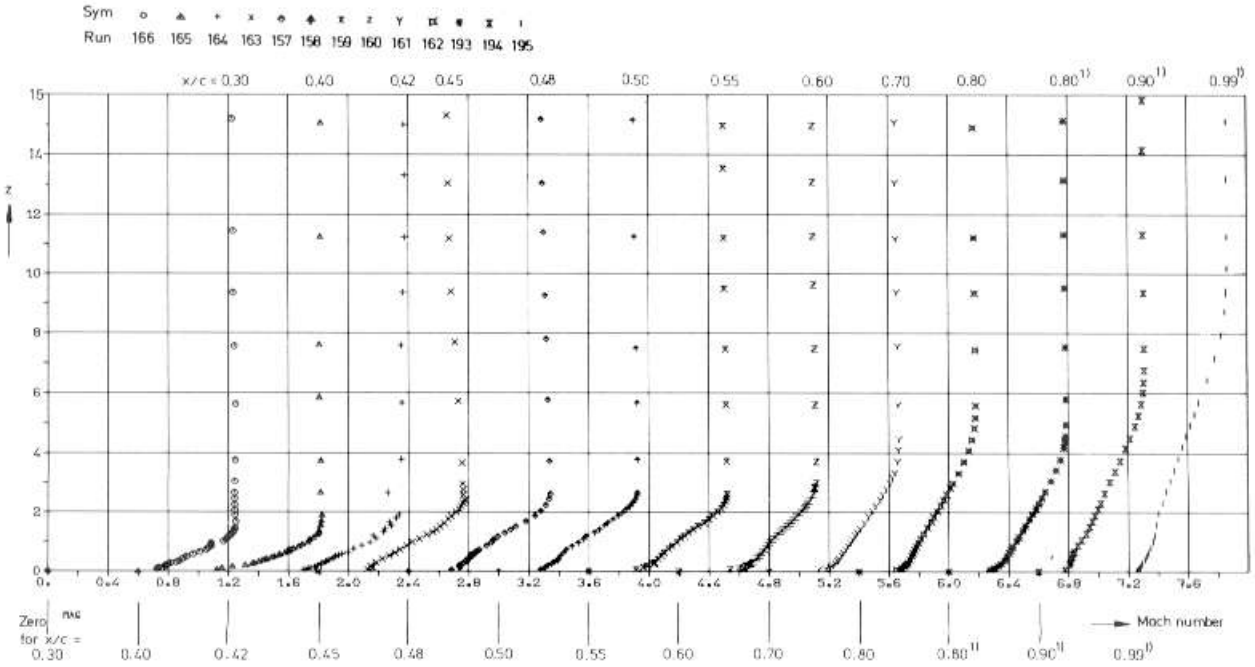
*Transition band was renewed before measuring boundary layer profiles at $x/c \geq 0.80$. Boundary layer profile at $x/c = 0.80$ was obtained with old and new transition band for comparison. The flagged symbols denote measurements with transition band renewed.
Data are not corrected for wall constraints or blockage due to cover of probe drive mechanism (see Introduction).
Skin friction was determined by a modified Ludwieg-Tillmann Formulation [6]



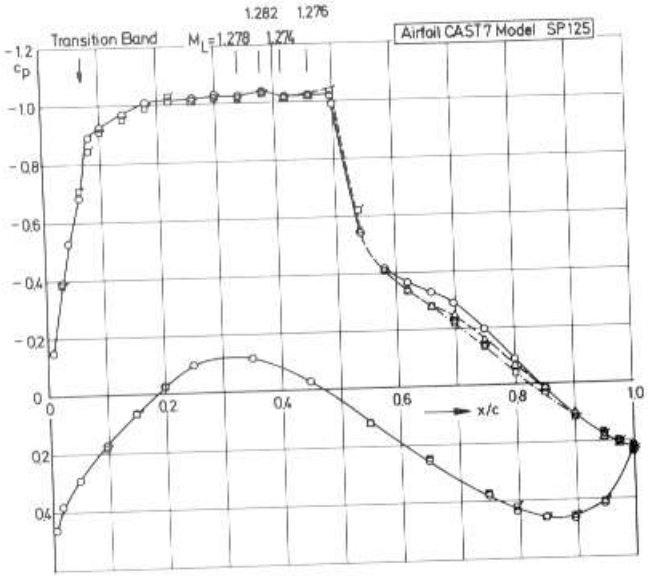


Schlieren picture corresponds to Run 158 with $(x/c)_{probe} = 0.50$

Figure 3.10 DFVLR 1x1 Meter tests. Surface pressure distribution and boundary layer measurements
Model: SP 125 c = 250 mm. Transition: 0.09 BA, 7.5/7.5L
a. $M_\infty = 0.765$ $\alpha = 2.52°$ $Re = 2.4 \cdot 10^6$

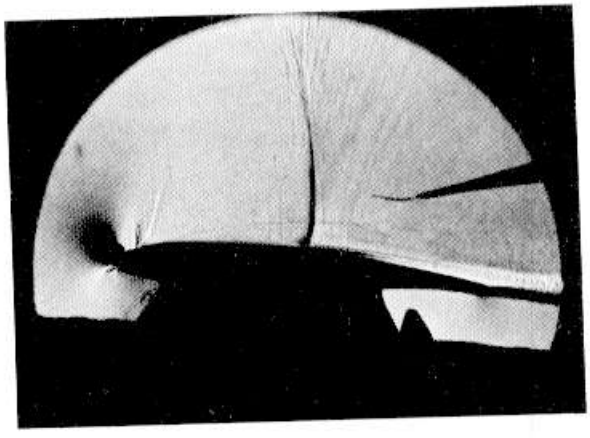


¹⁾ Transition band renewed (also see Legend)



Sym.	Run	M_∞	α°	Probe location x/c	c_N
○	177	0.785	2.52	0.42	0.721
△	171	0.785	2.52	0.60	0.716
□	167	0.784	2.52	0.80	0.706
◁	197*	0.785	2.50	0.80	0.707

For comments see Legend of Figure 3.10a



Schlieren picture corresponds to Run 168 with $(x/c)_{probe} = 0.70$

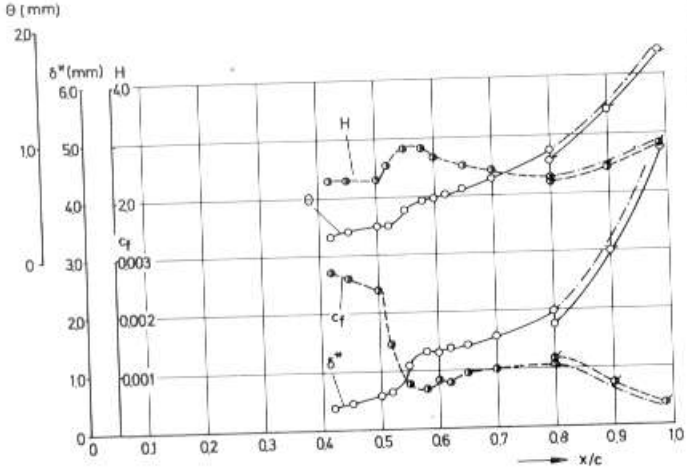
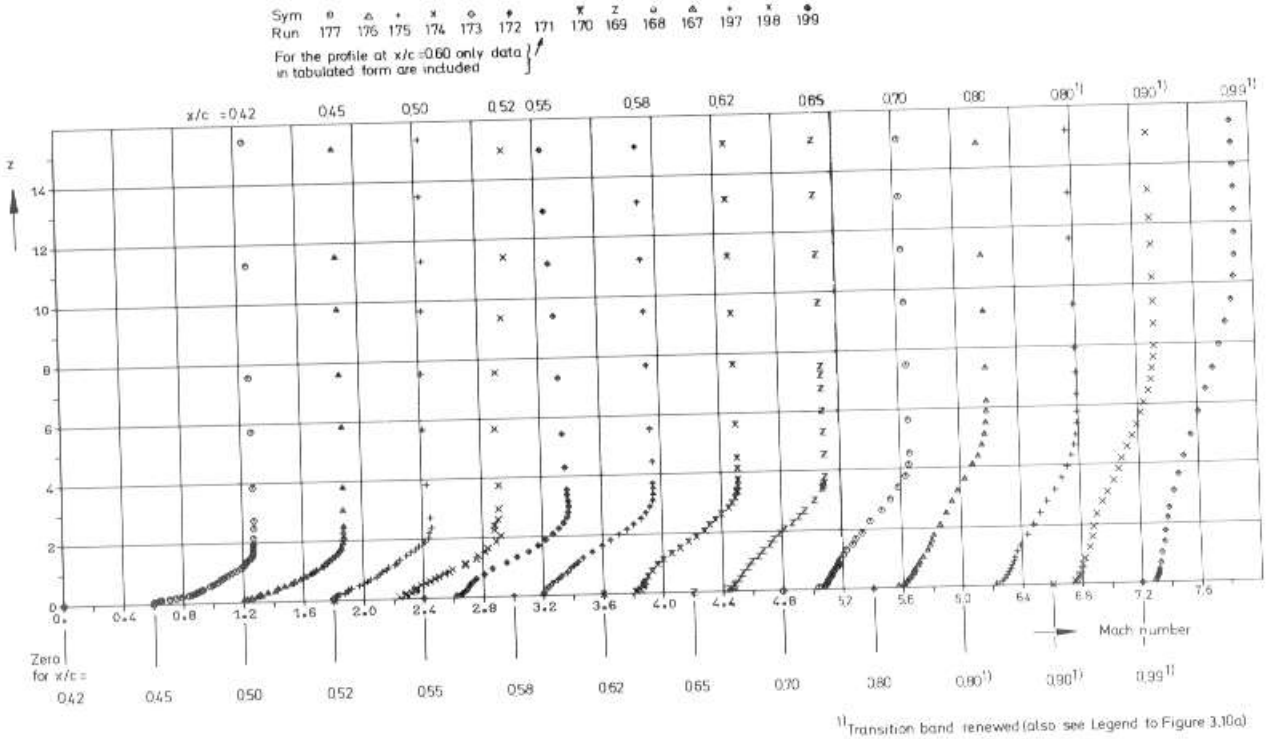


Figure 3.10 Concluded

b. $M_\infty = 0.785$ $\alpha = 2.52^\circ$

$Re = 2.4 \cdot 10^6$



[1] Transition band renewed (also see Legend to Figure 3.10a)

AR-138

4. NLR 7301 airfoil

contributed by

National Aerospace Laboratory NLR
Amsterdam, The Netherlands

4.1 Introduction

The NLR 7301 airfoil was selected because it represents the thickest (16.5%) of all supercritical airfoils submitted for inclusion in this data base and appears to be close to the limits of useful exploitation of the supercritical shock-free airfoil concept.
Because of the rather extreme nose radius the airfoil represents probably a hard test case for cartesian grid based methods, in particular if also based on the transonic small perturbation assumption.
The fact that the airfoil represents a rather extreme specimen of thick, supercritical airfoils is, in the present low Reynolds number tests ($\approx 2 \times 10^6$), reflected, i.a., in the typical variations with angle of attack and Mach number of the aerodynamic coefficients. It appears that, even at subcritical conditions, and both with free and fixed transition, the boundary layer on either the upper surface, or the lower, or both, is stressed to the limits or beyond. As a result the effects of variations in transition position and transition fixing are rather dramatic. This situation suggests that the airfoil would be a difficult test case for all methods involving coupled inviscid flow and boundary layer computations. Note that when transition was free, it occurred generally through a laminar separation bubble which is often reflected in the pressure distribution (see e.g. fig. 4.10, $\alpha = .85^\circ$, $M = 0.5 - 0.7$, lower surface 50% chord). With fixed transition at 30% chord the trip caused generally a local perturbation of the pressure distribution.
A point of concern (although not a privilege of the present tests) is the amount of wall interference contained by the test data. The wall interference corrections given in section 6.2 of the data set have been determined by correlating classical ventilated wall interference theory with the downwash determined experimentally by means of solid/slotted wall comparisons and by means of the "drag balance" method (difference between wake drag and pressure + friction drag). At the time of the preparation of this data set, work was in progress to determine wall interference from measured static pressure distributions near the top and bottom wall. The reader is encouraged to watch the literature for publication of this work. It is emphasized that the observed difference between potential flow and experimental design Mach number for shock-free flow for this airfoil of 0.026 (fig. 4.1) is <u>not</u> a measure of the blockage in the tests. The difference can be explained by the viscous de-cambering near the trailing-edge. The decambering causes a reduction in circulation and an associated loss in upper surface supervelocity. To restore the local (shock-free) Mach number distribution the angle of attack and free stream Mach number have to be increased above the potential flow values.
It is worth mentioning that the tests were done with the specific purpose of verifying for the first time the aerodynamic characteristics of a supercritical shock-free airfoil designed by means of the Boerstoel hodograph method. The airfoil has also been tested under oscillatory conditions in the same tunnel. At the time of preparation of this data set a program of high Reynolds number tests in the Lockheed Georgia Compressible Flow Facility was partially completed and tests in the NASA Ames 11 ft x 11 ft tunnel (steady and unsteady, $Re \approx 15 \times 10^6$) were about to be started.

4.2 DATA SET.

1. Airfoil	
1.1. Airfoil designation	NLR 7301 (also NLR HT 7310810)
1.2. Type of airfoil	thick, aft-loaded, shock-free supercritical; designed by means of Boerstoel hodograph method
1.2.1. airfoil geometry	see fig. 4.1 and table 4.1
nose radius	$R_o/c \approx 5\%$
maximum thickness	$t/c = 16.3\%$
base thickness	zero
1.2.2. design condition	potential flow (hodograph theory): $M = 0.721$, $c_l = 0.60$
	experiment (free transition, NLR Pilot Tunnel): $M_t = 0.747$, $c_{l_t} \approx 0.45$
design pressure distribution	see fig. 4.1, table 4.1
1.3. Additional remarks	design method described in ref. 1
1.4. References on airfoil	none
2. Model geometry	
2.1. Chord length	0.18 m
2.2. Span	0.42 m
2.3. Actual model co-ordinates and accuracy	see table 4.2 and fig. 4.2
2.4. Maximum thickness	$t/c = 16.5\%$
2.5. Base thickness	0.1% chord
2.6. Additional remarks	finite trailing-edge (base) thickness was obtained by cutting-off theoretical airfoil at 98.5% chord
2.7. References on model	none
3. Wind tunnel	
3.1. Designation	NLR Pilot tunnel
3.2. Type of tunnel	continuous, closed circuit
3.2.1. stagnation pressure	atmospheric
3.2.2. stagnation temperature	313 ± 1 K
3.2.3. humidity/dew point	varies with atmospheric condition (stagnation temperature chosen such that condensation is avoided)
3.3. Test section	see fig. 4.3
3.3.1. dimensions	rectangular height 0.55 m, width 0.42 m
3.3.2. type of walls	10% slotted top and bottom walls, solid side walls separate top and bottom plenums
3.4. Flow field (empty test section)	
3.4.1. reference static pressure	taken at side wall 3.6 chords upstream of model
3.4.2. flow angularity	upwash $\Delta\alpha = 0.12^\circ$ ($\pm 0.03^\circ$) (with respect to tunnel reference plane)
3.4.3. Mach number distribution	see fig. 4.4a
3.4.4. pressure gradient	see fig. 4.4b
3.4.5. turbulence/noise level	see fig. 4.5 and ref. 4
3.4.6. side wall boundary layer	thickness 10% of test section semi-width, no special treatment
3.5. Additional remarks	for two-dimensionality of the flow see ref. 3
3.6. References on wind tunnel	ref. 2
4. Tests	
4.1. Type of measurements	surface pressures (lift, pitching moment) wake pitot pressures (drag) surface flow visualization flow field visualization
4.2. Tunnel/model dimensions	
4.2.1. height/chord ratio	3.1
4.2.2. width/chord ratio	2.3.
4.3. Flow conditions included in present data base	

4.3.1. angle of attack	-4° to $+4^{\circ}$ for $M_t = 0.747$
4.3.2. Mach number	0.30 to 0.85 for $\alpha_t = 0.85^{\circ}$
4.3.3. Reynolds number	about 2×10^6 (see fig. 4.6)
4.3.4. transition	free and fixed
- position of free transition	see fig. 4.7
- transition fixing	size 130 (90-106μ) ballotini (glass beads) bands of 2mm width at 30% chord on upper and lower surface
4.3.5. temperature equilibrium	Yes
4.4. Additional remarks	1) without boundary layer trip transition occured generally through a laminar separation bubble. 2) there are indications for incipient rear separation at all flow conditions except at low c_l and around the design condition with free transition
4.5. References on tests	ref. 5

5. Instrumentation

5.1. Surface pressure measurements	
5.1.1. pressure holes	
- size	diameter 0.25 mm; depth 1mm
- spanwise station(s)	staggered (± 20 mm) around centre line
- chordwise positions	see table 4.3 and fig. 4.2a
5.1.2. type of transducers and scanning devices	one ± 7.5 psi and two ± 5psi Statham differential pressure transducers + 48 steps Scanivalves; reference pressure p_∞ measured with C.E.C. 15 psi absolute pressure transducer (accuracy ± 0.05 %)
5.1.3. other	no
5.2. Wake measurements	
5.2.1. type/size of instrument(s)	wake rake (fig. 4.3); 69 tubes, spacing according to table 4.4 tube diameter outer/inner : 1.0/0.7 mm
5.2.2. streamwise position(s)	0.8 chords downstream of trailing edge
5.2.3. type of transducers and scanning devices	two ± 2.5 psi Statham differential pressure transducers + 48 steps Scanivalves; reference pressure p_o, measured with C.E.C. 15 psi absolute pressure transducer (accuracy ± 0.05 %)
5.3. Boundary layer measurements	no
5.3.1. type/size of instruments	
5.3.2. locations	
5.3.3. type of transducers and scanning devices	
5.4. Skin friction measurements	no
5.4.1. type/size of instruments	
5.4.2. locations	
5.4.3. type of transducer	
5.5. Flow visualisation	
5.5.1. flow field	shadowgraph pictures
5.5.2. surface flow	detection of transition position by sublimation technique (acenaphtene)
5.6. other	no
5.7. Additional remarks	length of pressure tubes 4m; scanning rate 2 pressures/sec.
5.8. References on instrumentation	none

6. Data

6.1. Accuracy (wall interference excluded)

6.1.1. angle of attack setting	$\pm$ 0.02°
6.1.2. free stream Mach number:	
- setting	$\pm$ 0.001
- variation during one pressure scan	$\pm$ 0.001
6.1.3. pressure coefficients	ΔC_p =±0.002 to 0.02 depending on local pressure level and dynamic pressure
6.1.4. aerodynamic coefficients	unknown
6.1.5. boundary layer quantities	n.a.
6.1.6. repeatability	$\Delta c_l \approx \pm$ 0.004; $\Delta c_d \approx \pm$ 0.0005; $\Delta c_m \approx \pm$ 0.001
6.1.7. remarks	none

6.2. Wall interference corrections (indicate estimated accuracy)

6.2.1. angle of attack	$\Delta\alpha = -1.4 \times c_l + 0.56\,(c_m + 0.25 c_l)\,/\sqrt{1-M^2}$ (degrees) ($\pm$ 15%)
6.2.2. blockage (solid/wake)	$\lvert\Delta M\rvert \leq 0.005$ $\lvert\Delta q\rvert \leq 0.5\%$
6.2.3. streamline curvature	$\Delta c_l = -0.015 \times c_l\,/(1-M^2)$, ($\pm$ 30%) $\Delta c_m = -0.25\,\Delta c_l$, ($\pm$ 30%)
6.2.4. other	
6.2.5. remarks	wall interference is presently being reassessed
6.2.6. references on wall interference corrections	ref. 6

6.3. Presentation of data

6.3.1. aerodynamic coefficients	figs. 4.8, 4.9 , table 4.5
6.3.2. surface pressures	table 4.5 ; fig. 4.10 (table4.5 includes wake rake pressures)
6.3.3. boundary layer quantities	-
6.3.4. wall interference corrections included?	tabulated data for α, c_l and c_m are presented with and without corrections for downwash and streamline curvature. No blockage corrections No corrections on c_d and C_p. Figures present only uncorrected values
6.3.5. corrections for model deflection	no
6.3.6. Empty test section calibration taken into account?	no
6.3.7. other corrections included?	no
6.3.8. additional remarks	fixed transition surface pressure data are affected by local disturbances due to transition band (in particular holes number 15, 47 and 48)

6.4. Were test carried out in different facilities on the current aerofoil? If so, what facilities. Are data included in the present data base?	1) Tests at various Reynolds numbers ($3\text{-}30 \times 10^6$) conducted in Lockheed Ga. Compressible Flow Facility. Not included in present data base 2) Unsteady (oscillating airfoil) tests on other model in same tunnel. Not included in data base. 3) Unsteady (oscillating airfoil) tests at 15×10^6 Re number planned in 2-d test set-up of NASA Ames 11 x 11 foot Tunnel. Not included in data base
6.5. To be contacted for further information on tests	J. Zwaaneveld National Aerospace Laboratory NLR Anthony Fokkerweg 2 Amsterdam 1017 Netherlands

7. References

1. J.W. Boerstoel G.H. Huizing	"Transonic shock-free aerofoil design by analytic hodograph methods" NLR MP 73023 U Also AIAA Paper 74-539
2. J. Zwaaneveld	Principal Data of the NLL Pilot Tunnel Report MP. 185
3. H.A. Dambrink	Investigation of the 2-dimensionality of the flow around a profile in the NLR $0.55 \times 0.42\ m^2$ transonic wind tunnel NLR Memorandum AC-72-018
4. R. Ross P. Rohne	Noise environment in the NLR transonic wind tunnel HST NLR TR 74128 U
5. J. Zwaaneveld	Aerodynamic characteristics of the super-critical shock-free airfoil section NLR 7301
6. J. Smith	Values of wall interference corrections for the NLR Pilot Tunnel with 10% open test section NLR Memorandum AC-74-01

8. List of Symbols

8.1. used in text and figures

c_p	pressure coefficient
c_p^*	critical pressure coefficient
c	airfoil chord length
c_d	drag coefficient
c_l	lift coefficient
c_m	pitching moment coefficient (with respect to .25c)
M	free stream Mach number
p_∞	free stream static pressure
p_o	free stream stagnation pressure
q	dynamic pressure
Re_c	Reynolds number
R_o	leading edge radius
t	airfoil maximum thickness
x,z	airfoil coordinate system
x_t, z_t	windtunnel coordinate system
α	angle of attack
subscript	
t	refers to uncorrected values

8.2. used in data tables

ALPHA	α
ALPHAT	α_t (with respect to tunnel reference plane)
CDPB	pressure drag coefficient, uncorrected
CDP	pressure drag coefficient, corrected for wall interference
CLB	c_{l_t}
CL	c_l, corrected for wall interference
CMB	c_{m_t}
CM	c_m, corrected for wall interference
CPIB	C_p (uncorrected)
CPWB	total head deficit pressure coefficient in wake
MAB	free stream Mach number, uncorrected
PI	local static pressure (kgf/m^2)
PO	stagnation pressure (kgf/m^2)
QB	free stream dynamic pressure (kgf/m^2)
REC	Re_c
1/R	curvature
THETA	surface slope

MACH INF = 0.720957
INCIDENCE=-0.358998 DEGR

CL = 0.594936
CN = 0.594924
CT = 0.003728

CP(MACH=0) = 1.136786
CP(MACH=1) =-0.695936

UPPER PART OF AEROFOIL

X	Z	THETA	1/R	M	CP
-0.00000	-0.00041	89.7175	1.841E +1	0.0002	1.137
0.00119	0.01105	78.9392	1.373E +1	0.2008	1.029
0.00429	0.02171	68.9825	1.634E +1	0.3932	0.744
0.00943	0.03217	57.7134	1.817E +1	0.6135	0.265
0.01519	0.03976	47.4163	2.124E +1	0.8257	-0.265
0.02005	0.04434	39.0787	2.535E +1	1.0120	-0.725
0.02729	0.04909	27.9208	2.199E +1	1.2221	-1.192
0.03278	0.05173	23.5938	8.307E +0	1.2738	-1.296
0.06994	0.06306	12.1222	2.751E +0	1.2738	-1.296
0.08380	0.06584	10.3503	1.778E +0	1.2652	-1.279
0.09548	0.06778	9.2952	1.386E +0	1.2566	-1.262
0.10759	0.06963	8.4118	1.138E +0	1.2479	-1.244
0.12087	0.07153	7.6114	9.641E -1	1.2393	-1.227
0.13533	0.07334	6.8614	8.341E -1	1.2307	-1.210
0.15107	0.07521	6.1473	7.337E -1	1.2221	-1.192
0.16857	0.07699	5.4501	6.536E -1	1.2135	-1.174
0.18765	0.07872	4.7675	5.888E -1	1.2048	-1.156
0.20878	0.08033	4.0870	5.352E -1	1.1962	-1.138
0.23193	0.08211	3.4060	4.910E -1	1.1875	-1.120
0.25751	0.08337	2.7129	4.542E -1	1.1789	-1.102
0.28580	0.08456	2.0029	4.243E -1	1.1702	-1.083
0.31682	0.08535	1.2693	4.014E -1	1.1616	-1.065
0.35092	0.08578	0.5038	3.861E -1	1.1529	-1.046
0.38690	0.08585	-0.2843	3.798E -1	1.1442	-1.027
0.42357	0.08551	-1.0827	3.838E -1	1.1355	-1.008
0.45839	0.08454	-1.8614	3.988E -1	1.1268	-0.989
0.48889	0.08334	-2.5809	4.237E -1	1.1180	-0.969
0.51467	0.08203	-3.2298	4.562E -1	1.1093	-0.950
0.53577	0.08074	-3.8041	4.939E -1	1.1005	-0.930
0.55314	0.07951	-4.3156	5.347E -1	1.0918	-0.910
0.56758	0.07836	-4.7739	5.744E -1	1.0830	-0.890
0.57986	0.07712	-5.1915	6.114E -1	1.0742	-0.870
0.59049	0.07628	-5.5757	6.457E -1	1.0653	-0.850
0.59984	0.07534	-5.9334	6.745E -1	1.0565	-0.829
0.60838	0.07443	-6.2704	6.968E -1	1.0476	-0.809
0.61624	0.07355	-6.5898	7.119E -1	1.0388	-0.788
0.62365	0.07267	-6.8961	7.201E -1	1.0299	-0.767
0.63073	0.07179	-7.1910	7.216E -1	1.0209	-0.746
0.63758	0.07091	-7.4761	7.176E -1	1.0120	-0.725
0.64433	0.07000	-7.7545	7.091E -1	1.0030	-0.703
0.65097	0.06908	-8.0250	6.970E -1	0.9940	-0.682
0.65765	0.06812	-8.2916	6.827E -1	0.9850	-0.660
0.66433	0.06714	-8.5519	6.666E -1	0.9759	-0.638
0.69172	0.06276	-9.5556	5.958E -1	0.9393	-0.549
0.72051	0.05766	-10.4899	5.191E -1	0.9022	-0.457
0.75082	0.05183	-11.3298	4.285E -1	0.8644	-0.362
0.78316	0.04514	-12.0395	3.204E -1	0.8257	-0.265
0.81838	0.03745	-12.5775	2.014E -1	0.7861	-0.164
0.85735	0.02864	-12.8939	7.612E -2	0.7454	-0.061
0.90012	0.01879	-12.9145	-6.232E -2	0.7032	0.045
0.94447	0.00870	-12.5279	-2.496E -1	0.6594	0.153
0.98276	0.00049	-11.6105	-6.649E -1	0.6135	0.265
1.00000		-9.4533		0.5686	0.372

LOWER PART OF AEROFOIL

X	Z	THETA	1/R	M	CP
0.00090	-0.01007	-78.1070	-2.815E +1	0.2008	1.029
0.00380	-0.01817	-63.2287	-2.379E +1	0.3932	0.744
0.00973	-0.02674	-47.4469	-2.386E +1	0.6135	0.265
0.01514	-0.03170	-37.8363	-1.911E +1	0.7245	-0.009
0.02032	-0.03528	-31.8654	-1.487E +1	0.7861	-0.164
0.03173	-0.04119	-23.7468	-7.879E +0	0.8452	-0.314
0.03871	-0.04403	-20.7632	-6.086E +0	0.8644	-0.362
0.05012	-0.04794	-17.1851	-4.338E +0	0.8834	-0.410
0.07183	-0.05373	-13.0435	-2.390E +0	0.8928	-0.433
0.08768	-0.05710	-11.1493	-1.751E +0	0.8959	-0.441
0.10248	-0.05982	-9.7987	-1.406E +0	0.8991	-0.449
0.11696	-0.06217	-8.7150	-1.186E +0	0.9022	-0.457
0.13181	-0.06430	-7.7675	-1.028E +0	0.9053	-0.464
0.14697	-0.06626	-6.9198	-9.116E -1	0.9084	-0.472
0.16344	-0.06814	-6.1020	-8.174E -1	0.9115	-0.480
0.18139	-0.06997	-5.2977	-7.407E -1	0.9146	-0.488
0.20175	-0.07172	-4.4710	-6.763E -1	0.9177	-0.495
0.22541	-0.07338	-3.5902	-6.225E -1	0.9208	-0.503
0.25401	-0.07492	-2.6068	-5.792E -1	0.9239	-0.511
0.29056	-0.07620	-1.4290	-5.503E -1	0.9270	-0.518
0.34083	-0.07674	0.1428	-5.334E -1	0.9301	-0.526
0.45235	-0.07265	4.4299	-9.293E -1	0.9301	-0.526
0.46724	-0.07139	5.2831	-1.057E +0	0.9239	-0.511
0.47815	-0.07032	5.9586	-1.084E +0	0.9146	-0.488
0.48586	-0.06950	6.4272	-1.029E +0	0.9053	-0.464
0.49891	-0.06793	7.1442	-8.612E -1	0.8865	-0.418
0.50546	-0.06709	7.4549	-7.864E -1	0.8771	-0.394
0.51936	-0.06521	8.0380	-6.740E -1	0.8580	-0.346
0.52692	-0.06411	8.3230	-6.347E -1	0.8484	-0.322
0.53485	-0.06293	8.6082	-6.048E -1	0.8387	-0.297
0.54321	-0.06164	8.8955	-5.826E -1	0.8290	-0.273
0.54604	-0.06119	8.9913	-5.767E -1	0.8257	-0.265
0.56393	-0.05827	9.5760	-5.540E -1	0.8061	-0.215
0.58260	-0.05502	10.1729	-5.456E -1	0.7861	-0.164
0.60128	-0.05158	10.7615	-5.353E -1	0.7659	-0.113
0.61930	-0.04806	11.3087	-4.973E -1	0.7454	-0.061
0.63656	-0.04454	11.7694	-4.062E -1	0.7245	-0.009
0.65366	-0.04090	12.1112	-2.719E -1	0.7032	0.045
0.67152	-0.03702	12.3224	-1.356E -1	0.6815	0.099
0.69073	-0.03283	12.4071	-1.826E -2	0.6594	0.153
0.71144	-0.02826	12.3602	+9.588E -2	0.6367	0.209
0.73343	-0.02348	12.1462	+2.442E -1	0.6135	0.265
0.75693	-0.01851	11.6662	+4.631E -1	0.5896	0.322
0.78360	-0.01321	10.7331	+7.284E -1	0.5649	0.380
0.81704	-0.00733	9.0608	+9.821E -1	0.5394	0.439
0.86319	-0.00121	5.9425	+1.386E +0	0.5130	0.498
0.96020	0.00109	-3.5723	+1.846E +0	0.5130	0.498
0.97816	-0.00032	-5.5151	+1.938E +0	0.5264	0.469
0.98897	-0.00145	-6.7713	+2.111E +0	0.5394	0.439
0.99547	-0.00225	-7.5880	+2.162E +0	0.5523	0.409
0.99918	-0.00275	-7.9294	+2.891E -1	0.5649	0.380
1.00000		-9.4533		0.5686	0.372

CO-ORDINATES OF SONIC LINE

X	Z
0.01953	0.03685
0.01957	0.03899
0.02006	0.04234
0.02107	0.04632
0.02236	0.05165
0.02389	0.05877
0.02612	0.06767
0.03006	0.07841
0.03697	0.09241
0.04823	0.11389
0.06577	0.15016
0.08293	0.18694
0.10739	0.23590
0.14366	0.29554
0.19795	0.35670
0.25361	0.39100
0.29768	0.40149
0.34505	0.39832
0.39593	0.38024
0.44531	0.34851
0.49159	0.30641
0.53311	0.25819
0.58503	0.18263
0.63623	0.08834
0.67200	0.00866

TABLE 4.1 Technical tables of aerofoil NLR HT 7310810

UPPER PART

X	Z	X	Z
0.0000012	-.0004162	0.4297667	+.0880434
0.0002895	+.0052191	0.4386048	+.0878857
0.0005870	+.0076768	0.4474429	+.0876982
0.0008861	+.0095965	0.4562811	+.0874805
0.0011758	+.0112217	0.4651193	+.0872324
0.0014662	+.0126337	0.4728611	+.0869899
0.0017468	+.0138934	0.4806030	+.0867235
0.0020176	+.0150413	0.4883450	+.0864327
0.0022988	+.0160878	0.4960870	+.0861171
0.0025701	+.0170734	0.5026310	+.0858307
0.0028314	+.0179878	0.5091750	+.0855260
0.0042209	+.0220528	0.5157191	+.0852026
0.0056121	+.0254172	0.5222632	+.0848603
0.0069239	+.0281722	0.5302975	+.0844136
0.0081862	+.0305312	0.5383319	+.0839369
0.0094795	+.0326872	0.5463882	+.0834020
0.0107530	+.0346503	0.5525071	+.0830196
0.0119867	+.0363594	0.5613261	+.0823375
0.0131194	+.0378449	0.5686577	+.0819492
0.0141918	+.0391576	0.5759893	+.0812713
0.0153049	+.0404096	0.5822243	+.0807557
0.0164386	+.0416006	0.5884593	+.0802173
0.0175319	+.0426834	0.5938567	+.0797321
0.0185343	+.0436187	0.5992541	+.0792287
0.0194052	+.0443882	0.6040016	+.0787704
0.0202255	+.0450763	0.6087491	+.0782972
0.0211270	+.0457913	0.6130854	+.0778517
0.0223832	+.0467230	0.6174218	+.0773934
0.0240550	+.0478651	0.6254040	+.0765152
0.0255447	+.0488004	0.6329293	+.0755458
0.0265278	+.0493759	0.6401197	+.0747769
0.0274908	+.0499059	0.6470765	+.0739003
0.0276023	+.0499651	0.6539319	+.0730023
0.0276428	+.0499865	0.6606756	+.0720960
0.0279647	+.0501553	0.6674601	+.0711318
0.0281700	+.0502615	0.6742447	+.0701454
0.0285818	+.0504716	0.6811995	+.0691019
0.0291330	+.0507471	0.6881543	+.0680253
0.0296602	+.0510052	0.6951093	+.0669196
0.0300455	+.0511909	0.7020644	+.0657827
0.0304510	+.0513850	0.7093750	+.0645558
0.0310492	+.0516694	0.7166857	+.0632973
0.0316879	+.0519702	0.7239965	+.0620082
0.0331276	+.0526347	0.7313074	+.0606892
0.0378375	+.0546577	0.7390044	+.0592694
0.0425480	+.0564729	0.7467015	+.0578191
0.0472590	+.0581064	0.7543987	+.0563396
0.0519705	+.0595825	0.7620959	+.0548323
0.0566824	+.0609237	0.7703087	+.0531951
0.0613946	+.0621505	0.7785216	+.0515298
0.0661071	+.0632814	0.7867346	+.0498382
0.0708199	+.0643330	0.7949477	+.0481221
0.0764002	+.0654949	0.8038922	+.0462276
0.0808444	+.0663708	0.8128369	+.0443086
0.0848828	+.0671354	0.8217815	+.0423675
0.0888097	+.0678502	0.8307263	+.0404069
0.0926554	+.0685253	0.8406234	+.0382174
0.0967347	+.0692169	0.8505207	+.0360100
0.1028790	+.0702150	0.8604179	+.0337880
0.1090235	+.0711645	0.8703152	+.0315545
0.1174463	+.0723954	0.8804741	+.0292535
0.1225001	+.0730979	0.8906331	+.0269475
0.1298374	+.0740738	0.9007920	+.0246399
0.1371749	+.0750008	0.9137643	+.0216968
0.1451619	+.0759587	0.9239238	+.0193996
0.1531492	+.0768671	0.9340827	+.0171138
0.1620297	+.0778222	0.9442415	+.0148440
0.1709103	+.0787225	0.9568193	+.0116237
0.1757516	+.0791914	0.9636815	+.0105616
0.1830136	+.0798669	0.9685437	+.0095049
0.1902757	+.0805103	0.9734058	+.0084610
0.1956374	+.0809654	0.9782680	+.0074251
0.2009991	+.0814040	0.9931300	+.0064005
0.2063608	+.0818267	0.9976921	+.0053994
0.2117226	+.0822338	0.9928541	+.0043901
0.2175970	+.0826623	0.9977161	+.0034069
0.2234714	+.0830729	0.9999052	+.0029695
0.2293459	+.0834659	1.0020942	+.0025354
0.2352205	+.0838419	1.0042833	+.0021046
0.2417117	+.0842377	1.0064723	+.0016772
0.2482030	+.0846135	1.0086614	+.0012530
0.2546944	+.0849698	1.0108504	+.0008320
0.2611858	+.0853068	1.0130394	+.0004144
0.2683650	+.0856577	1.0152284	+.0000000
0.2755442	+.0859859		
0.2827236	+.0862918		
0.2899029	+.0865757		
0.2977752	+.0868622		
0.3056476	+.0871229		
0.3135200	+.0873584		
0.3213925	+.0875690		
0.3300467	+.0877723		
0.3387010	+.0879461		
0.3473554	+.0880910		
0.3560099	+.0882071		
0.3651416	+.0882986		
0.3742734	+.0883584		
0.3834053	+.0883867		
0.3925373	+.0883833		
0.4018445	+.0883475		
0.4111518	+.0882789		
0.4204592	+.0881775		

LOWER PART

X	Z	X	Z
0.0000012	-.0004162	0.4594475	-.0725326
0.0002395	-.0056237	0.4688157	-.0717156
0.0004787	-.0076027	0.4745806	-.0711708
0.0007164	-.0090439	0.4856332	-.0700267
0.0009431	-.0102206	0.4933971	-.0691512
0.0011795	-.0112149	0.5001765	-.0683376
0.0014054	-.0121076	0.5067021	-.0675138
0.0016514	-.0129293	0.5133493	-.0666367
0.0017744	-.0133248	0.5202298	-.0656939
0.0018974	-.0137103	0.5274553	-.0646685
0.0021635	-.0144608	0.5351272	-.0635414
0.0024397	-.0151909	0.5431744	-.0623191
0.0031756	-.0169046	0.5516579	-.0609873
0.0039110	-.0184354	0.5545499	-.0605234
0.0046153	-.0197634	0.5636167	-.0590373
0.0052785	-.0209290	0.5726834	-.0575037
0.0059313	-.0219728	0.5821558	-.0558514
0.0066246	-.0230063	0.5916280	-.0541483
0.0073992	-.0240599	0.6011052	-.0523934
0.0082348	-.0251336	0.6105822	-.0505882
0.0091007	-.0261667	0.6197243	-.0487996
0.0099563	-.0271155	0.6288662	-.0469661
0.0104218	-.0280297	0.6376225	-.0451694
0.0117280	-.0289408	0.6463786	-.0433366
0.0127561	-.0298946	0.6550535	-.0414889
0.0134978	-.0309676	0.6637283	-.0396149
0.0154631	-.0321417	0.6727886	-.0376348
0.0170910	-.0333505	0.6818488	-.0356373
0.0179506	-.0339548	0.6915939	-.0334759
0.0184101	-.0345367	0.7013389	-.0313082
0.0197713	-.0351686	0.7118449	-.0289698
0.0207325	-.0357755	0.7223508	-.0266371
0.0219376	-.0365060	0.7279285	-.0254030
0.0231427	-.0372055	0.7335062	-.0241734
0.0245498	-.0379864	0.7390839	-.0229494
0.0259567	-.0387330	0.7446616	-.0217322
0.0268947	-.0392137	0.7506223	-.0204404
0.0296142	-.0405379	0.7565831	-.0191598
0.0323335	-.0417721	0.7625439	-.0178924
0.0341073	-.0425358	0.7685048	-.0166403
0.0358810	-.0432701	0.7752698	-.0152405
0.0376546	-.0439771	0.7820349	-.0138661
0.0394281	-.0446591	0.7888000	-.0125201
0.0423271	-.0457248	0.7955653	-.0112058
0.0452260	-.0467344	0.8040480	-.0096069
0.0481247	-.0476930	0.8125308	-.0080674
0.0510232	-.0486058	0.8210139	-.0065919
0.0565381	-.0502310	0.8294972	-.0051848
0.0620525	-.0517267	0.8396449	-.0035977
0.0675667	-.0531110	0.8497929	-.0021236
0.0730805	-.0544013	0.8599413	-.0007717
0.0771059	-.0552931	0.8700901	+.0004496
0.0811312	-.0561467	0.8763318	+.0011324
0.0851564	-.0569652	0.8864812	+.0021265
0.0891816	-.0577513	0.8966310	+.0029712
0.0929399	-.0584584	0.9067813	+.0036605
0.0966982	-.0591412	0.9169321	+.0041886
0.1004565	-.0598010	0.9270833	+.0045505
0.1042147	-.0604391	0.9372351	+.0047413
0.1078915	-.0610431	0.9473873	+.0047565
0.1115683	-.0616267	0.9575401	+.0045921
0.1152451	-.0621901	0.9676934	+.0042446
0.1189218	-.0627346	0.9748111	+.0038900
0.1264630	-.0638076	0.9839296	+.0032994
0.1340040	-.0648412	0.9884890	+.0029450
0.1417023	-.0658428	0.9930485	+.0025507
0.1494005	-.0667871	0.9971651	+.0021591
0.1581394	-.0677937	0.9999096	+.0018774
0.1668782	-.0687354	1.0026541	+.0015787
0.1756167	-.0696163	1.0040264	+.0014231
0.1843551	-.0704393	1.0073270	+.0010317
0.1895240	-.0708995	1.0106277	+.0006148
0.1946928	-.0713408	1.0143956	+.0001129
0.1998615	-.0717636	1.0152284	+.0000000
0.2050302	-.0721684		
0.2110365	-.0726163		
0.2170428	-.0730405		
0.2230491	-.0734416		
0.2290552	-.0738200		
0.2363154	-.0742478		
0.2435754	-.0746437		
0.2508353	-.0750084		
0.2580952	-.0753426		
0.2673729	-.0757257		
0.2766505	-.0760604		
0.2859280	-.0763472		
0.2952053	-.0765865		
0.3053582	-.0767948		
0.3155109	-.0769474		
0.3256635	-.0770445		
0.3358159	-.0770861		
0.3460392	-.0770716		
0.3561913	-.0770007		
0.3663432	-.0768720		
0.3764950	-.0766837		
0.3866465	-.0764334		
0.3967979	-.0761186		
0.4069491	-.0757362		
0.4171001	-.0752827		
0.4272508	-.0747544		
0.4374014	-.0741469		
0.4475517	-.0734558		

N.B.

redefined coordinate system for which $\alpha_{design} = -0.194^{\circ}$

TABLE 4.2 Co-ordinates of aerofoil NLR HT 7310810

Upper Surface			Lower Surface		
hole	x/c	z/c	hole	x/c	z/c
1	0	-.0004	32	.9781	.0037
2	.0033	.0196	33	.9487	.0047
3	.0124	.0369	34	.9188	.0043
4	.0207	.0454	35	.8785	.0013
5	.0299	.0511	36	.8377	-.0039
6	.0397	.0554	37	.7994	-.0104
7	.0499	.0590	38	.7597	-.0185
8	.0600	.0618	39	.7193	-.0273
9	.0748	.0651	40	.6791	-.0361
10	.0998	.0697	41	.6393	-.0447
11	.1300	.0741	42	.5996	-.0526
12	.1649	.0781	43	.5496	-.0613
13	.1995	.0813	44	.4998	-.0684
14	.2498	.0847	45	.4497	-.0733
15	.2998	.0869	46	.3999	-.0760
16	.3497	.0881	47	.3499	-.0770
17	.3993	.0883	48	.2998	-.0767
18	.4492	.0876	49	.2499	-.0750
19	.4996	.0860	50	.2000	-.0718
20	.5493	.0832	51	.1649	-.0685
21	.5993	.0792	52	.1300	-.0643
22	.6493	.0736	53	.1000	-.0598
23	.6993	.0661	54	.0650	-.0525
24	.7494	.0573	55	.0370	-.0437
25	.7982	.0475	56	.0180	-.0340
26	.8385	.0388	57	.0079	-.0247
27	.8786	.0297	58	.0018	-.0134
28	.9184	.0207			
29	.9479	.0140			
30	.9784	.0074			
31	1.0000	.0030			

chord = 180.05 mm

TABLE 4.3 Co-ordinates of the model pressure holes

Tube	z (mm)	Tube	z (mm)
1	192.0	36	- 2.0
2	176.0	37	- 4.0
3	160.0	38	- 6.0
4	144.0	39	- 8.0
5	128.0	40	- 10.0
6	112.0	41	- 12.0
7	96.0	42	- 14.0
8	88.0	43	- 16.0
9	80.0	44	- 18.0
10	72.0	45	- 20.0
11	64.0	46	- 22.0
12	60.0	47	- 24.0
13	56.0	48	- 26.0
14	52.0	49	- 28.0
15	48.0	50	- 30.0
16	44.0	51	- 32.0
17	40.0	52	- 36.0
18	36.0	53	- 40.0
19	32.0	54	- 44.0
20	30.0	55	- 48.0
21	28.0	56	- 52.0
22	26.0	57	- 56.0
23	24.0	58	- 60.0
24	22.0	59	- 64.0
25	20.0	60	- 72.0
26	18.0	61	- 80.0
27	16.0	62	- 88.0
28	14.0	63	- 96.0
29	12.0	64	-112.0
30	10.0	65	-128.0
31	8.0	66	-144.0
32	6.0	67	-160.0
33	4.0	68	-176.0
34	2.0	69	-192.0
35	0.0		

TABLE 4.4 z-ordinates of the wake rake total pressure tubes

TRANSITION FREE

MAH	.299	ALPHAT	.8400	ALPHA	.3966
RFC	.11E+07	CLB	.3153	CL	.3100
QH	610.	CDPB	.0014	CDP	-.0010
		CPB	-.0688	CP	-.0674
				CD	.0104

MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO
1	1.017	0.9997	41	-0.043	0.9362
2	0.558	0.9716	42	-0.269	0.9240
3	-0.501	0.9104	43	-0.296	0.9224
4	-1.155	0.8719	44	-0.344	0.9196
5	-1.257	0.8659	45	-0.385	0.9172
6	-1.124	0.8735	46	-0.394	0.9166
7	-1.078	0.8744	47	-0.381	0.9175
8	-0.994	0.8814	48	-0.374	0.9179
9	-0.900	0.8869	49	-0.367	0.9183
10	-0.782	0.8938	50	-0.352	0.9192
11	-0.705	0.8984	51	-0.345	0.9196
12	-0.658	0.9011	52	-0.332	0.9203
13	-0.613	0.9038	53	-0.335	0.9201
14	-0.568	0.9064	54	-0.314	0.9213
15	-0.561	0.9069	55	-0.281	0.9233
16	-0.548	0.9076	56	-0.079	0.9352
17	-0.538	0.9082	57	0.368	0.9615
18	-0.533	0.9085	58	0.860	0.9905
19	-0.526	0.9089			
20	-0.512	0.9097			
21	-0.495	0.9107			
22	-0.451	0.9135			
23	-0.377	0.9177			
24	-0.285	0.9231			
25	-0.184	0.9287			
26	-0.109	0.9334			
27	-0.032	0.9380			
28	0.042	0.9423			
29	0.090	0.9451			
30	0.135	0.9478			
31	0.207	0.9520			
32	0.260	0.9563			
33	0.322	0.9608			
34	0.331	0.9599			
35	0.321	0.9589			
36	0.291	0.9570			
37	0.234	0.9536			
38	0.159	0.9492			
39	0.092	0.9452			
40	0.016	0.9408			

WAKE RAKE PRESSURETUBE NUMBER	CPWB	WAKE RAKE PRESSURETUBE NUMBER	CPWB
1	0.000	41	0.062
2	0.000	42	0.012
3	0.000	43	0.003
4	0.000	44	0.000
5	0.000	45	0.000
6	0.000	46	0.000
7	0.000	47	0.000
8	0.000	48	0.000
9	0.000	49	0.000
10	0.000	50	0.000
11	0.000	51	0.000
12	0.000	52	0.000
13	0.000	53	0.000
14	0.000	54	0.000
15	0.000	55	0.000
16	0.000	56	0.000
17	0.000	57	0.000
18	0.000	58	0.000
19	0.000	59	0.000
20	0.000	60	0.000
21	0.000	61	0.000
22	0.000	62	0.000
23	0.000	63	0.000
24	0.000	64	0.000
25	0.000	65	0.000
26	0.000	66	0.000
27	0.000	67	0.000
28	0.000	68	0.000
29	0.000	69	0.000
30	0.000		
31	0.000		
32	0.000		
33	0.001		
34	0.003		
35	0.027		
36	0.091		
37	0.183		
38	0.242		
39	0.252		
40	0.153		

TRANSITION FIXED

MAH	0.300	ALPHAT	0.8560	ALPHA	0.4187
RFC	.11E+07	CLB	0.3079	CL	0.3027
QH	612	CDPB	0.0009	CDP	-0.0014
		CPB	-0.0644	CP	-0.0631
				CD	.0109

MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO
1	1.007	0.9991	41	-0.095	0.9338
2	0.522	0.9703	42	-0.189	0.9294
3	-0.499	0.9098	43	-0.259	0.9240
4	-1.143	0.8715	44	-0.345	0.9190
5	-1.248	0.8655	45	-0.380	0.9169
6	-1.123	0.8729	46	-0.389	0.9161
7	-1.072	0.8759	47	-0.365	0.9178
8	-0.991	0.8807	48	-0.433	0.9138
9	-0.895	0.8863	49	-0.362	0.9179
10	-0.779	0.8932	50	-0.348	0.9188
11	-0.701	0.8979	51	-0.339	0.9193
12	-0.654	0.9006	52	-0.328	0.9200
13	-0.606	0.9035	53	-0.331	0.9198
14	-0.561	0.9062	54	-0.312	0.9209
15	-0.564	0.9060	55	-0.281	0.9227
16	-0.547	0.9070	56	-0.081	0.9346
17	-0.543	0.9072	57	0.375	0.9616
18	-0.531	0.9079	58	0.859	0.9903
19	-0.526	0.9083			
20	-0.506	0.9094			
21	-0.490	0.9103			
22	-0.449	0.9133			
23	-0.370	0.9175			
24	-0.279	0.9229			
25	-0.185	0.9285			
26	-0.103	0.9333			
27	-0.025	0.9379			
28	0.048	0.9423			
29	0.095	0.9450			
30	0.137	0.9475			
31	0.199	0.9512			
32	0.261	0.9548			
33	0.295	0.9569			
34	0.302	0.9573			
35	0.290	0.9566			
36	0.259	0.9548			
37	0.208	0.9518			
38	0.145	0.9480			
39	0.080	0.9442			
40	-0.006	0.9390			

WAKE RAKE PRESSURETUBE NUMBER	CPWB	WAKE RAKE PRESSURETUBE NUMBER	CPWB
1	0.000	41	0.000
2	0.000	42	-0.002
3	0.000	43	0.000
4	0.000	44	0.000
5	0.000	45	0.000
6	0.000	46	0.000
7	0.000	47	0.000
8	0.000	48	0.000
9	0.000	49	0.000
10	0.000	50	0.000
11	0.000	51	0.000
12	0.000	52	0.000
13	0.000	53	0.000
14	0.000	54	0.000
15	0.000	55	0.000
16	0.000	56	0.000
17	0.000	57	0.000
18	0.000	58	0.000
19	0.000	59	0.000
20	0.000	60	0.000
21	0.000	61	0.000
22	0.000	62	0.000
23	0.000	63	0.000
24	0.000	64	0.000
25	0.000	65	0.000
26	0.000	66	0.000
27	0.000	67	0.000
28	0.000	68	0.000
29	0.000	69	0.000
30	0.007		
31	0.029		
32	0.097		
33	0.190		
34	0.249		
35	0.240		
36	0.171		
37	0.076		
38	0.017		
39	0.002		
40	0.002		

TABLE 4.5 Aerodynamic test data

TRANSITION FREE

MAH	.507	ALPHAT	.8500	ALPHA	.3909
REC	.17E+07	CLB	.3256	CL	.3189
QR	1520.	CDPB	.0020	CDP	-.0007
		CMB	-.0739	CM	-.0722
				CD	.0096

MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO
1	1.056	0.9990	41	-0.092	0.6285
2	0.632	0.9358	42	-0.155	0.8191
3	-0.497	0.7030	43	-0.453	0.7898
4	-1.346	0.6722	44	-0.396	0.7834
5	-1.355	0.6442	45	-0.441	0.7768
6	-1.347	0.6646	46	-0.453	0.7750
7	-1.362	0.6699	47	-0.437	0.7773
8	-1.072	0.6832	48	-0.432	0.7781
9	-0.972	0.6974	49	-0.423	0.7793
10	-0.850	0.7140	50	-0.404	0.7822
11	-0.759	0.7255	51	-0.398	0.7831
12	-0.695	0.7391	52	-0.383	0.7853
13	-0.650	0.7456	53	-0.390	0.7843
14	-0.641	0.7485	54	-0.367	0.7877
15	-0.615	0.7508	55	-0.334	0.7926
16	-0.604	0.7526	56	-0.107	0.8262
17	-0.598	0.7546	57	0.374	0.8976
18	-0.587	0.7551	58	0.885	0.9734
19	-0.571	0.7574			
20	-0.557	0.7595			
21	-0.542	0.7617			
22	-0.488	0.7698			
23	-0.406	0.7820			
24	-0.299	0.7977			
25	-0.194	0.8134			
26	-0.104	0.8267			
27	-0.021	0.8390			
28	0.051	0.8496			
29	0.097	0.8565			
30	0.136	0.8623			
31	0.214	0.8738			
32	0.292	0.8854			
33	0.334	0.8924			
34	0.350	0.8941			
35	0.341	0.8927			
36	0.309	0.8879			
37	0.247	0.8787			
38	0.166	0.8667			
39	0.093	0.8557			
40	0.004	0.8426			

WAKE RAKE PRESSURETUBE NUMBER	CPWB	WAKE RAKE PRESSURETUBE NUMBER	CPWB
1	0.000	41	-0.000
2	0.000	42	0.000
3	0.000	43	0.000
4	0.000	44	0.000
5	0.000	45	0.000
6	0.000	46	0.000
7	0.000	47	0.000
8	0.000	48	0.000
9	0.000	49	0.000
10	0.000	50	0.000
11	0.000	51	0.000
12	0.000	52	0.000
13	0.000	53	0.000
14	0.000	54	0.000
15	0.000	55	0.000
16	0.000	56	0.000
17	0.000	57	0.000
18	0.000	58	0.000
19	0.000	59	0.000
20	0.000	60	0.000
21	0.000	61	0.000
22	0.000	62	0.000
23	0.000	63	0.000
24	0.000	64	0.000
25	0.000	65	0.000
26	0.000	66	0.000
27	0.000	67	0.000
28	0.000	68	0.000
29	0.000	69	0.000
30	0.005		
31	0.029		
32	0.096		
33	0.191		
34	0.248		
35	0.229		
36	0.153		
37	0.060		
38	0.013		
39	0.001		
40	0.003		

MAH	.599	ALPHAT	.8500	ALPHA	.3832
REC	.19E+07	CLB	.3306	CL	.3227
QR	2018.	CDPB	.0034	CDP	.0007
		CMB	-.0765	CM	-.0745
				CD	.0098

MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO
1	1.087	0.9969	41	-0.102	0.7643
2	0.706	0.9236	42	-0.137	0.7574
3	-0.268	0.7316	43	-0.406	0.7043
4	-1.057	0.5760	44	-0.442	0.6972
5	-1.395	0.5093	45	-0.494	0.6871
6	-1.260	0.5559	46	-0.509	0.6843
7	-1.239	0.5408	47	-0.491	0.6877
8	-1.149	0.5579	48	-0.485	0.6888
9	-1.044	0.5786	49	-0.475	0.6908
10	-0.923	0.6025	50	-0.455	0.6947
11	-0.813	0.6242	51	-0.446	0.6965
12	-0.737	0.6391	52	-0.431	0.6994
13	-0.698	0.6468	53	-0.436	0.6985
14	-0.679	0.6506	54	-0.410	0.7036
15	-0.665	0.6534	55	-0.371	0.7113
16	-0.652	0.6558	56	-0.123	0.7601
17	-0.640	0.6582	57	0.378	0.8589
18	-0.636	0.6590	58	0.900	0.9619
19	-0.620	0.6622			
20	-0.603	0.6655			
21	-0.584	0.6693			
22	-0.518	0.6823			
23	-0.423	0.7014			
24	-0.303	0.7250			
25	-0.186	0.7477			
26	-0.092	0.7662			
27	-0.009	0.7826			
28	0.060	0.7962			
29	0.101	0.8044			
30	0.136	0.8113			
31	0.218	0.8275			
32	0.300	0.8437			
33	0.350	0.8536			
34	0.365	0.8564			
35	0.356	0.8546			
36	0.322	0.8479			
37	0.259	0.8356			
38	0.176	0.8191			
39	0.099	0.8040			
40	0.004	0.7852			

WAKE RAKE PRESSURETUBE NUMBER	CPWB	WAKE RAKE PRESSURETUBE NUMBER	CPWB
1	0.000	41	-0.000
2	0.000	42	0.000
3	0.000	43	0.000
4	0.000	44	0.000
5	0.000	45	0.000
6	0.000	46	0.000
7	0.000	47	0.000
8	0.000	48	0.000
9	0.000	49	0.000
10	0.000	50	0.000
11	0.000	51	0.000
12	0.000	52	0.000
13	0.000	53	0.000
14	0.000	54	0.000
15	0.000	55	0.000
16	0.000	56	0.000
17	0.000	57	0.000
18	0.000	58	0.000
19	0.000	59	0.000
20	0.000	60	0.000
21	0.000	61	0.000
22	0.000	62	0.000
23	0.000	63	0.000
24	0.000	64	0.000
25	0.000	65	0.000
26	0.000	66	0.000
27	0.000	67	0.000
28	0.000	68	0.000
29	0.000	69	0.000
30	0.005		
31	0.029		
32	0.096		
33	0.191		
34	0.248		
35	0.229		
36	0.153		
37	0.060		
38	0.013		
39	0.001		
40	0.003		

MAH	.649	ALPHAT	.8500	ALPHA	.3833
REC	.20E+07	CLB	.3303	CL	.3214
QR	2273.	CDPB	.0046	CDP	.0015
		CMB	-.0772	CM	-.0780
				CD	.0101

MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO
1	1.107	0.9994	41	-0.104	0.7301
2	0.755	0.9210	42	-0.141	0.7216
3	-0.163	0.7169	43	-0.447	0.6539
4	-0.929	0.5470	44	-0.478	0.6470
5	-1.439	0.4335	45	-0.538	0.6346
6	-1.280	0.4546	46	-0.552	0.6309
7	-1.307	0.4526	47	-0.538	0.6346
8	-1.217	0.4828	48	-0.528	0.6358
9	-1.105	0.5077	49	-0.516	0.6385
10	-0.992	0.5327	50	-0.493	0.6440
11	-0.867	0.5649	51	-0.480	0.6466
12	-0.759	0.5945	52	-0.463	0.6503
13	-0.729	0.5911	53	-0.470	0.6488
14	-0.713	0.5948	54	-0.440	0.6555
15	-0.700	0.5977	55	-0.394	0.6658
16	-0.689	0.6001	56	-0.138	0.7237
17	-0.676	0.6031	57	0.379	0.8376
18	-0.672	0.6038	58	0.905	0.9545
19	-0.653	0.6081			
20	-0.634	0.6123			
21	-0.609	0.6179			
22	-0.533	0.6348			
23	-0.425	0.6587			
24	-0.296	0.6875			
25	-0.174	0.7145			
26	-0.079	0.7356			
27	0.002	0.7537			
28	0.064	0.7676			
29	0.102	0.7760			
30	0.132	0.7826			
31	0.218	0.8017			
32	0.304	0.8208			
33	0.356	0.8327			
34	0.375	0.8361			
35	0.369	0.8342			
36	0.331	0.8269			
37	0.268	0.8128			
38	0.183	0.7939			
39	0.104	0.7765			
40	0.006	0.7545			

WAKE RAKE PRESSURETUBE NUMBER	CPWB	WAKE RAKE PRESSURETUBE NUMBER	CPWB
1	0.000	41	-0.000
2	0.000	42	0.000
3	0.000	43	0.000
4	0.000	44	0.000
5	0.000	45	0.000
6	0.000	46	0.000
7	0.000	47	0.000
8	0.000	48	0.000
9	0.000	49	0.000
10	0.000	50	0.000
11	0.000	51	0.000
12	0.000	52	0.000
13	0.000	53	0.000
14	0.000	54	0.000
15	0.000	55	0.000
16	0.000	56	0.000
17	0.000	57	0.000
18	0.000	58	0.000
19	0.000	59	0.000
20	0.000	60	0.000
21	0.000	61	0.000
22	0.000	62	0.000
23	0.000	63	0.000
24	0.000	64	0.000
25	0.000	65	0.000
26	0.000	66	0.000
27	0.000	67	0.000
28	0.000	68	0.000
29	0.000	69	0.000
30	0.001		
31	0.012		
32	0.049		
33	0.125		
34	0.206		
35	0.262		
36	0.248		
37	0.175		
38	0.093		
39	0.029		
40	0.006		

TRANSITION FIXED

MAH	.500	ALPHAT	.8500	ALPHA	.4140
REC	.17E+07	CLB	.3109	CL	.3045
QR	1516.	CDPB	.0020	CDP	-.0005
		CMB	-.0669	CM	-.0653
				CD	.0110

MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO
1	1.052	0.9963	41	-0.111	0.8270
2	0.617	0.9341	42	-0.196	0.8144
3	-0.402	0.7840	43	-0.298	0.7994
4	-1.145	0.6747	44	-0.399	0.7845
5	-1.332	0.6470	45	-0.438	0.7787
6	-1.198	0.6667	46	-0.456	0.7763
7	-1.160	0.6724	47	-0.435	0.7792
8	-1.071	0.6854	48	-0.512	0.7679
9	-0.972	0.7001	49	-0.419	0.7816
10	-0.849	0.7181	50	-0.406	0.7834
11	-0.750	0.7326	51	-0.396	0.7850
12	-0.695	0.7409	52	-0.382	0.7870
13	-0.650	0.7476	53	-0.387	0.7862
14	-0.624	0.7515	54	-0.365	0.7896
15	-0.627	0.7509	55	-0.335	0.7940
16	-0.603	0.7544	56	-0.113	0.8267
17	-0.598	0.7551	57	0.377	0.8968
18	-0.586	0.7569	58	0.881	0.9731
19	-0.579	0.7580			
20	-0.556	0.7614			
21	-0.539	0.7639			
22	-0.479	0.7727			
23	-0.398	0.7846			
24	-0.292	0.8003			
25	-0.186	0.8159			
26	-0.097	0.8289			
27	-0.015	0.8410			
28	0.056	0.8514			
29	0.101	0.8582			
30	0.140	0.8638			
31	0.204	0.8734			
32	0.269	0.8829			
33	0.305	0.8882			
34	0.313	0.8894			
35	0.300	0.8874			
36	0.268	0.8828			
37	0.216	0.8750			
38	0.149	0.8652			
39	0.080	0.8551			
40	-0.012	0.8414			

WAKE RAKE PRESSURETUBE NUMBER	CPWB	WAKE RAKE PRESSURETUBE NUMBER	CPWB
1	0.000	41	-0.000
2	0.000	42	0.000
3	0.000	43	0.000
4	0.000	44	0.000
5	0.000	45	0.000
6	0.000	46	0.000
7	0.000	47	0.000
8	0.000	48	0.000
9	0.000	49	0.000
10	0.000	50	0.000
11	0.000	51	0.000
12	0.000	52	0.000
13	0.000	53	0.000
14	0.000	54	0.000
15	0.000	55	0.000
16	0.000	56	0.000
17	0.000	57	0.000
18	0.000	58	0.000
19	0.000	59	0.000
20	0.000	60	0.000
21	0.000	61	0.000
22	0.000	62	0.000
23	0.000	63	0.000
24	0.000	64	0.000
25	0.000	65	0.000
26	0.000	66	0.000
27	0.000	67	0.000
28	0.000	68	0.000
29	0.000	69	0.000
30	0.009		
31	0.033		
32	0.099		
33	0.195		
34	0.254		
35	0.252		
36	0.192		
37	0.097		
38	0.034		
39	0.005		
40	0.003		

MAH	.499	ALPHAT	.8500	ALPHA	.4136
REC	.19E+07	CLB	.3112	CL	.3037
QR	2026.	CDPB	.0036	CDP	.0012
		CMB	-.0627	CM	-.0659
				CD	.0112

MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO
1	1.065	0.9984	41	-0.119	0.7610
2	0.697	0.9219	42	-0.214	0.7423
3	-0.267	0.7318	43	-0.329	0.7196
4	-1.057	0.5761	44	-0.446	0.6964
5	-1.396	0.5091	45	-0.495	0.6869
6	-1.262	0.5355	46	-0.514	0.6830
7	-1.243	0.5398	47	-0.492	0.6874
8	-1.149	0.5574	48	-0.582	0.6696
9	-1.046	0.5781	49	-0.472	0.6914
10	-0.924	0.6023	50	-0.456	0.6945
11	-0.806	0.6255	51	-0.445	0.6966
12	-0.736	0.6393	52	-0.430	0.6997
13	-0.697	0.6470	53	-0.435	0.6987
14	-0.671	0.6520	54	-0.409	0.7037
15	-0.679	0.6505	55	-0.374	0.7106
16	-0.652	0.6559	56	-0.130	0.7588
17	-0.647	0.6566	57	0.379	0.8592
18	-0.634	0.6594	58	0.896	0.9612
19	-0.625	0.6611			
20	-0.600	0.6660			
21	-0.577	0.6707			
22	-0.506	0.6846			
23	-0.412	0.7031			
24	-0.292	0.7268			
25	-0.179	0.7494			
26	-0.085	0.7680			
27	0.000	0.7845			
28	0.066	0.7975			
29	0.107	0.8056			
30	0.140	0.8120			
31	0.207	0.8253			
32	0.275	0.8396			
33	0.313	0.8462			
34	0.321	0.8478			
35	0.306	0.8447			
36	0.274	0.8385			
37	0.222	0.8283			
38	0.155	0.8150			
39	0.083	0.8008			
40	-0.014	0.7817			

WAKE RAKE PRESSURETUBE NUMBER	CPWB	WAKE RAKE PRESSURETUBE NUMBER	CPWB
1	0.000	41	0.000
2	0.000	42	-0.000
3	0.000	43	0.000
4	0.000	44	0.000
5	0.000	45	0.000
6	0.000	46	0.000
7	0.000	47	0.000
8	0.000	48	0.000
9	0.000	49	0.000
10	0.000	50	0.000
11	0.000	51	0.000
12	0.000	52	0.000
13	0.000	53	0.000
14	0.000	54	0.000
15	0.000	55	0.000
16	0.000	56	0.000
17	0.000	57	0.000
18	0.000	58	0.000
19	0.000	59	0.000
20	0.000	60	0.000
21	0.000	61	0.000
22	0.000	62	0.000
23	0.000	63	0.000
24	0.000	64	0.000
25	0.000	65	0.000
26	0.000	66	0.000
27	0.000	67	0.000
28	0.001	68	0.000
29	0.001	69	0.000
30	0.010		
31	0.039		
32	0.102		
33	0.193		
34	0.253		
35	0.264		
36	0.218		
37	0.129		
38	0.056		
39	0.015		
40	0.004		

MAH	.650	ALPHAT	.8500	ALPHA	.4205
REC	.20E+07	CLB	.3063	CL	.2982
QR	2285.	CDPB	.0049	CDP	.0026
		CMB	-.0671	CM	-.0651
				CD	.0117

MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO
1	1.103	0.9985	41	-0.122	0.7257
2	0.744	0.9185	42	-0.223	0.7032
3	-0.163	0.7167	43	-0.351	0.6768
4	-0.923	0.5474	44	-0.478	0.6464
5	-1.436	0.4334	45	-0.540	0.6327
6	-1.281	0.4678	46	-0.562	0.6279
7	-1.305	0.4625	47	-0.534	0.6342
8	-1.212	0.4832	48	-0.636	0.6114
9	-1.104	0.5071	49	-0.513	0.6388
10	-0.992	0.5322	50	-0.494	0.6430
11	-0.821	0.5702	51	-0.480	0.6462
12	-0.754	0.5846	52	-0.462	0.6501
13	-0.724	0.5919	53	-0.469	0.6485
14	-0.701	0.5970	54	-0.439	0.6553
15	-0.721	0.5926	55	-0.397	0.6646
16	-0.686	0.6002	56	-0.139	0.7220
17	-0.680	0.6015	57	0.381	0.8376
18	-0.666	0.6044	58	0.902	0.9536
19	-0.657	0.6068			
20	-0.627	0.6133			
21	-0.594	0.6195			
22	-0.514	0.6375			
23	-0.412	0.6613			
24	-0.283	0.6899			
25	-0.162	0.7168			
26	-0.069	0.7375			
27	0.012	0.7557			
28	0.071	0.7686			
29	0.107	0.7766			
30	0.134	0.7828			
31	0.205	0.7985			
32	0.275	0.8142			
33	0.315	0.8229			
34	0.322	0.8246			
35	0.306	0.8211			
36	0.274	0.8140			
37	0.224	0.8027			
38	0.156	0.7881			
39	0.084	0.7717			
40	-0.013	0.7500			

WAKE RAKE PRESSURETUBE NUMBER	CPWB	WAKE RAKE PRESSURETUBE NUMBER	CPWB
1	0.000	41	0.000
2	0.000	42	0.000
3	0.000	43	0.000
4	0.000	44	0.000
5	0.000	45	0.000
6	0.000	46	0.000
7	0.000	47	0.000
8	0.000	48	0.000
9	0.000	49	0.000
10	0.000	50	0.000
11	0.000	51	0.000
12	0.000	52	0.000
13	0.000	53	0.000
14	0.000	54	0.000
15	0.000	55	0.000
16	0.000	56	0.000
17	0.000	57	0.000
18	0.000	58	0.000
19	0.000	59	0.000
20	0.000	60	0.000
21	0.000	61	0.000
22	0.000	62	0.000
23	0.000	63	0.000
24	0.000	64	0.000
25	0.000	65	0.000
26	0.000	66	0.000
27	0.000	67	0.000
28	0.003	68	0.000
29	0.011	69	0.000
30	0.047		
31	0.101		
32	0.185		
33	0.258		
34	0.277		
35	0.233		
36	0.166		
37	0.080		
38	0.029		
39	0.005		
40	0.003		

TABLE 4.5 Aerodynamic test data (con'd)

TRANSITION FREE

MAH	.699	ALPHAT	.8500	ALPHA	.3880
RFC	.21E+07	CLB	.3268	CL	.3169
QR	2622.	CDPB	.0049	CDP	.0043
		CMB	-.0770	CM	-.0745
				CD	.0105

MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	WAKE RAKE PRESSURETUBE NUMBER	CPWB	WAKE RAKE PRESSURETUBE NUMBER	CPWB
1	1.127	0.9997	41	-0.104	0.6958	1	0.000	41	0.001
2	0.812	0.9214	42	+0.155	0.6831	2	0.000	42	-0.000
3	-0.039	0.7117	43	+0.511	0.5952	3	0.000	43	0.000
4	-0.754	0.5353	44	+0.535	0.5894	4	0.000	44	0.000
5	-1.277	0.4062	45	-0.540	0.5756	5	0.000	45	0.000
6	-1.232	0.4171	46	+0.614	0.5688	6	0.000	46	0.000
7	-1.248	0.4132	47	-0.599	0.5735	7	0.000	47	0.000
8	-1.274	0.4068	48	-0.584	0.5762	8	0.000	48	0.000
9	-1.248	0.4131	49	-0.574	0.5797	9	0.000	49	0.000
10	-1.113	0.4465	50	-0.545	0.5869	10	0.000	50	0.000
11	-1.027	0.4678	51	-0.529	0.5907	11	0.000	51	0.000
12	-0.834	0.5143	52	+0.506	0.5966	12	0.000	52	0.000
13	-0.704	0.5476	53	-0.512	0.5949	13	0.000	53	0.000
14	-0.749	0.5365	54	+0.471	0.6051	14	0.000	54	0.000
15	-0.745	0.5374	55	-0.419	0.6179	15	0.000	55	0.000
16	-0.738	0.5391	56	-0.141	0.6865	16	0.000	56	0.000
17	-0.726	0.5422	57	0.380	0.8151	17	0.000	57	0.000
18	-0.724	0.5425	58	0.911	0.9462	18	0.000	58	0.000
19	-0.717	0.5443				19	0.000	59	0.000
20	-0.677	0.5541				20	0.000	60	0.000
21	-0.638	0.5638				21	0.000	61	0.000
22	-0.543	0.5873				22	0.000	62	0.000
23	-0.418	0.6183				23	0.000	63	0.000
24	-0.277	0.6531				24	0.000	64	0.000
25	-0.151	0.6841				25	0.000	65	0.000
26	-0.059	0.7068				26	0.000	66	0.000
27	0.016	0.7253				27	0.000	67	0.000
28	0.069	0.7384				28	0.000	68	0.000
29	0.100	0.7461				29	0.001	69	0.000
30	0.124	0.7521				30	0.005		
31	0.216	0.7747				31	0.023		
32	0.405	0.7934				32	0.065		
33	0.564	0.8114				33	0.149		
34	0.581	0.8136				34	0.218		
35	0.573	0.8136				35	0.265		
36	0.541	0.8056				36	0.248		
37	0.278	0.7800				37	0.178		
38	0.192	0.7689				38	0.096		
39	0.112	0.7491				39	0.037		
40	0.010	0.7238				40	0.010		

MAH	.724	ALPHAT	.8500	ALPHA	.3780
RFC	.22E+07	CLB	.3341	CL	.3233
QR	2665.	CDPB	.0046	CDP	.0059
		CMB	-.0766	CM	-.0758
				CD	.0104

MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	WAKE RAKE PRESSURETUBE NUMBER	CPWB	WAKE RAKE PRESSURETUBE NUMBER	CPWB
1	1.134	0.9990	41	-0.094	0.6808	1	0.000	41	0.000
2	0.837	0.9221	42	-0.152	0.6658	2	0.000	42	-0.000
3	0.072	0.7105	43	-0.551	0.5624	3	0.000	43	+0.000
4	-0.665	0.5350	44	-0.570	0.5575	4	0.000	44	-0.000
5	-1.171	0.4019	45	-0.625	0.5433	5	0.000	45	0.000
6	-1.153	0.4065	46	-0.660	0.5342	6	0.000	46	0.000
7	-1.173	0.4015	47	-0.657	0.5401	7	0.000	47	0.000
8	-1.201	0.3940	48	-0.628	0.5426	8	0.000	48	0.000
9	-1.234	0.3854	49	-0.609	0.5475	9	0.000	49	0.000
10	-1.197	0.3951	50	-0.572	0.5570	10	0.000	50	0.000
11	-1.097	0.4210	51	-0.558	0.5620	11	0.000	51	0.000
12	-1.006	0.4444	52	-0.524	0.5695	12	0.000	52	0.000
13	-0.952	0.4585	53	-0.530	0.5680	13	0.000	53	0.000
14	-0.612	0.5467	54	-0.481	0.5807	14	0.000	54	0.000
15	-0.729	0.5164	55	+0.420	0.5963	15	0.000	55	0.000
16	-0.767	0.5015	56	-0.135	0.6702	16	0.000	56	0.000
17	-0.770	0.5057	57	0.387	0.8054	17	0.000	57	0.000
18	-0.778	0.5038	58	0.915	0.9423	18	0.000	58	0.000
19	-0.771	0.5052				19	0.000	59	0.000
20	-0.716	0.5194				20	0.000	60	0.000
21	-0.657	0.5323				21	0.000	61	0.000
22	-0.555	0.5614				22	0.000	62	0.000
23	-0.419	0.5966				23	0.000	63	0.000
24	-0.274	0.6342				24	0.000	64	0.000
25	-0.145	0.6676				25	0.001	65	0.000
26	-0.051	0.6919				26	0.002	66	0.000
27	0.024	0.7114				27	0.002	67	0.000
28	0.079	0.7256				28	0.002	68	0.000
29	0.112	0.7341				29	0.003	69	0.000
30	0.137	0.7407				30	0.006		
31	0.228	0.7642				31	0.022		
32	0.418	0.7876				32	0.078		
33	0.574	0.8021				33	0.161		
34	0.591	0.8066				34	0.229		
35	0.583	0.8045				35	0.268		
36	0.551	0.7960				36	0.243		
37	0.285	0.7798				37	0.168		
38	0.203	0.7577				38	0.087		
39	0.123	0.7370				39	0.031		
40	0.020	0.7109				40	0.007		

MAH	.747	ALPHAT	.8500	ALPHA	.3152
RFC	.22E+07	CLB	.4546	CL	.4388
QR	2769.	CDPB	.0099	CDP	.0049
		CMB	-.0943	CM	-.0943
				CD	.0084

MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	WAKE RAKE PRESSURETUBE NUMBER	CPWB	WAKE RAKE PRESSURETUBE NUMBER	CPWB
1	1.145	0.9992	41	-0.063	0.6732	1	0.000	41	0.020
2	0.854	0.9208	42	-0.116	0.6588	2	0.000	42	0.001
3	0.059	0.7063	43	-0.556	0.5941	3	0.000	43	-0.000
4	-0.599	0.5286	44	-0.569	0.5367	4	0.000	44	0.000
5	-1.091	0.3958	45	-0.644	0.5165	5	0.000	45	0.000
6	-1.099	0.3956	46	-0.660	0.5122	6	0.000	46	0.000
7	-1.130	0.3851	47	-0.620	0.5227	7	0.000	47	0.000
8	-1.152	0.3793	48	-0.631	0.5198	8	0.000	48	0.000
9	-1.181	0.3715	49	-0.604	0.5271	9	0.000	49	0.000
10	-1.156	0.3782	50	-0.561	0.5388	10	0.000	50	0.000
11	-1.126	0.3862	51	-0.536	0.5456	11	0.000	51	0.000
12	-1.093	0.3951	52	-0.504	0.5541	12	0.000	52	0.000
13	-1.071	0.4011	53	-0.509	0.5528	13	0.000	53	0.000
14	-1.057	0.4050	54	-0.451	0.5685	14	0.000	54	0.000
15	-1.030	0.4121	55	-0.384	0.5865	15	0.000	55	0.000
16	-1.012	0.4171	56	-0.094	0.6647	16	0.000	56	0.000
17	-0.988	0.4236	57	0.420	0.8037	17	0.000	57	0.000
18	-0.960	0.4312	58	0.929	0.9410	18	0.000	58	0.000
19	-0.935	0.4383				19	0.000	59	0.000
20	-0.824	0.4517				20	0.000	60	0.000
21	-0.745	0.4692				21	0.000	61	0.000
22	-0.574	0.5352				22	0.000	62	0.000
23	-0.450	0.5689				23	0.000	63	0.000
24	-0.307	0.6074				24	0.002	64	0.000
25	-0.179	0.6419				25	0.003	65	0.000
26	-0.068	0.6719				26	0.004	66	0.000
27	0.031	0.6985				27	0.004	67	0.000
28	0.116	0.7216				28	0.004	68	0.000
29	0.179	0.7385				29	0.005	69	0.000
30	0.230	0.7524				30	0.002		
31	0.304	0.7722				31	0.002		
32	0.377	0.7920				32	0.003		
33	0.429	0.8037				33	0.005		
34	0.413	0.8018				34	0.035		
35	0.404	0.7993				35	0.069		
36	0.381	0.7931				36	0.155		
37	0.316	0.7762				37	0.245		
38	0.238	0.7544				38	0.254		
39	0.156	0.7324				39	0.192		
40	0.057	0.7057				40	0.092		

TRANSITION FIXED

MAH	.699	ALPHAT	.8500	ALPHA	.4364
RFC	.21E+07	CLB	.2951	CL	.2862
QR	2532.	CDPB	.0071	CDP	.0069
		CMB	-.0650	CM	-.0628
				CD	.0122

MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	WAKE RAKE PRESSURETUBE NUMBER	CPWB	WAKE RAKE PRESSURETUBE NUMBER	CPWB
1	1.123	0.9988	41	-0.125	0.6904	1	0.000	41	0.000
2	0.803	0.9196	42	-0.234	0.6636	2	0.000	42	0.000
3	-0.036	0.7125	43	-0.572	0.6294	3	0.000	43	0.000
4	-0.747	0.5368	44	-0.525	0.5916	4	0.000	44	0.000
5	-1.272	0.4071	45	-0.605	0.5718	5	0.000	45	0.000
6	-1.236	0.4161	46	-0.633	0.5651	6	0.000	46	0.000
7	-1.250	0.4125	47	-0.597	0.5738	7	0.000	47	0.000
8	-1.274	0.4066	48	-0.731	0.5406	8	0.000	48	0.000
9	-1.232	0.4169	49	-0.569	0.5807	9	0.000	49	0.000
10	-1.110	0.4471	50	-0.546	0.5865	10	0.000	50	0.000
11	-1.019	0.4696	51	-0.530	0.5904	11	0.000	51	0.000
12	-0.741	0.5382	52	-0.507	0.5960	12	0.000	52	0.000
13	-0.706	0.5468	53	-0.513	0.5946	13	0.000	53	0.000
14	-0.727	0.5417	54	-0.470	0.6052	14	0.000	54	0.000
15	-0.794	0.5251	55	-0.422	0.6170	15	0.000	55	0.000
16	-0.736	0.5394	56	-0.149	0.6845	16	0.000	56	0.000
17	-0.727	0.5416	57	0.381	0.8154	17	0.000	57	0.000
18	-0.712	0.5454	58	0.906	0.9451	18	0.000	58	0.000
19	-0.658	0.5588				19	0.000	59	0.000
20	-0.662	0.5577				20	0.000	60	0.000
21	-0.620	0.5681				21	0.000	61	0.000
22	-0.522	0.5923				22	0.000	62	0.000
23	-0.398	0.6230				23	0.000	63	0.000
24	-0.259	0.6573				24	0.000	64	0.000
25	-0.136	0.6877				25	0.000	65	0.000
26	-0.046	0.7098				26	0.000	66	0.000
27	0.025	0.7275				27	0.001	67	0.000
28	0.074	0.7396				28	0.005	68	0.000
29	0.103	0.7468				29	0.019	69	0.000
30	0.126	0.7523				30	0.060		
31	0.199	0.7705				31	0.119		
32	0.273	0.7886				32	0.195		
33	0.334	0.7989				33	0.261		
34	0.321	0.8005				34	0.278		
35	0.304	0.7963				35	0.242		
36	0.272	0.7884				36	0.178		
37	0.222	0.7762				37	0.099		
38	0.159	0.7605				38	0.040		
39	0.086	0.7426				39	0.015		
40	-0.012	0.7185				40	0.004		

MAH	.726	ALPHAT	.8500	ALPHA	.4295
RFC	.22E+07	CLB	.3012	CL	.2914
QR	2664.	CDPB	.0042	CDP	.0060
		CMB	-.0647	CM	-.0622
				CD	.0124

MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	WAKE RAKE PRESSURETUBE NUMBER	CPWB	WAKE RAKE PRESSURETUBE NUMBER	CPWB
1	1.131	0.9980	41	-0.118	0.6734	1	0.000	41	0.001
2	0.833	0.9205	42	+0.230	0.6442	2	0.000	42	0.007
3	0.060	0.7117	43	+0.578	0.6056	3	0.000	43	-0.001
4	-0.652	0.5344	44	-0.546	0.5619	4	0.000	44	0.000
5	-1.158	0.4030	45	-0.650	0.5351	5	0.000	45	0.000
6	-1.145	0.4063	46	-0.689	0.5248	6	0.000	46	0.000
7	-1.166	0.4008	47	+0.634	0.5390	7	0.000	47	0.000
8	-1.195	0.3935	48	-0.605	0.5466	8	0.000	48	0.000
9	-1.229	0.3846	49	-0.605	0.5467	9	0.000	49	0.000
10	-1.189	0.3944	50	-0.574	0.5547	10	0.000	50	0.000
11	-1.085	0.4220	51	-0.554	0.5599	11	0.000	51	0.000
12	-1.001	0.4437	52	-0.526	0.5666	12	0.000	52	0.000
13	-0.949	0.4572	53	-0.533	0.5653	13	0.000	53	0.000
14	-0.596	0.5523	54	-0.484	0.5780	14	0.000	54	0.000
15	-0.836	0.4865	55	-0.429	0.5924	15	0.000	55	0.000
16	-0.749	0.4963	56	-0.146	0.6660	16	0.000	56	0.000
17	-0.762	0.5059	57	0.386	0.8042	17	0.000	57	0.000
18	-0.751	0.5072	58	0.909	0.9404	18	0.000	58	0.000
19	-0.742	0.5111				19	0.000	59	0.000
20	-0.694	0.5236				20	0.000	60	0.000
21	-0.642	0.5371				21	0.000	61	0.000
22	-0.527	0.5669				22	0.000	62	0.000
23	-0.395	0.6013				23	0.000	63	0.000
24	-0.251	0.6389				24	0.000	64	0.000
25	-0.122	0.6714				25	0.000	65	0.000
26	-0.035	0.6947				26	0.001	66	0.000
27	0.035	0.7129				27	0.001	67	0.000
28	0.084	0.7258				28	0.002	68	0.000
29	0.112	0.7330				29	0.003	69	0.000
30	0.133	0.7385				30	0.005		
31	0.206	0.7574				31	0.010		
32	0.278	0.7762				32	0.032		
33	0.317	0.7864				33	0.085		
34	0.321	0.7876				34	0.151		
35	0.320	0.7875				35	0.230		
36	0.271	0.7741				36	0.274		
37	0.223	0.7619				37	0.275		
38	0.162	0.7461				38	0.230		
39	0.091	0.7275				39	0.160		
40	-0.005	0.7027				40	0.082		

MAH	.749	ALPHAT	.8500	ALPHA	.3502
RFC	.22E+07	CLB	.3610	CL	.3484
QR	2776.	CDPB	.0099	CDP	.0067
		CMB	-.0730	CM	-.0698
				CD	.0114

MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	WAKE RAKE PRESSURETUBE NUMBER	CPWB	WAKE RAKE PRESSURETUBE NUMBER	CPWB
1	1.144	0.9990	41	-0.094	0.6646	1	0.000	41	0.004
2	0.857	0.9215	42	+0.207	0.6342	2	0.000	42	0.003
3	0.076	0.7111	43	-0.359	0.5931	3	0.000	43	0.002
4	-0.541	0.5329	44	-0.537	0.5448	4	0.000	44	0.000
5	-1.074	0.3998	45	-0.671	0.5086	5	0.000	45	0.000
6	-1.077	0.3989	46	-0.711	0.4978	6	0.000	46	-0.000
7	-1.307	0.3916	47	-0.654	0.5134	7	0.000	47	0.000
8	-1.133	0.3814	48	-0.765	0.4772	8	0.000	48	-0.000
9	-1.186	0.3749	49	-0.610	0.5253	9	0.000	49	0.000
10	-1.142	0.3815	50	-0.562	0.5327	10	0.000	50	0.000
11	-1.108	0.3916	51	-0.557	0.5396	11	0.000	51	0.000
12	-1.076	0.3994	52	+0.527	0.5476	12	0.000	52	0.000
13	-1.052	0.4059	53	-0.531	0.5466	13	0.000	53	0.000
14	-1.025	0.4130	54	-0.472	0.5624	14	0.000	54	0.000
15	-1.019	0.4146	55	-0.409	0.5795	15	0.000	55	0.000
16	-0.959	0.4309	56	-0.123	0.6568	16	0.001	56	0.000
17	-0.929	0.4390	57	0.406	0.7997	17	0.001	57	0.000
18	-0.645	0.5156	58	0.924	0.9395	18	0.001	58	0.000
19	-0.715	0.4969				19	0.001	59	0.000
20	-0.744	0.4891				20	0.001	60	0.000
21	-0.742	0.4896				21	0.001	61	0.000
22	-0.652	0.5109				22	0.001	62	0.000
23	-0.412	0.5767				23	0.001	63	0.000
24	-0.264	0.6167				24	0.001	64	0.000
25	-0.139	0.6494				25	0.001	65	0.000
26	-0.039	0.6807				26	0.001	66	0.000
27	0.047	0.7027				27	0.003	67	0.000
28	0.106	0.7191				28	0.005	68	0.000
29	0.142	0.7292				29	0.017	69	0.000
30	0.179	0.7379				30	0.052		
31	0.241	0.7551				31	0.102		
32	0.304	0.7731				32	0.141		
33	0.341	0.7820				33	0.252		
34	0.343	0.7826				34	0.276		
35	0.321	0.7768				35	0.242		
36	0.247	0.7575				36	0.175		
37	0.241	0.7551				37	0.094		
38	0.182	0.7392				38	0.035		
39	0.112	0.7203				39	0.009		
40	0.034	0.6944				40	0.005		

TABLE 4.5 Aerodynamic test data (con'd)

TRANSITION FREE

MAH	.776	ALPHAT	.8500	ALPHA	.2549
REC	.22E+07	CLB	.4155	CL	.3996
QR	2881.	CDPB	.0220	CDP	.0177
		CMB	-.1077	CM	-.1037
				CD	.0161

MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO
1	1.158	0.9998	41	-0.041	0.8612
2	0.896	0.9258	42	-0.118	0.6395
3	0.141	0.7126	43	-0.580	0.5090
4	-0.492	0.5538	44	-0.724	0.4684
5	-0.963	0.4010	45	-0.738	0.4645
6	-0.960	0.4018	46	-0.807	0.4449
7	-0.990	0.3934	47	-0.761	0.4580
8	-1.021	0.3846	48	-0.721	0.4691
9	-1.055	0.3748	49	-0.664	0.4853
10	-1.042	0.3786	50	-0.601	0.5030
11	-1.014	0.3858	51	-0.571	0.5116
12	-0.992	0.3925	52	-0.537	0.5210
13	-0.983	0.3956	53	-0.594	0.5191
14	-0.978	0.3967	54	-0.473	0.5392
15	-0.978	0.3966	55	-0.401	0.5597
16	-0.982	0.3954	56	-0.107	0.6426
17	-0.994	0.3921	57	0.409	0.7881
18	-1.014	0.3863	58	0.928	0.9348
19	-1.042	0.3787			
20	-0.997	0.3914			
21	-0.970	0.3990			
22	-0.968	0.3994			
23	-0.581	0.5048			
24	-0.244	0.6039			
25	-0.105	0.6450			
26	-0.023	0.6664			
27	0.055	0.6883			
28	0.124	0.7076			
29	0.166	0.7197			
30	0.212	0.7325			
31	0.248	0.7341			
32	0.365	0.7757			
33	0.407	0.7878			
34	0.439	0.7911			
35	0.408	0.7880			
36	0.377	0.7795			
37	0.320	0.7631			
38	0.241	0.7408			
39	0.165	0.7192			
40	0.066	0.6913			

WAKE RAKE PRESSURETUBE NUMBER	CPWB	WAKE RAKE PRESSURETUBE NUMBER	CPWB
1	0.000	41	0.005
2	0.000	42	0.001
3	0.000	43	0.000
4	0.000	44	0.001
5	0.000	45	0.000
6	0.000	46	0.000
7	0.000	47	0.000
8	0.000	48	0.000
9	0.000	49	0.000
10	0.000	50	0.000
11	0.000	51	0.000
12	0.000	52	0.000
13	0.001	53	0.000
14	0.001	54	0.000
15	0.001	55	0.000
16	0.003	56	0.000
17	0.006	57	0.000
18	0.009	58	0.000
19	0.010	59	0.000
20	0.009	60	0.000
21	0.008	61	0.000
22	0.007	62	0.000
23	0.006	63	0.000
24	0.007	64	0.000
25	0.006	65	0.000
26	0.007	66	0.000
27	0.013	67	0.000
28	0.025	68	0.000
29	0.050	69	0.000
30	0.103		
31	0.150		
32	0.216		
33	0.262		
34	0.291		
35	0.290		
36	0.256		
37	0.188		
38	0.115		
39	0.055		
40	0.010		

TRANSITION FIXED

MAH	.775	ALPHAT	.8500	ALPHA	.3570
REC	.23E+07	CLB	.3494	CL	.3360
QR	2889.	CDPB	.0189	CDP	.0159
		CMB	-.0818	CM	-.0784
				CD	.0187

MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO
1	1.154	0.9965	41	-0.078	0.6499
2	0.889	0.9235	42	-0.182	0.6206
3	0.149	0.7145	43	-0.816	0.5821
4	-0.481	0.5359	44	-0.647	0.4777
5	-0.953	0.4024	45	-0.973	0.3969
6	-0.955	0.4020	46	-0.865	0.4273
7	-0.986	0.3932	47	-0.769	0.4545
8	-1.015	0.3846	48	-0.757	0.4580
9	-1.052	0.3746	49	-0.666	0.4837
10	-1.037	0.3788	50	-0.613	0.4986
11	-1.012	0.3859	51	-0.578	0.5085
12	-0.990	0.3921	52	-0.543	0.5184
13	-0.980	0.3948	53	-0.554	0.5154
14	-0.975	0.3962	54	-0.480	0.5363
15	-0.998	0.3895	55	-0.413	0.5553
16	-0.964	0.3994	56	-0.121	0.6377
17	-0.985	0.3935	57	0.406	0.7868
18	-1.001	0.3889	58	0.923	0.9331
19	-1.033	0.3798			
20	-1.055	0.3737			
21	-1.014	0.3858			
22	-0.443	0.5466			
23	-0.311	0.5841			
24	-0.198	0.6161			
25	-0.100	0.6437			
26	-0.029	0.6637			
27	0.031	0.6809			
28	0.084	0.6957			
29	0.116	0.7046			
30	0.148	0.7139			
31	0.223	0.7352			
32	0.299	0.7566			
33	0.334	0.7672			
34	0.340	0.7641			
35	0.319	0.7622			
36	0.283	0.7521			
37	0.234	0.7382			
38	0.176	0.7218			
39	0.110	0.7041			
40	0.023	0.6785			

WAKE RAKE PRESSURETUBE NUMBER	CPWB	WAKE RAKE PRESSURETUBE NUMBER	CPWB
1	0.000	41	0.015
2	0.000	42	0.008
3	0.000	43	0.005
4	0.000	44	0.003
5	0.000	45	0.002
6	0.000	46	0.001
7	0.000	47	0.001
8	0.000	48	0.000
9	0.000	49	-0.000
10	0.000	50	0.000
11	0.000	51	-0.000
12	0.001	52	0.000
13	0.001	53	0.000
14	0.001	54	0.000
15	0.001	55	0.000
16	0.003	56	0.000
17	0.006	57	0.000
18	0.008	58	0.000
19	0.011	59	0.000
20	0.014	60	0.000
21	0.016	61	0.000
22	0.019	62	0.000
23	0.025	63	0.000
24	0.028	64	0.000
25	0.032	65	0.000
26	0.040	66	0.000
27	0.050	67	0.000
28	0.075	68	0.000
29	0.109	69	0.000
30	0.161		
31	0.210		
32	0.263		
33	0.294		
34	0.295		
35	0.265		
36	0.212		
37	0.140		
38	0.088		
39	0.049		
40	0.026		

MAH	.800	ALPHAT	.8500	ALPHA	.9251
REC	.23E+07	CLB	.2974	CL	.2849
QR	2999.	CDPP	.0405	CDP	.0383
		CMB	-.0755	CM	-.0723
				CD	.0357

MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO
1	1.167	0.9991	41	-0.212	0.5936
2	0.928	0.9286	42	-0.339	0.5562
3	0.209	0.7174	43	-0.628	0.4718
4	-0.399	0.5387	44	-0.765	0.4309
5	-0.851	0.4058	45	-0.749	0.4356
6	-0.839	0.4093	46	-0.805	0.4192
7	-0.869	0.4005	47	-0.793	0.4226
8	-0.906	0.3896	48	-0.739	0.4385
9	-0.945	0.3780	49	-0.675	0.4574
10	-0.937	0.3804	50	-0.610	0.4764
11	-0.916	0.3867	51	-0.573	0.4875
12	-0.901	0.3911	52	-0.548	0.4961
13	-0.895	0.3929	53	-0.566	0.4896
14	-0.899	0.3915	54	-0.470	0.5177
15	-0.907	0.3892	55	-0.397	0.5390
16	-0.927	0.3828	56	-0.103	0.6255
17	-0.937	0.3797	57	0.411	0.7766
18	-0.967	0.3714	58	0.929	0.9290
19	-0.963	0.3728			
20	-0.920	0.3853			
21	-0.913	0.3876			
22	-0.905	0.3899			
23	-0.524	0.5019			
24	-0.245	0.5692			
25	-0.162	0.6082			
26	-0.078	0.6329			
27	-0.010	0.6529			
28	0.046	0.6694			
29	0.085	0.6810			
30	0.123	0.6920			
31	0.184	0.7106			
32	0.249	0.7297			
33	0.264	0.7351			
34	0.256	0.7311			
35	0.227	0.7226			
36	0.179	0.7085			
37	0.135	0.6956			
38	0.069	0.6762			
39	-0.007	0.6536			
40	-0.091	0.6291			

WAKE RAKE PRESSURETUBE NUMBER	CPWB	WAKE RAKE PRESSURETUBE NUMBER	CPWB
1	0.000	41	0.186
2	0.000	42	0.147
3	0.000	43	0.111
4	0.000	44	0.062
5	0.000	45	0.058
6	0.000	46	0.036
7	0.000	47	0.025
8	0.000	48	0.015
9	0.001	49	0.010
10	0.002	50	0.006
11	0.006	51	0.004
12	0.009	52	0.002
13	0.011	53	0.002
14	0.016	54	0.002
15	0.019	55	0.001
16	0.022	56	0.001
17	0.019	57	0.000
18	0.015	58	0.000
19	0.016	59	0.000
20	0.016	60	0.000
21	0.020	61	0.000
22	0.026	62	0.000
23	0.034	63	0.000
24	0.046	64	0.000
25	0.056	65	0.000
26	0.087	66	0.000
27	0.115	67	0.000
28	0.147	68	0.000
29	0.181	69	0.000
30	0.231		
31	0.263		
32	0.295		
33	0.324		
34	0.341		
35	0.345		
36	0.341		
37	0.325		
38	0.294		
39	0.266		
40	0.227		

MAH	.800	ALPHAT	.8500	ALPHA	.6206
REC	.23E+07	CLB	.1741	CL	.1668
QR	3010.	CDPB	.0368	CDP	.0362
		CMB	-.0234	CM	-.0216
				CD	.0447

MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO
1	1.166	0.9993	41	-0.243	0.5850
2	0.937	0.9285	42	-0.283	0.5733
3	0.217	0.7202	43	-0.334	0.5522
4	-0.398	0.5395	44	-0.746	0.4373
5	-0.842	0.4089	45	-0.962	0.3736
6	-0.834	0.4115	46	-0.874	0.3997
7	-0.865	0.4024	47	-0.802	0.4209
8	-0.901	0.3917	48	-0.779	0.4278
9	-0.943	0.3794	49	-0.683	0.4559
10	-0.934	0.3820	50	-0.621	0.4739
11	-0.912	0.3884	51	-0.582	0.4855
12	-0.896	0.3932	52	-0.553	0.4938
13	-0.890	0.3950	53	-0.578	0.4865
14	-0.893	0.3941	54	-0.479	0.5156
15	-0.922	0.3856	55	-0.411	0.5357
16	-0.899	0.3923	56	-0.119	0.6213
17	-0.927	0.3841	57	0.406	0.7757
18	-0.950	0.3773	58	0.923	0.9273
19	-0.992	0.3650			
20	-1.001	0.3623			
21	-0.435	0.5286			
22	-0.303	0.5673			
23	-0.231	0.5885			
24	-0.170	0.6063			
25	-0.128	0.6188			
26	-0.081	0.6296			
27	-0.051	0.6413			
28	-0.023	0.6496			
29	0.000	0.6564			
30	0.027	0.6643			
31	0.042	0.6685			
32	0.156	0.6962			
33	0.117	0.6907			
34	0.094	0.6841			
35	0.031	0.6655			
36	-0.029	0.6479			
37	-0.068	0.6364			
38	-0.120	0.6211			
39	-0.163	0.6083			
40	-0.203	0.5967			

WAKE RAKE PRESSURETUBE NUMBER	CPWB	WAKE RAKE PRESSURETUBE NUMBER	CPWB
1	0.000	41	0.342
2	0.000	42	0.312
3	0.000	43	0.267
4	0.000	44	0.228
5	0.000	45	0.191
6	0.000	46	0.151
7	0.000	47	0.125
8	0.000	48	0.094
9	0.000	49	0.076
10	0.001	50	0.053
11	0.001	51	0.049
12	0.002	52	0.031
13	0.003	53	0.022
14	0.004	54	0.015
15	0.005	55	0.007
16	0.008	56	0.004
17	0.012	57	0.002
18	0.016	58	0.001
19	0.021	59	0.000
20	0.023	60	0.000
21	0.027	61	0.000
22	0.029	62	0.000
23	0.035	63	0.000
24	0.042	64	0.000
25	0.055	65	0.000
26	0.070	66	0.000
27	0.089	67	0.000
28	0.105	68	0.000
29	0.132	69	0.000
30	0.158		
31	0.208		
32	0.219		
33	0.285		
34	0.313		
35	0.351		
36	0.356		
37	0.384		
38	0.388		
39	0.380		
40	0.377		

MAH	.825	ALPHAT	.8500	ALPHA	.5681
REC	.23E+07	CLB	.2047	CL	.1951
QR	3109.	CDPB	.0614	CDP	.0604
		CMB	-.0413	CM	-.0368
				CD	.0525

MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO
1	1.180	0.9994	41	-0.371	0.5269
2	0.956	0.9311	42	-0.441	0.5054
3	0.263	0.7201	43	-0.575	0.4695
4	-0.322	0.5817	44	-0.727	0.4183
5	-0.758	0.4489	45	-0.713	0.4224
6	-0.742	0.4538	46	-0.743	0.4134
7	-0.776	0.4034	47	-0.768	0.4057
8	-0.813	0.3921	48	-0.715	0.4218
9	-0.854	0.3794	49	-0.649	0.4422
10	-0.849	0.3811	50	-0.582	0.4625
11	-0.832	0.3864	51	-0.550	0.4720
12	-0.821	0.3895	52	-0.538	0.4757
13	-0.818	0.3904	53	-0.552	0.4717
14	-0.827	0.3876	54	-0.440	0.5056
15	-0.840	0.3838	55	-0.368	0.5277
16	-0.859	0.3782	56	-0.078	0.6161
17	-0.880	0.3717	57	0.426	0.7697
18	-0.907	0.3634	58	0.939	0.9260
19	-0.900	0.3654			
20	-0.864	0.3764			
21	-0.858	0.3783			
22	-0.829	0.3890			
23	-0.522	0.4808			
24	-0.336	0.5367			
25	-0.240	0.5666			
26	-0.167	0.5890			
27	-0.105	0.6070			
28	-0.060	0.6252			
29	-0.011	0.6363			
30	0.026	0.6478			
31	0.068	0.6604			
32	0.109	0.6730			
33	0.093	0.6682			
34	0.064	0.6595			
35	-0.021	0.6334			
36	-0.069	0.6187			
37	-0.124	0.6019			
38	-0.177	0.5857			
39	-0.247	0.5651			
40	-0.302	0.5477			

WAKE RAKE PRESSURETUBE NUMBER	CPWB	WAKE RAKE PRESSURETUBE NUMBER	CPWB
1	0.000	41	0.232
2	0.000	42	0.207
3	0.000	43	0.174
4	0.000	44	0.148
5	0.000	45	0.131
6	0.001	46	0.098
7	0.005	47	0.082
8	0.007	48	0.070
9	0.012	49	0.051
10	0.015	50	0.044
11	0.024	51	0.033
12	0.026	52	0.020
13	0.027	53	0.012
14	0.026	54	0.008
15	0.024	55	0.007
16	0.024	56	0.006
17	0.027	57	0.006
18	0.032	58	0.005
19	0.046	59	0.004
20	0.059	60	0.002
21	0.073	61	0.001
22	0.048	62	0.000
23	0.123	63	0.000
24	0.149	64	0.000
25	0.178	65	-0.000
26	0.214	66	0.000
27	0.249	67	0.000
28	0.272	68	0.000
29	0.299	69	0.000
30	0.321		
31	0.342		
32	0.351		
33	0.349		
34	0.370		
35	0.364		
36	0.350		
37	0.340		
38	0.307		
39	0.285		
40	0.262		

MAH	.824	ALPHAT	.8500	ALPHA	.7086
REC	.23E+07	CLB	.1269	CL	.1142
QR	3119.	CDPB	.0540	CDP	.0537
		CMB	-.0078	CM	-.0056
				CD	.0629

MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO
1	1.180	0.9996	41	-0.303	0.5481
2	0.951	0.9297	42	-0.330	0.5396
3	0.260	0.7216	43	-0.426	0.5105
4	-0.316	0.5840	44	-0.619	0.4516
5	-0.755	0.4503	45	-0.872	0.3746
6	-0.745	0.4535	46	-0.843	0.3836
7	-0.770	0.4052	47	-0.771	0.4054
8	-0.816	0.3917	48	-0.744	0.4136
9	-0.848	0.3790	49	-0.649	0.4426
10	-0.851	0.3811	50	-0.585	0.4620
11	-0.835	0.3861	51	-0.553	0.4719
12	-0.823	0.3896	52	-0.539	0.4761
13	-0.820	0.3903	53	-0.553	0.4717
14	-0.828	0.3880	54	-0.442	0.5055
15	-0.862	0.3777	55	-0.375	0.5261
16	-0.847	0.3824	56	-0.068	0.6135
17	-0.876	0.3734	57	0.427	0.7703
18	-0.905	0.3647	58	0.935	0.9249
19	-0.945	0.3523			
20	-0.629	0.4486			
21	-0.426	0.5106			
22	-0.330	0.5396			
23	-0.274	0.5568			
24	-0.238	0.5674			
25	-0.216	0.5745			
26	-0.199	0.5811			
27	-0.174	0.5873			
28	-0.145	0.5952			
29	-0.135	0.5991			
30	-0.110	0.6064			
31	-0.082	0.6151			
32	-0.054	0.6236			
33	-0.080	0.6160			
34	-0.107	0.6076			
35	-0.152	0.5940			
36	-0.184	0.5842			
37	-0.212	0.5756			
38	-0.233	0.5691			
39	-0.261	0.5608			
40	-0.282	0.5543			

WAKE RAKE PRESSURETUBE NUMBER	CPWB	WAKE RAKE PRESSURETUBE NUMBER	CPWB
1	0.000	41	0.336
2	0.000	42	0.312
3	0.000	43	0.292
4	0.001	44	0.259
5	0.002	45	0.234
6	0.004	46	0.197
7	0.005	47	0.186
8	0.007	48	0.169
9	0.009	49	0.153
10	0.011	50	0.138
11	0.014	51	0.105
12	0.015	52	0.084
13	0.016	53	0.058
14	0.018	54	0.041
15	0.020	55	0.031
16	0.022	56	0.025
17	0.024	57	0.023
18	0.029	58	0.021
19	0.039	59	0.018
20	0.048	60	0.015
21	0.055	61	0.012
22	0.069	62	0.009
23	0.091	63	0.007
24	0.105	64	0.003
25	0.133	65	0.001
26	0.151	66	0.000
27	0.180	67	0.000
28	0.215	68	0.000
29	0.249	69	0.000
30	0.277		
31	0.297		
32	0.323		
33	0.344		
34	0.362		
35	0.375		
36	0.387		
37	0.381		
38	0.384		
39	0.374		
40	0.357		

TABLE 4.5 Aerodynamic test data (con'd)

TRANSITION FREE

MAB	.748	ALPHAT	-4.0000	ALPHA	-3.8001
REC	.22E+07	CLB	-.2186	CL	-.2111
QB	2794.	CDPB	.0366	CDP	.0358
		CMB	-.0766	CM	-.0765
				CD	.0316

MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	WAKE RAKE PRESSURETUBE NUMBER	CPWB	WAKE RAKE PRESSURETUBE NUMBER	CPWB
1	1.069	0.9788	41	-0.152	0.6488	1	0.000	41	0.247
2	1.082	0.9823	42	-0.238	0.6285	2	0.000	42	0.216
3	0.568	0.8434	43	-0.345	0.5965	3	0.000	43	0.181
4	0.093	0.7150	44	-0.512	0.5513	4	0.000	44	0.146
5	-0.161	0.6463	45	-0.711	0.4978	5	0.000	45	0.121
6	-0.201	0.6356	46	-1.136	0.3829	6	0.000	46	0.090
7	-0.284	0.6130	47	-1.226	0.3585	7	0.000	47	0.071
8	-0.289	0.6117	48	-1.165	0.3695	8	0.000	48	0.055
9	-0.293	0.6108	49	-1.252	0.3514	9	0.000	49	0.042
10	-0.282	0.6137	50	-1.234	0.3563	10	0.000	50	0.035
11	-0.299	0.6090	51	-1.240	0.3548	11	0.000	51	0.035
12	-0.336	0.5990	52	-1.259	0.3497	12	0.000	52	0.029
13	-0.362	0.5921	53	-1.279	0.3442	13	0.000	53	0.024
14	-0.405	0.5804	54	-1.236	0.3559	14	0.000	54	0.016
15	-0.440	0.5709	55	-1.151	0.3841	15	0.000	55	0.009
16	-0.486	0.5584	56	-0.839	0.4630	16	0.000	56	0.004
17	-0.520	0.5492	57	-0.170	0.6438	17	0.000	57	0.002
18	-0.567	0.5366	58	0.546	0.8375	18	0.000	58	0.001
19	-0.615	0.5236				19	0.000	59	0.000
20	-0.646	0.5152				20	0.000	60	0.000
21	-0.666	0.5097				21	0.000	61	0.001
22	-0.610	0.5249				22	0.000	62	0.000
23	-0.579	0.5333				23	0.000	63	0.000
24	-0.505	0.5533				24	0.000	64	0.000
25	-0.177	0.6419				25	0.000	65	0.000
26	-0.105	0.6613				26	0.002	66	0.000
27	-0.020	0.6845				27	0.007	67	0.000
28	0.055	0.7047				28	0.021	68	0.000
29	0.110	0.7196				29	0.045	69	0.000
30	0.154	0.7315				30	0.083		
31	0.167	0.7348				31	0.122		
32	0.179	0.7382				32	0.172		
33	0.164	0.7341				33	0.223		
34	0.147	0.7296				34	0.262		
35	0.112	0.7202				35	0.295		
36	0.077	0.7105				36	0.310		
37	0.032	0.6985				37	0.315		
38	-0.008	0.6875				38	0.311		
39	-0.041	0.6766				39	0.297		
40	-0.109	0.6605				40	0.278		

MAB	.748	ALPHAT	-2.0000	ALPHA	-2.0731
REC	.22E+07	CLB	-.0097	CL	-.0093
QB	2757.	CDPB	.0083	CDP	.0083
		CMB	-.0998	CM	-.0999
				CD	.0108

MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	WAKE RAKE PRESSURETUBE NUMBER	CPWB	WAKE RAKE PRESSURETUBE NUMBER	CPWB
1	1.116	0.9916	41	-0.066	0.6725	1	0.000	41	0.005
2	1.016	0.9644	42	-0.155	0.6483	2	0.000	42	0.002
3	0.379	0.7924	43	-0.307	0.6074	3	0.000	43	0.003
4	-0.184	0.6404	44	-0.708	0.4989	4	0.000	44	0.004
5	-0.491	0.5577	45	-0.949	0.4339	5	0.000	45	0.004
6	-0.507	0.5534	46	-0.996	0.4213	6	0.000	46	0.004
7	-0.604	0.5270	47	-1.106	0.3915	7	0.000	47	0.003
8	-0.593	0.5300	48	-1.070	0.4012	8	0.000	48	0.001
9	-0.567	0.5370	49	-1.043	0.4085	9	0.000	49	0.001
10	-0.514	0.5513	50	-1.028	0.4127	10	0.000	50	0.000
11	-0.503	0.5543	51	-1.030	0.4120	11	0.000	51	0.000
12	-0.523	0.5490	52	-1.025	0.4135	12	0.000	52	0.000
13	-0.537	0.5453	53	-1.052	0.4061	13	0.000	53	0.000
14	-0.565	0.5382	54	-1.023	0.4140	14	0.000	54	0.000
15	-0.588	0.5315	55	-0.883	0.4517	15	0.000	55	0.000
16	-0.617	0.5237	56	-0.587	0.5318	16	0.000	56	0.000
17	-0.642	0.5169	57	0.037	0.7002	17	0.000	57	0.000
18	-0.674	0.5083	58	0.695	0.8778	18	0.000	58	0.000
19	-0.708	0.4991				19	0.000	59	0.000
20	-0.707	0.4992				20	0.000	60	0.000
21	-0.673	0.5084				21	0.000	61	0.000
22	-0.627	0.5208				22	0.000	62	0.000
23	-0.610	0.5255				23	0.000	63	0.000
24	-0.307	0.6073				24	0.000	64	0.000
25	-0.139	0.6526				25	0.000	65	0.000
26	-0.056	0.6751				26	0.000	66	0.000
27	0.034	0.6992				27	0.001	67	0.000
28	0.121	0.7228				28	0.001	68	0.000
29	0.186	0.7403				29	0.001	69	0.000
30	0.248	0.7571				30	0.001		
31	0.307	0.7732				31	0.009		
32	0.367	0.7892				32	0.055		
33	0.389	0.7952				33	0.152		
34	0.390	0.7953				34	0.231		
35	0.370	0.7901				35	0.272		
36	0.341	0.7822				36	0.250		
37	0.290	0.7683				37	0.189		
38	0.218	0.7489				38	0.124		
39	0.140	0.7280				39	0.060		
40	0.046	0.7025				40	0.019		

MAB	.747	ALPHAT	-1.0000	ALPHA	-1.2861
REC	.22E+07	CLB	.1640	CL	.1582
QB	2757.	CDPB	.0067	CDP	.0059
		CMB	-.1027	CM	-.1012
				CD	.0074

MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	WAKE RAKE PRESSURETUBE NUMBER	CPWB	WAKE RAKE PRESSURETUBE NUMBER	CPWB
1	1.139	0.9964	41	-0.080	0.6688	1	0.000	41	0.003
2	0.960	0.9495	42	-0.178	0.6423	2	0.000	42	0.000
3	0.253	0.7585	43	-0.342	0.5980	3	0.000	43	0.000
4	-0.361	0.5929	44	-0.755	0.4866	4	0.000	44	0.001
5	-0.725	0.4947	45	-0.781	0.4796	5	0.000	45	0.000
6	-0.709	0.4990	46	-0.825	0.4678	6	0.000	46	0.000
7	-0.824	0.4679	47	-0.898	0.4482	7	0.000	47	-0.000
8	-0.875	0.4542	48	-0.876	0.4541	8	0.000	48	0.000
9	-0.808	0.4724	49	-0.836	0.4647	9	0.000	49	0.000
10	-0.698	0.5021	50	-0.795	0.4758	10	0.000	50	0.000
11	-0.652	0.5145	51	-0.786	0.4781	11	0.000	51	0.000
12	-0.654	0.5138	52	-0.825	0.4677	12	0.000	52	0.000
13	-0.667	0.5105	53	-0.856	0.4594	13	0.000	53	0.000
14	-0.687	[illegible]	54	-0.781	0.4797	14	0.000	54	0.000
15	-0.699	[illegible]	55	-0.719	0.4962	15	0.000	55	0.000
16	-0.721	[illegible]	56	-0.416	0.5782	16	0.000	56	0.000
17	-0.742	0.4902	57	0.174	0.7374	17	0.000	57	0.000
18	-0.764	0.4841	58	0.786	0.9024	18	0.000	58	0.000
19	-0.798	0.4751				19	0.000	59	0.000
20	-0.796	0.4757				20	0.000	60	0.000
21	-0.749	0.4882				21	0.000	61	0.000
22	-0.711	0.4986				22	0.000	62	0.000
23	-0.605	0.5272				23	0.000	63	0.000
24	-0.254	0.6218				24	0.000	64	0.000
25	-0.171	0.6443				25	0.000	65	0.000
26	-0.068	0.6721				26	0.000	66	0.000
27	0.030	0.6785				27	0.000	67	0.000
28	0.119	0.7225				28	0.000	68	0.000
29	0.186	0.7406				29	0.000	69	0.000
30	0.250	0.7579				30	0.000		
31	0.318	0.7762				31	0.003		
32	0.386	0.7945				32	0.040		
33	0.417	0.8029				33	0.141		
34	0.404	0.7995				34	0.229		
35	0.392	0.7961				35	0.242		
36	0.368	0.7896				36	0.178		
37	0.308	0.7735				37	0.078		
38	0.226	0.7520				38	0.020		
39	0.145	0.7295				39	0.003		
40	0.043	0.7019				40	0.003		

TRANSITION FIXED

MAB	.749	ALPHAT	-4.0000	ALPHA	-3.7354
REC	.22E+07	CLB	-.2600	CL	-.2511
QB	2778.	CDPB	.0403	CDP	.0391
		CMB	-.0594	CM	-.0617
				CD	.0365

MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	WAKE RAKE PRESSURETUBE NUMBER	CPWB	WAKE RAKE PRESSURETUBE NUMBER	CPWB
1	1.068	0.9784	41	-0.223	0.6292	1	0.000	41	0.277
2	1.043	0.9625	42	-0.267	0.6175	2	0.000	42	0.258
3	0.577	0.8456	43	-0.376	0.5878	3	0.000	43	0.227
4	0.103	0.7173	44	-0.471	0.5621	4	0.000	44	0.207
5	-0.153	0.6480	45	-0.607	0.5254	5	0.000	45	0.188
6	-0.194	0.6370	46	-0.959	0.4300	6	0.000	46	0.165
7	-0.276	0.6148	47	-1.224	0.3585	7	0.000	47	0.178
8	-0.282	0.6131	48	-1.298	0.3383	8	0.000	48	0.158
9	-0.287	0.6119	49	-1.281	0.3429	9	0.000	49	0.121
10	-0.275	0.6150	50	-1.280	0.3431	10	0.000	50	0.099
11	-0.291	0.6108	51	-1.277	0.3439	11	0.000	51	0.091
12	-0.328	0.6008	52	-1.279	0.3436	12	0.000	52	0.062
13	-0.354	0.5937	53	-1.284	0.3421	13	0.000	53	0.053
14	-0.392	0.5833	54	-1.236	0.3552	14	0.000	54	0.042
15	-0.457	0.5659	55	-1.134	0.3826	15	0.000	55	0.034
16	-0.452	0.5671	56	-0.850	0.4594	16	0.000	56	0.023
17	-0.511	0.5512	57	-0.170	0.6435	17	0.000	57	0.019
18	-0.552	0.5401	58	0.542	0.8361	18	0.000	58	0.012
19	-0.605	0.5258				19	0.000	59	0.009
20	-0.624	0.5207				20	0.000	60	0.005
21	-0.653	0.5128				21	0.000	61	0.001
22	-0.577	0.5334				22	0.000	62	0.000
23	-0.456	0.5660				23	0.000	63	0.000
24	-0.325	0.6016				24	0.000	64	0.000
25	-0.205	0.6340				25	0.000	65	0.000
26	-0.115	0.6584				26	0.001	66	0.000
27	-0.036	0.6798				27	0.003	67	0.000
28	0.043	0.7010				28	0.007	68	0.000
29	0.084	0.7121				29	0.018	69	0.000
30	0.120	0.7220				30	0.037		
31	0.129	0.7244				31	0.065		
32	0.138	0.7267				32	0.108		
33	0.119	0.7217				33	0.155		
34	0.086	0.7126				34	0.200		
35	0.031	0.6978				35	0.243		
36	0.001	0.6897				36	0.267		
37	-0.038	0.6792				37	0.287		
38	-0.078	0.6684				38	0.301		
39	-0.122	0.6564				39	0.292		
40	-0.160	0.6461				40	0.285		

MAB	.749	ALPHAT	-2.0000	ALPHA	-1.9333
REC	.22E+07	CLB	-.1057	CL	-.1020
QB	2781.	CDPB	.0132	CDP	.0131
		CMB	-.0721	CM	-.0730
				CD	.0168

MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	WAKE RAKE PRESSURETUBE NUMBER	CPWB	WAKE RAKE PRESSURETUBE NUMBER	CPWB
1	1.110	0.9697	41	-0.098	0.6626	1	0.000	41	0.177
2	1.018	0.9646	42	-0.199	0.6355	2	0.000	42	0.120
3	0.399	0.7975	43	-0.358	0.5975	3	0.000	43	0.084
4	-0.156	0.6472	44	-0.518	0.5490	4	0.000	44	0.054
5	-0.458	0.5652	45	-1.252	0.3503	5	0.000	45	0.041
6	-0.475	0.5608	46	-1.179	0.3702	6	0.000	46	0.029
7	-0.570	0.5351	47	-1.139	0.3809	7	0.000	47	0.023
8	-0.558	0.5381	48	-1.136	0.3819	8	0.000	48	0.015
9	-0.535	0.5445	49	-1.073	0.3989	9	0.000	49	0.010
10	-0.487	0.5575	50	-1.056	0.4034	10	0.000	50	0.007
11	-0.476	0.5603	51	-1.052	0.4045	11	0.000	51	0.005
12	-0.492	0.5561	52	-1.047	0.4059	12	0.000	52	0.003
13	-0.507	0.5520	53	-1.073	0.3989	13	0.000	53	0.003
14	-0.530	0.5457	54	-1.035	0.4091	14	0.000	54	0.004
15	-0.592	0.5290	55	-0.901	0.4455	15	0.000	55	0.004
16	-0.551	0.5401	56	-0.612	0.5236	16	0.000	56	0.000
17	-0.598	0.5274	57	0.022	0.6953	17	0.000	57	0.000
18	-0.629	0.5190	58	0.686	0.8749	18	0.000	58	0.000
19	-0.663	0.5099				19	0.000	59	0.000
20	-0.649	0.5135				20	0.000	60	0.000
21	-0.634	0.5177				21	0.000	61	0.000
22	-0.527	0.5467				22	0.000	62	0.000
23	-0.399	0.5812				23	0.000	63	0.000
24	-0.260	0.6189				24	0.000	64	0.000
25	-0.134	0.6530				25	0.000	65	0.000
26	-0.036	0.6795				26	0.000	66	0.000
27	0.050	0.7028				27	0.000	67	0.000
28	0.121	0.7219				28	0.000	68	0.000
29	0.165	0.7340				29	0.000	69	0.000
30	0.204	0.7444				30	0.000		
31	0.252	0.7574				31	0.001		
32	0.299	0.7703				32	0.003		
33	0.317	0.7750				33	0.025		
34	0.311	0.7735				34	0.071		
35	0.283	0.7660				35	0.151		
36	0.244	0.7554				36	0.228		
37	0.198	0.7429				37	0.269		
38	0.144	0.7282				38	0.306		
39	0.079	0.7106				39	0.290		
40	-0.006	0.6877				40	0.240		

MAB	.748	ALPHAT	-1.0000	ALPHA	-1.1240
REC	.22E+07	CLB	.0502	CL	.0484
QB	2778.	CDPB	.0081	CDP	.0080
		CMB	-.0742	CM	-.0738
				CD	.0120

MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	WAKE RAKE PRESSURETUBE NUMBER	CPWB	WAKE RAKE PRESSURETUBE NUMBER	CPWB
1	1.131	0.9956	41	-0.105	0.6615	1	0.000	41	0.017
2	0.968	0.9515	42	-0.216	0.6314	2	0.000	42	0.006
3	0.283	0.7662	43	-0.361	0.5920	3	0.000	43	0.002
4	-0.322	0.6026	44	-0.508	0.5523	4	0.000	44	0.001
5	-0.675	0.5073	45	-1.078	0.3984	5	0.000	45	0.001
6	-0.667	0.5094	46	-0.951	0.4328	6	0.000	46	0.000
7	-0.786	0.4767	47	-0.938	0.4362	7	0.000	47	0.000
8	-0.794	0.4751	48	-0.958	0.4306	8	0.000	48	0.000
9	-0.741	0.4896	49	-0.882	0.4514	9	0.000	49	0.000
10	-0.649	0.5142	50	-0.858	0.4578	10	0.000	50	0.000
11	-0.613	0.5240	51	-0.862	0.4567	11	0.000	51	0.001
12	-0.616	0.5231	52	-0.878	0.4523	12	0.000	52	0.000
13	-0.625	0.5208	53	-0.886	0.4502	13	0.000	53	0.002
14	-0.635	0.5181	54	-0.867	0.4554	14	0.000	54	-0.000
15	-0.730	0.4924	55	-0.756	0.4855	15	0.000	55	0.000
16	-0.619	0.5225	56	-0.458	0.5658	16	0.000	56	-0.000
17	-0.677	0.5068	57	0.147	0.7295	17	0.000	57	0.000
18	-0.705	0.4991	58	0.768	0.8972	18	0.000	58	0.000
19	-0.740	0.4897				19	0.000	59	0.000
20	-0.700	0.5006				20	0.000	60	0.000
21	-0.640	0.5114				21	0.000	61	0.000
22	-0.537	0.5444				22	0.000	62	0.000
23	-0.403	0.5808				23	0.000	63	0.000
24	-0.259	0.6196				24	0.000	64	0.000
25	-0.132	0.6540				25	0.000	65	0.000
26	-0.034	0.6806				26	0.000	66	0.000
27	0.051	0.7035				27	0.000	67	0.000
28	0.118	0.7216				28	0.000	68	0.000
29	0.159	0.7327				29	0.000	69	0.000
30	0.194	0.7421				30	0.002		
31	0.249	0.7570				31	0.012		
32	0.304	0.7719				32	0.048		
33	0.326	0.7774				33	0.114		
34	0.323	0.7770				34	0.195		
35	0.297	0.7700				35	0.266		
36	0.261	0.7602				36	0.284		
37	0.215	0.7480				37	0.255		
38	0.159	0.7327				38	0.188		
39	0.092	0.7146				39	0.113		
40	0.003	0.6906				40	0.049		

TABLE 4.5 Aerodynamic test data (con'd)

TRANSITION FREE

MAB	.748	ALPHAT	0.0000	ALPHA	-.3574
REC	.22E+07	CLB	.2350	CL	.2268
QR	2752.	CDPB	.0071	CDP	.0056
		CMB	-.0852	CM	-.0831
				CD	.0103

MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO
1	1.149	1.0000	41	+0.097	0.4640
2	0.916	0.9374	42	+0.167	0.4451
3	0.161	0.7336	43	+0.381	0.5873
4	-0.482	0.5601	44	-0.697	0.5020
5	-0.937	0.4372	45	-0.760	0.4849
6	-0.854	0.4596	46	-0.757	0.4776
7	-0.945	0.4349	47	-0.804	0.4752
8	-1.007	0.4182	48	-0.791	0.4766
9	-1.050	0.4067	49	-0.750	0.4877
10	-0.986	0.4239	50	+0.701	0.5010
11	-0.874	0.4543	51	-0.677	0.5074
12	-0.794	0.4759	52	-0.658	0.5132
13	-0.772	0.4817	53	+0.685	0.5051
14	-0.747	0.4885	54	+0.625	0.5216
15	-0.768	0.4829	55	+0.571	0.5360
16	-0.718	0.4962	56	-0.269	0.6177
17	-0.754	0.4866	57	0.289	0.7682
18	-0.794	0.4758	58	0.861	0.9226
19	-0.826	0.4671			
20	-0.874	0.4543			
21	-0.666	0.5103			
22	-0.543	0.5442			
23	-0.408	0.5802			
24	-0.261	0.6197			
25	-0.135	0.6537			
26	-0.039	0.6797			
27	0.041	0.7012			
28	0.098	0.7167			
29	0.137	0.7272			
30	0.166	0.7351			
31	0.248	0.7572			
32	0.330	0.7793			
33	0.362	0.7934			
34	0.383	0.7936			
35	0.376	0.7918			
36	0.353	0.7855			
37	0.292	0.7690			
38	0.211	0.7471			
39	0.128	0.7247			
40	0.028	0.6978			

WAKE RAKE PRESSURETUBE NUMBER	CPWB	WAKE RAKE PRESSURETUBE NUMBER	CPWB
1	0.000	41	0.000
2	0.000	42	-0.000
3	0.000	43	0.000
4	0.000	44	0.000
5	0.000	45	0.000
6	0.000	46	0.000
7	0.000	47	0.000
8	0.000	48	0.000
9	0.000	49	0.000
10	0.000	50	0.000
11	0.000	51	0.000
12	0.000	52	0.000
13	0.000	53	0.000
14	0.000	54	0.000
15	0.000	55	0.000
16	0.000	56	0.000
17	0.000	57	0.000
18	0.000	58	0.000
19	0.000	59	0.000
20	0.000	60	0.000
21	0.000	61	0.000
22	0.000	62	0.000
23	0.000	63	0.000
24	0.000	64	0.000
25	0.000	65	0.000
26	0.001	66	0.000
27	0.000	67	0.000
28	0.001	68	0.000
29	0.002	69	0.000
30	0.008		
31	0.026		
32	0.081		
33	0.159		
34	0.236		
35	0.277		
36	0.257		
37	0.179		
38	0.093		
39	0.033		
40	0.008		

MAB	.747	ALPHAT	.9580	ALPHA	.2749
REC	.22E+07	CLB	.4657	CL	.4688
QR	2801.	CDPB	.0120	CDP	.0063
		CMB	-.1013	CM	-.0970
				CD	.0081

MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO
1	1.145	0.9994	41	-0.053	0.6763
2	0.847	0.9190	42	-0.114	0.6597
3	0.048	0.7034	43	+0.538	0.5454
4	+0.618	0.5237	44	-0.555	0.5408
5	+1.110	0.3911	45	-0.604	0.5276
6	+1.122	0.3878	46	-0.645	0.5165
7	-1.161	0.3775	47	-0.625	0.5219
8	-1.178	0.3728	48	-0.613	0.5252
9	+1.205	0.3660	49	-0.588	0.5318
10	+1.177	0.3729	50	+0.545	0.5436
11	+1.151	0.3801	51	+0.519	0.5504
12	-1.120	0.3885	52	-0.488	0.5588
13	-1.095	0.3959	53	-0.487	0.5592
14	+1.065	0.4078	54	+0.429	0.5749
15	+1.071	0.4016	55	-0.359	0.5936
16	+1.061	0.4044	56	-0.071	0.6714
17	-1.049	0.4077	57	0.427	0.8056
18	-1.040	0.4100	58	0.938	0.9435
19	-1.010	0.4180			
20	-0.970	0.4287			
21	-0.815	0.4707			
22	-0.505	0.5542			
23	-0.433	0.5737			
24	-0.302	0.6086			
25	-0.179	0.6422			
26	-0.072	0.6710			
27	0.024	0.6971			
28	0.115	0.7215			
29	0.176	0.7381			
30	0.236	0.7543			
31	0.312	0.7747			
32	0.388	0.7952			
33	0.429	0.8063			
34	0.431	0.8066			
35	0.421	0.8032			
36	0.392	0.7962			
37	0.322	0.7781			
38	0.244	0.7563			
39	0.164	0.7347			
40	0.062	0.7072			

WAKE RAKE PRESSURETUBE NUMBER	CPWB	WAKE RAKE PRESSURETUBE NUMBER	CPWB
1	0.000	41	0.000
2	0.000	42	0.000
3	0.000	43	0.000
4	0.000	44	0.000
5	0.000	45	0.000
6	0.000	46	0.000
7	0.000	47	0.000
8	0.000	48	0.000
9	0.000	49	0.000
10	0.000	50	0.000
11	0.000	51	0.000
12	0.000	52	0.000
13	0.000	53	0.000
14	0.000	54	0.000
15	0.000	55	0.000
16	0.000	56	0.000
17	0.000	57	0.000
18	0.000	58	0.000
19	0.000	59	0.000
20	0.000	60	0.000
21	0.000	61	0.000
22	0.000	62	0.000
23	0.000	63	0.000
24	0.000	64	0.000
25	0.000	65	0.000
26	0.000	66	0.000
27	0.000	67	0.000
28	0.000	68	0.000
29	0.000	69	0.000
30	0.000		
31	0.000		
32	0.000		
33	0.000		
34	0.000		
35	0.000		
36	0.000		
37	0.000		
38	0.000		
39	0.000		
40	0.000		

MAB	.748	ALPHAT	2.0000	ALPHA	1.1403
REC	.22E+07	CLB	.6332	CL	.6113
QR	2754.	CDPB	.0256	CDP	.0161
		CMB	-.1080	CM	-.1025
				CD	.0199

MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO
1	1.142	0.9983	41	-0.052	0.6761
2	0.787	0.9026	42	-0.086	0.6669
3	-0.059	0.6796	43	-0.347	0.5962
4	-0.704	0.4997	44	-0.493	0.5570
5	-1.197	0.3667	45	-0.572	0.5354
6	+1.246	0.3536	46	+0.579	0.5335
7	-1.296	0.3389	47	-0.524	0.5485
8	+1.320	0.3330	48	-0.522	0.5491
9	+1.327	0.3316	49	-0.487	0.5586
10	-1.292	0.3409	50	+0.437	0.5719
11	-1.254	0.3516	51	-0.407	0.5799
12	-1.227	0.3593	52	-0.365	0.5914
13	+1.215	0.3618	53	-0.357	0.5937
14	-1.207	0.3639	54	-0.287	0.6125
15	+1.207	0.3639	55	-0.203	0.6351
16	+1.214	0.3621	56	0.080	0.7116
17	-1.220	0.3604	57	0.352	0.8390
18	-1.229	0.3580	58	0.997	0.9592
19	-1.184	0.3702			
20	-1.143	0.3799			
21	-1.159	0.3770			
22	+0.617	0.5233			
23	+0.517	0.5444			
24	+0.204	0.6343			
25	-0.111	0.6600			
26	-0.033	0.6818			
27	0.045	0.7020			
28	0.111	0.7199			
29	0.156	0.7320			
30	0.197	0.7431			
31	0.279	0.7652			
32	0.361	0.7874			
33	0.410	0.8007			
34	0.410	0.8006			
35	0.405	0.7994			
36	0.382	0.7933			
37	0.320	0.7767			
38	0.238	0.7543			
39	0.159	0.7330			
40	0.065	0.7075			

WAKE RAKE PRESSURETUBE NUMBER	CPWB	WAKE RAKE PRESSURETUBE NUMBER	CPWB
1	0.000	41	0.001
2	0.000	42	-0.000
3	0.000	43	0.000
4	0.000	44	0.000
5	0.000	45	0.000
6	0.000	46	0.000
7	0.000	47	0.000
8	0.000	48	0.000
9	0.000	49	0.000
10	0.000	50	0.000
11	0.000	51	0.000
12	0.001	52	0.000
13	0.002	53	0.000
14	0.004	54	0.000
15	0.007	55	0.000
16	0.009	56	0.000
17	0.015	57	0.000
18	0.020	58	0.000
19	0.023	59	0.000
20	0.022	60	0.000
21	0.021	61	0.000
22	0.019	62	0.000
23	0.018	63	0.000
24	0.018	64	0.000
25	0.019	65	0.000
26	0.021	66	0.000
27	0.026	67	0.000
28	0.038	68	0.000
29	0.067	69	0.000
30	0.114		
31	0.172		
32	0.243		
33	0.305		
34	0.337		
35	0.333		
36	0.292		
37	0.209		
38	0.121		
39	0.051		
40	0.012		

TRANSITION FIXED

MAB	.748	ALPHAT	0.0000	ALPHA	-.2986
REC	.22E+07	CLB	.1963	CL	.1894
QR	2777.	CDPB	.0079	CDP	.0068
		CMB	-.0713	CM	-.0695
				CD	.0123

MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO
1	1.142	0.9984	41	-0.109	0.6605
2	0.912	0.9363	42	-0.223	0.6295
3	0.172	0.7363	43	-0.377	0.5681
4	-0.472	0.5625	44	-0.550	0.5412
5	-0.922	0.4408	45	+0.709	0.4982
6	-0.846	0.4613	46	+0.955	0.4374
7	-0.937	0.4369	47	-0.863	0.4567
8	-1.001	0.4195	48	-0.816	0.4693
9	-1.041	0.4087	49	+0.738	0.4918
10	-0.956	0.4317	50	-0.709	0.4985
11	-0.846	0.4613	51	+0.685	0.5047
12	-0.766	0.4825	52	+0.664	0.5104
13	-0.734	0.4914	53	+0.696	0.5018
14	-0.749	0.4875	54	+0.635	0.5189
15	-0.737	0.4922	55	+0.582	0.5327
16	-0.795	0.4750	56	+0.286	0.6126
17	-0.779	0.4795	57	0.262	0.7661
18	-0.787	0.4774	58	0.853	0.9205
19	-0.780	0.4790			
20	-0.745	0.4867			
21	-0.652	0.5136			
22	-0.527	0.5475			
23	-0.543	0.5444			
24	-0.243	0.6242			
25	-0.118	0.6580			
26	-0.025	0.6831			
27	0.049	0.7032			
28	0.103	0.7177			
29	0.135	0.7264			
30	0.161	0.7333			
31	0.227	0.7513			
32	0.294	0.7693			
33	0.327	0.7781			
34	0.327	0.7783			
35	0.305	0.7723			
36	0.278	0.7629			
37	0.224	0.7505			
38	0.165	0.7345			
39	0.097	0.7160			
40	0.003	0.6918			

WAKE RAKE PRESSURETUBE NUMBER	CPWB	WAKE RAKE PRESSURETUBE NUMBER	CPWB
1	0.000	41	0.003
2	0.000	42	0.001
3	0.000	43	0.000
4	0.000	44	0.000
5	0.000	45	0.000
6	0.000	46	0.000
7	0.000	47	0.000
8	0.000	48	0.000
9	0.000	49	0.000
10	0.000	50	0.000
11	0.000	51	0.000
12	0.000	52	0.000
13	0.000	53	0.000
14	0.000	54	0.000
15	0.000	55	0.000
16	0.000	56	0.000
17	0.001	57	0.000
18	0.000	58	0.000
19	0.001	59	0.000
20	0.001	60	0.000
21	0.001	61	0.000
22	0.001	62	0.000
23	0.002	63	0.000
24	0.002	64	0.000
25	0.003	65	0.000
26	0.004	66	0.000
27	0.004	67	0.000
28		68	0.000
29	0.020	69	0.000
30	0.055		
31	0.111		
32	0.189		
33	0.257		
34	0.276		
35	0.239		
36	0.170		
37	0.088		
38	0.032		
39	0.010		
40	0.008		

MAB	.748	ALPHAT	1.0000	ALPHA	.4707
REC	.22E+07	CLB	.3855	CL	.3720
QR	2776.	CDPB	.0105	CDP	.0070
		CMB	-.0728	CM	-.0694
				CD	.0117

MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO
1	1.143	0.9988	41	-0.092	0.6651
2	0.846	0.9149	42	-0.204	0.6349
3	0.062	0.7368	43	+0.556	0.5937
4	-0.600	0.5478	44	-0.552	0.5463
5	-1.093	0.3396	45	-0.664	0.5106
6	-1.105	0.3914	46	-0.708	0.4987
7	-1.141	0.3817	47	-0.615	0.5236
8	-1.160	0.3767	48	-0.784	0.4782
9	-1.191	0.3685	49	-0.593	0.5297
10	-1.169	0.3755	50	-0.564	0.5375
11	-1.134	0.3855	51	-0.537	0.5448
12	-1.101	0.3936	52	-0.506	0.5533
13	-1.061	0.3978	53	-0.507	0.5524
14	+1.053	0.4036	54	-0.448	0.5689
15	-1.061	0.4034	55	-0.384	0.5863
16	-1.008	0.4178	56	-0.047	0.6637
17	-0.981	0.4250	57	0.425	0.8047
18	-0.794	0.4748	58	0.933	0.9420
19	-0.661	0.5113			
20	-0.733	0.4920			
21	-0.701	0.5007			
22	-0.456	0.5596			
23	-0.414	0.5782			
24	-0.265	0.6184			
25	-0.134	0.6548			
26	-0.055	0.6984			
27	0.046	0.7024			
28	0.103	0.7130			
29	0.145	0.7241			
30	0.174	0.7330			
31	0.241	0.7551			
32	0.308	0.7733			
33	0.341	0.7820			
34	0.343	0.7826			
35	0.322	0.7769			
36	0.289	0.7679			
37	0.243	0.7555			
38	0.184	0.7397			
39	0.115	0.7209			
40	0.020	0.6953			

WAKE RAKE PRESSURETUBE NUMBER	CPWB	WAKE RAKE PRESSURETUBE NUMBER	CPWB
1	0.000	41	0.003
2	0.000	42	0.001
3	0.000	43	0.000
4	0.000	44	0.000
5	0.000	45	0.000
6	0.000	46	0.000
7	0.000	47	0.000
8	0.000	48	0.000
9	0.000	49	0.000
10	0.000	50	0.000
11	0.000	51	0.000
12	0.000	52	0.000
13	0.000	53	0.000
14	0.000	54	0.000
15	0.000	55	0.000
16	0.000	56	0.000
17	0.001	57	0.000
18	0.000	58	0.000
19	0.001	59	0.000
20	0.001	60	0.000
21	0.001	61	0.000
22	0.001	62	0.000
23	0.002	63	0.000
24	0.002	64	0.000
25	0.003	65	0.000
26	0.004	66	0.000
27	0.004	67	0.000
28		68	0.000
29	0.020	69	0.000
30	0.055		
31	0.111		
32	0.189		
33	0.257		
34	0.276		
35	0.239		
36	0.170		
37	0.088		
38	0.032		
39	0.010		
40	0.008		

MAB	.749	ALPHAT	2.0000	ALPHA	1.2531
REC	.22E+07	CLB	.5580	CL	.5365
QR	2782.	CDPB	.0225	CDP	.0150
		CMB	-.0828	CM	-.0779
				CD	.0193

MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO
1	1.137	0.9970	41	-0.080	0.6676
2	0.785	0.9014	42	-0.189	0.6361
3	-0.025	0.6824	43	-0.332	0.5994
4	-0.693	0.5017	44	-0.498	0.5544
5	-1.186	0.3681	45	-0.597	0.5277
6	-1.233	0.3555	46	-0.621	0.5210
7	-1.287	0.3408	47	-0.558	0.5382
8	-1.310	0.3347	48	-0.708	0.4976
9	-1.320	0.3319	49	-0.493	0.5557
10	-1.294	0.3391	50	-0.453	0.5667
11	-1.266	0.3465	51	-0.420	0.5756
12	-1.243	0.3527	52	-0.362	0.5858
13	-1.231	0.3561	53	-0.367	0.5897
14	-1.214	0.3595	54	-0.299	0.6082
15	-1.230	0.3563	55	-0.220	0.6296
16	-1.214	0.3608	56	0.060	0.7055
17	-1.224	0.3580	57	0.541	0.8356
18	-1.236	0.3546	58	0.991	0.9573
19	-1.243	0.3473			
20	-1.043	0.4078			
21	-0.551	0.5400			
22	-0.427	0.5737			
23	-0.351	0.5996			
24	-0.122	0.6290			
25	-0.019	0.6573			
26	-0.037	0.6768			
27	0.033	0.6902			
28	0.093	0.7143			
29	0.129	0.7242			
30	0.163	0.7332			
31	0.236	0.7531			
32	0.310	0.7730			
33	0.344	0.7830			
34	0.352	0.7844			
35	0.336	0.7797			
36	0.301	0.7707			
37	0.256	0.7584			
38	0.195	0.7420			
39	0.124	0.7229			
40	0.031	0.6975			

WAKE RAKE PRESSURETUBE NUMBER	CPWB	WAKE RAKE PRESSURETUBE NUMBER	CPWB
1	0.000	41	0.003
2	0.000	42	0.000
3	0.000	43	0.000
4	0.000	44	0.000
5	0.000	45	0.000
6	0.000	46	0.000
7	0.000	47	0.000
8	0.000	48	0.000
9	0.000	49	0.000
10	0.000	50	0.000
11	0.001	51	0.000
12	0.001	52	0.000
13	0.001	53	0.000
14	0.004	54	0.000
15	0.007	55	0.000
16	0.008	56	0.000
17	0.011	57	0.000
18	0.016	58	0.000
19	0.020	59	0.000
20	0.024	60	0.000
21	0.029	61	0.000
22	0.031	62	0.000
23	0.039	63	0.000
24	0.042	64	0.000
25	0.045	65	0.000
26	0.052	66	0.000
27	0.060	67	0.000
28	0.066	68	0.000
29	0.086	69	0.000
30	0.136		
31	0.164		
32	0.210		
33	0.279		
34	0.293		
35	0.268		
36	0.248		
37	0.172		
38	0.097		
39	0.044		
40	0.013		

TABLE 4.5 Aerodynamic test data (con'd)

TRANSITION FREE

MAB	.748	ALPHAT	4.0000	ALPHA	2.9834
REC	.22E+07	CLD	.7603	CL	.7347
QR	2759.	CDPA	.0665	CDP	.0530
		CMB	-.1113	CM	-.1047
				CD	.0531

MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	WAKE RAKE PRESSURETUBE NUMBER	CPWB	WAKE RAKE PRESSURETUBE NUMBER	CPWB
1	1.120	0.9925	41	-0.073	0.6704	1	0.000	41	0.090
2	0.688	0.8760	42	-0.153	0.6446	2	0.000	42	0.057
3	-0.178	0.6420	43	-0.361	0.5927	3	0.000	43	0.031
4	-0.844	0.4621	44	-0.444	0.5644	4	0.000	44	0.017
5	-1.332	0.3302	45	-0.533	0.5462	5	0.000	45	0.010
6	-1.403	0.3112	46	-0.514	0.5512	6	0.000	46	0.003
7	-1.444	0.2946	47	-0.442	0.5708	7	0.004	47	0.001
8	-1.483	0.2845	48	-0.415	0.5780	8	0.009	48	0.000
9	-1.469	0.2933	49	-0.364	0.5919	9	0.015	49	0.000
10	-1.437	0.3019	50	-0.302	0.6085	10	0.024	50	0.000
11	-1.412	0.3086	51	-0.261	0.6196	11	0.034	51	0.000
12	-1.389	0.3149	52	-0.207	0.6341	12	0.040	52	0.000
13	-1.376	0.3186	53	-0.178	0.6419	13	0.045	53	0.000
14	-1.367	0.3208	54	-0.068	0.6663	14	0.051	54	0.000
15	-1.366	0.3212	55	0.021	0.6957	15	0.058	55	0.000
16	-1.369	0.3204	56	0.299	0.7708	16	0.062	56	0.000
17	-1.351	0.3252	57	0.716	0.8835	17	0.067	57	0.000
18	-1.311	0.3361	58	1.070	0.9789	18	0.078	58	0.000
19	-1.102	0.3865				19	0.101	59	0.000
20	-1.135	0.3835				20	0.117	60	0.000
21	-0.688	0.5042				21	0.139	61	0.000
22	-0.500	0.5551				22	0.163	62	0.000
23	-0.386	0.5858				23	0.192	63	0.000
24	-0.292	0.6111				24	0.218	64	0.000
25	-0.224	0.6297				25	0.247	65	0.000
26	-0.175	0.6429				26	0.277	66	0.000
27	-0.139	0.6525				27	0.301	67	0.000
28	-0.092	0.6652				28	0.326	68	0.000
29	-0.069	0.6714				29	0.345	69	0.000
30	-0.049	0.6767				30	0.372		
31	0.098	0.7165				31	0.374		
32	0.245	0.7562				32	0.377		
33	0.334	0.7803				33	0.377		
34	0.355	0.7860				34	0.355		
35	0.360	0.7872				35	0.336		
36	0.353	0.7826				36	0.306		
37	0.282	0.7663				37	0.263		
38	0.202	0.7447				38	0.212		
39	0.126	0.7240				39	0.176		
40	0.037	0.7000				40	0.125		

TRANSITION FIXED

MAB	.748	ALPHAT	4.0000	ALPHA	3.1254
REC	.22E+07	CLD	.6588	CL	.6365
QR	2777.	CDPA	.0632	CDP	.0531
		CMB	-.0892	CM	-.0834
				CD	.0649

MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIB	PI/PO	WAKE RAKE PRESSURETUBE NUMBER	CPWB	WAKE RAKE PRESSURETUBE NUMBER	CPWB
1	1.122	0.9952	41	-0.121	0.6573	1	0.000	41	0.061
2	0.686	0.8754	42	-0.225	0.6293	2	0.000	42	0.040
3	-0.163	0.6459	43	-0.357	0.5935	3	0.000	43	0.026
4	-0.833	0.4650	44	-0.503	0.5540	4	0.000	44	0.015
5	-1.320	0.3335	45	-0.573	0.5352	5	0.000	45	0.007
6	-1.390	0.3143	46	-0.561	0.5384	6	0.000	46	0.003
7	-1.455	0.2967	47	-0.484	0.5593	7	0.006	47	0.002
8	-1.485	0.2887	48	-0.592	0.5301	8	0.011	48	0.001
9	-1.481	0.2900	49	-0.380	0.5874	9	0.019	49	0.001
10	-1.441	0.3006	50	-0.323	0.6027	10	0.030	50	-0.000
11	-1.411	0.3087	51	-0.281	0.6141	11	0.041	51	0.000
12	-1.391	0.3143	52	-0.226	0.6284	12	0.048	52	-0.000
13	-1.380	0.3172	53	-0.195	0.6378	13	0.069	53	0.000
14	-1.373	0.3191	54	-0.104	0.6619	14	0.081	54	0.000
15	-1.382	0.3165	55	0.002	0.6906	15	0.097	55	0.000
16	-1.382	0.3165	56	0.278	0.7649	16	0.117	56	0.000
17	-1.285	0.3424	57	0.705	0.8803	17	0.139	57	0.000
18	-1.191	0.3685	58	1.066	0.9780	18	0.183	58	0.000
19	-0.628	0.5263				19	0.206	59	0.000
20	-0.601	0.5276				20	0.232	60	0.000
21	-0.530	0.5468				21	0.247	61	0.000
22	-0.466	0.5641				22	0.268	62	0.000
23	-0.422	0.5759				23	0.305	63	0.000
24	-0.348	0.5958				24	0.320	64	0.000
25	-0.315	0.6055				25	0.340	65	0.000
26	-0.266	0.6180				26	0.357	66	0.000
27	-0.212	0.6326				27	0.379	67	0.000
28	-0.194	0.6375				28	0.387	68	0.000
29	-0.167	0.6448				29	0.409	69	0.000
30	-0.128	0.6553				30	0.406		
31	0.021	0.6957				31	0.398		
32	0.171	0.7361				32	0.398		
33	0.260	0.7602				33	0.374		
34	0.294	0.7694				34	0.333		
35	0.291	0.7685				35	0.304		
36	0.263	0.7609				36	0.274		
37	0.214	0.7478				37	0.220		
38	0.152	0.7309				38	0.174		
39	0.001	0.7119				39	0.140		
40	-0.013	0.6865				40	0.095		

TABLE 4.5 Aerodynamic test data (concluded)

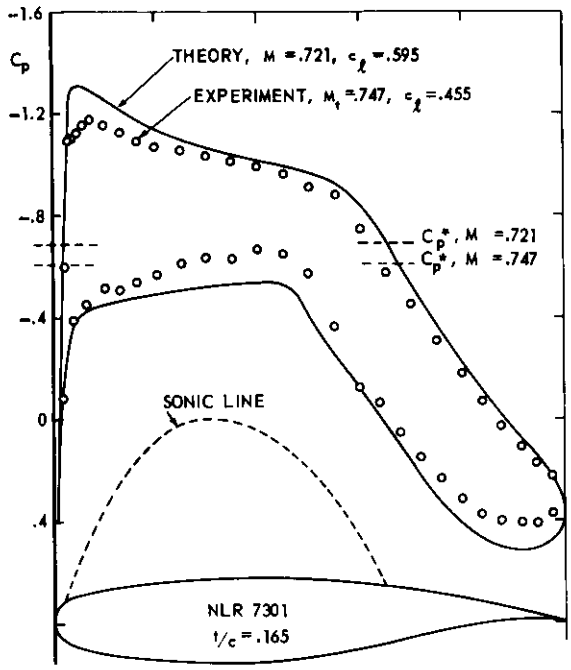


Fig. 4.1 Airfoil shape and design pressure distribution

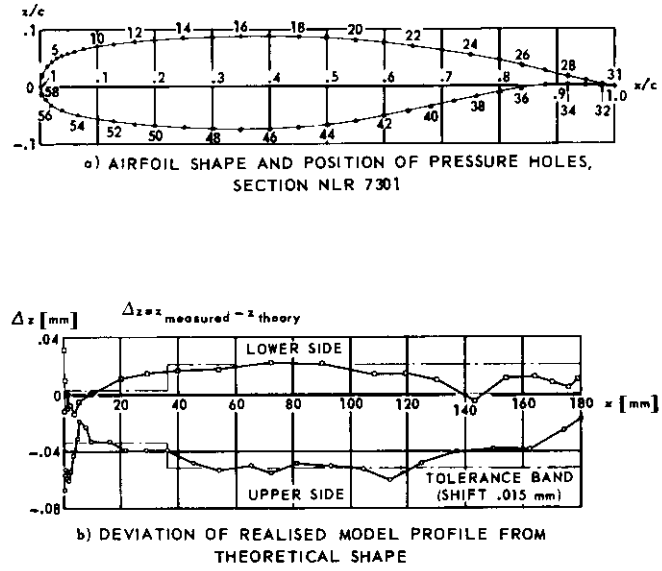


Fig. 4.2 Model shape and position of pressure holes

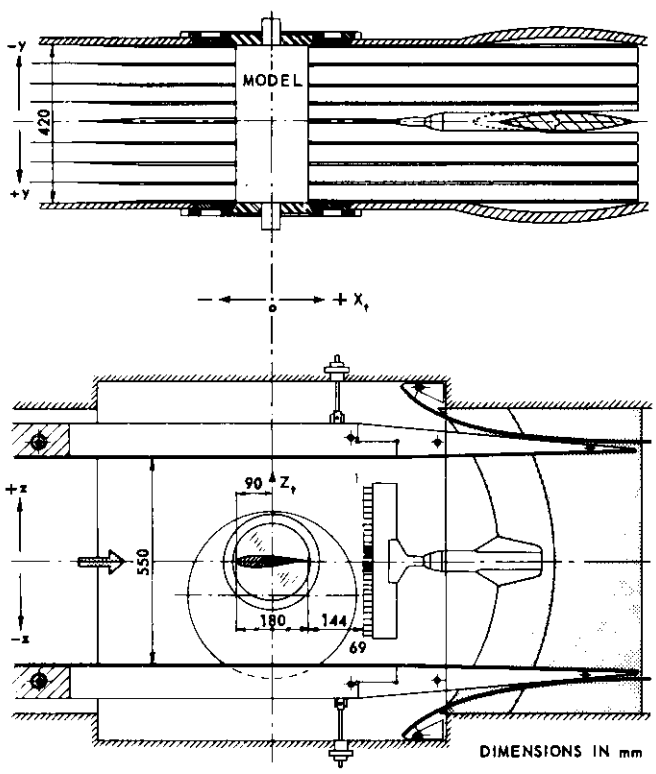


Fig. 4.3 Model installation in the transonic test section of the NLR pilot tunnel

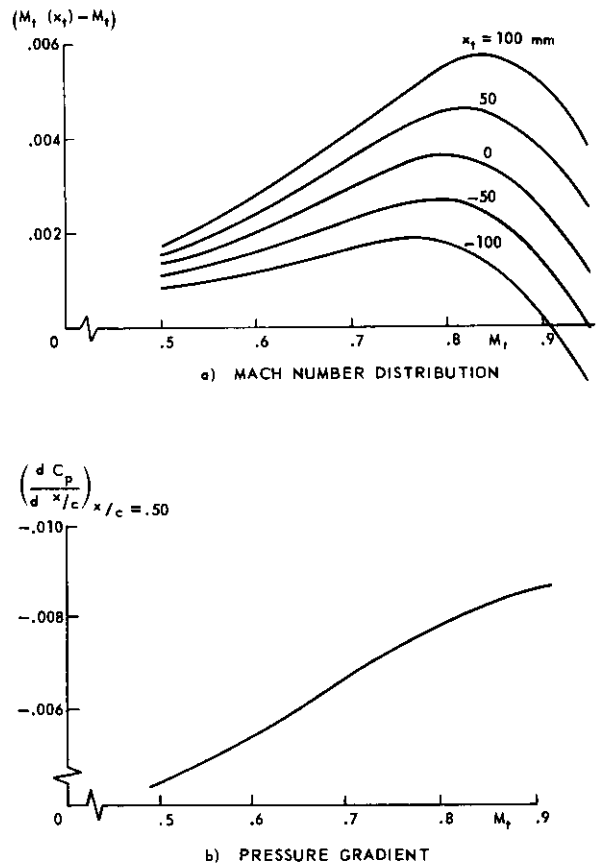


Fig. 4.4 NLR pilot tunnel empty test section calibration data

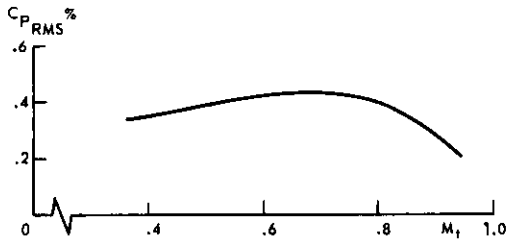


Fig. 4.5 Noise level in NLR pilot tunnel measured in stream

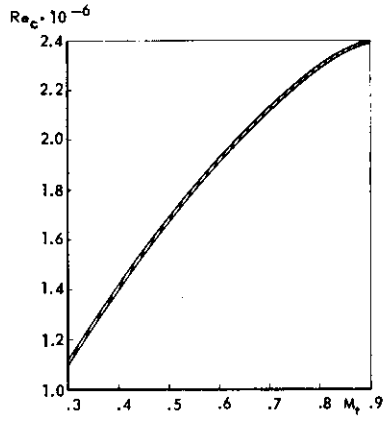
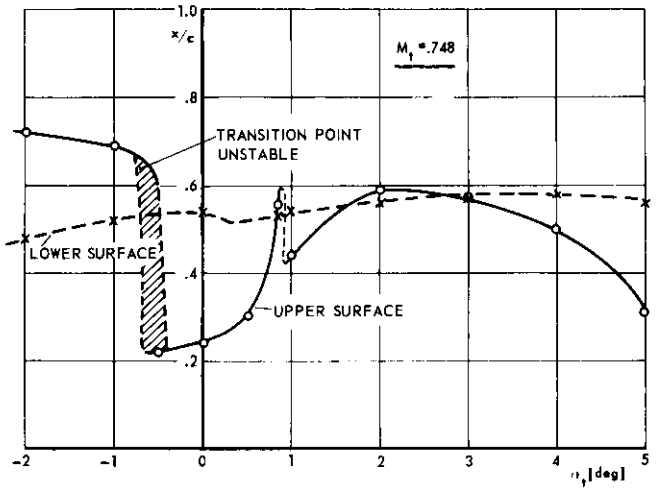


Fig. 4.6 Reynolds number based on chord lenght as function of Mach number



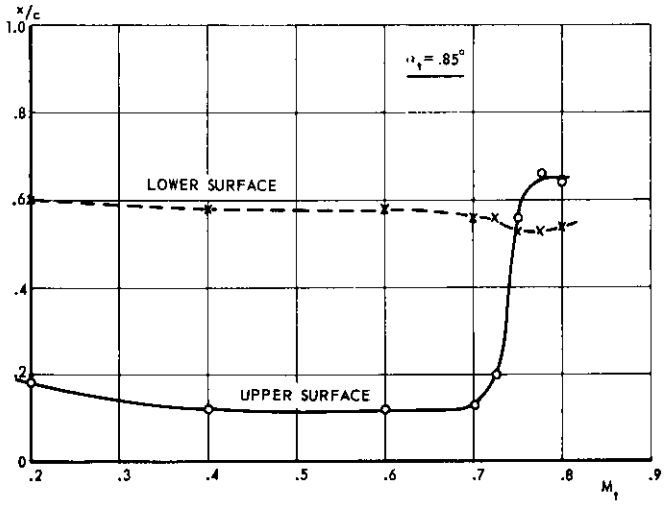


Fig. 4.7 Location of natural transition

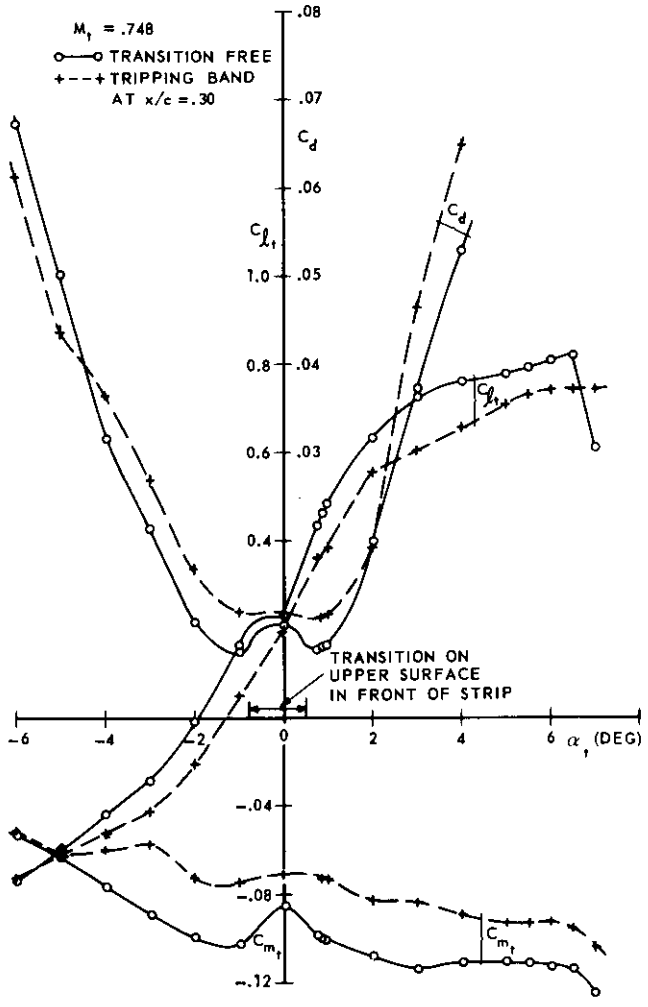


Fig. 4.8 Lift, drag and pitching moment as a funtion of angle of attack at M = .748

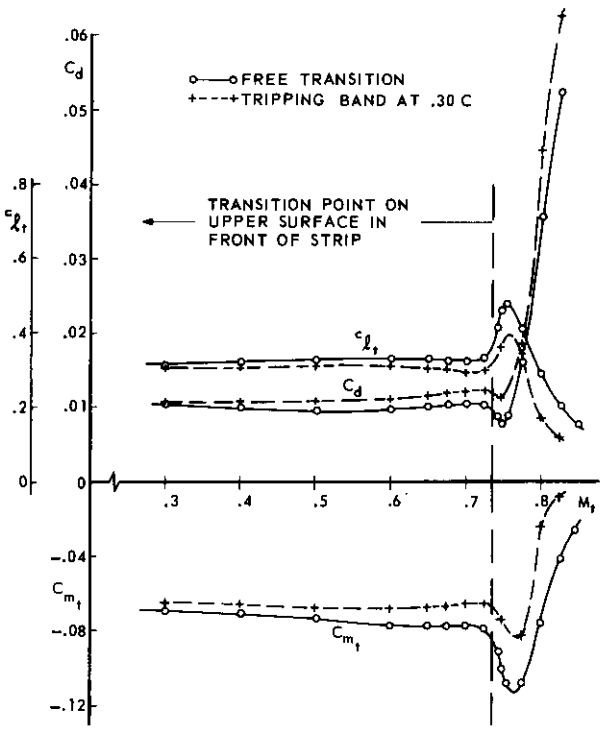


Fig. 4.9 Lift, drag and pitching moment as a funtion of Mach number at α_t = .85°

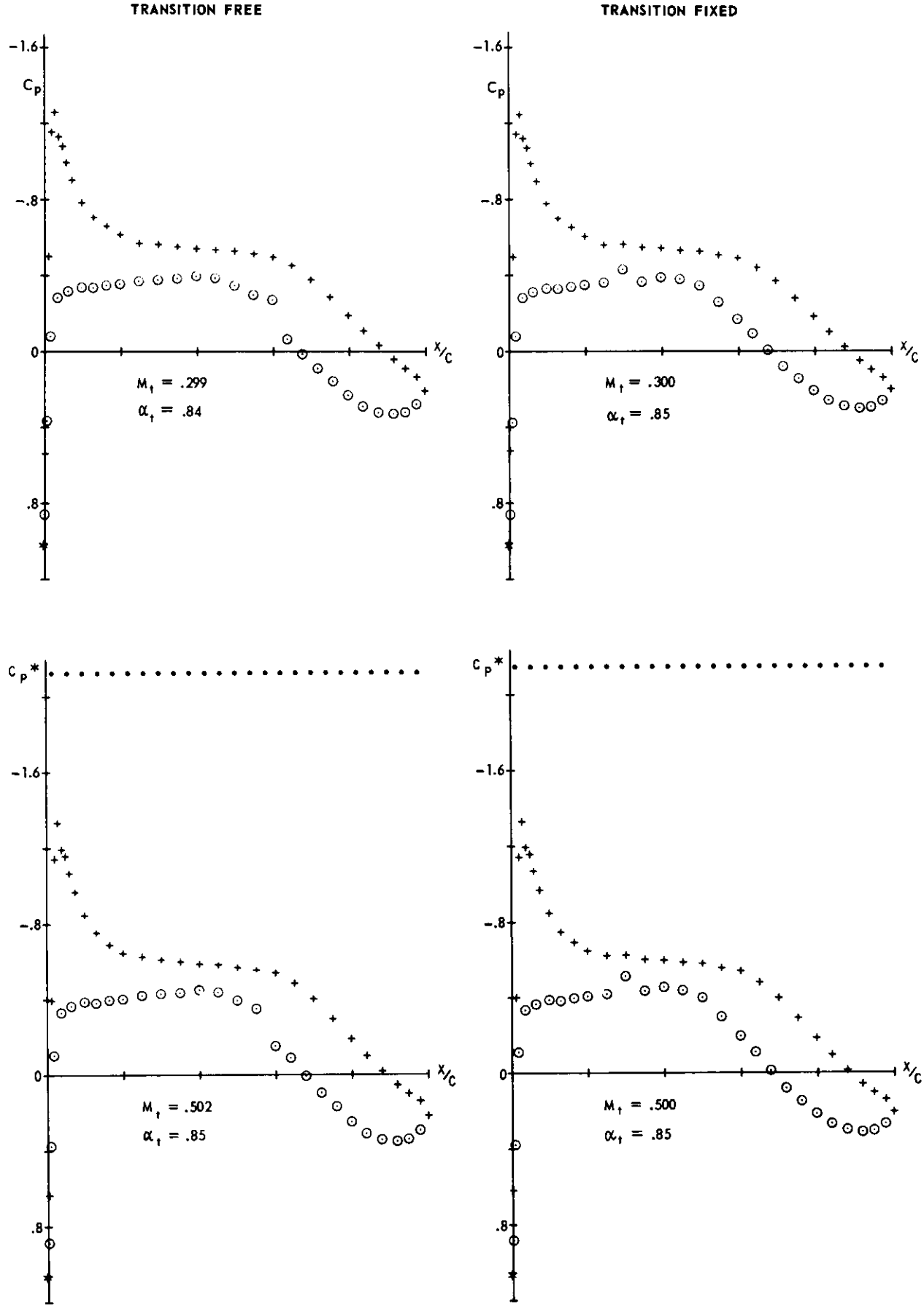


Fig. 4.10 Surface pressure distributions

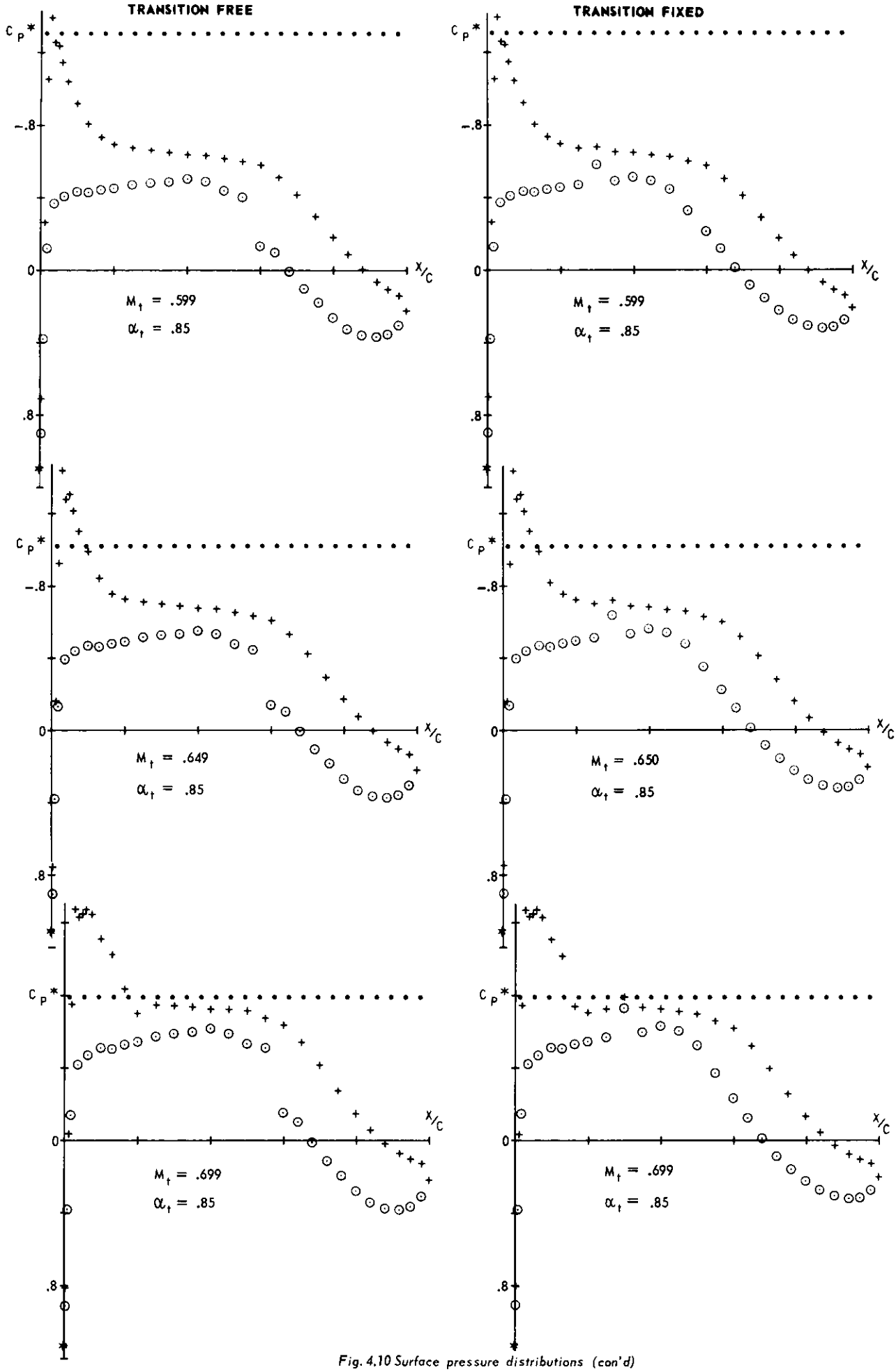


Fig. 4.10 Surface pressure distributions (con'd)

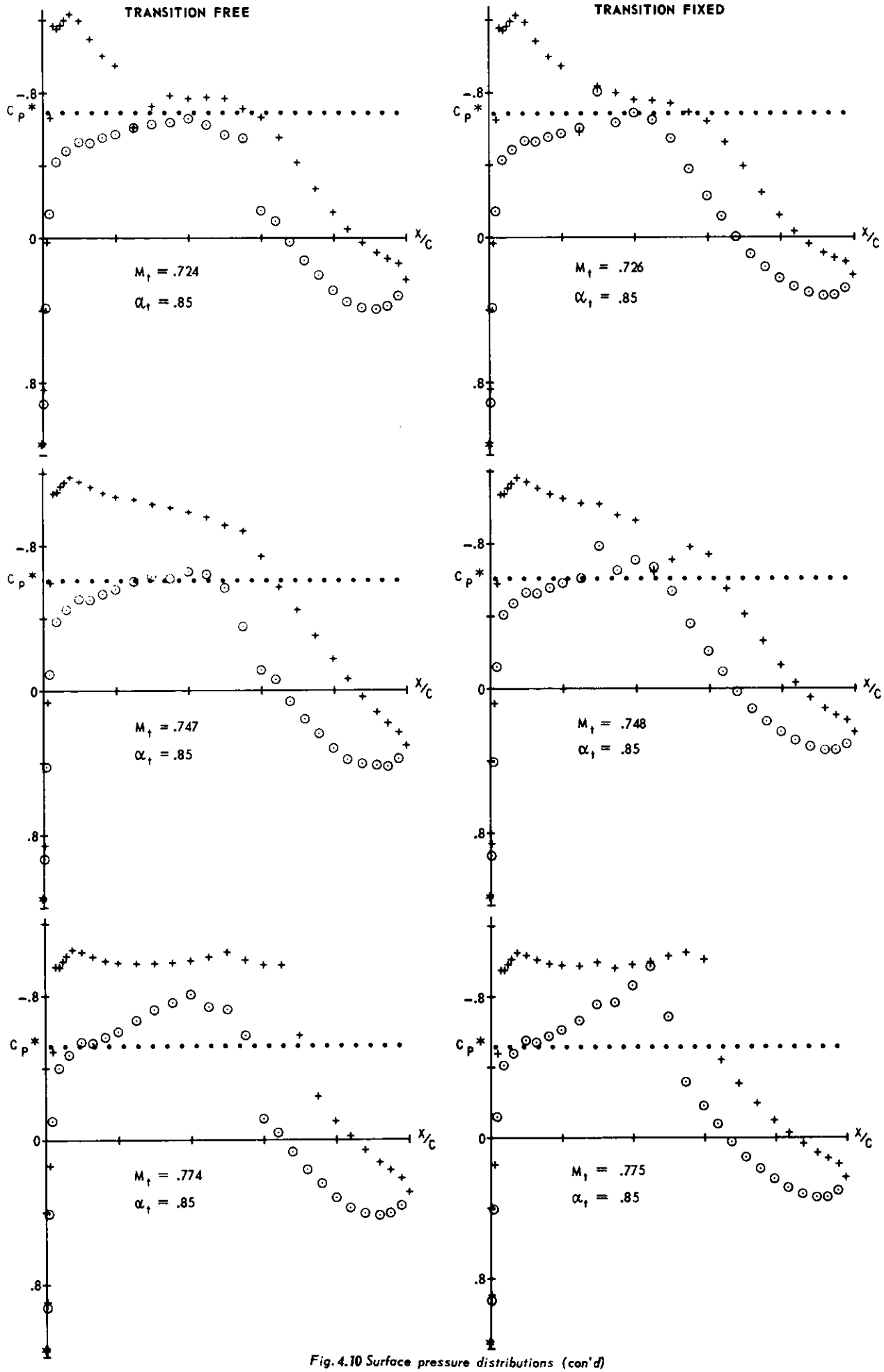


Fig. 4.10 Surface pressure distributions (con'd)

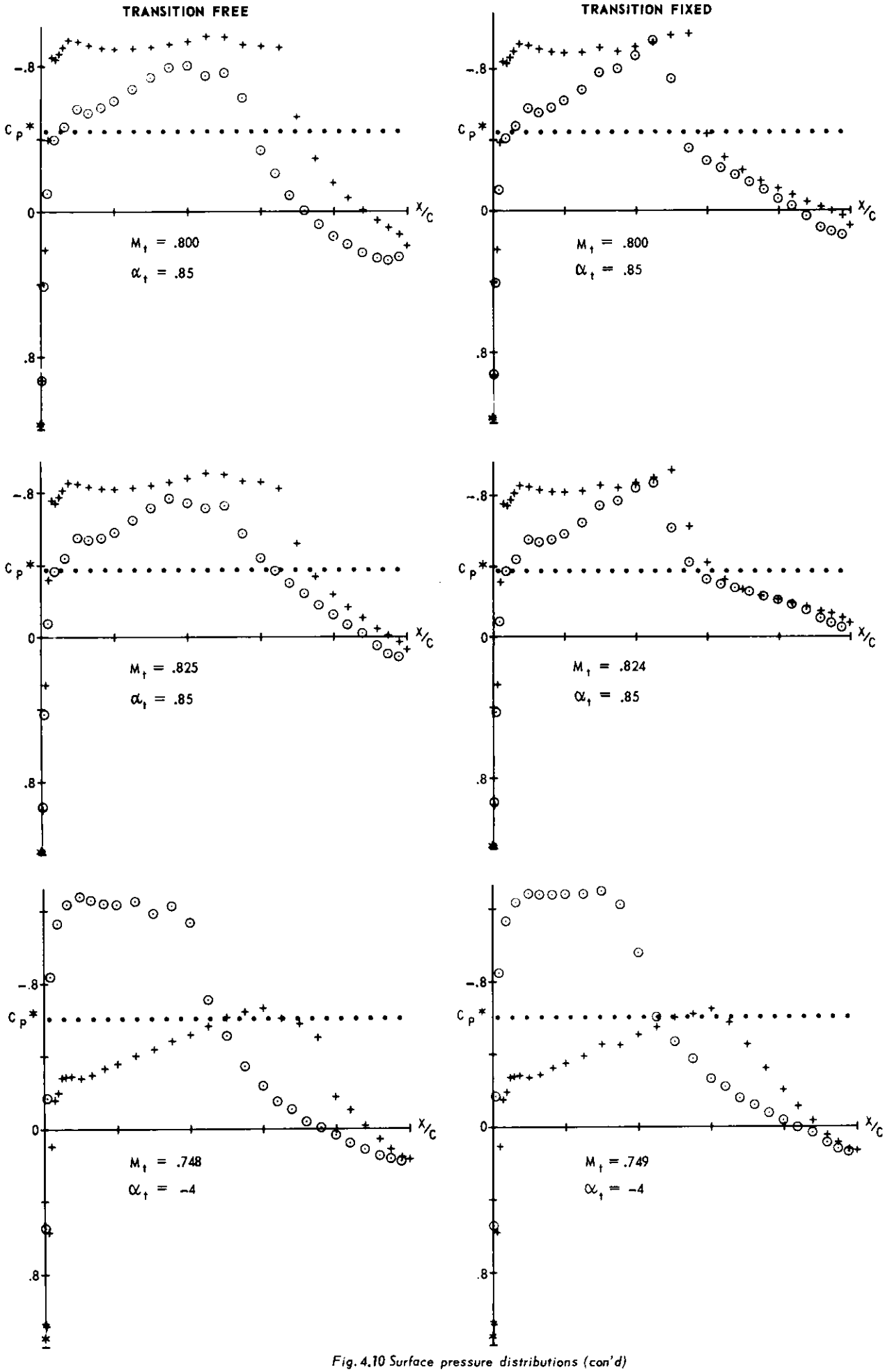


Fig. 4.10 Surface pressure distributions (con'd)

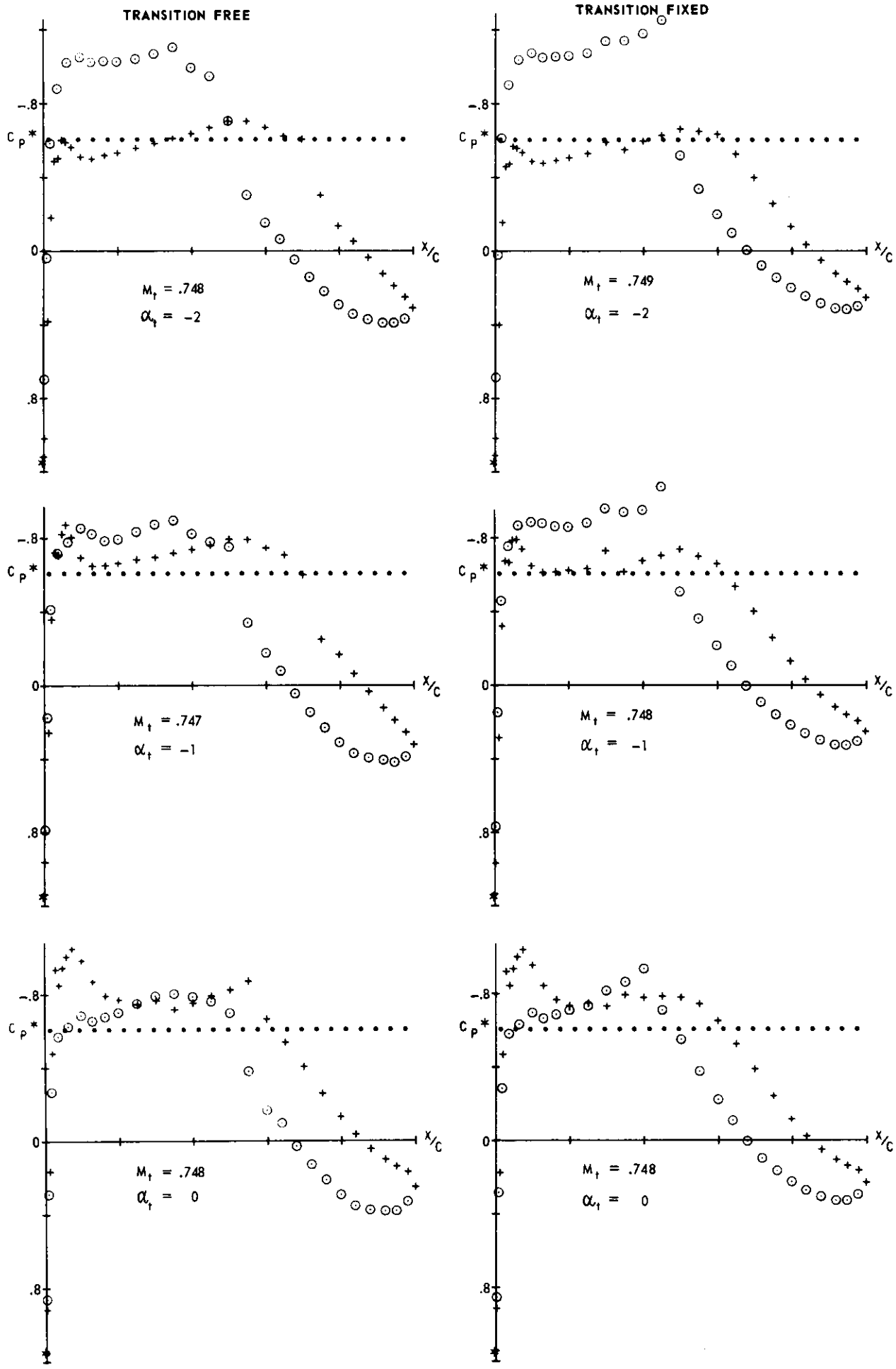


Fig. 4.10 Surface pressure distributions (con'd)

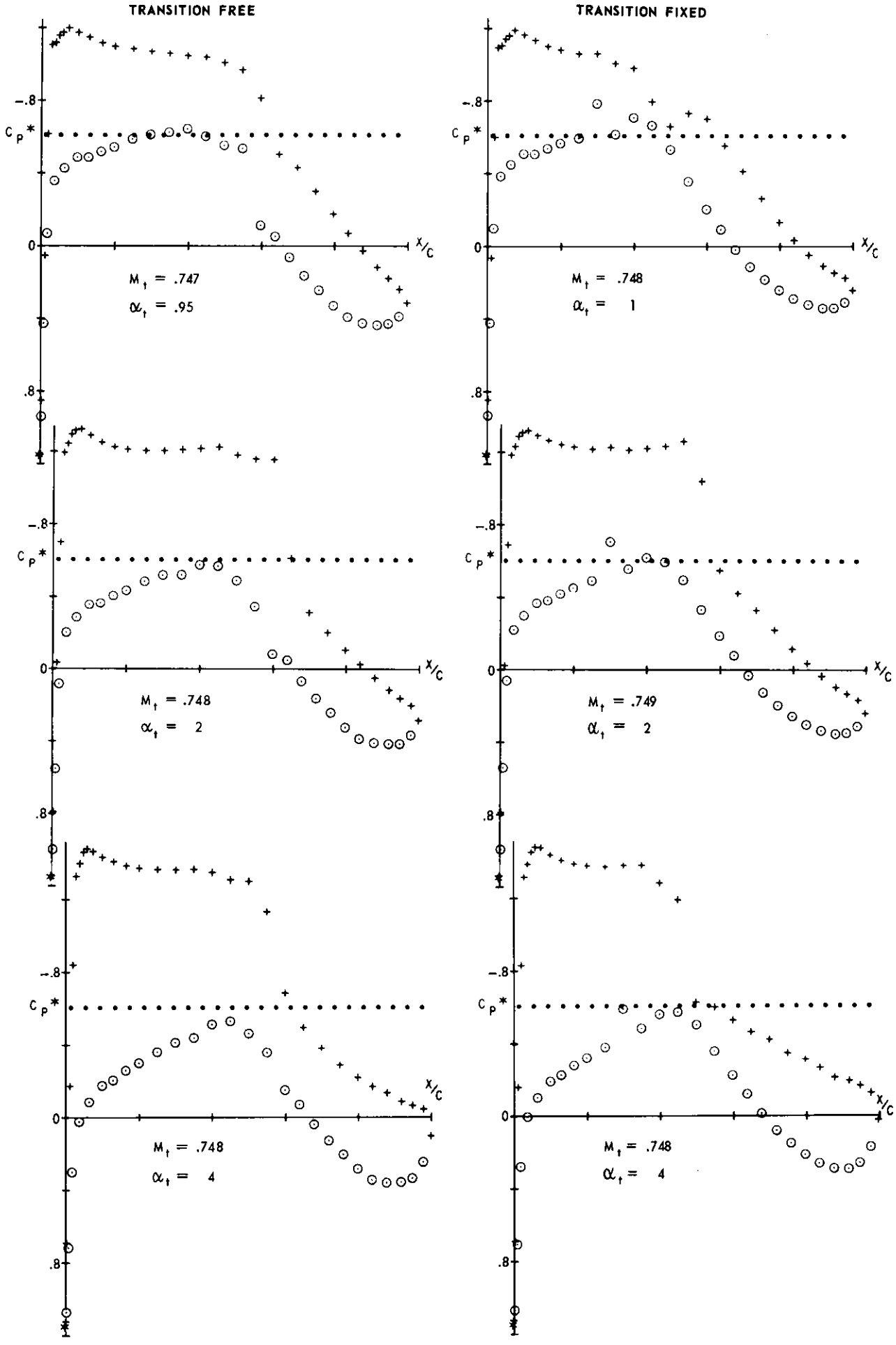


Fig 4.10 Surface pressure distributions (concluded)

5. Airfoil SKF 1.1 with Maneuver Flap

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and

Office National d'Études et de Recherches Aérospatiales

5.1 Introduction

This data set contains experimental results for the supercritical airfoil SKF 1.1 with deflected maneuver flap obtained in the wind tunnels ONERA S3 Modane and DFVLR 1x1 Meter with the same model. Included are results for

- the Configuration 5 which showed the best performance of the six configurations investigated (Figure 5.2),
- the Configuration 4 which differs from Configuration 5 in the slot width between flap and airfoil and
- the airfoil with retracted maneuver flap (basic airfoil). Here, only a few results are shown in order to demonstrate the sensitivity of this airfoil to changes in Reynolds number and to transition fixing.

Freestream conditions (Table 5.5) include angle of attack variations at $M_\infty = 0.70$ and $M_\infty = 0.76$ and a Mach number variation at $\alpha_g = 2^o$(ONERA-tests) and $\alpha_g = 3^o$(DFVLR-tests). The ONERA-data contain in addition to the results obtained in the perforated test section two test cases for the test section with all four walls closed.

The data presented here are not corrected for wall constraints. Wall interference effects are reduced by the use of the ventilated test section walls; however, the test sections of both tunnels are too open so that the data are not interference-free[1]. Semi-empirical correction procedures are given in Section 6.2 of the data set. These allow an estimate of the effective freestream conditions; however, it is uncertain whether the freestream conditions thus determined and the corresponding data truly represent a free-air, i.e., no constraint, state (also see Chapter 2 of the report).

The majority of the DFVLR-tests was carried out at $Re \approx 2.3 \cdot 10^6$ and free transition. Under these circumstances transition generally occurs due to strong adverse pressure gradients; the transition location can, therefore, in most instances be identified from the pressure distributions. At the Reynolds number of the ONERA-tests ($Re \approx 7.7 \cdot 10^6$) transition is generally triggered close to the leading edge due to disturbances emanating from the pressure orifices.

The effect of increasing Reynolds number and of transition fixing on the flow about the basic airfoil is demonstrated in Figures 5.7/5.8. Changes - besides being small and negative (drag increase!) - are mainly caused by an upstream movement of the transition point when increasing the Reynolds number or fixing transition upstream of the point where it would occur naturally, as is the case here, and the corresponding thickening of the boundary layer. Differences between the ONERA - and DFVLR - data - and this applies to nearly all results presented in this data set - are mainly due to differences in the wall boundary conditions (effective angle of attack) as can be seen by comparing results at equal lift coefficients.

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1) The DFVLR 1x1 Meter Tunnel has a slanted-hole perforation with an open area ratio of 6 %. This corresponds to an open area ratio of about 20 % for a test section with normal holes. The normal-hole perforation of the S3 Modane is 9.7 % open. The data (see, for instance, Figure 5.9) clearly reflect the difference in open area ratio.

5.2 Data set

1. Airfoil

1.1 Airfoil designation	SKF 1.1[1)]
1.2 Type of airfoil	Supercritical airfoil with maneuver flap. Basic airfoil designed by a modified Murman/Cole/Krupp - method. Shockfree design, moderate rear loading.
1.2.1. airfoil geometry	
nose radius	$R = 1.6\ \%$
maximum thickness	$t/c = 12.07\ \%$ at $36\ \%\ c$ } Table 5.1 and Figures 5.1 and 5.2
base thickness	$t_{TE}/c = 0.5\ \%$
1.2.2. design condition	$M_\infty = 0.769$, $c_L = 0.532$, $\alpha = 0.750$ } Basic airfoil
design pressure distribution	Table 5.4 and Fig. 5.3
1.3. Additional remarks	- References on design method: [1], [2]
1.4. References on airfoil	[3], [4]

2. Model geometry

2.1. Chord length	$c = 0.20$ m for the basic airfoil $c \approx 0.213$ m (Config. 5) $c \approx 0.206$ m (Config. 4) } 2) Figure 5.2
2.2. Span	① $b = 1.0$ m ② $b = 0.56$ m
2.3. Actual model coordinates and accuracy	Table 5.2 and Figure 5.1
2.4. Maximum thickness	$t/c \approx 12.03\ \%$ } Basic airfoil
2.5. Base thickness	$t_{TE}/c = 0.5\%$

3. Wind tunnel

3.1. Designation	① DFVLR 1x1 Meter Transonic Tunnel ② S3 Modane (S3MA)
3.2. Type of tunnel	① Continuous, closed circuit ② Blow down
3.2.1. stagnation pressure	① Variable between 0.4 and 1.6 bar ② Variable between 1.0 and 4.0 bar
3.2.2. stagnation temperature	① ≈ 305 K ② Varies slightly during blow down: 273 K $\pm 4^{\circ}$
3.2.3. humidity/dew point	① ≈ 240 K ② Air is dried but dew point is not known.
3.3. Test section	① Square ② Rectangular

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1) The same model was tested in the DFVLR 1x1 Meter Transonic Tunnel and the ONERA S3 Modane. On subsequent pages ① refers to the DFVLR tunnel, ② to the S3 Modane (S3MA)

2) $c = 200$ mm is used to reduce all data

3.3.1. dimensions — ① 1m x 1m ② 0.56 m x 0.78 m

3.3.2. type of walls — ① 6 % open perforated (fixed porosity) walls with holes slanted 30° to the flow direction (Fig. 5.4)

② 9.7 % open perforated top and bottom walls, solid side walls, holes normal to flow direction (Fig. 5.4)

3.4. Flow field (empty test section)

3.4.1. reference static pressure — ① Plenum chamber pressure

② Side wall pressure orifice 8.19 chords upstream of the model

3.4.2. flow angularity — ① $\pm$ 0.05^{o} ② $< 0.05^{o}$

3.4.3. Mach number distribution

3.4.4. pressure gradient

① M_{∞} [1)]	0.50	0.80	1.0	1.2
in x: ΔM	0.005	0.003	0.006	0.015
in z: ΔM		0.003		
$\partial M/\partial(x/c)$	0.0037	-	-	-

[1)] Figure 5.5a

② Flaps are adjusted to give zero pressure gradient for the empty test section (Figure 5.5b)

3.4.5. turbulence/noise level — ① Low noise level ($\sqrt{n \cdot F(n)} < 0.001$). Measured on body of revolution NACA RM 12. Low turbulence level (measurements are in progress)

② Figure 5.6

3.4.6. side wall boundary layer — ① $2\,\delta/b \approx 0.18$ at $M_{\infty} = 0.76$, measured at $x/c = 0$ and $p_o = 1$ bar

② $2\,\delta/b = 0.21$ at $M_{\infty} = 0.40$
0.18 at $M_{\infty} = 0.60$
0.15 at $M_{\infty} = 0.80$
measured at $x/c = 0.25$ and $p_o = 1$ bar

3.5. Additional remarks — Reference on noise level: [5]

3.6. References on wind tunnel — [6], [7]

4. Tests

4.1. Type of measurements
- Surface pressure distributions
- Wake rake
- Shadograph pictures (ONERA-tests)
- Upper and lower wall pressure distributions (ONERA-tests)

4.2. Tunnel/model dimensions

4.2.1. height/chord ratio — ① H/c = 5 ② H/c = 3.9

4.2.2. width/chord ratio — ① b/c = 5 ② b/c = 2.8

} Basic airfoil

4.3. Flow conditions included in present data base

4.3.1. angle of attack

4.3.2. Mach number

} Table 5.5

4.3.3. Reynolds number	① $Re \approx 2.2 \cdot 10^6$ ② $Re \approx 7 \cdot 10^6$
4.3.4. transition	Free
- position of free transition	Was not determined. ① Transition occurs generally due to adverse pressure gradients. ② Transition occurs close to leading edge, since relatively high Reynolds number.
- transition fixing	See Fig. 5.7/5.8 for effect of Reynolds number and transition fixing (basic airfoil only)
4.3.5. temperature equilibrium	① Yes ② See 3.2.2.
4.5. References on tests	[8,9,10]

5. Instrumentation

5.1. Surface pressure measurements	
5.1.1. pressure holes - size	Diameter = 0.5 mm (d/c = 0.0025)
- spanwise station(s)	- Center line orifices were staggered in the nose region ± 7.5 mm - 16 orifices were located in spanwise direction at x/c = 0.50 on the upper surface (Table 5.3)
- chordwise positions	Table 5.3 and Figure 5.1
5.1.2. type of transducers and scanning devices	① CEC and Statham differential pressure transducers plus Scanivalves Range: ± 10 psi Accuracy: ± 0.40 % FS ② Statham differential pressure transducer Range: ± 25 psi Accuracy: ± 0.12 % FS
5.2. Wake measurements	
5.2.1. type/size of instrument(s)	① Wake rake consisting of 47 Pitot probes and 14 static probes. Pitot probes are spaced 2.5 mm apart in the center region (Figure 5.4a) ID/OD = 0.4/1mm
5.2.2. streamwise position(s)	2 chords downstream of trailing edge
5.2.3. type of transducers and scanning devices	CEC and Statham differential pressure transducers plus Scanivalves Range: ± 5 psi Accuracy: ± 0.3 % FS ② - Figure 5.4b and c - ID/OD = 0.5/1.2 mm - 1 chord downstream of trailing edge - Statham differential pressure transducer Range: ± 10 psi Accuracy: ± 0.20 % FS
5.5. Flow visualisation	
5.5.1. flow field	Shadowgraph pictures (ONERA-tests) [11]. Not included in data set.

6. Data

6.1. Accuracy (wall interference excluded)		
6.1.1. angle of attack setting	① ± 0.02°	② ± 0.02°
6.1.2. free stream Mach number		
- setting	① ± 0.001	② ± 0.002
- variation during one pressure scan	① ± 0.001	② Not known

6.1.3. pressure coefficients

① $\Delta c_p \approx \pm 1\,\%$ assuming worst possible combination of errors including an error of $\Delta M_\infty = \pm 0.002$, evaluated at $M_\infty = 0.76$ and max. $|c_p|$

6.1.4. aerodynamic coefficients

Obtained by integrating pressure distributions

② $\Delta c_L = \pm 0.002$ $\Delta c_D = \pm 0.0003$

$\Delta c_m = \pm 0.0003$

6.1.6. repeatability

① Average over the range of M_∞ and α investigated:

$\Delta c_{p\,0.5c} \approx \pm 0.40\,\%$, $\Delta c_L \approx \pm 0.3\,\%$

$\Delta c_D \approx \pm 1.2\,\%$, $\Delta c_m \approx \pm 0.40\,\%$

② $M_\infty > 0.5$

$\Delta c_L = \pm 0.005$ $\Delta c_D = \pm 0.0002$

$\Delta c_m = \pm 0.001$

6.2. Wall interference corrections

The data included are uncorrected.

6.2.1. angle of attack

The effective angle of attack can be approximated by:

① $\Delta\alpha = -0.0466 \cdot c_L$

② at $M_\infty \approx 0.75$ and $\alpha_g \approx 2^\circ$: $\Delta\alpha \approx 0.5^\circ$

$(\alpha_{corrected} = \alpha_g + \Delta\alpha)$

6.2.2. blockage (solid/wake)

① Not yet well established, but can be approximated by

$\Delta M_\infty = -(1+0.2\,M_\infty^2) \cdot M_\infty \cdot (0.003)$ for $c_L = 0$

② at $M_\infty \approx 0.75$: $\Delta M \approx 0.0016$

$(M_{\infty corrected} = M_\infty + \Delta M_\infty)$

6.2.3. streamline curvature (lift)

① Can be approximated by:

$\Delta c_L = 0.0126 \dfrac{1}{\beta^2} \cdot c_L$

$\Delta c_m = -\dfrac{1}{4}\Delta c_L$

② at $M_\infty \approx 0.75$ and $\alpha_g \approx 2^\circ$:

$\Delta c_L \approx 0.002$ $\Delta c_m \approx 0.0006$

$(c_{i_{corrected}} = c_i + \Delta c_i)$

6.2.5. remarks

① Correction factors were obtained empirically by testing different size models of the same airfoil

② Porosity factors were determined by matching $c_{L\alpha}$ for tests with solid and porous test section walls. The data obtained with solid walls were corrected using the method of [12]

6.2.6. references on wall interference

② [12]

6.3. Presentation of data

6.3.1. aerodynamic coefficients	- Basic airfoil: Tables 5.6/5.7, Figure 5.7 (Effect of Reynolds number and transition fixing only) - Airfoil with extended maneuver flap: Tables 5.6/5.7, Figures 5.9/5.10
6.3.2. surface pressures	- Basic Airfoil: Table 5.8, Figure 5.8 (Effect of Reynolds number and transition fixing only) - Airfoil with extended maneuver flap: Tables 5.8/5.9, Figures 5.12/5.13 - Comparison ONERA-DFVLR: Figure 5.11 - Wall pressure distributions (ONERA-tests): Table 5.9
6.3.4. wall interference corrections included?	No
6.3.5. corrections for model deflection ?	No
6.3.6. Empty test section calibration taken into account?	Yes
6.4. Were tests carried out in different facilities on the current aerofoil ? If so, what facilities. Are data included in the present data base?	Data set includes results from ONERA-S3MA- and DFVLR-1x1 Meter Transonic Tunnel-tests.
6.5. To be contacted for further information on tests	① E. Stanewsky DFVLR-AVA Göttingen 10 Bunsenstraße D-3400 Göttingen ② J.J. Thibert ONERA 92320 Chatillon (France)

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8. List of symbols

a	speed of sound
b	span, tunnel width
c, L	model chord
c_p	pressure coefficient $[(p-p_\infty)/q_\infty]$
c_p^*	pressure coefficient at $M_L = 1$
c_L	lift coefficient
c_m	pitching moment coefficient (based on 0.25c)
c_D	drag coefficient
f	frequency of pressure fluctuation
F(n)	frequency function $\int_0^\infty F(n) \cdot dn = c_p^2 \text{ RMS}$
n	reduced frequency, $f \cdot c/V_\infty$
M_∞, M	freestream Mach number $[a_\infty/V_\infty]$
M_L	local Mach number
H	tunnel height
q	dynamic pressure
Re, Rec	Reynolds number, $\rho_\infty V_\infty \cdot c/\mu_\infty$
t	maximum thickness
V_∞	freestream velocity
x, y, z	coordinates (see Fig. 5.1)
α_g, α	geometric angle of attack
β	$\sqrt{1-M_\infty^2}$
δ	maximum thickness, t/c boundary layer thickness (sidewall)
ρ	density
μ	dynamic viscosity

Subscripts

∞	freestream conditions
K	maneuver flap
TE	trailing edge
US	upper surface
LS	lower surface

Table 5.1 Design coordinates for the airfoil SKF 1.1 including maneuver flap

Basic airfoil - Upper surface

Note: For actual model coordinates see Table 5.2

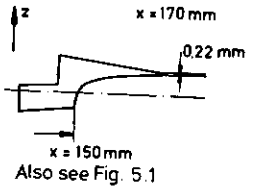
No.	x (mm)	z (mm)
1	0.000	0.179
2	0.001	0.348
3	0.011	0.517
4	0.028	0.685
5	0.053	0.852
6	0.094	1.051
7	0.145	1.247
8	0.207	1.440
9	0.279	1.630
10	0.361	1.815
11	0.452	1.995
12	0.553	2.171
13	0.693	2.386
14	0.845	2.593
15	1.009	2.791
16	1.182	2.981
17	1.364	3.164
18	1.553	3.339
19	1.876	3.612
20	2.210	3.870
21	2.553	4.117
22	3.048	4.450
23	3.553	4.768
24	4.046	5.063
25	4.546	5.346
26	5.052	5.618
27	5.545	5.868
28	6.043	6.109
29	6.545	6.341
30	7.052	6.564
31	7.670	6.823
32	8.293	7.073
33	8.920	7.311
34	9.551	7.539
35	10.243	7.777
36	10.940	8.003
37	11.640	8.217
38	12.344	8.421
39	13.050	8.615
40	13.945	8.848
41	14.842	9.068
42	15.742	9.276
43	16.644	9.473
44	17.549	9.660
45	18.645	9.874
46	19.742	10.076
47	20.842	10.266
48	21.944	10.466
49	23.048	10.616
50	24.377	10.810
51	25.709	10.993
52	27.041	11.165
53	28.375	11.328
54	29.710	11.482
55	31.045	11.628
56	32.756	11.804
57	34.468	11.967
58	36.181	12.119
59	37.895	12.261
60	39.610	12.394
61	41.325	12.517
62	43.041	12.632
63	45.040	12.756
64	47.039	12.870
65	49.038	12.975
66	51.038	13.071
67	53.038	13.159
68	55.039	13.239
69	57.438	13.325
70	59.837	13.402
71	62.236	13.469
72	64.635	13.526
73	67.035	13.575
74	70.034	13.624
75	73.034	13.660
76	76.033	13.683
77	79.033	13.695
78	82.032	13.696
79	85.031	13.687
80	88.030	13.669
81	91.029	13.642
82	94.028	13.608
83	97.027	13.564
84	100.026	13.510
85	103.025	13.444
86	105.026	13.392
87	107.026	13.331
88	109.026	13.262
89	111.025	13.184
90	113.024	13.095
91	115.022	12.994
92	116.738	12.899
93	118.453	12.794
94	120.168	12.681
95	121.881	12.558
96	123.595	12.427
97	125.307	12.287
98	127.019	12.139
99	129.021	11.954
100	131.022	11.759
101	133.022	11.553
102	135.021	11.337
103	137.019	11.112
104	139.016	10.877
105	141.019	10.633
106	143.020	10.378
107	145.020	10.115
108	147.019	9.842
109	149.016	9.560
110	151.013	9.268
111	153.016	8.966
112	155.017	8.653
113	157.018	8.332
114	159.017	8.001
115	161.014	7.662
116	163.010	7.314
117	165.412	6.886
118	167.813	6.447
119	170.212	5.999
120	172.610	5.543
121	175.006	5.081
122	179.506	4.198
123	184.004	3.304
124	190.002	2.102
125	195.501	0.989
126	200.000	0.071

Lower surface

No.	x (mm)	z (mm)
1	200.000	- 0.945
2	197.751	- 0.847
3	195.501	- 0.762
4	193.668	- 0.703
5	191.836	- 0.656
6	190.003	- 0.620
7	188.503	- 0.600
8	187.003	- 0.589
9	185.503	- 0.587
10	184.004	- 0.595
11	182.718	- 0.600
12	181.432	- 0.631
13	180.146	- 0.661
14	178.861	- 0.699
15	177.576	- 0.745
16	176.291	- 0.800
17	175.006	- 0.864
18	173.504	- 0.949
19	172.003	- 1.046
20	170.502	- 1.155
21	169.002	- 1.273
22	167.503	- 1.402
23	166.005	- 1.539
24	164.507	- 1.683
25	163.010	- 1.835
26	160.608	- 2.090
27	158.208	- 2.356
28	155.809	- 2.633
29	153.410	- 2.916
30	151.013	- 3.205
31	145.014	- 3.944
32	139.016	- 4.698
33	127.019	- 6.220
34	124.021	- 6.598
35	121.023	- 6.971
36	118.023	- 7.336
37	115.023	- 7.688
38	113.025	- 7.915
39	111.027	- 8.134
40	109.028	- 8.345
41	107.028	- 8.548
42	105.027	- 8.743
43	103.025	- 8.925
44	101.028	- 9.105
45	99.029	- 9.272
46	97.030	- 9.430
47	95.031	- 9.578
48	93.030	- 9.716
49	91.029	- 9.844
50	89.031	- 9.962
51	87.032	- 10.070
52	85.033	- 10.167
53	83.033	- 10.254
54	81.033	- 10.331
55	79.033	- 10.396
56	77.319	- 10.444
57	75.605	- 10.484
58	73.892	- 10.515
59	72.178	- 10.538
60	70.464	- 10.552
61	68.749	- 10.558
62	67.035	- 10.554
63	65.321	- 10.542
64	63.607	- 10.521
65	61.893	- 10.492
66	60.179	- 10.453
67	58.465	- 10.407
68	56.752	- 10.351
69	55.039	- 10.288
70	53.038	- 10.205
71	51.038	- 10.111
72	49.038	- 10.007
73	47.039	- 9.894
74	45.040	- 9.771
75	43.041	- 9.638
76	41.325	- 9.516
77	39.610	- 9.386
78	37.895	- 9.246
79	36.181	- 9.097
80	34.468	- 8.938
81	32.756	- 8.767
82	31.045	- 8.586
83	29.444	- 8.407
84	27.843	- 8.219
85	26.244	- 8.023
86	24.645	- 7.818
87	23.048	- 7.606
88	21.671	- 7.417
89	20.296	- 7.220
90	18.922	- 7.015
91	17.549	- 6.801
92	16.047	- 6.554
93	14.548	- 6.295
94	13.050	- 6.023
95	12.173	- 5.855
96	11.297	- 5.681
97	10.423	- 5.499
98	9.550	- 5.307
99	8.714	- 5.110
100	7.881	- 4.900
101	7.052	- 4.676
102	6.381	- 4.481
103	5.714	- 4.275
104	5.052	- 4.056
105	4.549	- 3.879
106	4.049	- 3.693
107	3.553	- 3.498
108	3.050	- 3.286
109	2.553	- 3.060
110	2.296	- 2.933
111	2.043	- 2.800
112	1.795	- 2.656
113	1.553	- 2.502
114	1.364	- 2.367
115	1.181	- 2.223
116	1.008	- 2.069
117	0.844	- 1.905
118	0.692	- 1.731
119	0.553	- 1.548
120	0.461	- 1.408
121	0.376	- 1.264
122	0.300	- 1.116
123	0.232	- 0.964
124	0.173	- 0.808
125	0.122	- 0.649
126	0.081	- 0.487
127	0.048	- 0.322
128	0.023	- 0.156
129	0.007	0.011

Basic airfoil - Inner contour

Nr.	x (mm)	z (mm)
1	150.00	- 1.13
2	150.50	0.56
3	151.00	1.31
4	151.50	1.80
5	152.25	2.57
6	153.00	3.12
7	154.00	3.72
8	155.00	4.20
9	156.50	4.78
10	158.50	5.35
11	160.50	5.72
12	163.50	6.06
13	166.50	6.09
14	170.00	5.84

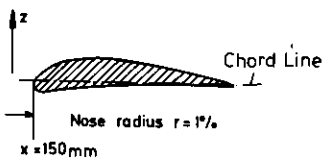


Note: The coordinates given here are actual model coordinates

Maneuver flap

US = Upper surface, LS = Lower surface

Nr.	x (mm)	z_{US} (mm)	z_{LS} (mm)
1	150.00	- 1.13	- 1.13
2	150.50	0.52	- 2.41
3	151.00	1.31	- 2.81
4	151.50	1.88	- 3.01
5	152.25	2.57	- 3.07
6	153.00	3.12	- 3.00
7	154.00	3.72	- 2.88
8	155.00	4.20	- 2.76
9	156.50	4.78	- 2.59
10	158.50	5.35	- 2.34
11	160.50	5.72	- 2.12
12	163.50	6.06	- 1.80
13	166.50	6.09	- 1.51
14	170.00	5.84	- 1.20
15	172.50	5.51	- 1.01
16	175.00	5.08	- 0.865
17	179.50	4.21	- 0.70
18	184.00	3.30	- 0.956
19	190.00	2.10	- 0.62
20	195.50	0.988	- 0.76
21	200.00	0.070	- 0.946



Note: The coordinates given here are actual coordinates. They are based on the chord line of the basic airfoil

Table 5.2 Measured coordinates of the airfoil SKF 1.1[1)]

Upper surface				Lower surface			
x_{US}	z_{US}	z_{US}	Δz_{US} ③ - ②	x_{LS}	z_{LS}	z_{LS}	Δz_{LS} |⑨|-|⑧|
	Design	Actual			Design	Actual	
[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
①	②	③	④	⑦	⑧	⑨	⑩
0.000	0.179	-	-	0.000	-	-	-
1.009	2.791	2.794	0.003	1.008	- 2.069	- 2.024	- 0.045
2.553	4.117	4.146	0.029	2.553	- 3.060	- 3.050	- 0.010
4.546	5.346	5.326	0.020	4.549	- 3.879	- 3.920	0.041
7.052	6.564	6.574	0.010	7.052	- 4.676	- 4.708	0.032
10.243	7.777	7.798	0.021	10.423	- 5.499	- 5.530	0.031
15.742	9.276	9.278	0.002	14.548	- 6.295	- 6.334	0.039
20.842	10.266	10.248	- 0.018	20.296	- 7.220	- 7.264	0.044
25.709	10.993	10.960	- 0.033	26.244	- 8.023	- 8.036	0.013
32.756	11.804	11.743	- 0.061	32.756	- 8.767	- 8.702	- 0.065
45.040	12.756	12.766	0.010	45.040	- 9.771	- 9.674	- 0.097
55.039	13.239	13.322	0.083	55.039	- 10.288	- 10.180	- 0.108
67.035	13.575	13.618	0.043	67.035	- 10.542	- 10.426	- 0.116
82.032	13.696	13.676	- 0.020	83.033	- 10.254	- 10.198	- 0.056
100.026	13.510	13.448	- 0.062	101.029	- 9.105	- 9.098	- 0.017
115.022	12.994	12.850	- 0.144	115.023	- 7.688	- 7.670	- 0.018
131.022	11.759	11.734	- 0.025	127.019	- 6.220	- 6.152	- 0.068
147.019	9.842	9.804	- 0.038	145.014	- 3.944	- 3.936	- 0.008
163.010	7.314	7.242	- 0.072	163.010	- 1.835	- 1.844	0.009
172.610	5.543	5.452	- 0.091	172.003	- 1.046	- 1.112	0.066
190.002	2.102	1.996	- 0.106	190.003	- 0.620	0.670	0.050
200.000	0.071	-	-	200.000	- 0.945	-	-

1) Only basic airfoil model. For maneuver flap see Table 5.1

Note:

For plot of measured error of the manufactured airfoil see Figure 5.1

Table 5.3 Coordinates of the pressure orifices - Basic airfoil

Upper surface						Lower surface						Spanwise orifices (Upper surface)					
	No. 1)	x	z	x/c	z/c		No. 1)	x	z	x/c	z/c		No. 1)	x	y	x/c	y/c
		mm	mm					mm	mm					mm	mm		
1	1	0,00	0,18	0,0000	0,0009	1	1	0,00	0,18	0,0000	0,0009	1	120	100	150,0	0,500	0,750
2	2	0,65	2,32	0,0032	0,0116	2	48	0,65	- 1,68	0,0032	- 0,0084	2	121	|	130,0	|	0,650
3	3	1,75	3,51	0,0087	0,0175	3	47	1,40	- 2,39	0,0070	- 0,0119	3	122	|	110,0	|	0,550
4	4	3,10	4,48	0,0155	0,0224	4	46	3,65	- 3,54	0,0182	- 0,0177	4	123	|	90,0	|	0,450
5	5	5,00	5,59	0,0250	0,0279	5	45	9,75	- 5,35	0,0487	- 0,0267	5	124	|	70,0	|	0,350
6	6	6,90	6,50	0,0345	0,0325	6	44	19,75	- 7,14	0,0987	- 0,0357	6	125	|	50,0	|	0,250
7	7	12,90	8,57	0,0645	0,0428	7	43	30,00	- 8,47	0,1500	- 0,0423	7	126	|	30,0	|	0,150
8	8	15,95	9,32	0,0797	0,0466	8	42	40,00	- 9,42	0,2000	- 0,0471	8	127	|	10,0	|	0,050
9	9	19,80	10,09	0,0990	0,0504	9	41	49,85	- 10,05	0,2492	- 0,0502	9	128	|	- 10,0	|	-0,050
10	10	28,00	11,28	0,1400	0,0564	10	40	69,85	- 10,56	0,3492	- 0,0528	10	129	|	- 30,0	|	-0,150
11	11	34,00	11,92	0,1700	0,0596	11	39	89,85	- 9,91	0,4492	- 0,0495	11	130	|	- 50,0	|	-0,250
12	12	44,00	12,62	0,2200	0,0634	12	38	110,00	- 8,24	0,5500	- 0,0412	12	131	|	- 70,0	|	-0,350
13	13	51,90	13,11	0,2595	0,0655	13	37	129,00	- 5,97	0,6450	- 0,0298	13	132	|	- 90,0	|	-0,450
14	14	59,90	13,40	0,2995	0,0670	14	36	150,00	- 3,33	0,7500	- 0,0166	14	133	|	-110,0	|	-0,550
15	15	67,95	13,59	0,3397	0,0679	15	35	160,00	- 2,16	0,8000	- 0,0108	15	134	|	-130,0	|	-0,650
16	16	76,00	13,68	0,3800	0,0684	16	34	169,80	- 1,21	0,8490	- 0,0060	16	135	100	-150,0	0,500	-0,750
17	17	84,00	13,69	0,4200	0,0684	17	33	179,85	- 0,67	0,8992	- 0,0033						
18	18	92,00	13,63	0,4600	0,0681	18	32	189,90	- 0,62	0,9495	- 0,0031						
19	19	100,00	13,51	0,5000	0,0675	19	31	200,00	- 0,94	1,0000	- 0,0047						
20	20	107,90	13,30	0,5395	0,0665												
21	21	115,90	12,95	0,5795	0,0647												
22	22	124,00	12,39	0,6200	0,0619												
23	23	132,00	11,66	0,6600	0,0583												
24	24	140,00	10,76	0,7000	0,0538												
25	25	149,70	9,46	0,7485	0,0473												
26	26	159,70	7,89	0,7985	0,0394												
27	27	169,80	6,08	0,8490	0,0304												
28	28	179,80	4,12	0,8990	0,0206												
29	29	189,80	2,12	0,9495	0,0106												
30	30	194,90	1,11	0,9745	0,0055												
31	31	200,00	0,07	1,0000	0,0003												

1) See Figure 5.1. The coordinates shown here are actual coordinates (except spanwise orifices)

Table 5.3 Continued - Airfoil minus maneuver flap

Upper surface						Lower surface					
	No. 1)	x	z	x/c	z/c		No. 1)	x	z	x/c	z/c
		mm	mm					mm	mm		
1	1	0,00	0,18	0,0000	0,0009	1	1	0,00	0,18	0,0000	0,0009
2	2	0,65	2,32	0,0032	0,0116	2	48	0,65	- 1,68	0,0032	- 0,0084
3	3	1,75	3,51	0,0087	0,0175	3	47	1,40	- 2,39	0,0070	- 0,0119
4	4	3,10	4,48	0,0155	0,0224	4	46	3,65	- 3,54	0,0182	- 0,0177
5	5	5,00	5,59	0,0250	0,0279	5	45	9,75	- 5,35	0,0487	- 0,0267
6	6	6,90	6,50	0,0345	0,0325	6	44	19,75	- 7,14	0,0987	- 0,0357
7	7	12,90	8,75	0,0645	0,0428	7	43	30,00	- 8,47	0,1500	- 0,0423
8	8	15,95	9,32	0,0797	0,0466	8	42	40,00	- 9,42	0,2000	- 0,0471
9	9	19,80	10,09	0,0990	0,0504	9	41	49,85	- 10,05	0,2492	- 0,0502
10	10	28,00	11,28	0,1400	0,0564	10	40	69,85	- 10,56	0,3492	- 0,0528
11	11	34,00	11,92	0,1700	0,0596	11	39	89,85	- 9,91	0,4492	- 0,0495
12	12	44,00	12,69	0,2200	0,0634	12	38	110,00	- 8,24	0,5500	- 0,0412
13	13	51,90	13,11	0,2595	0,0655	13	37	125,00	- 5,97	0,6450	- 0,0298
14	14	59,90	13,40	0,2995	0,0670	14	98	140,00	- 4,57	0,7000	- 0,0228
15	15	67,95	13,59	0,3397	0,0679	15	97	150,00	- 3,33	0,7500	- 0,0166
16	16	76,00	13,68	0,3800	0,0684	16	96	150,50	0,56	0,7525	0,0028
17	17	84,00	13,69	0,4200	0,0684	17	95	153,40	3,38	0,7670	0,0109
18	18	92,00	13,63	0,4600	0,0681	18	94	158,00	5,23	0,7900	0,0261
19	19	100,00	13,51	0,5000	0,0675	19	93	160,50	5,72	0,8025	0,0285
20	20	107,90	13,30	0,5395	0,0665	20 2)	-	170,00	5,84	0,8500	0,0292
21	21	115,90	12,95	0,5795	0,0647						
22	22	124,00	12,39	0,6200	0,0619						
23	23	132,00	11,66	0,6600	0,0583						
24	24	140,00	10,76	0,7000	0,0538						
25	90	150,50	9,34	0,7525	0,0467						
26	91	156,30	8,45	0,7815	0,0422						
27	92	165,50	6,87	0,8275	0,0343						
28 2)	-	170,00	6,04	0,8500	0,0320						

1) See Figure 5.1. The coordinates shown here are actual coordinates
2) There was no orifice at x = 170 mm for the configuration with deflected maneuver flap

Pressure orifices on maneuver flap[1)]

Upper surface					Lower surface				
No.[2)]	x_K	z_K	x_K/c +	z_K/c	No.[2)]	x_K	z_K	x_K/c +	z_K/c
100	0.00	- 1.13	0.00	- 0.0057	100	0.00	- 1.13	0.00	- 0.0057
101	0.65	0.79	0.0033	0.0040	118	0.80	- 2.68	0.0040	- 0.0134
102	2.20	2.54	0.0110	0.0127	117	2.20	- 3.07	0.0110	- 0.0154
103	5.20	4.29	0.0260	0.0215	116	5.30	- 2.73	0.0265	- 0.0137
104	8.20	5.28	0.0410	0.0264	115	12.65	- 1.89	0.0633	- 0.0095
105	12.40	5.97	0.0620	0.0299	114	20.05	- 1.20	0.1003	- 0.0060
106	16.50	6.09	0.0825	0.0305	113	30.05	- 0.68	0.1503	- 0.0034
107	20.50	5.78	0.1025	0.0289	112	40.25	- 0.63	0.2013	- 0.0032
108	28.85	4.34	0.1443	0.0217	111	50.00	- 0.44	0.2500	- 0.0022
109	36.90	2.72	0.1845	0.0136					
110	45.00	1.09	0.2250	0.0055					
111	50.00	- 0.44	0.2500	- 0.0022					

1) Actual coordinates based on flap chord line. The latter coincides with the chord line of the basic airfoil when flap is retracted.

2) See Fig. 5.1

\+ To obtain the x/c based on x/c = 0 for the basic airfoil compute
$x/c = 0.85 + x_{SK}/c + x_K/c$
$x_{SK}/c = -0.034$ for configuration 5
$= -0.068$ for configuration 4
see Fig. 5.2

Table 5.4 Design pressure distribution

Theory:
Pressure distribution at (x, ± 0)
Boundary layer: laminar - turbulent
$Re = 2.4 \cdot 10^6$
$M_\infty = 0.7685$ $\alpha = 0.750^\circ$
$c_L = 0.5318$ $c_D = 0.00671$
$c_m = -0.0926$ $c_p^* = -0.5311$

x/c	c_{pU}	c_{pL}
-0.82500	0.06618	0.06617
-0.57500	0.09941	0.09940
-0.35000	0.15485	0.15486
-0.17500	0.27963	0.28038
-0.07500	0.50459	0.51819
-0.03500	0.73599	0.78358
-0.01500	0.95084	1.03876
-0.00250	1.13419	1.26658
0.00250	0.88989	1.03310
0.00750	0.48770	0.66686
0.01250	0.29890	0.52671
0.01750	0.15666	0.42404
0.02500	-0.04505	0.32037
0.03500	-0.25093	0.20523
0.04750	-0.46635	0.09181
0.06500	-0.68538	0.01039
0.08750	-0.79707	-0.05726
0.11500	-0.93503	-0.11307
0.15500	-1.03740	-0.19078
0.21500	-1.01624	-0.26518
0.27500	-1.00109	-0.32502
0.33500	-0.94700	-0.35716
0.39500	-0.92493	-0.33600
0.45500	-0.89968	-0.28749
0.51500	-0.85446	-0.21054
0.57500	-0.67432	-0.09982
0.63500	-0.48338	0.01870
0.69500	-0.38401	0.11189
0.75500	-0.26212	0.19538
0.81500	-0.11738	0.28866
0.87500	0.04374	0.34525
0.92000	0.11764	0.34412
0.95000	0.15302	0.32431
0.97750	0.20449	0.28465
1.00000	0.25309	0.26528
1.02500	0.25131	0.23996
1.09000	0.15445	0.14959
1.22500	0.09375	0.08889
1.47500	0.05228	0.04742
1.85000	0.03022	0.02536
2.40000	0.01319	0.00833

Experiment DFVLR: Figure 5.3

* corresponds to 0.074 mm average grain size

Table 5.5 Flow conditions included in present data set

Run	Config.	M_∞	α_g°	$Re \cdot 10^{-6}$	Transition	Wind Tunnel	Remarks
60/63	Basic airfoil	0.76	2.5/5.0	2.31	Free	DFVLR 1x1M	Included to show effect of Reynolds number and transition fixing
84/87				2.33	220K, 30/25L[2)]		
157/160				3.61	Free		
9573			2.04	3.5	Free	ONERA S3MA	
9589	Basic airfoil	0.76	2.10	7.6	Free		
234to237	5[1)]	0.70	0/3/5/7	2.22	Free	DFVLR 1x1M	
240to243		0.76	0/3/5/7	2.32			
223/229		0.60/0.65	3	2.1			
230	5	0.65	6	2.1			
271/277	4[1)]	0.60/0.65	3	2.1			
278	4	0.65	6	2.1	Free	DFVLR 1x1M	
9617/9618	5[1)]	0.70	2/4/6	7.3	Free	ONERA S3MA	
9621		0.76	2/4	7.7			
9606/9610/9612		0.50/0.65	2	5.5/6.6/6.9			
9625		0.70	2/4/6	7.5		ONERA S3MA	Solid test section walls[3)]
	5				Free		

1) See Figure 5.2
2) Roughness band consisting of No. 220 * Carborundum grit at 30 % c on upper and 25 % c on lower surface
3) All other data were obtained with perforated walls

Table 5.6 DFVLR 1x1 Meter tests. Aerodynamic coefficients[1)]

Run	M_∞	α_g^o	$Re \cdot 10^{-6}$	c_L	c_m	c_D	Transition	Configuration
60	0.760	2.5	2.31	0.5687	-0.0935	0.0106	Free	Basic airfoil
63	0.760	5.0	2.31	0.8048	-0.0971	0.0296	Free	
84	0.760	2.5	2.33	0.5606	-0.0868	0.0121	220K, 30/25L[3)]	
87	0.760	5.0	2.33	0.7803	-0.0899	0.0316	220K, 30/25L	
157	0.760	2.5	3.61	0.5772	-0.0922	0.0121	Free	
160	0.760	5.0	3.59	0.7879	-0.0986	0.0384	Free	Basic airfoil
234	0.70	0.0	2.22	0.7605	-0.2599	0.0141	Free	5[2)]
235	0.701	3.0	2.22	1.1806	-0.2552	0.0183		
236	0.700	5.0	2.22	1.4795	-0.2667	0.0407		
237	0.700	7.0	2.22	1.4795	-0.2409	0.0993		
240	0.760	0.0	2.32	0.8085	-0.2917	0.0197		
241	0.760	3.0	2.31	1.2230	-0.3150	0.0412		
242	0.759	5.0	2.31	1.3241	-0.2930	0.0578		
243	0.761	7.0	2.31	1.3811	-0.2741	0.1088		
223	0.600	3.0	2.01	1.0543	-0.2333	0.0139		
229	0.650	3.0	2.12	1.1154	-0.2419	0.0150		
230	0.650	6.0	2.12	1.4738	-0.2211	0.0362	Free	5
271	0.600	3.0	2.03	0.8430	-0.1563	0.0141	Free	4[2)]
277	0.650	3.0	2.13	0.8876	-0.1615	0.0149		
278	0.650	6.0	2.12	1.2941	-0.1560	0.0321	Free	4

1) All data are uncorrected
2) See Figure 5.2
3) See Foot-note 2) of Table 5.5
4) Solid test section walls

Table 5.7 ONERA S3MA tests. Aerodynamic coefficients[1)]

Run	M_∞	α_g^o	$Re \cdot 10^{-6}$	c_L	c_m	c_D	Transition	Configuration
9617	0.703	2.07	7.34	1.149	-0.2517	0.0224	Free	5[2)]
	0.703	4.08	7.25	1.446	-0.2604	0.0401		
9618	0.702	6.03	7.28	1.461	-0.2525	0.1079		
9621	0.760	2.05	7.73	1.206	-0.3031	0.0354		
	0.761	4.07	7.73	1.253	-0.2728	0.0681		
9606	0.499	2.05	5.55	0.997	-0.2286	0.0107		
9610	0.600	2.06	6.61	1.038	-0.2390	0.0122		
9612	0.649	2.06	6.97	1.076	-0.2442	0.0128		
9625[4)]	0.702	2.11	7.52	1.398	-0.3126	0.0756		
	0.702	4.06	7.51	1.300	-0.2691	0.1404	Free	5
9573	0.760	2.04	3.50	0.6037	-0.0965	0.0127	Free	Basic arifoil
9589	0.760	2.10	7.60	0.6180	-0.0935	0.0128		

Table 5.8 DFVLR 1x1 Meter tests. Pressure distributions

a. Basic airfoil (See Table 5.6 for test conditions and aerodynamic coefficients)

Run 60				Run 84				Run 157			
NR	X/L	CP	ML	NR	X/L	CP	ML	NR	X/L	CP	ML
UPPER	SURFACE			UPPER	SURFACE			UPPER	SURFACE		
1	0.0	1.1531	0.0	1	0.0	1.1504	0.0279	1	0.0	1.1515	0.0215
2	0.0032	0.5220	0.5256	2	0.0032	0.5189	0.5305	2	0.0032	0.5168	0.5321
3	0.0087	0.1140	0.7114	3	0.0087	0.1124	0.7116	3	0.0087	0.1096	0.7130
4	0.0155	-0.0616	0.7860	4	0.0155	-0.0586	0.7843	4	0.0155	-0.0553	0.7834
5	0.0250	-0.2658	0.8727	5	0.0250	-0.2711	0.8748	5	0.0250	-0.2685	0.8740
6	0.0345	-0.4678	0.9601	6	0.0345	-0.4698	0.9609	6	0.0345	-0.4700	0.9615
7	0.0645	-0.7182	1.0732	7	0.0645	-0.7151	1.0723	7	0.0645	-0.7147	1.0720
8	0.0797	-0.8822	1.1514	8	0.0797	-0.8783	1.1504	8	0.0797	-0.8807	1.1519
9	0.0990	-0.9690	1.1947	9	0.0990	-0.9620	1.1927	9	0.0990	-0.9691	1.1960
10	0.1400	-0.9891	1.2053	10	0.1400	-0.9825	1.2028	10	0.1400	-0.9873	1.2056
11	0.1700	-1.0053	1.2130	11	0.1700	-0.9964	1.2103	11	0.1700	-1.0011	1.2128
12	0.2200	-1.0125	1.2167	12	0.2200	-1.0030	1.2131	12	0.2200	-1.0030	1.2131
13	0.2595	-1.0159	1.2198	13	0.2595	-1.0118	1.2151	13	0.2595	-1.0053	1.2133
14	0.2995	-1.0315	1.2273	14	0.2995	-1.0579	1.2396	14	0.2995	-1.0192	1.2209
15	0.3397	-1.0332	1.2285	15	0.3397	-1.0483	1.2351	15	0.3397	-1.0315	1.2270
16	0.3800	-1.0358	1.2299	16	0.3800	-1.0388	1.2305	16	0.3800	-1.0419	1.2331
17	0.4200	-1.0042	1.2134	17	0.4200	-1.0173	1.2199	17	0.4200	-1.0317	1.2281
18	0.4600	-0.9515	1.1864	18	0.4600	-0.9384	1.1797	18	0.4600	-0.9953	1.2094
19	0.5000	-0.5863	1.0127	19	0.5000	-0.5645	1.0034	19	0.5000	-0.9587	1.1906
20	0.5395	-0.4587	0.9559	20	0.5395	-0.4580	0.9562	20	0.5395	-0.5610	1.0021
21	0.5795	-0.4613	0.9566	21	0.5795	-0.4703	0.9618	21	0.5795	-0.4727	0.9624
22	0.6200	-0.4901	0.9695	22	0.6200	-0.4893	0.9702	22	0.6200	-0.4710	0.9619
23	0.6600	-0.5043	0.9753	23	0.6600	-0.4892	0.9702	23	0.6600	-0.4774	0.9650
24	0.7000	-0.4104	0.9346	24	0.7000	-0.3968	0.9295	24	0.7000	-0.3949	0.9288
25	0.7485	-0.3201	0.8954	25	0.7485	-0.3045	0.8898	25	0.7485	-0.3076	0.8908
26	0.7985	-0.1975	0.8432	26	0.7985	-0.1852	0.8387	26	0.7985	-0.1929	0.8422
27	0.8490	-0.0781	0.7930	27	0.8490	-0.0692	0.7855	27	0.8490	-0.0800	0.7946
28	0.8990	0.0232	0.7501	28	0.8990	0.0266	0.7491	28	0.8990	0.0140	0.7546
29	0.9495	0.1145	0.7111	29	0.9495	0.1111	0.7128	29	0.9495	0.0990	0.7182
30	0.9745	0.1558	0.6934	30	0.9745	0.1486	0.6969	30	0.9745	0.1361	0.7022
31	1.0000	0.1910	0.6780	31	1.0000	0.1388	0.7016	31	1.0000	0.1385	0.7014
LOWER	SURFACE			LOWER	SURFACE			LOWER	SURFACE		
1	0.0	1.1531	0.0	1	0.0	1.1504	0.0279	1	0.0	1.1515	0.0215
2	0.0032	0.8791	0.3367	2	0.0032	0.8819	0.3350	2	0.0032	0.8728	0.3411
3	0.0070	0.5864	0.4983	3	0.0070	0.5855	0.4993	3	0.0070	0.5650	0.5093
4	0.0182	0.2646	0.6461	4	0.0182	0.2706	0.6439	4	0.0182	0.2530	0.6516
5	0.0487	0.0623	0.7331	5	0.0487	0.0618	0.7342	5	0.0487	0.0534	0.7374
6	0.0987	-0.0609	0.7854	6	0.0987	-0.0611	0.7863	6	0.0987	-0.0490	0.7810
7	0.1500	-0.1227	0.8112	7	0.1500	-0.1179	0.8103	7	0.1500	-0.1099	0.8070
8	0.2000	-0.1817	0.8366	8	0.2000	-0.1740	0.8340	8	0.2000	-0.1695	0.8322
9	0.2492	-0.2535	0.8669	9	0.2492	-0.2290	0.8575	9	0.2492	-0.2431	0.8632
10	0.3492	-0.2932	0.8840	10	0.3492	-0.2735	0.8763	10	0.3492	-0.2912	0.8841
11	0.4492	-0.2842	0.8806	11	0.4492	-0.2729	0.8761	11	0.4492	-0.2833	0.8811
12	0.5500	-0.1255	0.8131	12	0.5500	-0.1319	0.8163	12	0.5500	-0.1407	0.8202
13	0.6450	0.0757	0.7276	13	0.6450	0.0531	0.7376	13	0.6450	0.0472	0.7402
14	0.7500	0.2244	0.6638	14	0.7500	0.1974	0.6759	14	0.7500	0.1940	0.6773
15	0.8000	0.2665	0.6456	15	0.8000	0.2438	0.6558	15	0.8000	0.2441	0.6558
16	0.8490	0.3161	0.6237	16	0.8490	0.2897	0.6358	16	0.8490	0.2900	0.6357
17	0.8992	0.3312	0.6170	17	0.8992	0.3052	0.6290	17	0.8992	0.3034	0.6296
18	0.9495	0.3088	0.6273	18	0.9495	0.2853	0.6379	18	0.9495	0.2801	0.6398
19	1.0000	0.1910	0.6780	19	1.0000	0.1388	0.7016	19	1.0000	0.1385	0.7014

Table 5.8 Continued

a. Basic airfoil (See Table 5.6 for test conditions and aerodynamic coefficients)

Run 63

NR	X/L	CP	ML
UPPER SURFACE			
1	0.0	1.0715	0.1807
2	0.0032	0.1594	0.6923
3	0.0087	-0.2680	0.8742
4	0.0155	-0.3854	0.9247
5	0.0250	-0.5573	0.9997
6	0.0345	-0.7624	1.0931
7	0.0645	-0.9849	1.2028
8	0.0797	-1.1208	1.2752
9	0.0990	-1.1942	1.3170
10	0.1400	-1.2235	1.3339
11	0.1700	-1.2444	1.3465
12	0.2200	-1.2484	1.3493
13	0.2595	-1.2507	1.3515
14	0.2995	-1.2731	1.3636
15	0.3397	-1.2785	1.3672
16	0.3800	-1.2844	1.3708
17	0.4200	-1.2699	1.3608
18	0.4600	-1.2193	1.3299
19	0.5000	-0.9629	1.1915
20	0.5395	-0.6808	1.0556
21	0.5795	-0.5216	0.9843
22	0.6200	-0.4305	0.9441
23	0.6600	-0.3845	0.9244
24	0.7000	-0.3327	0.9018
25	0.7485	-0.2821	0.8802
26	0.7985	-0.2065	0.8478
27	0.8490	-0.1254	0.8132
28	0.8990	-0.0606	0.7855
29	0.9495	0.0380	0.7438
30	0.9745	0.0664	0.7319
31	1.0000	0.0934	0.7201
LOWER SURFACE			
1	0.0	1.0715	0.1807
2	0.0032	1.0747	0.1767
3	0.0070	0.8796	0.3366
4	0.0182	0.5661	0.5088
5	0.0487	0.3223	0.6213
6	0.0987	0.1590	0.6925
7	0.1500	0.0773	0.7275
8	0.2000	-0.0023	0.7612
9	0.2492	-0.0779	0.7934
10	0.3492	-0.1546	0.8258
11	0.4492	-0.1827	0.8375
12	0.5500	-0.1042	0.8039
13	0.6450	0.1124	0.7121
14	0.7500	0.2363	0.6589
15	0.8000	0.2667	0.6455
16	0.8490	0.3056	0.6284
17	0.8992	0.3099	0.6265
18	0.9495	0.2724	0.6433
19	1.0000	0.0934	0.7201

Run 87

NR	X/L	CP	ML
UPPER SURFACE			
1	0.0	1.0739	0.1778
2	0.0032	0.1743	0.6860
3	0.0087	-0.2458	0.8645
4	0.0155	-0.3653	0.9158
5	0.0250	-0.5432	0.9936
6	0.0345	-0.7462	1.0866
7	0.0645	-0.9701	1.1965
8	0.0797	-1.1067	1.2685
9	0.0990	-1.1845	1.3111
10	0.1400	-1.2140	1.3276
11	0.1700	-1.2340	1.3400
12	0.2200	-1.2405	1.3438
13	0.2595	-1.2450	1.3469
14	0.2995	-1.2820	1.3693
15	0.3397	-1.2854	1.3710
16	0.3800	-1.2882	1.3727
17	0.4200	-1.2759	1.3648
18	0.4600	-1.2136	1.3281
19	0.5000	-0.7914	1.1083
20	0.5395	-0.5559	0.9996
21	0.5795	-0.4528	0.9537
22	0.6200	-0.4050	0.9330
23	0.6600	-0.3803	0.9223
24	0.7000	-0.3340	0.9023
25	0.7485	-0.2808	0.8797
26	0.7985	-0.2165	0.8526
27	0.8490	-0.1462	0.8225
28	0.8990	-0.0848	0.7962
29	0.9495	-0.0057	0.7625
30	0.9745	0.0146	0.7539
31	1.0000	0.0312	0.7462
LOWER SURFACE			
1	0.0	1.0739	0.1778
2	0.0032	1.0699	0.1820
3	0.0070	0.8655	0.3455
4	0.0182	0.5554	0.5138
5	0.0487	0.3115	0.6259
6	0.0987	0.1511	0.6958
7	0.1500	0.0716	0.7298
8	0.2000	-0.0064	0.7629
9	0.2492	-0.0591	0.7854
10	0.3492	-0.1480	0.8235
11	0.4492	-0.1812	0.8374
12	0.5500	-0.0841	0.7959
13	0.6450	0.0722	0.7294
14	0.7500	0.1986	0.6753
15	0.8000	0.2334	0.6601
16	0.8490	0.2743	0.6423
17	0.8992	0.2776	0.6411
18	0.9495	0.2339	0.6601
19	1.0000	0.0312	0.7462

Run 160

NR	X/L	CP	ML
UPPER SURFACE			
1	0.0	1.0792	0.1713
2	0.0032	0.1663	0.6890
3	0.0087	-0.2524	0.8668
4	0.0155	-0.3604	0.9133
5	0.0250	-0.5408	0.9926
6	0.0345	-0.7488	1.0875
7	0.0645	-0.9694	1.1955
8	0.0797	-1.1078	1.2684
9	0.0990	-1.1863	1.3118
10	0.1400	-1.2152	1.3279
11	0.1700	-1.2377	1.3398
12	0.2200	-1.2406	1.3427
13	0.2595	-1.2435	1.3448
14	0.2995	-1.2597	1.3547
15	0.3397	-1.2724	1.3619
16	0.3800	-1.2837	1.3691
17	0.4200	-1.2760	1.3649
18	0.4600	-1.2066	1.3237
19	0.5000	-0.7974	1.1106
20	0.5395	-0.6248	1.0302
21	0.5795	-0.5594	1.0007
22	0.6200	-0.4977	0.9732
23	0.6600	-0.4400	0.9479
24	0.7000	-0.3863	0.9249
25	0.7485	-0.3196	0.8956
26	0.7985	-0.2569	0.8687
27	0.8490	-0.1982	0.8435
28	0.8990	-0.1353	0.8164
29	0.9495	-0.0611	0.7856
30	0.9745	-0.0330	0.7734
31	1.0000	-0.0112	0.7650
LOWER SURFACE			
1	0.0	1.0792	0.1713
2	0.0032	1.0668	0.1853
3	0.0070	0.8568	0.3505
4	0.0182	0.5411	0.5204
5	0.0487	0.2979	0.6318
6	0.0987	0.1363	0.7019
7	0.1500	0.0592	0.7348
8	0.2000	-0.0154	0.7668
9	0.2492	-0.0868	0.7965
10	0.3492	-0.1716	0.8324
11	0.4492	-0.2072	0.8474
12	0.5500	-0.1104	0.8058
13	0.6450	0.0535	0.7371
14	0.7500	0.1855	0.6804
15	0.8000	0.2230	0.6642
16	0.8490	0.2644	0.6462
17	0.8992	0.2678	0.6450
18	0.9495	0.2138	0.6687
19	1.0000	-0.0112	0.7650

Table 5.8 Continued

b. Airfoil with deflected maneuver flap[1)]

Run 234 — SECTION HS[2)]

NR	X/L	CP	ML
UPPER SURFACE			
1	0.0	1.1369	0.0
2	0.0032	0.6141	0.4454
3	0.0087	0.2014	0.6216
4	0.0155	0.0090	0.6968
5	0.0250	-0.2186	0.7838
6	0.0345	-0.4287	0.8638
7	0.0645	-0.6816	0.9621
8	0.0797	-0.8163	1.0162
9	0.0990	-0.8723	1.0385
10	0.1400	-0.7792	1.0010
11	0.1700	-0.7132	0.9738
12	0.2200	-0.7433	0.9856
13	0.2595	-0.7659	0.9951
14	0.2995	-0.7247	0.9787
15	0.3397	-0.7034	0.9702
16	0.3800	-0.6825	0.9619
17	0.4200	-0.6730	0.9584
18	0.4600	-0.6930	0.9664
19	0.5000	-0.7421	0.9861
20	0.5395	-0.7777	1.0006
21	0.5795	-0.7971	1.0071
22	0.6200	-0.8260	1.0193
23	0.6600	-0.8622	1.0343
24	0.7000	-0.7120	0.9736
25	0.7525	-0.5965	0.9283
26	0.7815	-0.5097	0.8949
27	0.8275	-0.3831	0.8462
28	0.8500	-0.3212	0.8224
LOWER SURFACE			
1	0.0	1.1369	0.0
2	0.0032	0.7295	0.3884
3	0.0070	0.3804	0.5488
4	0.0182	0.0903	0.6653
5	0.0487	-0.0645	0.7251
6	0.0987	-0.1300	0.7499
7	0.1500	-0.1581	0.7604
8	0.2000	-0.1860	0.7709
9	0.2492	-0.2206	0.7840
10	0.3492	-0.2131	0.7808
11	0.4492	-0.1694	0.7644
12	0.5500	0.0015	0.6995
13	0.6450	0.1705	0.6239
14	0.7000	0.2080	0.6192
15	0.7500	0.2406	0.6063
16	0.7525	0.2292	0.6104
17	0.7670	0.2182	0.6147
18	0.7900	0.2144	0.6163
19	0.8025	0.2686	0.5945
20	0.8500	-0.3212	0.8224

Run 235 — FLAP

X/L	CP	ML
UPPER SURFACE		
0.0	0.7043	0.4010
0.0130	-0.4470	0.8702
0.0440	-0.1717	0.7656
0.1040	-0.1450	0.7553
0.1640	-0.6255	0.9391
0.2480	-0.7469	0.9872
0.3300	-1.3235	1.2355
0.4100	-1.1806	1.1693
0.5770	-0.2759	0.8050
0.7380	-0.0580	0.7223
0.9000	0.0923	0.6638
1.0000	0.1920	0.6253
LOWER SURFACE		
0.0	0.7042	0.4010
0.0160	0.9745	0.2363
0.0440	0.6285	0.4383
0.1060	0.6076	0.4482
0.2530	0.5601	0.4703
0.4010	0.5374	0.4831
0.6010	0.4832	0.5049
0.8050	0.3900	0.5449
1.0000	0.1920	0.6253

Run 234 — FLAP

X/L	CP	ML
UPPER SURFACE		
0.0	0.6517	0.4273
0.0130	-0.5370	0.9050
0.0440	-0.2203	0.7877
0.1040	-0.1752	0.7668
0.1640	-0.5795	0.9217
0.2480	-0.6972	0.9678
0.3300	-1.3673	1.2569
0.4100	-1.2278	1.1906
0.5770	-0.2995	0.8143
0.7380	-0.0687	0.7265
0.9000	0.0784	0.6699
1.0000	0.1633	0.6368
LOWER SURFACE		
0.0	0.6517	0.4273
0.0160	0.9771	0.2343
0.0440	0.6082	0.4479
0.1060	0.5786	0.4619
0.2530	0.5268	0.4855
0.4010	0.4987	0.4979
0.6010	0.4505	0.5189
0.8050	0.3567	0.5584
1.0000	0.1633	0.6368

Run 235 — SECTION HS

NR	X/L	CP	ML
UPPER SURFACE			
1	0.0	1.0167	0.2012
2	0.0032	-0.0083	0.7044
3	0.0087	-0.4543	0.8747
4	0.0155	-0.5619	0.9160
5	0.0250	-0.7446	0.9876
6	0.0345	-0.9518	1.0720
7	0.0645	-1.1884	1.1742
8	0.0797	-1.3274	1.2393
9	0.0990	-1.4092	1.2786
10	0.1400	-1.4184	1.2836
11	0.1700	-1.4250	1.2873
12	0.2200	-1.4089	1.2789
13	0.2595	-1.3938	1.2723
14	0.2995	-1.3985	1.2746
15	0.3397	-1.3825	1.2667
16	0.3800	-1.3672	1.2589
17	0.4200	-1.3039	1.2282
18	0.4600	-0.8685	1.0375
19	0.5000	-0.6412	0.9462
20	0.5395	-0.6460	0.9486
21	0.5795	-0.7074	0.9726
22	0.6200	-0.7757	1.0001
23	0.6600	-0.8163	1.0165
24	0.7000	-0.7067	0.9728
25	0.7525	-0.6028	0.9317
26	0.7815	-0.5231	0.9009
27	0.8275	-0.4029	0.8547
28	0.8500	-0.3441	0.8317
LOWER SURFACE			
1	0.0	1.0167	0.2012
2	0.0032	1.0745	0.1394
3	0.0070	0.8924	0.2950
4	0.0182	0.5882	0.4579
5	0.0487	0.2416	0.5655
6	0.0987	0.1940	0.6253
7	0.1500	0.1303	0.6506
8	0.2000	0.0670	0.6751
9	0.2492	0.0151	0.6952
10	0.3492	-0.0212	0.7090
11	0.4492	-0.0154	0.7065
12	0.5500	0.0643	0.6757
13	0.6450	0.2524	0.6017
14	0.7000	0.2754	0.5924
15	0.7500	0.2865	0.5880
16	0.7525	0.2834	0.5894
17	0.7670	0.2631	0.5975
18	0.7900	0.2629	0.5978
19	0.8025	0.3381	0.5670
20	0.8500	-0.3441	0.8317

1) See Table 5.6 for test conditions and aerodynamic coefficients. 2) Section HS: See Figure 5.1

Table 5.8 Continued

b. Continued[1)]

Run 236 SECTION HS[2)]

NR	X/L	CP	ML
UPPER SURFACE			
1	0.0	0.8196	0.3392
2	0.0032	-0.4598	0.8759
3	0.0087	-0.9439	1.0686
4	0.0155	-0.9589	1.0743
5	0.0250	-1.0624	1.1184
6	0.0345	-1.2281	1.1919
7	0.0645	-1.4636	1.3041
8	0.0797	-1.5879	1.3690
9	0.0990	-1.6520	1.4043
10	0.1400	-1.6650	1.4116
11	0.1700	-1.6751	1.4160
12	0.2200	-1.6614	1.4091
13	0.2595	-1.6467	1.4029
14	0.2995	-1.6558	1.4080
15	0.3397	-1.6497	1.4052
16	0.3800	-1.6465	1.4023
17	0.4200	-1.6338	1.3952
18	0.4600	-1.6131	1.3837
19	0.5000	-1.6222	1.3878
20	0.5395	-1.6228	1.3881
21	0.5795	-1.0723	1.1213
22	0.6200	-0.9076	1.0518
23	0.6600	-0.7883	1.0036
24	0.7000	-0.6485	0.9481
25	0.7525	-0.4666	0.8779
26	0.7815	-0.4065	0.8547
27	0.8275	-0.3452	0.8311
28	0.8500	-0.3152	0.8202
LOWER SURFACE			
1	0.0	0.8196	0.3392
2	0.0032	1.1325	0.0
3	0.0070	1.0565	0.1604
4	0.0182	0.8008	0.3496
5	0.0487	0.5447	0.4772
6	0.0987	0.3724	0.5513
7	0.1500	0.2924	0.5847
8	0.2000	0.2235	0.6163
9	0.2492	0.1511	0.6410
10	0.3492	0.0956	0.6626
11	0.4492	0.0837	0.6677
12	0.5500	0.1487	0.6425
13	0.6450	0.3081	0.5787
14	0.7000	0.3228	0.5725
15	0.7500	0.3253	0.5715
16	0.7525	0.3130	0.5764
17	0.7670	0.2965	0.5832
18	0.7900	0.2943	0.5839
19	0.8025	0.3610	0.5564
20	0.8500	-0.3152	0.8202

Run 236 FLAP

X/L	CP	ML
UPPER SURFACE		
0.0	0.7199	0.3934
0.0130	-0.3908	0.8495
0.0440	-0.1278	0.7491
0.1040	-0.1263	0.7487
0.1640	-0.5733	0.9192
0.2480	-0.7499	0.9890
0.3300	-0.8565	1.0320
0.4100	-0.6910	0.9661
0.5770	-0.2285	0.7877
0.7380	-0.0374	0.7149
0.9000	0.1004	0.6614
1.0000	0.2103	0.6183
LOWER SURFACE		
0.0	0.7199	0.3934
0.0160	0.9829	0.2298
0.0440	0.6535	0.4268
0.1060	0.6326	0.4367
0.2530	0.5845	0.4594
0.4010	0.5557	0.4724
0.6010	0.5058	0.4946
0.8050	0.4121	0.5350
1.0000	0.2103	0.6183

Run 237 FLAP

X/L	CP	ML
UPPER SURFACE		
0.0	0.7189	0.3936
0.0130	-0.4545	0.8732
0.0440	-0.1813	0.7691
0.1040	-0.2125	0.7807
0.1640	-0.7391	0.9841
0.2480	-0.7563	0.9907
0.3300	-0.7637	0.9939
0.4100	-0.6070	0.9319
0.5770	-0.3176	0.8212
0.7380	-0.1970	0.7754
0.9000	-0.1170	0.7448
1.0000	-0.0315	0.7122
LOWER SURFACE		
0.0	0.7189	0.3936
0.0160	0.9710	0.2390
0.0440	0.6268	0.4391
0.1060	0.6047	0.4498
0.2530	0.5541	0.4732
0.4010	0.5130	0.4917
0.6010	0.4444	0.5216
0.8050	0.3164	0.5751
1.0000	-0.0316	0.7122

Run 237 SECTION HS

NR	X/L	CP	ML
UPPER SURFACE			
1	0.0	0.6449	0.4304
2	0.0032	-0.7691	0.9961
3	0.0087	-1.2951	1.2217
4	0.0155	-1.3824	1.2630
5	0.0250	-1.3884	1.2667
6	0.0345	-1.4765	1.3102
7	0.0645	-1.6364	1.3956
8	0.0797	-1.7415	1.4555
9	0.0990	-1.8016	1.4920
10	0.1400	-1.8086	1.4963
11	0.1700	-1.8138	1.4996
12	0.2200	-1.7869	1.4829
13	0.2595	-1.7660	1.4702
14	0.2995	-1.7277	1.4479
15	0.3397	-1.6793	1.4193
16	0.3800	-1.6305	1.3913
17	0.4200	-1.4167	1.2806
18	0.4600	-1.2881	1.2185
19	0.5000	-1.0908	1.1300
20	0.5395	-0.9067	1.0518
21	0.5795	-0.7937	1.0062
22	0.6200	-0.7211	0.9770
23	0.6600	-0.6953	0.9665
24	0.7000	-0.6512	0.9491
25	0.7525	-0.5838	0.9231
26	0.7815	-0.5581	0.9129
27	0.8275	-0.5155	0.8957
28	0.8500	-0.4947	0.8885
LOWER SURFACE			
1	0.0	0.6449	0.4304
2	0.0032	1.1269	0.0243
3	0.0070	1.1118	0.0770
4	0.0182	0.9070	0.2849
5	0.0487	0.6537	0.4262
6	0.0987	0.4698	0.5105
7	0.1500	0.3807	0.5485
8	0.2000	0.2927	0.5846
9	0.2492	0.2154	0.6158
10	0.3492	0.1449	0.6436
11	0.4492	0.1081	0.6578
12	0.5500	0.1621	0.6366
13	0.6450	0.2996	0.5818
14	0.7000	0.3063	0.5791
15	0.7500	0.3001	0.5817
16	0.7525	0.2856	0.5876
17	0.7670	0.2705	0.5937
18	0.7900	0.2671	0.5952
19	0.8025	0.3301	0.5693
20	0.8500	-0.4947	0.8885

Run 240 SECTION HS

NR	X/L	CP	ML
UPPER SURFACE			
1	0.0	1.1600	0.0
2	0.0032	0.7392	0.4196
3	0.0087	0.3592	0.6047
4	0.0155	0.1628	0.6907
5	0.0250	-0.0588	0.7850
6	0.0345	-0.2570	0.8691
7	0.0645	-0.5230	0.9849
8	0.0797	-0.6790	1.0557
9	0.0990	-0.7625	1.0948
10	0.1400	-0.7756	1.1007
11	0.1700	-0.7862	1.1052
12	0.2200	-0.7647	1.0948
13	0.2595	-0.7395	1.0842
14	0.2995	-0.7920	1.1083
15	0.3397	-0.8106	1.1172
16	0.3800	-0.8294	1.1263
17	0.4200	-0.8199	1.1217
18	0.4600	-0.8155	1.1195
19	0.5000	-0.8491	1.1361
20	0.5395	-0.8857	1.1543
21	0.5795	-0.8931	1.1563
22	0.6200	-0.9013	1.1609
23	0.6600	-0.9675	1.1942
24	0.7000	-1.0975	1.2632
25	0.7525	-1.0879	1.2583
26	0.7815	-0.6816	1.0569
27	0.8275	-0.4484	0.9522
28	0.8500	-0.3344	0.9042
LOWER SURFACE			
1	0.0	1.1600	0.0
2	0.0032	0.6898	0.4460
3	0.0070	0.3251	0.6199
4	0.0182	0.0393	0.7436
5	0.0487	-0.1096	0.8068
6	0.0987	-0.1792	0.8364
7	0.1500	-0.2052	0.8474
8	0.2000	-0.2310	0.8582
9	0.2492	-0.2708	0.8750
10	0.2492	-0.2561	0.8687
11	0.4492	-0.2032	0.8469
12	0.5500	-0.0005	0.7612
13	0.6450	0.1657	0.6884
14	0.7000	0.2238	0.6646
15	0.7500	0.2576	0.6498
16	0.7525	0.2447	0.6551
17	0.7670	0.2322	0.6604
18	0.7900	0.2326	0.6608
19	0.8025	0.2863	0.6372
20	0.8500	-0.3344	0.8042

Run 240 FLAP

X/L	CP	ML
UPPER SURFACE		
0.0	0.6600	0.4620
0.0130	-0.5460	0.9951
0.0440	-0.2217	0.8544
0.1040	-0.1751	0.8346
0.1640	-0.6155	1.0269
0.2480	-0.6144	1.0267
0.3300	-1.1281	1.2799
0.4100	-1.0843	1.2557
0.5770	-0.2749	0.8768
0.7380	-0.0264	0.7713
0.9000	0.1038	0.7164
1.0000	0.1741	0.6854
LOWER SURFACE		
0.0	0.6600	0.4620
0.0160	1.0000	0.2489
0.0440	0.6347	0.4745
0.1060	0.6019	0.4910
0.2530	0.5508	0.5160
0.4010	0.5250	0.5283
0.6010	0.4772	0.5508
0.8050	0.3822	0.5940
1.0000	0.1741	0.6854

Run 241 FLAP

X/L	CP	ML
UPPER SURFACE		
0.0	0.7076	0.4369
0.0130	-0.5125	0.9798
0.0440	-0.2047	0.8469
0.1040	-0.2324	0.8589
0.1640	-1.0957	1.2615
0.2480	-0.6625	1.0471
0.3300	-0.5863	1.0130
0.4100	-0.4367	0.9469
0.5770	-0.1570	0.8268
0.7380	-0.0124	0.7650
0.9000	0.0389	0.7220
1.0000	0.1567	0.6931
LOWER SURFACE		
0.0	0.7076	0.4369
0.0160	1.0060	0.2438
0.0440	0.6535	0.4651
0.1060	0.6263	0.4790
0.2530	0.5730	0.5050
0.4010	0.5412	0.5203
0.6010	0.4664	0.5464
0.8050	0.3844	0.5931
1.0000	0.1567	0.6931

Run 241 SECTION HS

NR	X/L	CP	ML
UPPER SURFACE			
1	0.0	1.1081	0.1338
2	0.0032	0.2799	0.6404
3	0.0087	-0.1343	0.8175
4	0.0155	-0.2641	0.8721
5	0.0250	-0.4569	0.9549
6	0.0345	-0.6591	1.0446
7	0.0645	-0.8930	1.1547
8	0.0797	-1.0296	1.2243
9	0.0990	-1.1144	1.2703
10	0.1400	-1.1368	1.2833
11	0.1700	-1.1533	1.2928
12	0.2200	-1.1600	1.2976
13	0.2595	-1.1642	1.3015
14	0.2995	-1.1852	1.3124
15	0.3397	-1.1926	1.3173
16	0.3800	-1.2018	1.3214
17	0.4200	-1.1983	1.3182
18	0.4600	-1.1944	1.3148
19	0.5000	-1.2196	1.3281
20	0.5395	-1.2503	1.3464
21	0.5795	-1.2741	1.3625
22	0.6200	-1.3030	1.3791
23	0.6600	-1.3523	1.4105
24	0.7000	-1.4137	1.4510
25	0.7525	-1.1392	1.2846
26	0.7815	-0.8701	1.1449
27	0.8275	-0.7946	1.1084
28	0.8500	-0.7577	1.0914
LOWER SURFACE			
1	0.0	1.1081	0.1338
2	0.0032	1.0397	0.2131
3	0.0070	0.8196	0.3736
4	0.0182	0.5167	0.5319
5	0.0487	0.2883	0.6257
6	0.0987	0.1507	0.6953
7	0.1500	0.0904	0.7210
8	0.2000	0.0326	0.7458
9	0.2492	-0.0220	0.7694
10	0.3492	-0.0559	0.7837
11	0.4492	-0.0453	0.7787
12	0.5500	0.0535	0.7369
13	0.6450	0.2410	0.6566
14	0.7000	0.2703	0.6433
15	0.7500	0.2839	0.6376
16	0.7525	0.2764	0.6410
17	0.7670	0.2617	0.6478
18	0.7900	0.2570	0.6492
19	0.8025	0.3310	0.6169
20	0.8500	-0.7577	1.0914

1) See Table 5.6 for test conditions and aerodynamic coefficients. 2) Section HS: See Figure 5.1

Table 5.8 Continued

b. Continued[1)]

Run 242 SECTION HS[2)]

NR	X/L	CP	ML
UPPER SURFACE			
1	0.0	1.0002	0.2483
2	0.0032	-0.0263	0.7711
3	0.0087	-0.4555	0.9538
4	0.0155	-0.5251	0.9854
5	0.0250	-0.6749	1.0524
6	0.0345	-0.8652	1.1471
7	0.0645	-1.0870	1.2561
8	0.0797	-1.2141	1.2261
9	0.0990	-1.2849	1.3681
10	0.1400	-1.3072	1.3816
11	0.1700	-1.3247	1.3915
12	0.2200	-1.3337	1.3966
13	0.2595	-1.3372	1.4007
14	0.2995	-1.3488	1.4092
15	0.3397	-1.3581	1.4133
16	0.3800	-1.3617	1.4174
17	0.4200	-1.3612	1.4157
18	0.4600	-1.3525	1.4111
19	0.5000	-1.3733	1.4234
20	0.5395	-1.4014	1.4405
21	0.5795	-1.4109	1.4477
22	0.6200	-1.3648	1.4161
23	0.6600	-1.0965	1.2598
24	0.7000	-0.8522	1.1353
25	0.7525	-0.7560	1.0898
26	0.7815	-0.6428	1.0372
27	0.8275	-0.5316	0.9869
28	0.8500	-0.4772	0.9630
LOWER SURFACE			
1	0.0	1.0002	0.2483
2	0.0032	1.1284	0.0968
3	0.0070	0.9836	0.2616
4	0.0182	0.6990	0.4408
5	0.0487	0.4525	0.5617
6	0.0987	0.2922	0.6336
7	0.1500	0.2151	0.6671
8	0.2000	0.1397	0.6996
9	0.2492	0.0748	0.7277
10	0.3492	0.0173	0.7526
11	0.4492	0.0037	0.7579
12	0.5500	0.0757	0.7273
13	0.6450	0.2538	0.6538
14	0.7000	0.2735	0.6420
15	0.7500	0.2904	0.6346
16	0.7525	0.2749	0.6412
17	0.7670	0.2586	0.6482
18	0.7900	0.2521	0.6510
19	0.8025	0.3177	0.6224
20	0.8500	-0.4772	0.9630

Run 242 FLAP

X/L	CP	ML
UPPER SURFACE		
0.0	0.7232	0.4288
0.0130	-0.5011	0.9734
0.0440	-0.1856	0.8377
0.1040	-0.1605	0.8765
0.1640	-0.6648	1.0465
0.2480	-0.6847	1.0546
0.3300	-0.8297	1.1225
0.4100	-0.6900	1.0571
0.5770	-0.2819	0.8779
0.7380	-0.1311	0.8143
0.9000	-0.0366	0.7741
1.0000	0.0772	0.7256
LOWER SURFACE		
0.0	0.7232	0.4288
0.0160	0.9877	0.2577
0.0440	0.6302	0.4756
0.1060	0.6048	0.4886
0.2530	0.5521	0.5145
0.4010	0.5164	0.5315
0.6010	0.4532	0.5613
0.8050	0.3350	0.6142
1.0000	0.0772	0.7256

Run 243 FLAP

X/L	CP	ML
UPPER SURFACE		
0.0	0.7343	0.4223
0.0130	-0.5057	0.9785
0.0440	-0.1889	0.8412
0.1040	-0.1491	0.8243
0.1640	-0.7798	1.1035
0.2480	-0.7161	1.0727
0.3300	-0.8561	1.1401
0.4100	-0.7009	1.0661
0.5770	-0.4114	0.9363
0.7380	-0.3025	0.8894
0.9000	-0.2394	0.8624
1.0000	-0.1413	0.8202
LOWER SURFACE		
0.0	0.7343	0.4223
0.0160	0.9806	0.2649
0.0440	0.6156	0.4945
0.1060	0.5950	0.4948
0.2530	0.5378	0.5227
0.4010	0.4977	0.5418
0.6010	0.4228	0.5769
0.8050	0.2797	0.6407
1.0000	-0.1413	0.8202

Run 243 SECTION HS

NR	X/L	CP	ML
UPPER SURFACE			
1	0.0	0.8691	0.3441
2	0.0032	-0.3143	0.8956
3	0.0087	-0.7853	1.1067
4	0.0155	-0.8202	1.1223
5	0.0250	-0.8859	1.1559
6	0.0345	-1.0268	1.2288
7	0.0645	-1.2392	1.3467
8	0.0797	-1.3615	1.4199
9	0.0990	-1.4236	1.4605
10	0.1400	-1.4488	1.4770
11	0.1700	-1.4658	1.4892
12	0.2200	-1.4657	1.4906
13	0.2595	-1.4659	1.4918
14	0.2995	-1.4828	1.5036
15	0.3397	-1.4871	1.5045
16	0.3800	-1.4912	1.5053
17	0.4200	-1.4786	1.4991
18	0.4600	-1.4524	1.4825
19	0.5000	-1.3707	1.4277
20	0.5395	-1.2427	1.3471
21	0.5795	-1.0862	1.2599
22	0.6200	-0.9194	1.1718
23	0.6600	-0.7904	1.1102
24	0.7000	-0.6800	1.0582
25	0.7525	-0.6261	1.0339
26	0.7815	-0.5916	1.0182
27	0.8275	-0.5426	0.9970
28	0.8500	-0.5187	0.9842
LOWER SURFACE			
1	0.0	0.8691	0.3441
2	0.0032	1.1559	0.0
3	0.0070	1.0823	0.1689
4	0.0182	0.8386	0.3633
5	0.0487	0.5871	0.4996
6	0.0987	0.4093	0.5840
7	0.1500	0.3195	0.6240
8	0.2000	0.2302	0.6624
9	0.2492	0.1528	0.6957
10	0.3492	0.0776	0.7277
11	0.4492	0.0453	0.7410
12	0.5500	0.1087	0.7144
13	0.6450	0.2664	0.6468
14	0.7000	0.2790	0.6409
15	0.7500	0.2881	0.6358
16	0.7525	0.2735	0.6433
17	0.7670	0.2615	0.6490
18	0.7900	0.2546	0.6526
19	0.8025	0.3128	0.6261
20	0.8500	-0.5187	0.9842

Run 223 SECTION HS

NR	X/L	CP	ML
UPPER SURFACE			
1	0.0	0.8516	0.2654
2	0.0032	-0.4629	0.7440
3	0.0087	-0.9383	0.8887
4	0.0155	-1.0123	0.9112
5	0.0250	-1.1832	0.9645
6	0.0345	-1.3855	1.0293
7	0.0645	-1.5322	1.0777
8	0.0797	-1.5287	1.0762
9	0.0990	-1.4314	1.0443
10	0.1400	-1.1495	0.9533
11	0.1700	-0.9413	0.8890
12	0.2200	-0.9242	0.8835
13	0.2595	-0.9060	0.8790
14	0.2995	-0.8369	0.8576
15	0.3397	-0.8072	0.8486
16	0.3800	-0.7793	0.8396
17	0.4200	-0.7586	0.8335
18	0.4600	-0.7581	0.8334
19	0.5000	-0.7735	0.8380
20	0.5395	-0.7781	0.8392
21	0.5795	-0.7725	0.8375
22	0.6200	-0.7711	0.8371
23	0.6600	-0.7712	0.8369
24	0.7000	-0.6988	0.8151
25	0.7525	-0.6177	0.7905
26	0.7815	-0.5593	0.7728
27	0.8275	-0.4622	0.7429
28	0.8500	-0.4148	0.7291
LOWER SURFACE			
1	0.0	0.8516	0.2654
2	0.0032	1.0844	0.0495
3	0.0070	0.9470	0.2050
4	0.0182	0.6399	0.3685
5	0.0487	0.3776	0.4716
6	0.0987	0.2192	0.5270
7	0.1500	0.1511	0.5498
8	0.2000	0.0851	0.5718
9	0.2492	0.0318	0.5892
10	0.3492	-0.0069	0.6016
11	0.4492	-0.0051	0.6014
12	0.5500	0.0644	0.5789
13	0.6450	0.2337	0.5225
14	0.7000	0.2489	0.5173
15	0.7500	0.2453	0.5182
16	0.7525	0.2294	0.5238
17	0.7670	0.2172	0.5279
18	0.7900	0.2089	0.5304
19	0.8025	0.2722	0.5088
20	0.8500	-0.4148	0.7291

Run 223 FLAP

X/L	CP	ML
UPPER SURFACE		
0.0	0.6458	0.3661
0.0130	-0.5057	0.7566
0.0440	-0.2501	0.6786
0.1040	-0.2811	0.6880
0.1640	-0.7021	0.8164
0.2480	-0.8235	0.8533
0.3300	-1.0331	0.9182
0.4100	-0.8673	0.8669
0.5770	-0.3305	0.7036
0.7380	-0.1043	0.6335
0.9000	0.0590	0.5808
1.0000	0.1749	0.5424
LOWER SURFACE		
0.0	0.6458	0.3661
0.0160	0.9479	0.2045
0.0440	0.6063	0.3830
0.1060	0.5814	0.3933
0.2530	0.5318	0.4135
0.4010	0.5030	0.4248
0.6010	0.4538	0.4437
0.8050	0.3628	0.4773
1.0000	0.1749	0.5424

Run 229 FLAP

X/L	CP	ML
UPPER SURFACE		
0.0	0.6648	0.3890
0.0130	-0.5064	0.8243
0.0440	-0.2267	0.7286
0.1040	-0.2509	0.7369
0.1640	-0.7076	0.8938
0.2480	-0.7881	0.9216
0.3300	-1.1225	1.0414
0.4100	-0.9382	0.9745
0.5770	-0.3220	0.7615
0.7380	-0.0967	0.6834
0.9000	0.0636	0.6275
1.0000	0.1754	0.5878
LOWER SURFACE		
0.0	0.6648	0.3890
0.0160	0.9614	0.2198
0.0440	0.6157	0.4115
0.1060	0.5912	0.4223
0.2530	0.5420	0.4435
0.4010	0.5140	0.4557
0.6010	0.4641	0.4762
0.8050	0.3714	0.5130
1.0000	0.1754	0.5878

Run 229 SECTION HS

NR	X/L	CP	ML
UPPER SURFACE			
1	0.0	0.9361	0.2381
2	0.0032	-0.2428	0.7340
3	0.0087	-0.7122	0.8951
4	0.0155	-0.8054	0.9271
5	0.0250	-0.9828	0.9899
6	0.0345	-1.2036	1.0709
7	0.0645	-1.4342	1.1607
8	0.0797	-1.5686	1.2157
9	0.0990	-1.6411	1.2470
10	0.1400	-1.5494	1.2081
11	0.1700	-1.4827	1.1806
12	0.2200	-1.1357	1.0460
13	0.2595	-0.8627	0.9475
14	0.2995	-0.8536	0.9443
15	0.3397	-0.8313	0.9367
16	0.3800	-0.8108	0.9290
17	0.4200	-0.7942	0.9232
18	0.4600	-0.8024	0.9260
19	0.5000	-0.8280	0.9353
20	0.5395	-0.8394	0.9393
21	0.5795	-0.8360	0.9381
22	0.6200	-0.8343	0.9375
23	0.6600	-0.8315	0.9362
24	0.7000	-0.7378	0.9040
25	0.7525	-0.6427	0.8719
26	0.7815	-0.5746	0.8479
27	0.8275	-0.4686	0.8118
28	0.8500	-0.4168	0.7936
LOWER SURFACE			
1	0.0	0.9361	0.2381
2	0.0032	1.0823	0.0940
3	0.0070	0.9217	0.2481
4	0.0182	0.6146	0.4122
5	0.0487	0.3618	0.5170
6	0.0987	0.2083	0.5752
7	0.1500	0.1402	0.6001
8	0.2000	0.0746	0.6237
9	0.2492	0.0197	0.6432
10	0.3492	-0.0157	0.6557
11	0.4492	-0.0140	0.6551
12	0.5500	0.0604	0.6289
13	0.6450	0.2401	0.5633
14	0.7000	0.2541	0.5579
15	0.7500	0.2603	0.5556
16	0.7525	0.2463	0.5608
17	0.7670	0.2393	0.5633
18	0.7900	0.2244	0.5693
19	0.8025	0.2894	0.5449
20	0.8500	-0.4168	0.7936

1) See Table 5.6 for test conditions and aerodynamic coefficients. 2) Section HS: See Figure 5.1

Table 5.8 Concluded

b. Concluded [1)]

Run 230 SECTION HS[2)]

NR	X/L	CP	ML
UPPER SURFACE			
1	0.0	0.5566	0.4375
2	0.0032	-0.9978	0.9959
3	0.0087	-1.5639	1.2142
4	0.0155	-1.6360	1.2443
5	0.0250	-1.6271	1.2401
6	0.0345	-1.6980	1.2713
7	0.0645	-1.8846	1.3571
8	0.0797	-2.0064	1.4175
9	0.0990	-2.0724	1.4514
10	0.1400	-2.0699	1.4520
11	0.1700	-2.0694	1.4524
12	0.2200	-2.0247	1.4282
13	0.2595	-1.9894	1.4094
14	0.2995	-1.9405	1.3849
15	0.3397	-1.5557	1.2108
16	0.3800	-1.1719	1.0594
17	0.4200	-0.9066	0.9627
18	0.4600	-0.7397	0.9045
19	0.5000	-0.6827	0.8847
20	0.5395	-0.6962	0.8894
21	0.5795	-0.7099	0.8946
22	0.6200	-0.7252	0.8999
23	0.6600	-0.7300	0.9013
24	0.7000	-0.6679	0.8801
25	0.7525	-0.5876	0.8526
26	0.7815	-0.5335	0.8336
27	0.8275	-0.4336	0.7997
28	0.8500	-0.3848	0.7828
LOWER SURFACE			
1	0.0	0.5566	0.4375
2	0.0032	1.1054	0.0384
3	0.0070	1.0992	0.0591
4	0.0182	0.8941	0.2664
5	0.0487	0.6346	0.4030
6	0.0987	0.4482	0.4828
7	0.1500	0.3595	0.5179
8	0.2000	0.2726	0.5510
9	0.2492	0.2051	0.5761
10	0.3492	0.1392	0.6000
11	0.4492	0.1150	0.6088
12	0.5500	0.1712	0.5886
13	0.6450	0.3108	0.5365
14	0.7000	0.3186	0.5333
15	0.7500	0.3136	0.5356
16	0.7525	0.2883	0.5453
17	0.7670	0.2780	0.5491
18	0.7900	0.2750	0.5502
19	0.8025	0.3277	0.5300
20	0.8500	-0.3848	0.7828

Run 230 FLAP

X/L	CP	ML
UPPER SURFACE		
0.0	0.6957	0.3744
0.0130	-0.4188	0.7946
0.0440	-0.1624	0.7065
0.1040	-0.2027	0.7202
0.1640	-0.6519	0.8743
0.2480	-0.8112	0.9299
0.3300	-0.9503	0.9786
0.4100	-0.7793	0.9188
0.5770	-0.2819	0.7479
0.7380	-0.0790	0.6777
0.9000	0.0687	0.6255
1.0000	0.1847	0.5837
LOWER SURFACE		
0.0	0.6957	0.3744
0.0160	0.9690	0.2129
0.0440	0.6440	0.3988
0.1060	0.6209	0.4094
0.2530	0.5711	0.4314
0.4010	0.5405	0.4444
0.6010	0.4906	0.4654
0.8050	0.3929	0.5047
1.0000	0.1847	0.5837

Run 278 FLAP

X/L	CP	ML
UPPER SURFACE		
0.0	0.2312	0.5663
0.0130	0.4334	0.4884
0.0440	0.4036	0.5003
0.1040	0.3455	0.5228
0.1640	0.0973	0.6147
0.2480	-0.2490	0.7354
0.3300	-0.3656	0.7756
0.4100	-0.3068	0.7557
0.5770	-0.1239	0.6928
0.7380	-0.0764	0.6763
0.9000	-0.0476	0.6659
1.0000	-0.0251	0.6581
LOWER SURFACE		
0.0	0.2312	0.5663
0.0160	0.5806	0.4267
0.0440	0.6972	0.3735
0.1060	0.6313	0.4043
0.2530	0.5374	0.4455
0.4010	0.4912	0.4653
0.6010	0.4224	0.4928
0.8050	0.2956	0.5410
1.0000	-0.0251	0.6581

Run 278 SECTION HS

NR	X/L	CP	ML
UPPER SURFACE			
1	0.0	0.6164	0.4111
2	0.0032	-0.9042	0.9622
3	0.0087	-1.4656	1.1733
4	0.0155	-1.5058	1.1893
5	0.0250	-1.4961	1.1857
6	0.0345	-1.6063	1.2312
7	0.0645	-1.8361	1.3336
8	0.0797	-1.9639	1.3954
9	0.0990	-2.0252	1.4260
10	0.1400	-2.0225	1.4252
11	0.1700	-2.0234	1.4244
12	0.2200	-1.9486	1.3866
13	0.2595	-1.8861	1.3578
14	0.2995	-1.7588	1.2985
15	0.3397	-1.2719	1.0972
16	0.3800	-0.7859	0.9203
17	0.4200	-0.6626	0.8778
18	0.4600	-0.6519	0.8738
19	0.5000	-0.6830	0.8845
20	0.5395	-0.7015	0.8909
21	0.5795	-0.7011	0.8913
22	0.6200	-0.6993	0.8902
23	0.6600	-0.6901	0.8870
24	0.7000	-0.6200	0.8633
25	0.7525	-0.5428	0.8366
26	0.7815	-0.4997	0.8216
27	0.8275	-0.4396	0.8011
28	0.8500	-0.4103	0.7910
LOWER SURFACE			
1	0.0	0.6164	0.4111
2	0.0032	1.1103	0.0
3	0.0070	1.0856	0.0883
4	0.0182	0.8586	0.2879
5	0.0487	0.5916	0.4220
6	0.0987	0.4050	0.4997
7	0.1500	0.3158	0.5344
8	0.2000	0.2288	0.5671
9	0.2492	0.1611	0.5919
10	0.3492	0.0948	0.6157
11	0.4492	0.0725	0.6238
12	0.5500	0.1345	0.6016
13	0.6450	0.2972	0.5413
14	0.7000	0.3275	0.5298
15	0.7500	0.4237	0.4922
16	0.7525	0.4145	0.4957
17	0.7670	0.4327	0.4884
18	0.7900	0.4434	0.4844
19	0.8025	0.3828	0.5084
20	0.8500	-0.4103	0.7910

Run 271 SECTION HS

NR	X/L	CP	ML
UPPER SURFACE			
1	0.0	0.9237	0.2211
2	0.0032	-0.2810	0.6879
3	0.0087	-0.7508	0.8312
4	0.0155	-0.8422	0.8590
5	0.0250	-1.0250	0.9149
6	0.0345	-1.2113	0.9727
7	0.0645	-1.3527	1.0179
8	0.0797	-1.3412	1.0142
9	0.0990	-1.2553	0.9864
10	0.1400	-1.0394	0.9187
11	0.1700	-0.8797	0.8702
12	0.2200	-0.8455	0.8597
13	0.2595	-0.8186	0.8515
14	0.2995	-0.7531	0.8316
15	0.3397	-0.7244	0.8231
16	0.3800	-0.6961	0.8145
17	0.4200	-0.6751	0.8079
18	0.4600	-0.6725	0.8069
19	0.5000	-0.6851	0.8107
20	0.5395	-0.6845	0.8106
21	0.5795	-0.6787	0.8093
22	0.6200	-0.6721	0.8073
23	0.6600	-0.6643	0.8047
24	0.7000	-0.5993	0.7850
25	0.7525	-0.5240	0.7619
26	0.7815	-0.4829	0.7496
27	0.8275	-0.4278	0.7329
28	0.8500	-0.4009	0.7246
LOWER SURFACE			
1	0.0	0.9237	0.2211
2	0.0032	1.0591	0.0982
3	0.0070	0.8870	0.2444
4	0.0182	0.5654	0.3995
5	0.0487	0.3080	0.4955
6	0.0987	0.1576	0.5481
7	0.1500	0.0916	0.5638
8	0.2000	0.0282	0.5905
9	0.2492	-0.0264	0.6080
10	0.3492	-0.0618	0.6193
11	0.4492	-0.0570	0.6178
12	0.5500	0.0170	0.5943
13	0.6450	0.2143	0.5289
14	0.7000	0.2520	0.5158
15	0.7500	0.3608	0.4774
16	0.7525	0.3509	0.4813
17	0.7670	0.3700	0.4744
18	0.7900	0.3784	0.4712
19	0.8025	0.3157	0.4937
20	0.8500	-0.4009	0.7246

Run 271 FLAP

X/L	CP	ML
UPPER SURFACE		
0.0	0.1857	0.5387
0.0130	0.3692	0.4745
0.0440	0.3379	0.4858
0.1040	0.2777	0.5071
0.1640	0.1045	0.5458
0.2480	-0.1389	0.6438
0.3300	-0.3465	0.7083
0.4100	-0.2873	0.6897
0.5770	-0.1326	0.6417
0.7380	-0.1135	0.6357
0.9000	-0.1081	0.6342
1.0000	-0.0890	0.6283
LOWER SURFACE		
0.0	0.1857	0.5387
0.0160	0.5203	0.4178
0.0440	0.6356	0.3702
0.1060	0.5747	0.3957
0.2530	0.4825	0.4323
0.4010	0.4359	0.4498
0.6010	0.3660	0.4757
0.8050	0.2341	0.5221
1.0000	-0.0890	0.6283

Run 277 FLAP

X/L	CP	ML
UPPER SURFACE		
0.0	0.1934	0.5801
0.0130	0.3783	0.5102
0.0440	0.3484	0.5218
0.1040	0.2929	0.5430
0.1640	0.0744	0.6233
0.2480	-0.2315	0.7303
0.3300	-0.3336	0.7652
0.4100	-0.2778	0.7461
0.5770	-0.1326	0.6958
0.7380	-0.1164	0.6903
0.9000	-0.1149	0.6899
1.0000	-0.0939	0.6827
LOWER SURFACE		
0.0	0.1934	0.5801
0.0160	0.5166	0.4545
0.0440	0.6351	0.4028
0.1060	0.5863	0.4244
0.2530	0.4933	0.4638
0.4010	0.4453	0.4835
0.6010	0.3747	0.5116
0.8050	0.2402	0.5627
1.0000	-0.0939	0.6827

Run 277 SECTION HS

NR	X/L	CP	ML
UPPER SURFACE			
1	0.0	0.9857	0.2007
2	0.0032	-0.1162	0.6903
3	0.0087	-0.5794	0.8494
4	0.0155	-0.6890	0.8866
5	0.0250	-0.8843	0.9549
6	0.0345	-1.0987	1.0320
7	0.0645	-1.3207	1.1159
8	0.0797	-1.4663	1.1732
9	0.0990	-1.5020	1.1885
10	0.1400	-1.3019	1.1091
11	0.1700	-1.1541	1.0538
12	0.2200	-0.9905	0.9939
13	0.2595	-0.8624	0.9477
14	0.2995	-0.8002	0.9255
15	0.3397	-0.7666	0.9141
16	0.3800	-0.7345	0.9024
17	0.4200	-0.7096	0.8938
18	0.4600	-0.7102	0.8939
19	0.5000	-0.7256	0.8996
20	0.5395	-0.7276	0.9000
21	0.5795	-0.7186	0.8979
22	0.6200	-0.7110	0.8955
23	0.6600	-0.7026	0.8923
24	0.7000	-0.6196	0.8632
25	0.7525	-0.5350	0.8337
26	0.7815	-0.4861	0.8167
27	0.8275	-0.4256	0.7961
28	0.8500	-0.3961	0.7863
LOWER SURFACE			
1	0.0	0.9857	0.2007
2	0.0032	1.0551	0.1330
3	0.0070	0.8627	0.2856
4	0.0182	0.5415	0.4437
5	0.0487	0.2907	0.5438
6	0.0987	0.1419	0.5987
7	0.1500	0.0765	0.6220
8	0.2000	0.0129	0.6447
9	0.2492	-0.0408	0.6639
10	0.3492	-0.0774	0.6765
11	0.4492	-0.0710	0.6746
12	0.5500	0.0098	0.6462
13	0.6450	0.2123	0.5733
14	0.7000	0.2566	0.5570
15	0.7500	0.3702	0.5136
16	0.7525	0.3603	0.5177
17	0.7670	0.3796	0.5102
18	0.7900	0.3869	0.5065
19	0.8025	0.3275	0.5296
20	0.8500	-0.3961	0.7863

1) See Table 5.6 for test conditions and aerodynamic coefficients. 2) Section HS: See Figure 5.1

Table 5.9 ONERA S3MA tests. Pressure distributions[2)] — a. Airfoil surface pressures

Run	9617		9617		9618		9621		9621	
M_∞	0.703		0.703		0.702		0.760		0.761	
α^o	4.08		2.07		6.03		2.05		4.07	
X/C	CP	ML	CP	ML	CP	ML	CP	ML	CP	ML
Upper surface										
.82750	-.3710	.8435	-.4112	.8609	-.6049	.9841	-.6636	1.0502	-.6808	1.0357
.78150	-.4314	.8667	-.5082	.8980	-.6541	.9843	-.7252	1.0794	-.6905	1.0607
.75250	-.4938	.8908	-.5925	.9308	-.7045	.9746	-.7900	1.1087	-.6941	1.0616
.70000	-.5481	.9118	-.6025	.9352	-.7479	.9916	-.8583	1.1415	-.7084	1.0688
.66000	-.6485	.9509	-.7482	.9930	-.8068	1.3329	-1.3329	1.4082	-.7250	1.0781
.62000	-.7845	1.0052	-.7661	.9956	-.8630	1.0384	-1.2658	1.3631	-.7461	1.0867
.57950	-.8903	1.0488	-.7378	.9884	-.9002	1.0541	-1.2438	1.3478	-.8454	1.1838
.53950	-1.0714	1.1260	-.7068	.9770	-.9513	1.0748	-1.2193	1.3321	-1.0260	1.2252
.50000	-1.6056	1.3843	-.6625	.9522	-.9859	1.0832	-1.1941	1.3165	-1.3208	1.3900
.46000	-1.5996	1.3806	-.6209	.9419	-1.1074	1.1416	-1.1700	1.3040	-1.3304	1.3981
.42000	-1.6308	1.3993	-.6826	.9665	-1.2237	1.1964	-1.1853	1.3129	-1.3537	1.4107
.38000	-1.6952	1.4007	-1.2140	1.1992	-1.3124	1.2362	-1.1805	1.3108	-1.3433	1.4062
.33975	-1.6559	1.4122	-1.3654	1.2639	-1.4663	1.3107	-1.1874	1.3162	-1.3553	1.4132
.29950	-1.6315	1.3986	-1.3362	1.2488	-1.6510	1.4119	-1.1426	1.2918	-1.3165	1.3898
.25950	-1.6269	1.3967	-1.3490	1.2551	-1.7136	1.4688	-1.1353	1.2858	-1.3063	1.3821
.22000	-1.5957	1.3789	-1.3350	1.2480	-1.7212	1.4512	-1.1102	1.2697	-1.2753	1.3688
.17000	-1.6931	1.4385	-1.4297	1.2949	-1.8354	1.5222	-1.1573	1.2968	-1.3289	1.3978
.14000	-1.7131	1.4469	-1.4621	1.3164	-1.8563	1.5356	-1.1958	1.3165	-1.3486	1.4092
.09900	-1.6579	1.4155	-1.4008	1.2807	-1.8006	1.5017	-1.1264	1.2776	-1.2885	1.3726
.07975	-1.5717	1.3672	-1.2895	1.2279	-1.7198	1.4607	-1.0077	1.2147	-1.1920	1.3170
.06000	-1.4624	1.3104	-1.1849	1.1784	-1.6242	1.3973	-.8757	1.1485	-1.0622	1.2458
.03450	-1.8070	1.1862	-.9285	1.0664	-1.4391	1.2982	-.6397	1.0356	-.8467	1.1386
.02500	-1.0658	1.1228	-.7383	.9861	-1.3848	1.2700	-.4649	.9580	-.8676	1.0506
.01550	-.9958	1.0981	-.5728	.9232	-1.3924	1.2744	-.2957	.8844	-.5491	.9987
.00875	-.9851	1.0884	-.4760	.8855	-1.3035	1.2326	-.1685	.8309	-.4718	.9625
.00325	-.4648	.8804	-.0273	.7135	-.7270	.9821	.2404	.6565	-.0368	.7785
Lower surface										
.00000	.7906	.3563	.9924	.2232	.6332	.4375	1.0868	.1621	.9853	.2610
.00325	1.1218	.0520	1.1258	.0000	1.1193	.0601	1.1528	.0000	1.1531	.0000
.00416	1.1296	.0000	1.0753	.1397	1.1295	.0000	1.0517	.2009	1.1270	.1017
.00700	1.0546	.1640	.9008	.2909	1.1064	.0905	.8444	.3585	.9935	.2545
.01826	.8138	.3436	.6115	.4484	.9070	.2863	.5552	.5135	.7188	.4308
.04875	.5573	.4731	.3666	.5570	.6541	.4275	.3297	.6174	.4724	.5530
.09875	.3964	.5438	.2387	.6098	.4764	.5092	.2231	.6642	.3254	.6201
.15000	.2950	.5860	.1520	.6439	.3689	.5552	.1212	.7071	.2266	.6638
.20000	.2516	.6033	.1126	.6595	.3093	.5796	.0923	.7204	.1799	.6835
.24925	.1747	.6338	.0407	.6873	.2187	.6170	.0087	.7559	.0977	.7189
.34925	.1076	.6604	-.0004	.7034	.1393	.6482	.0236	.7697	.0314	.7474
.44925	.0983	.6643	.0086	.6997	.1128	.6580	.0098	.7636	.0203	.7513
.55000	.1595	.6395	.0968	.6657	.1581	.6405	.0863	.7226	.0937	.7209
.64500	.2508	.6031	.2065	.6218	.2357	.6097	.2045	.6724	.2013	.6742
.70000	.2983	.5842	.2583	.6012	.2777	.5931	.2575	.6503	.2402	.6569
.75005	.3120	.5783	.2887	.5892	.2817	.5909	.2879	.6374	.2735	.6425
.75250	.2999	.5836	.2763	.5941	.2646	.5982	.2800	.6401	.2586	.6486
.76700	.2834	.5900	.2576	.6015	.2454	.6057	.2593	.6491	.2451	.6551
.79000	.2788	.5919	.2517	.6039	.2410	.6075	.2589	.6493	.2412	.6568
.80250	.3764	.5519	.3498	.5638	.3466	.5645	.3549	.6069	.3411	.6123

Run/α^o	9617/4.08		9617/2.07		9618/6.03		2621/2.05		9621/4.07	
	Flap pressures									
X/C	CP	ML	CP	ML	CP	ML	CP	ML	CP	ML
Upper surface										
1.06220	.2092	.6200	.1995	.6248	-.0542	.7229	.1723	.6773	-.0628	.7871
1.03900	.0853	.6695	.0793	.6723	-.1042	.7427	.1035	.7169	-.1200	.8117
1.00050	-.0541	.7234	-.0715	.7307	-.1779	.7709	-.0052	.7684	-.4842	.8389
.96250	-.2594	.8013	-.9098	.8218	-.3192	.8245	-.1765	.6887	-.2596	.8751
.92300	-.6540	.9540	-.7970	1.0122	-.4828	.8867	-.4725	.9615	-.4452	.9309
.90350	-.8249	1.0220	1.3623	1.2418	-.5540	.9146	-.5915	1.0188	-.5559	.9999
.86200	-.5746	.9223	-.5927	.9205	-.7894	1.0088	-.9453	1.1826	-1.0239	1.2274
.84600	-.1570	.7683	-.1654	.7667	-.2685	.8051	-.2297	.8571	-.2254	.8584
.83000	-.1473	.7580	-.1790	.7717	-.2254	.7880	-.2021	.8450	-.2112	.8494
.82050	-.3574	.8382	-.4060	.8580	-.4220	.8636	-.4588	.9558	-.4873	.9691
.81600	.6743	.4175	-.6504	.4302	.6631	.4221	.6604	.4617	.6787	.4581
Lower surface										
.81850	.9733	.2383	.9727	.2396	.9636	.2459	1.0081	.2421	.9888	.2681
.82500	.6478	.4302	.6350	.4370	.6320	.4381	.6707	.4559	.6378	.4732
.84050	.6286	.4394	.6146	.4471	.6107	.4483	.6424	.4702	.6110	.4870
.87750	.3864	.4599	.5690	.4683	.5592	.4720	.5919	.4955	.5574	.5127
.91450	.5529	.4751	.5384	.4824	.5096	.4947	.5598	.5114	.5171	.5326
.96400	.5092	.4972	.4905	.5036	.4520	.5202	.5081	.5361	.4516	.5630
1.01400	.4099	.5379	.3361	.5488	.3174	.5763	.4110	.5810	.3174	.6235

Run	9606		9610		9612		9625[1)]		9625[1)]	
M_∞	0.499		0.600		0.649		0.702		0.702	
α^o	2.05		2.06		2.06		2.11		4.06	
X/C	CP	ML	CP	ML	CP	ML	CP	ML	CP	ML
Upper surface										
.82750	-.4448	.6095	-.4559	.7418	-.4536	.8045	-.8734	1.0407	-.8132	1.0168
.78150	-.5139	.6261	-.5264	.7626	-.5242	.8085	-.8867	1.0470	-.8247	1.0217
.75250	-.5719	.6391	-.5745	.7771	-.5613	.8411	-.9099	1.0666	-.8370	1.0269
.70000	-.5902	.6440	-.6019	.7860	-.6120	.8594	-.9391	1.0678	-.8648	1.0878
.66000	-.6693	.6621	-.7002	.8160	-.7247	.8974	-.9804	1.0853	-.8864	1.0468
.62000	-.6685	.6622	-.7124	.8201	-.7441	.9040	-1.1512	1.1504	-.8857	1.0467
.57950	-.6823	.6648	-.7220	.8218	-.7527	.9070	-1.6278	1.3966	-.9308	1.0657
.53950	-.6902	.6673	-.7306	.8258	-.7645	.9117	-1.6178	1.3890	-.9628	1.0789
.50000	-.6523	.6673	-.7321	.8252	-.7615	.9103	-1.5785	1.3688	-.9900	1.0899
.46000	-.6852	.6658	-.7228	.8232	-.7498	.9064	-1.5598	1.3577	-1.0573	1.1191
.42000	-.6925	.6683	-.7287	.8249	-.7517	.9067	-1.5704	1.3682	-1.1675	1.1688
.38000	-.7065	.6710	-.7448	.8293	-.7626	.9114	-1.5680	1.3622	-1.3443	1.2398
.33975	-.7416	.6788	-.7847	.8417	-.8066	.9258	-1.5719	1.3644	-1.4667	1.3104
.29950	-.7507	.6812	-.8114	.8502	-.8418	.9380	-1.5295	1.3431	-1.5644	1.3620
.25950	-.8295	.6986	-.8864	.8718	-.8983	.9579	-1.5207	1.3386	-1.6484	1.4088
.22000	-.8148	.6855	-.8657	.8659	-.8351	.9860	-1.4849	1.3194	-1.6147	1.3887
.17000	-.9329	.7225	-.9838	.9050	-.9882	.9904	-1.5550	1.3552	-1.6872	1.4304
.14000	-.9448	.7254	-.9825	.9010	-1.6418	1.2442	-1.3709	1.3654	-1.7007	1.4408
.09900	-1.2056	.7842	-1.3185	1.0077	-1.6195	1.2356	-1.5001	1.3274	-1.6373	1.4033
.07975	-1.2723	.7998	-1.5053	1.0689	-1.5206	1.1931	-1.3934	1.2726	-1.5366	1.3473
.06000	-1.3359	.8143	-1.5038	1.0682	-1.4205	1.1547	-1.2270	1.1949	-1.3855	1.2715
.03450	-1.3051	.8073	-1.3069	1.0040	-1.1630	1.0542	-1.0152	1.1010	-1.1606	1.1655
.02500	-1.2521	.7946	-1.1493	.9541	-.9837	.9883	-.7481	.9900	-.9155	1.0599
.01550	-1.1535	.7733	-.9946	.9065	-.8162	.9300	-.5685	.9192	-.7479	.9911
.00875	-1.1172	.7650	-.9201	.8828	-.7267	.8979	-.5408	.9085	-.7945	1.0096
.00325	-.6886	.6663	-.4483	.7402	-.2671	.7407	-.0944	.7378	-.3117	.8213
Lower surface										
.00000	.7247	.2713	.8335	.2754	.9056	.2582	.9830	.2303	.8859	.2998
.00307	1.0639	.0000	1.0993	.0000	1.1097	.0000	1.1292	.0000	1.1294	.0000
.00325	1.0628	.0154	1.0748	.0723	1.0774	.1015	1.0833	.1273	1.1153	.0708
.00700	.3519	.1542	.9454	.2062	.9323	.2402	.9119	.2884	.9947	.2208
.01825	.6616	.2964	.6454	.3662	.6373	.4013	.8071	.4496	.7079	.4007
.04875	.3925	.3883	.3857	.4683	.3812	.5085	.3459	.5644	.4352	.5273
.09875	.2509	.4303	.2515	.5163	.2475	.5597	.2154	.6172	.2753	.5940
.15000	.1577	.4567	.1613	.5473	.1541	.5940	.1010	.6621	.1534	.6431
.20000	.1263	.4652	.1209	.5608	.1170	.6068	.0531	.6808	.0943	.6654
.24925	.0520	.4857	.0371	.5879	.0391	.6346	.0355	.7169	.0015	.7015
.34925	.0087	.4956	.0080	.5979	.0012	.6489	-.0891	.7358	-.0857	.7349
.44925	.0139	.4952	.0123	.5966	.0041	.6469	-.0881	.7353	-.0988	.7401
.55000	.0848	.4766	.0842	.5729	.0840	.6187	-.0018	.7026	-.0371	.7163
.64500	.1762	.4516	.1889	.5379	.1957	.5785	.1110	.6585	.0756	.6729
.70000	.2202	.4389	.2108	.5300	.2027	.5757	.1514	.6429	.1071	.6605
.75008	.2153	.4405	.2233	.5262	.2275	.5667	.1768	.6324	.1469	.6446
.75250	.2022	.4447	.2081	.5315	.2121	.5723	.1715	.6350	.1324	.6508
.76700	.1714	.4528	.1863	.5390	.1993	.5773	.1473	.6440	.1093	.6594
.79000	.1750	.4518	.1933	.5366	.1921	.5799	.1406	.6466	.1031	.6618
.80230	.3142	.4124	.2947	.5016	.3042	.5379	.2564	.6011	.2104	.6199

Run/α^o	9606/2.05		9610/2.06		9612/2.06		9625[1)]/2.11		9625[1)]/4.06	
	Flap pressures									
X/C	CP	ML	CP	ML	CP	ML	CP	ML	CP	ML
Upper surface										
1.06220	.1615	.4555	.1858	.5389	.1978	.5776	-.0636	.7259	-.3184	.8242
1.03900	.0363	.4898	.0522	.5830	.0674	.6256	-.1316	.7524	-.3948	.8535
1.00050	-.1229	.5310	-.1132	.6359	-.0989	.6841	-.2063	.7809	-.4500	.8747
.96250	-.3591	.5893	-.3590	.7122	-.3524	.7703	-.3204	.8243	-.5155	.8997
.92300	-.7763	.6866	-.8327	.8563	-.8696	.9478	-.5940	.9057	-.6852	.9665
.90350	-.9222	.7208	-1.0354	.9191	-1.1349	1.0443	-.6728	.9601	-.7868	1.0068
.86200	-.6755	.6641	-.7124	.8195	-.7184	.8951	-1.2355	1.1980	-1.1463	1.1586
.84600	-.3337	.5826	-.3309	.7042	-.3225	.7598	-.3963	.8530	-.3881	.8503
.83000	-.3362	.5832	-.3392	.7069	-.3591	.7721	-.3331	.8287	-.3641	.8413
.82050	-.4301	.6179	-.5011	.7556	-.3374	.8932	-.6435	.9486	-.7090	.9755
.81600	-.5413	.3401	.5568	.4086	.5699	.4310	.5937	.4556	.6023	.4520
Lower surface										
.81850	.9311	.1681	.9633	.1933	.9852	.2005	.9669	.2428	.9431	.2609
.82500	.6042	.3178	.6358	.3704	.6573	.3917	.5954	.4550	.5467	.4779
.84050	.5699	.3301	.6007	.3855	.5837	.4092	.5676	.4681	.5188	.4904
.87750	.5207	.3467	.5473	.4075	.5302	.4334	.5080	.4948	.4537	.5190
.91450	.4908	.3567	.5143	.4206	.4978	.4478	.4618	.5152	.4074	.5387
.96400	.4425	.3728	.4667	.4386	.4413	.4681	.3957	.5434	.3302	.5711
1.01400	.3524	.4004	.3745	.4731	.3873	.5058	.2655	.5969	.1471	.6447

1) Solid test section walls. 2)See Table 5.7 for test conditions and aerodynamic coefficients

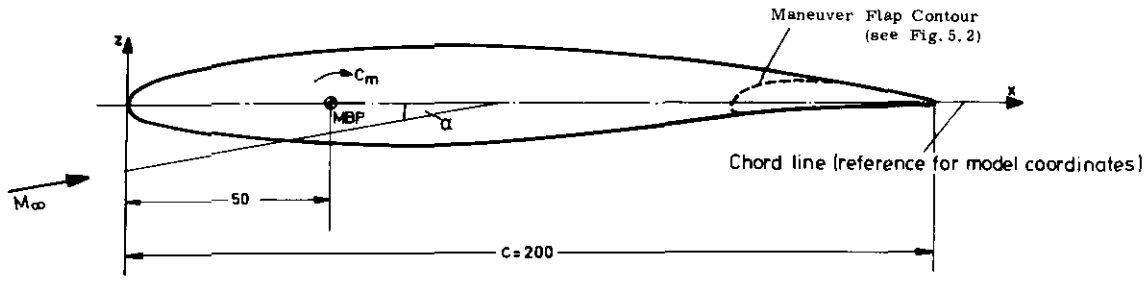
Table 5.9 Concluded

b. Top and bottom wall pressures

Run	9617	9617	9618	9621	9621	9606	9610	9612	9625[1]	9625[1]
M_∞	0.703	0.703	0.702	0.760	0.761	0.499	0.600	0.649	0.702	0.702
α^o	4.08	2.07	6.03	2.05	4.07	2.05	2.06	2.06	2.11	4.06
X (m)[2]	CP	CP	CP	CP	CP	CP	CP	CP	CP	CP
Top wall										
.73000	-.0720	-.0315	-.0909	-.0454	-.0635	-.0269	-.0177	-.0244	.0667	.0477
.63000	-.1090	-.0764	-.1870	-.0897	-.1078	-.0608	-.0615	-.0638	-.0306	-.0560
.58500	-.1172	-.0850	-.1470	-.0980	-.1181	-.0734	-.0693	-.0760	-.0351	-.0584
.54500	-.1301	-.0906	-.1468	-.1025	-.1204	-.0826	-.0747	-.0781	-.0542	-.0792
.45500	-.1366	-.0971	-.1594	-.1140	-.1330	-.0801	-.0828	-.0896	-.0901	-.1095
.40500	-.1369	-.0933	-.1620	-.1097	-.1303	-.9818	-.0806	-.0862	-.1061	-.1293
.29000	-.1416	-.1025	-.1697	-.1166	-.1385	-.0878	-.0835	-.0893	-.1528	-.1778
.25000	-.1473	-.1089	-.1710	-.1247	-.1442	-.0888	-.0915	-.0933	-.1902	-.2186
.20000	-.1558	-.1157	-.1792	-.1336	-.1563	-.0948	-.0969	-.1023	-.2419	-.2676
.15000	-.1466	-.1113	-.1717	-.1300	-.1507	-.0914	-.0922	-.1001	-.2936	-.3159
.13000	-.1453	-.1095	-.1738	-.1313	-.1517	-.0919	-.0931	-.0968	-.3202	-.3437
.11000	-.1496	-.1122	-.1701	-.1353	-.1552	-.0870	-.0904	-.0969	-.3534	-.3737
.09000	-.1584	-.1186	-.1815	-.1461	-.1727	-.0941	-.0984	-.1036	-.3892	-.4097
.07000	-.1623	-.1201	-.1855	-.1508	-.1763	-.0936	-.0996	-.1028	-.4123	-.4253
.05000	-.1660	-.1194	-.1877	-.1537	-.1831	-.0890	-.0945	-.0989	-.4493	-.4608
.03000	-.1732	-.1219	-.1997	-.1574	-.1886	-.0912	-.0986	-.1030	-.4881	-.4904
.01000	-.1648	-.1166	-.1850	-.1453	-.1747	-.0799	-.0882	-.0965	-.4936	-.5093
-.01000	-.1648	-.1144	-.1816	-.1425	-.1683	-.0817	-.0880	-.0950	-.5026	-.5065
-.03000	-.1620	-.1118	-.1805	-.1852	-.1586	-.0840	-.0869	-.0940	-.4779	-.4794
-.05000	-.1515	-.1050	-.1722	-.1218	-.1428	-.0761	-.0818	-.0881	-.4471	-.4428
-.07000	-.1440	-.1007	-.1628	-.1077	-.1269	-.0758	-.0796	-.0869	-.4114	-.4117
-.09000	-.1335	-.0948	-.1475	-.0960	-.1089	-.0722	-.0780	-.0811	-.3690	-.3696
-.11000	-.1076	-.0760	-.1217	-.0708	-.0799	-.0691	-.0637	-.688	-.3173	-.3183
-.13000	-.0914	-.0659	-.1038	-.0582	-.0596	-.0560	-.0566	-.0597	-.2822	-.2793
-.15000	-.0447	-.0574	-.0896	-.0419	-.0457	-.0548	-.0544	-.0557	-.2531	-.2581
-.20000	-.0451	-.0323	-.0449	-.0057	-.0051	-.0488	-.0362	-.0342	-.1865	-.1814
-.25000	-.0184	-.0071	-.0075	.0219	.0281	-.0242	-.0180	-.0145	-.1349	-.1300
-.29000	.0089	-.0082	.0140	.394	.0457	-.0179	-.0086	-.0012	-.1105	-.1027
-.34000	.0236	.0208	.0272	.462	.0548	-.0081	.0013	.0083	-.0664	-.0649
-.44000	.0249	.0168	.0325	.0419	.0489	-.0066	.0025	.0070	-.0470	-.0427
-.54000	.0331	.0229	.0395	.0430	.0497	.0025	.0073	.0133	-.0216	-.0202
-.64000	.0338	.0818	.0447	.0463	.0532	.0074	.0184	.0234	-.0030	-.0023
-.83000	.0191	.0128	.0204	.0212	.0255	.0021	.0084	.0085	.0015	.0054
-1.2300	.0169	.0165	.0172	.0205	.0200	.0148	.0170	.0179	.0121	.0109
Bottom wall										
-1.79000	.0327	.0329	.0369	.0415	.0422	.0294	.0330	.0338	.0160	.0134
-1.49000	.0197	.0189	.0194	.0211	.0220	.0143	.0137	.0129	.0089	.0120
-1.14000	.0112	.0124	.0121	.0143	.0132	.0098	.0116	.0133	.0060	.0042
-.64000	.0546	.0389	.0611	.0533	.0618	.0235	.0267	.0306	.0211	.0192
-.54000	.0741	.0564	.0845	.0742	.0837	.0316	.0437	.0470	.0314	.0338
-.49000	.0790	.0600	.0884	.0751	.0869	.0336	.0425	.0497	.0321	.0303
-.39000	.1071	.0810	.1148	.0968	.1130	.0489	.0622	.0672	.0477	.0366
-.34000	.1222	.0945	.1355	.1139	.1326	.0575	.0756	.0845	.0618	.0609
-.25000	.1466	.1147	.1617	.1336	.1528	.0809	.0926	.1019	.0745	.0750
-.20000	.1640	.1299	.1788	.1463	.1654	.0891	.1070	.1161	.0836	.0727
-.15000	.1825	.1427	.1546	.1611	.1804	.1099	.1234	.1291	.0952	.0865
-.13000	.1686	.1280	.1714	.1469	.1640	.0905	.1065	.1145	.0789	.0697
-.11000	.1810	.1431	.1907	.1583	.1781	.1038	.1189	.1277	.0873	.0769
-.09000	.1882	.1480	.1964	.1669	.1838	.1109	.1218	.1343	.0899	.0793
-.07000	.1840	.1439	.1866	.1598	.1771	.1025	.1216	.1327	.0871	.0679
-.05000	.2044	.1705	.2129	.1852	.1988	.1274	.1433	.1557	.1091	.0891
-.03000	.1861	.1457	.1948	.1623	.1780	.1084	.1251	.1380	.0839	.0594
-.01000	.1895	.1499	.1963	.1680	.1788	.1144	.1294	.1386	.0862	.0582
.01000	.1846	.1501	.1867	.1657	.1746	.1118	.1290	.1370	.0813	.0582
.03000	.1810	.1484	.1834	.1618	.1698	.1072	.1267	.1387	.0802	.0526
.05000	.1881	.1536	.1853	.1695	.1767	.1154	.1306	.1421	.0844	.0551
.07000	.1673	.1342	.1642	.1519	.1531	.1021	.1147	.1252	.0651	.0342
.09000	.1745	.1439	.1664	.1586	.1629	.1092	.1253	.1374	.0660	.0360
.11000	.1854	.1373	.1512	.1487	.1510	.1007	.1159	.1256	.0605	.0250
.13000	.1631	.1343	.1533	.1473	.1485	.1020	.1162	.1240	.0603	.0274
.15000	.1614	.1337	.1539	.1469	.1458	.1002	.1208	.1267	.0587	.0269
.20000	.1395	.1195	.1284	.1322	.1262	.0943	.1064	.1143	.0448	.0096
.25000	.1164	.1039	.1009	.1125	.1013	.0828	.0878	.0962	.0308	.0018
.35000	.0719	.0691	.0593	.0773	.0624	.0547	.0615	.0645	.0077	-.0251
.39000	.0503	.0515	.0351	.0572	.0427	.0451	.0487	.0508	-.0057	-.0370
.49000	.0201	.0238	.0022	.0202	.0149	.0283	.0302	.0338	-.0174	-.0402
.57000	-.0183	-.0096	-.0421	-.0189	-.0280	.0038	.0023	-.0009	-.0320	-.0563
.62000	.0070	.0132	-.0175	.0056	-.0037	.0286	.0253	.0212	.0014	-.0246
.72000	.1289	.1379	.1127	.1392	.1392	.1261	.1319	.1346	.1063	.0902

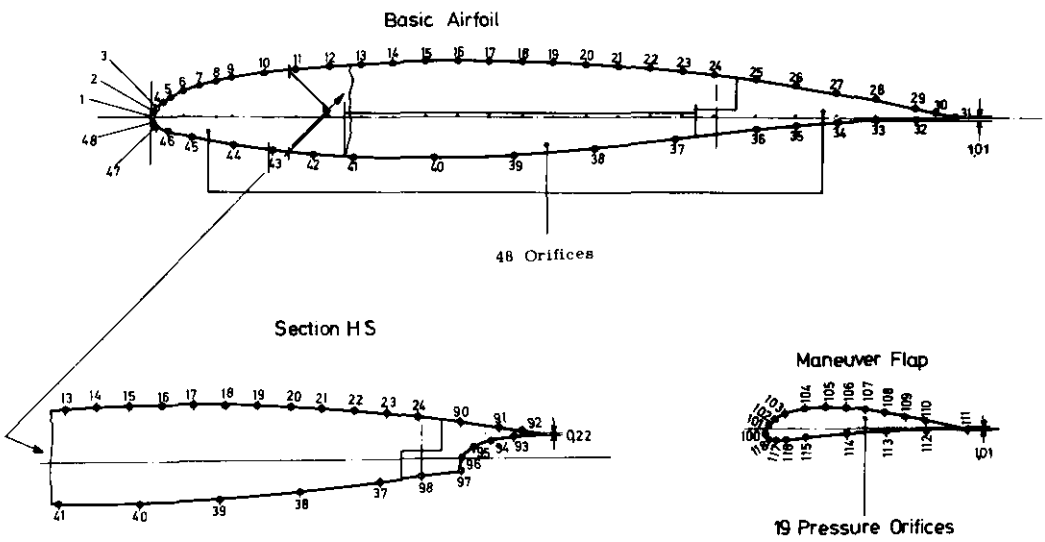
1) Solid test section walls

2) The leading edge of the model is located 0.107 m upstream of x = 0 for the wall pressure orifices

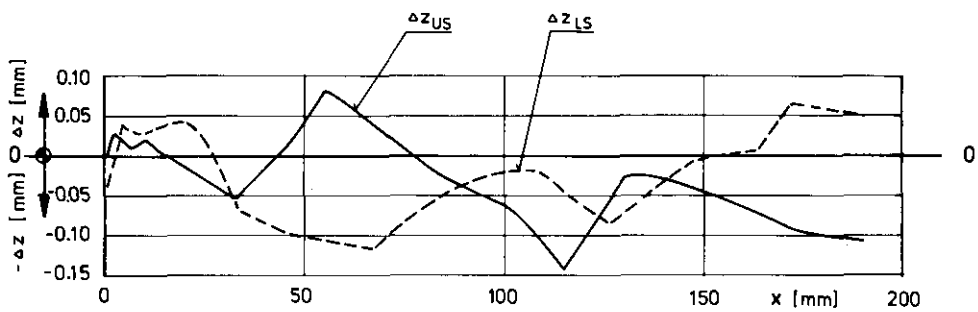


Geometric data: Chord c = 200 mm Max. t/c = 12.07 % at 36 % c Trailing edge thickness t_{TE}/c = 0.5 % Maneuver flap chord c_K = 50 mm
All dimensions given are in millimeters

a. Airfoil contour (also see Table 5.1)

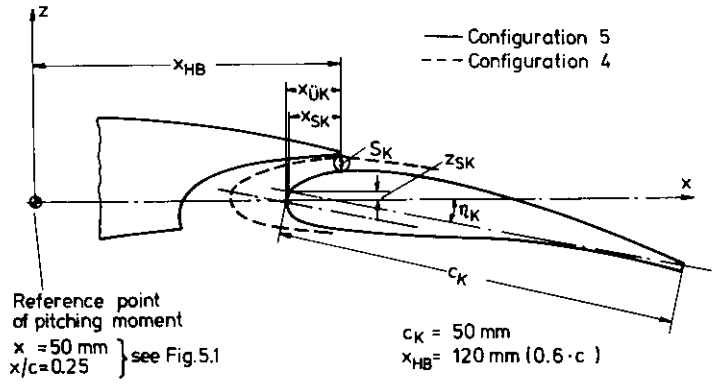


b. Location of pressure orifices (also see Table 5.3)



c. Measured errors of manufactured airfoil (also see Table 5.2)

Figure 5.1 Airfoil SKF 1.1 - Contour and location of pressure orifices



Configuration	η_K °	s_K	$x_{ÜK}$	x_{SK}	z_{SK}
		% c	% c	mm	mm
1	2	0.05	9.05	- 17.90	0.40
2	5	0.05	8.33	- 15.70	1.10
3	5	1.65	4.00	- 7.00	- 1.60
4	10	0.05	6.93	- 13.60	2.00
5	10	1.55	3.48	- 6.70	0.70
6	15	1.55	3.45	- 6.40	0.00

Only data for these configurations are included. At ONERA only Configuration 5 in addition to the basic airfoil was tested.

Figure 5.2 Flap configurations investigated

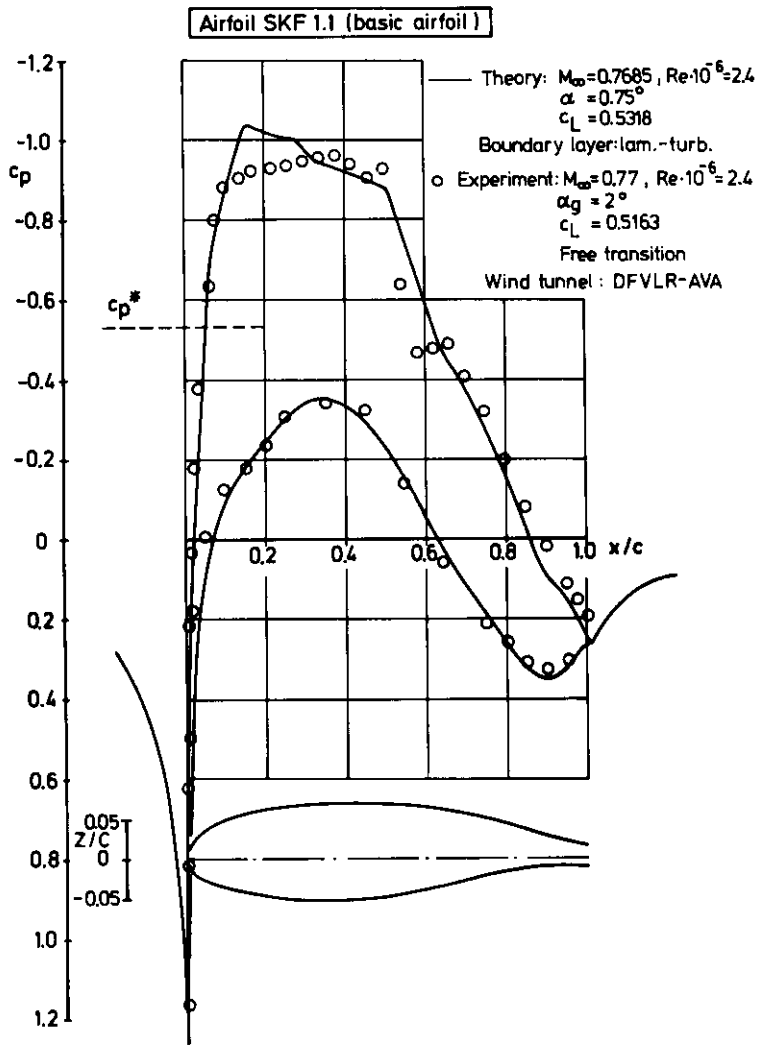
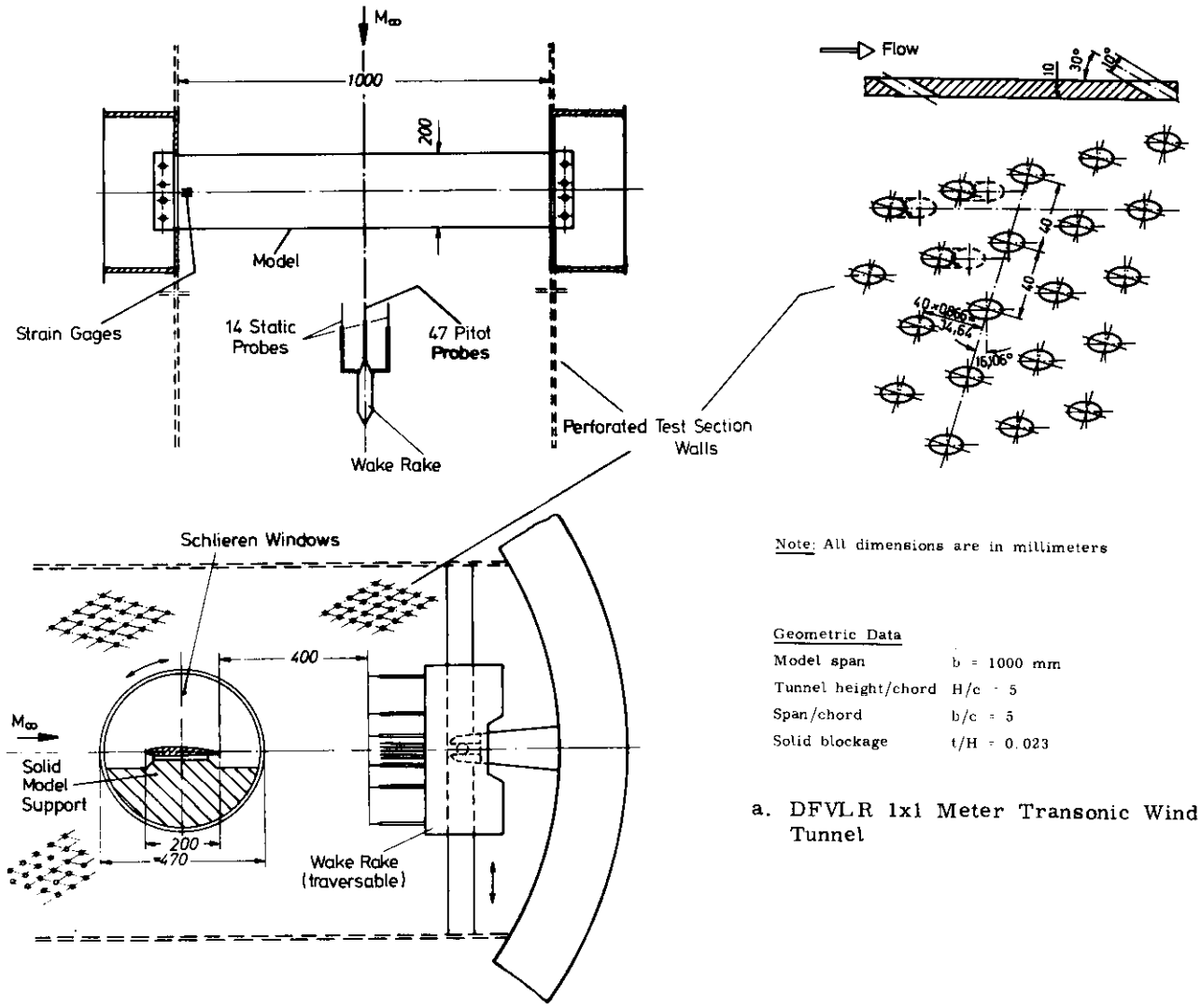


Figure 5.3 Design pressure distribution

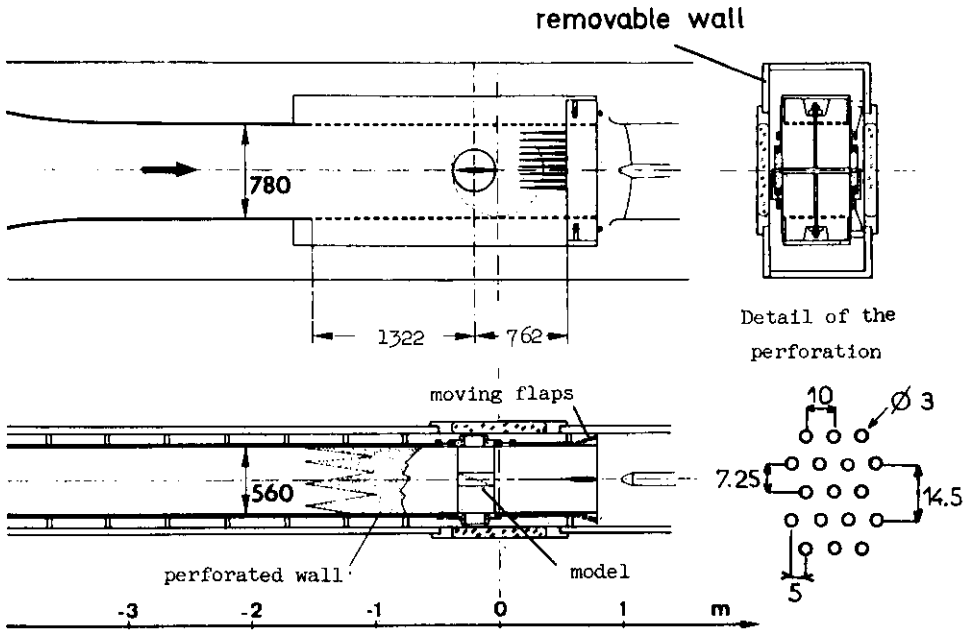


Note: All dimensions are in millimeters

Geometric Data

Model span	b = 1000 mm
Tunnel height/chord	H/c = 5
Span/chord	b/c = 5
Solid blockage	t/H = 0.023

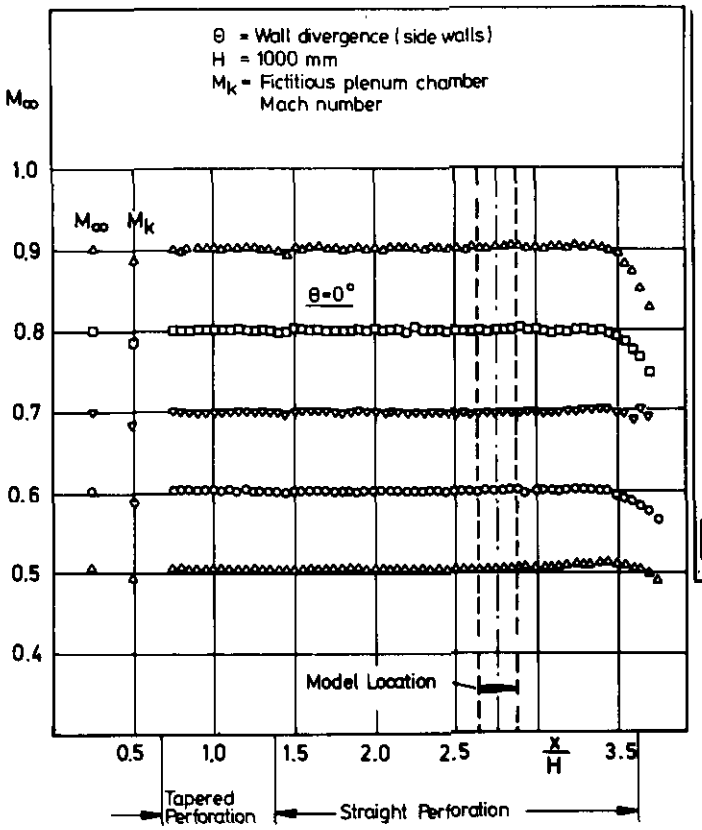
a. DFVLR 1x1 Meter Transonic Wind Tunnel



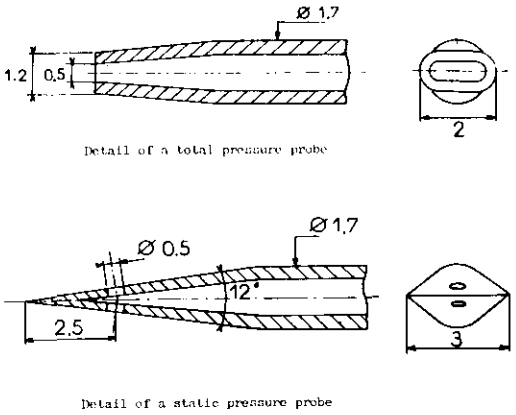
MODEL INSTALLATION IN THE S3MA TRANSONIC WIND TUNNEL

b. ONERA S3MA

Figure 5.4 Test set-up

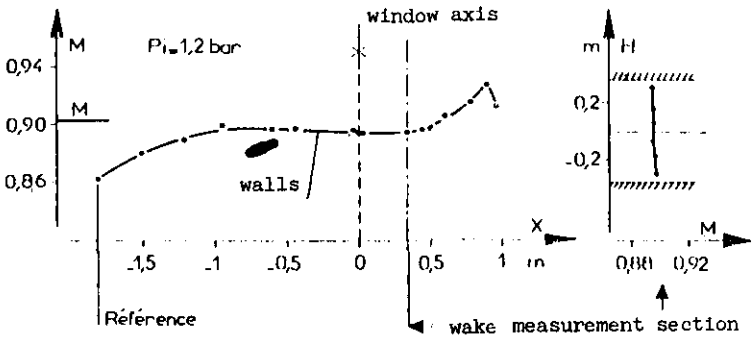


a. DFVLR 1x1 Meter Transonic Tunnel



c. Details of the wake probes(ONERA)

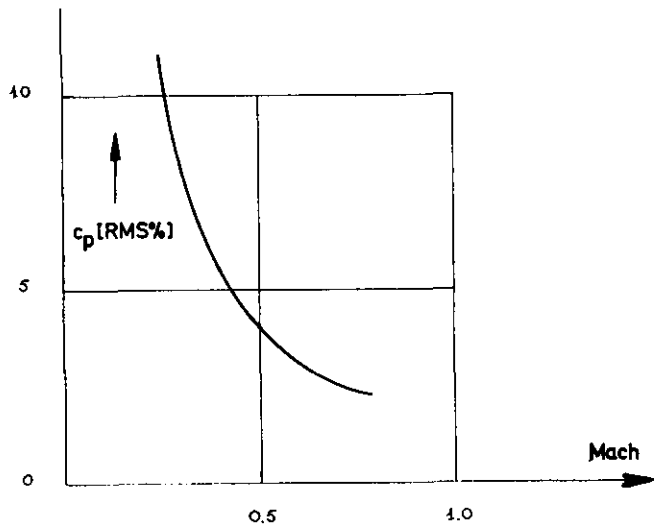
Figure 5.4 Concluded



b. ONERA S3MA

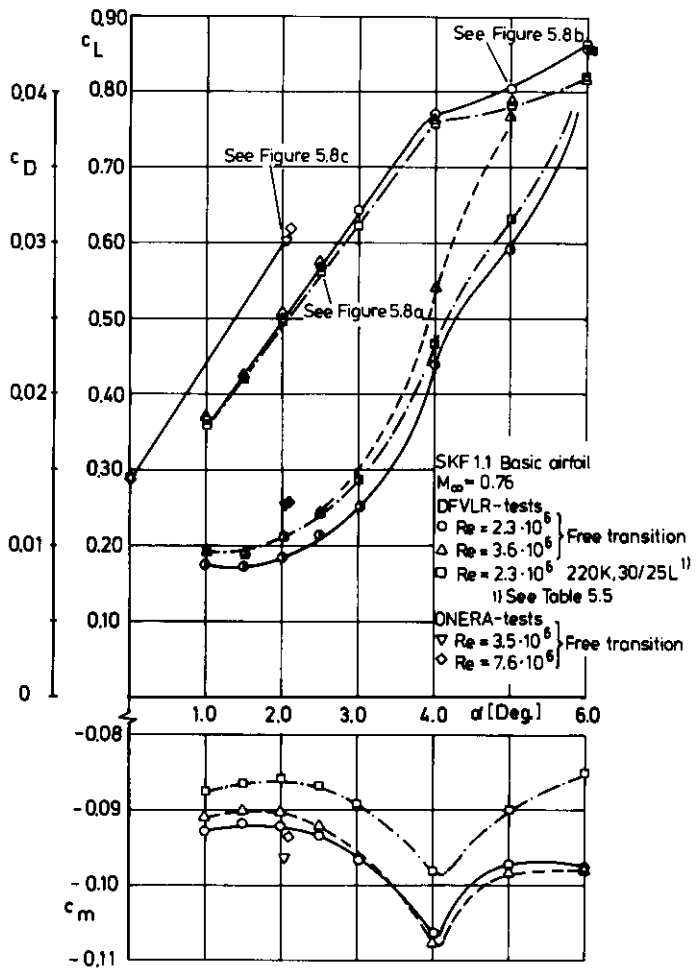
Mach number distribution (empty test section)

Figure 5.5 Empty test section Mach number distribution



Microphone mounted on the top wall one chord upstream of the model leading edge

Figure 5.6 Noise level (ONERA S3MA)



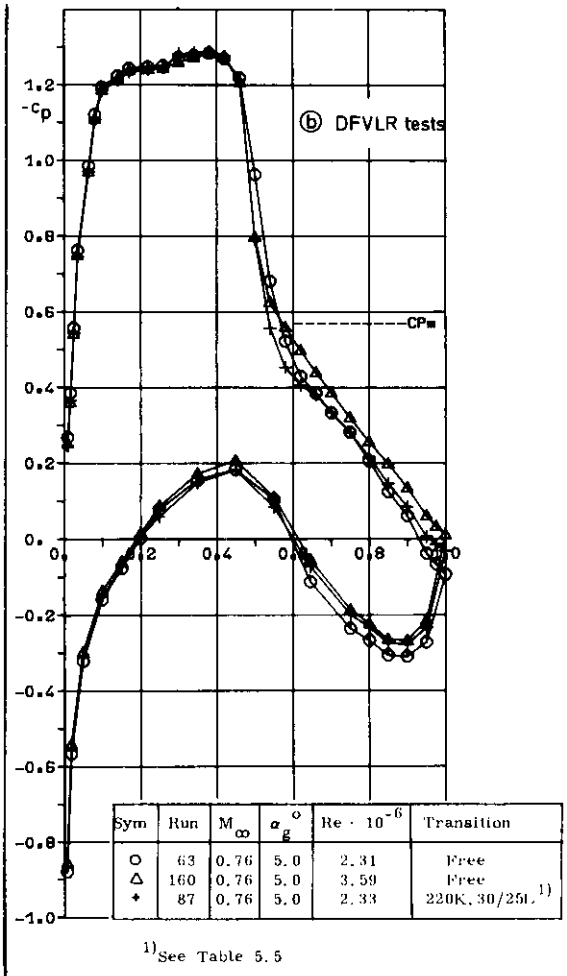
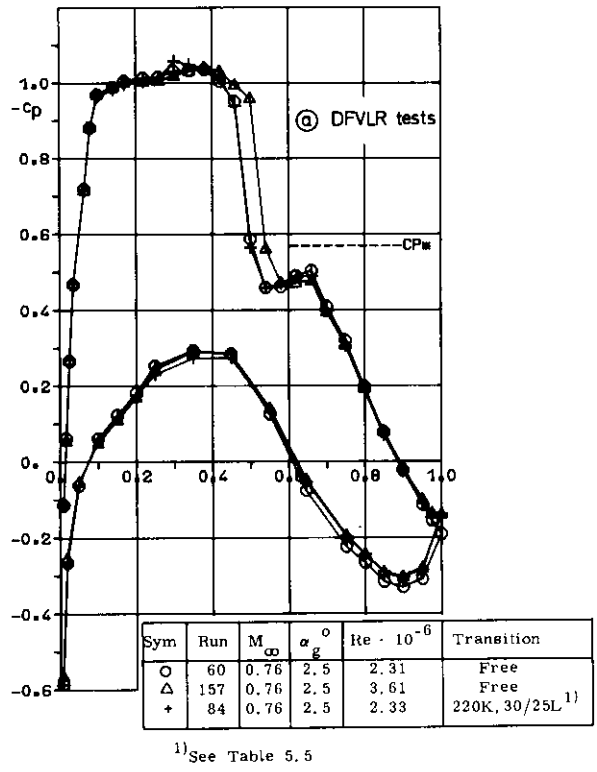


Figure 5.7 Effect of Reynolds number and transition fixing - Aerodynamic coefficients



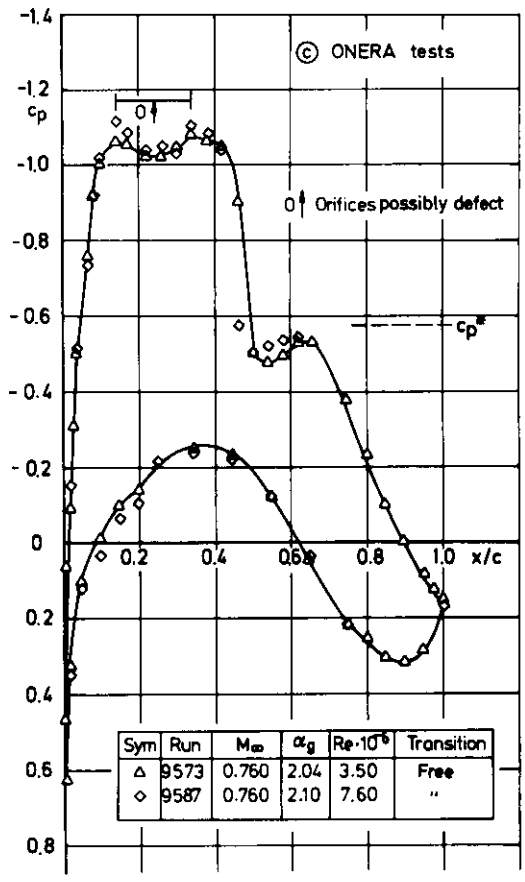


Figure 5.8 Effect of Reynolds number and transition fixing - Pressure distributions

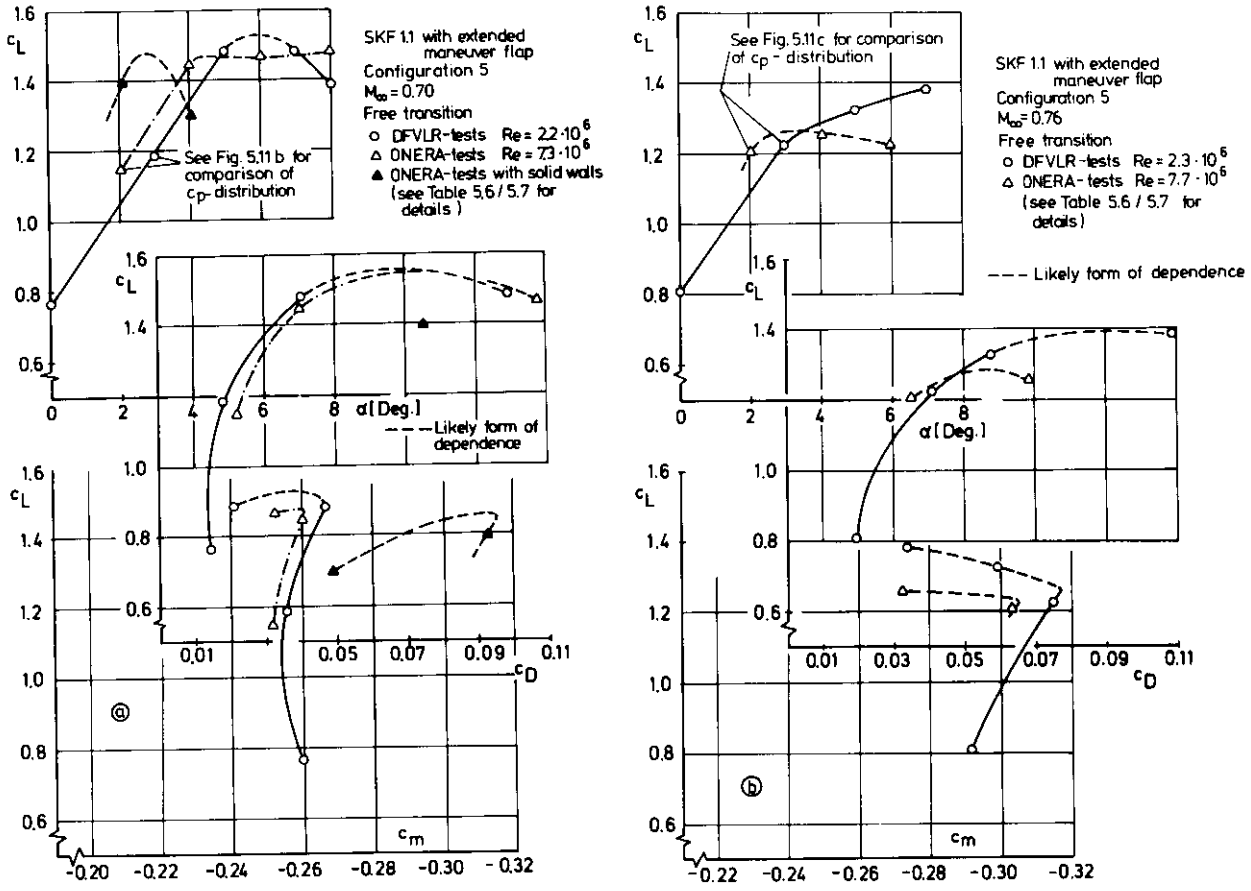


Figure 5.9 Aerodynamic coefficients - Angle of attack variation

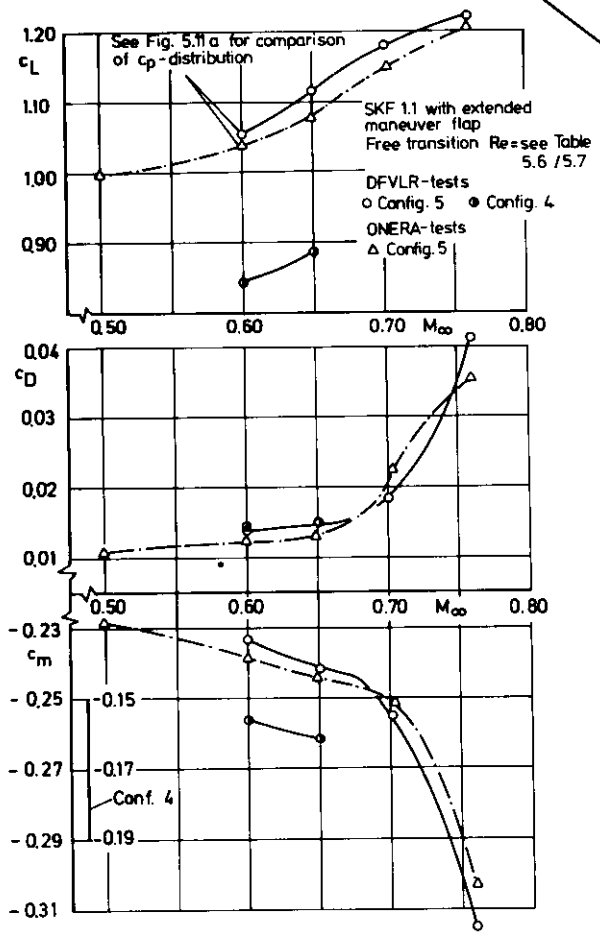
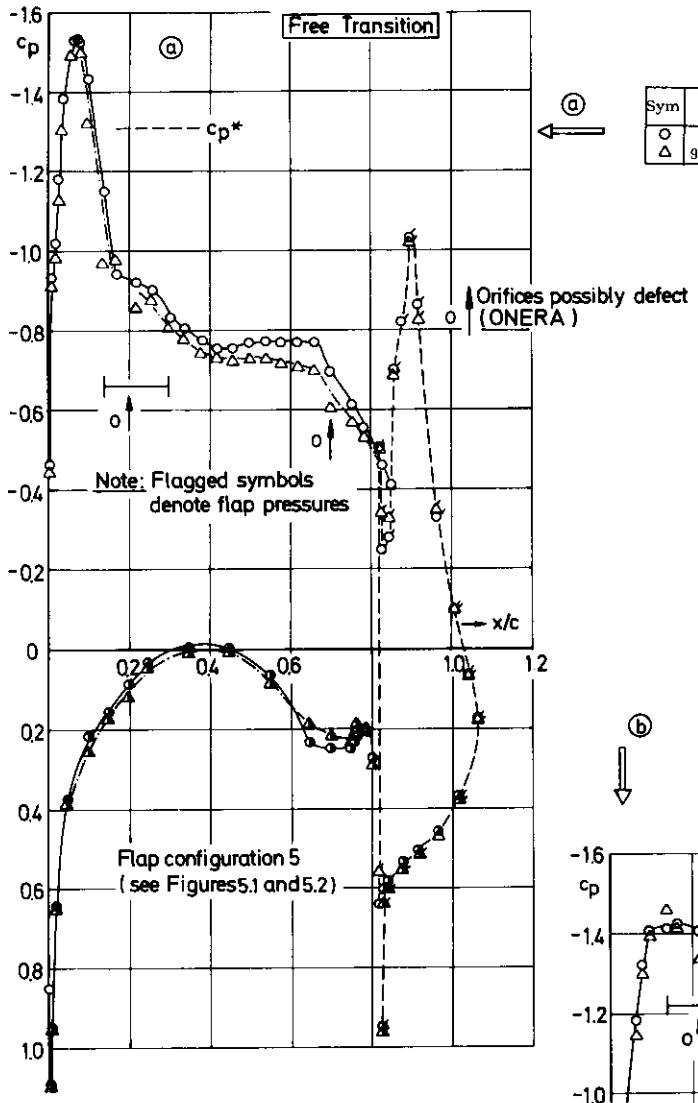


Figure 5.10 Aerodynamic coefficients - Mach number variation



Sym	Run	M_∞	α_g °	Re · 10^{-6}	c_L	Tunnel
○	223	0.60	3.0	2.01	1.054	DFVLR 1x1 M
△	9610	0.60	2.06	6.61	1.038	ONERA S3 MA

Sym	Run	M_∞	α_g °	Re · 10^{-6}	c_L	Tunnel
○	235	0.701	3.0	2.22	1.181	DFVLR 1x1 M
△	2619[1]	0.700	2.07	7.30	1.148	ONERA S3MA

[1] Also see data for Run 9617, α_g = 2.07°
Run 2619 is not included in tabulated form.

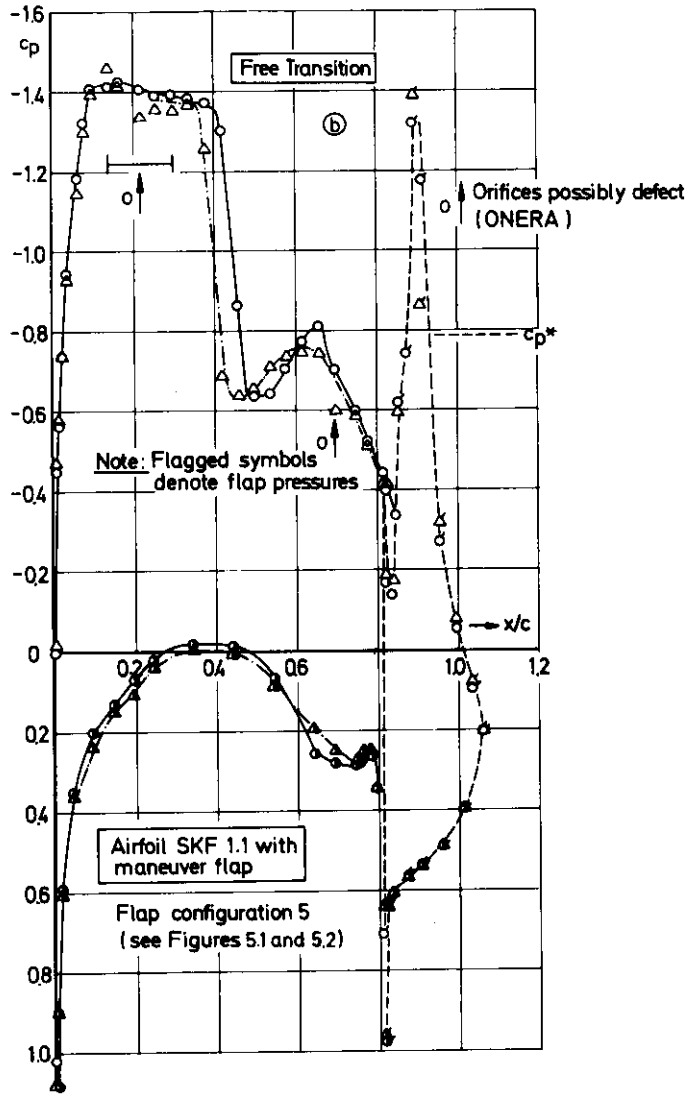
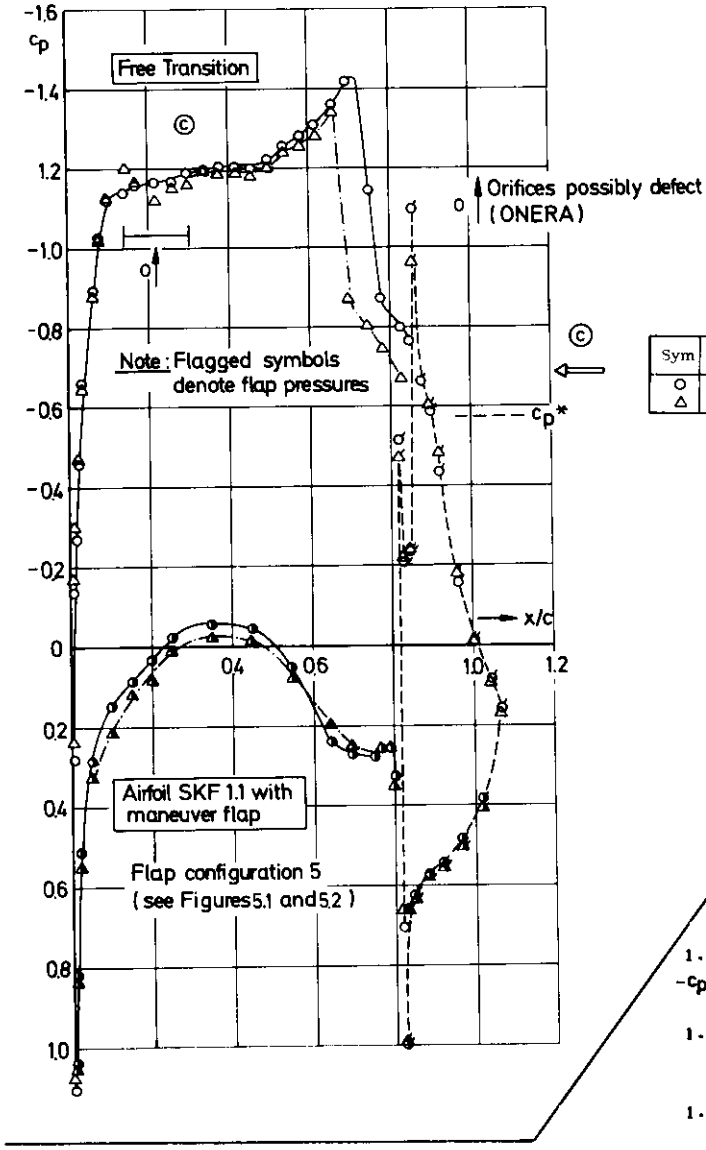
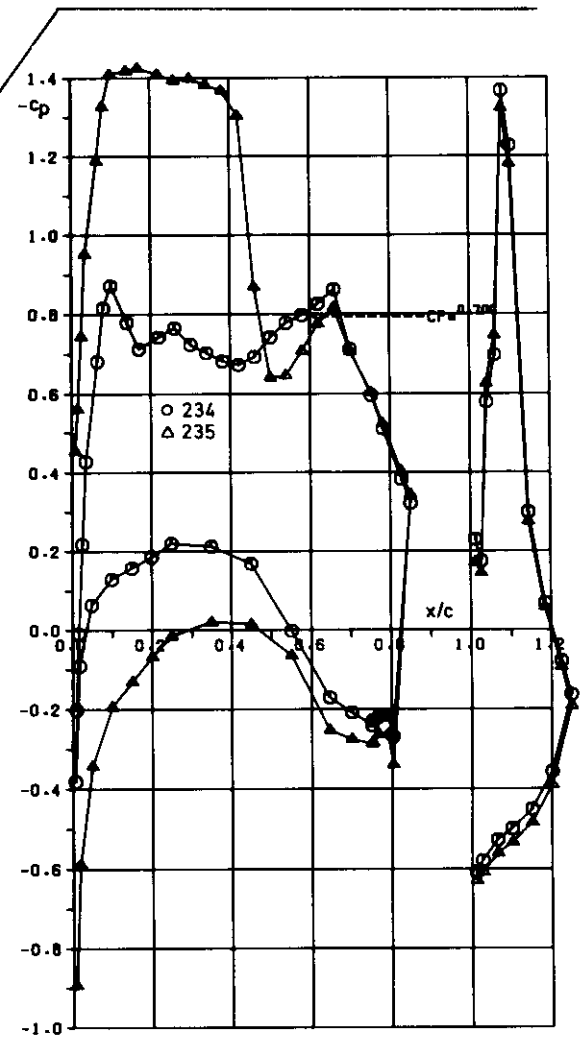


Figure 5.11 Comparison of pressure distributions from ONERA and DFVLR tests



Sym	Run	M_∞	α_g °	Re · 10^{-6}	c_L	Tunnel
○	241	0.76	3.0	2.31	1.223	DFVLR 1x1 M
△	9621	0.76	2.05	7.73	1.206	ONERA S3 MA

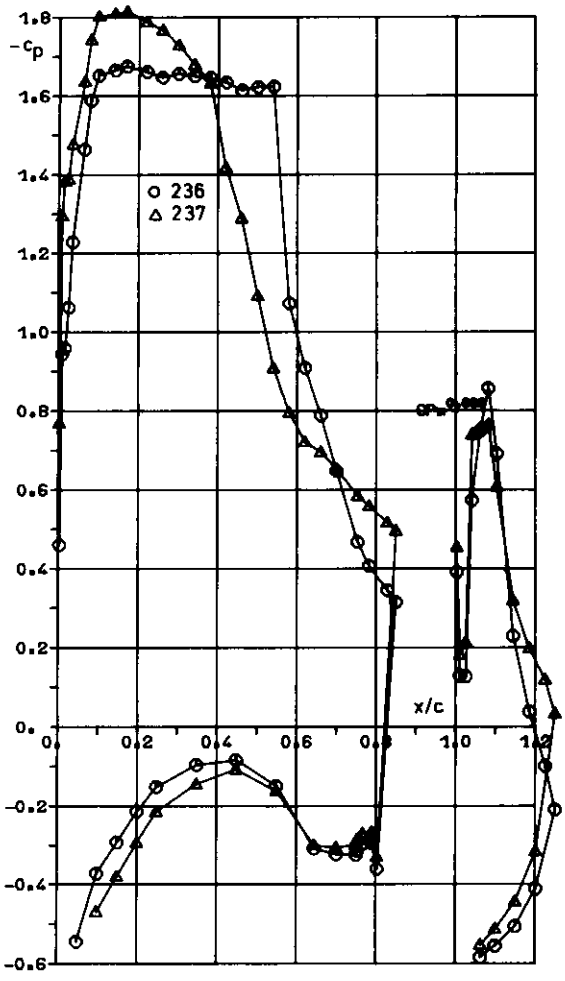
Figure 5.11 Concluded



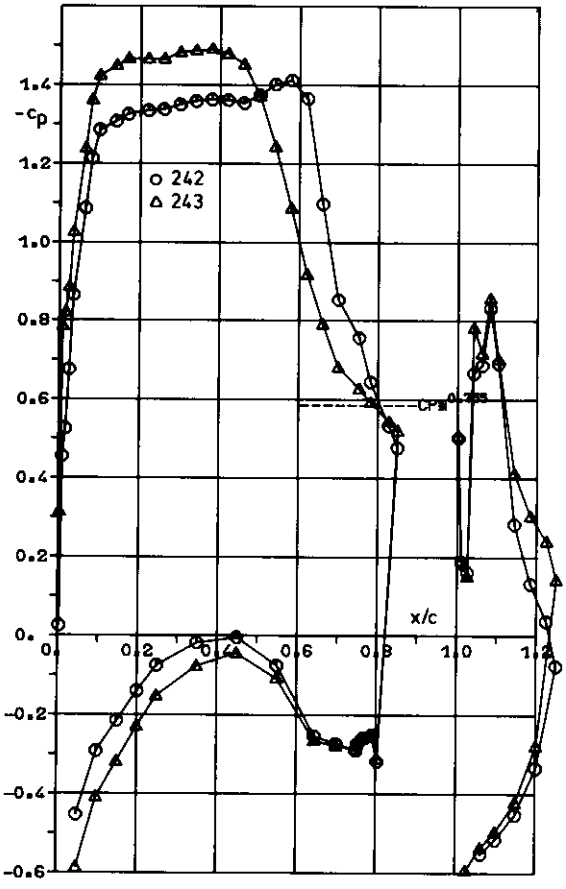
Sym	Run	Conf.	M_∞	α_g °
○	234	5	0.70	0.0
△	235	5	0.701	3.0

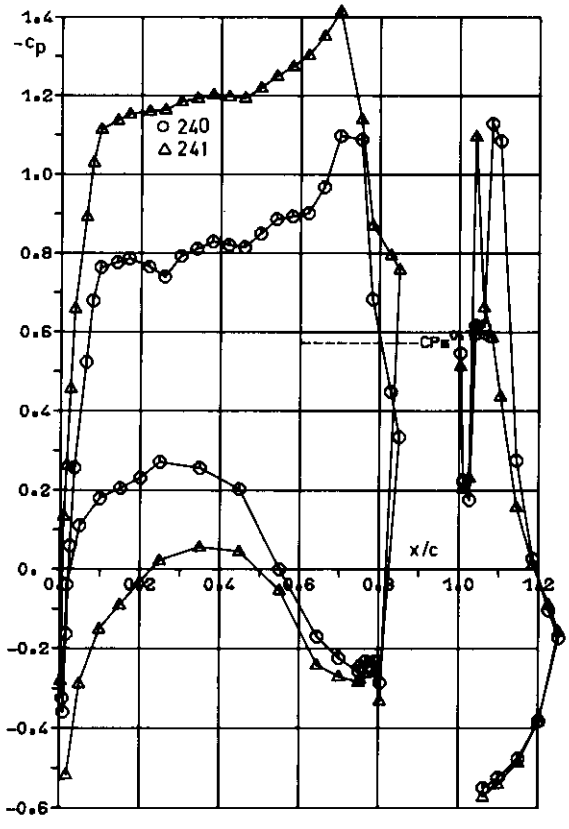
Note: See Table 5.6 for test conditions and aerodynamic coefficients

Figure 5.12 DFVLR 1x1 Meter tests. Pressure distributions



Sym	Run	Conf.	M_∞	α_g^o
O	236	5	0.70	5.0
Δ	237	5	0.70	7.0

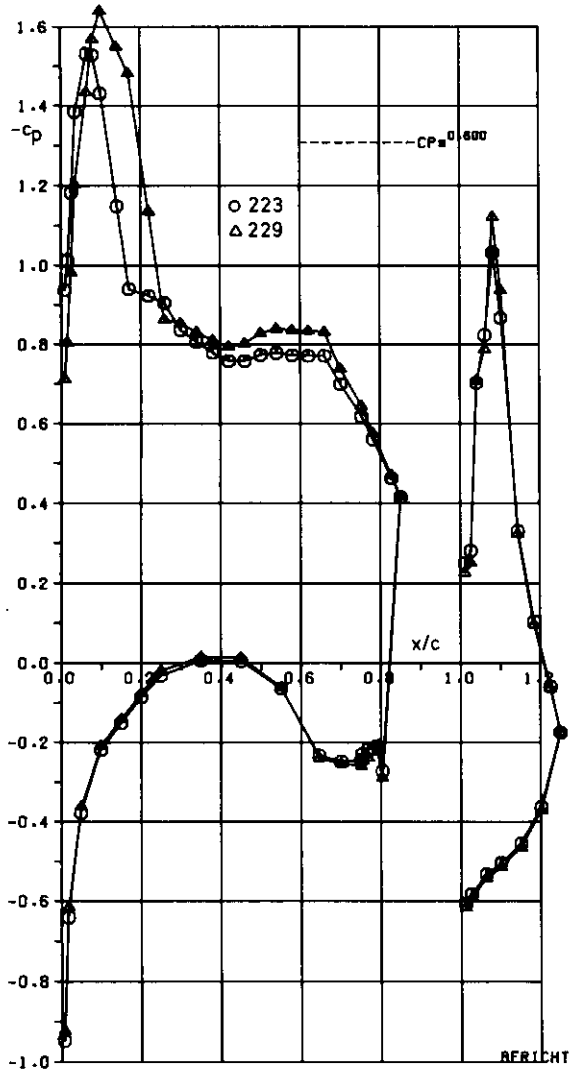




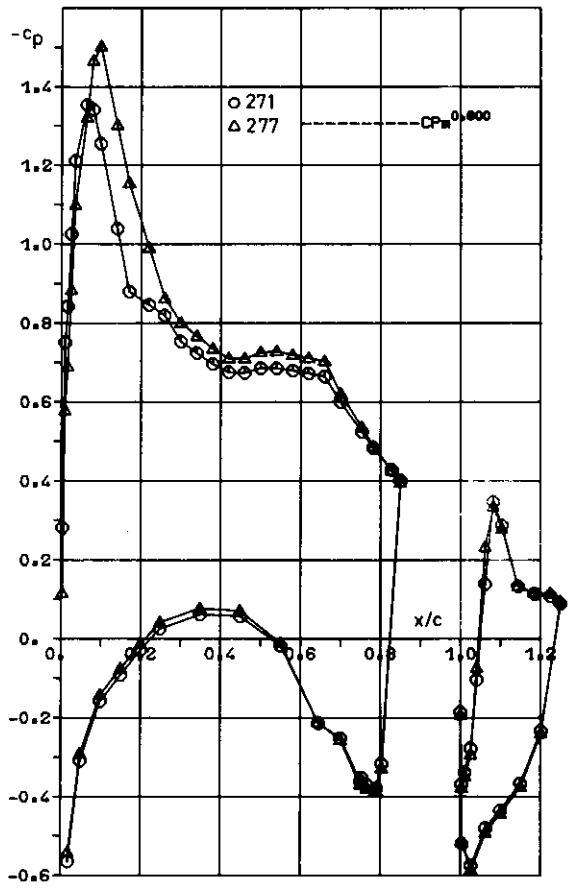
Sym	Run	Conf.	M_∞	α_g^o
O	240	5	0.76	0.0
Δ	241		0.76	3.0
O	242		0.759	5.0
Δ	243	5	0.761	7.0

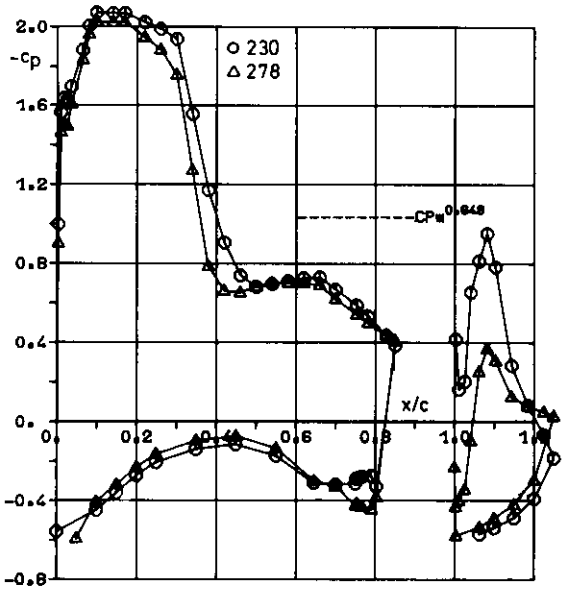
Note: See Table 5.6 for test conditions and aerodynamic coefficients

Figure 5.12 Continued



Sym	Run	Conf.	M_∞	α_g °
○	223	5	0.60	3.0
△	229	5	0.65	3.0

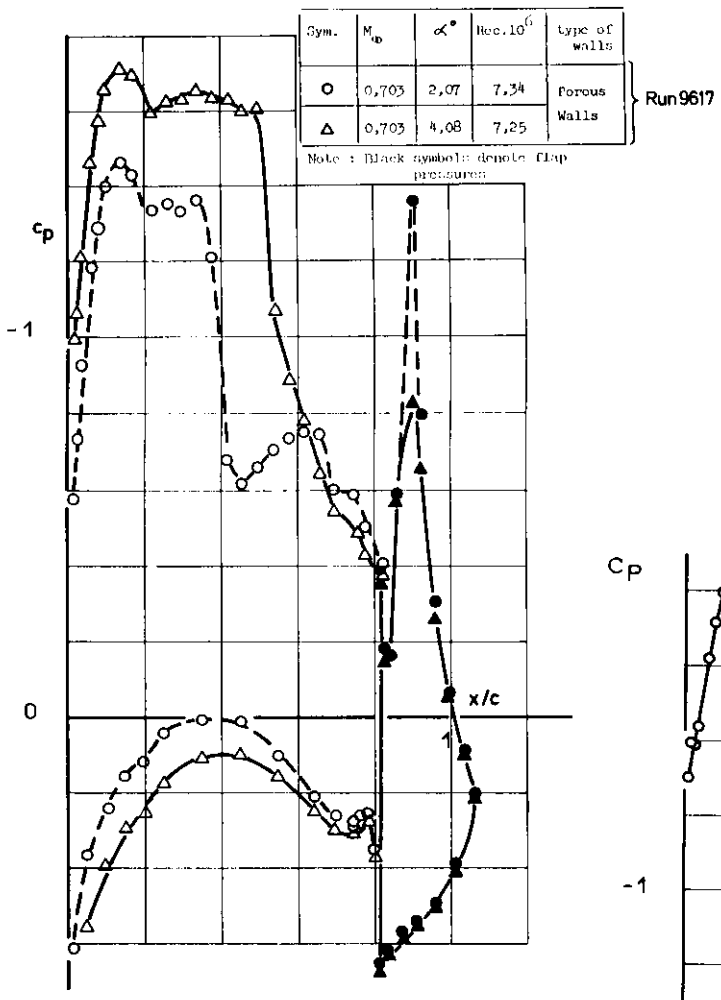




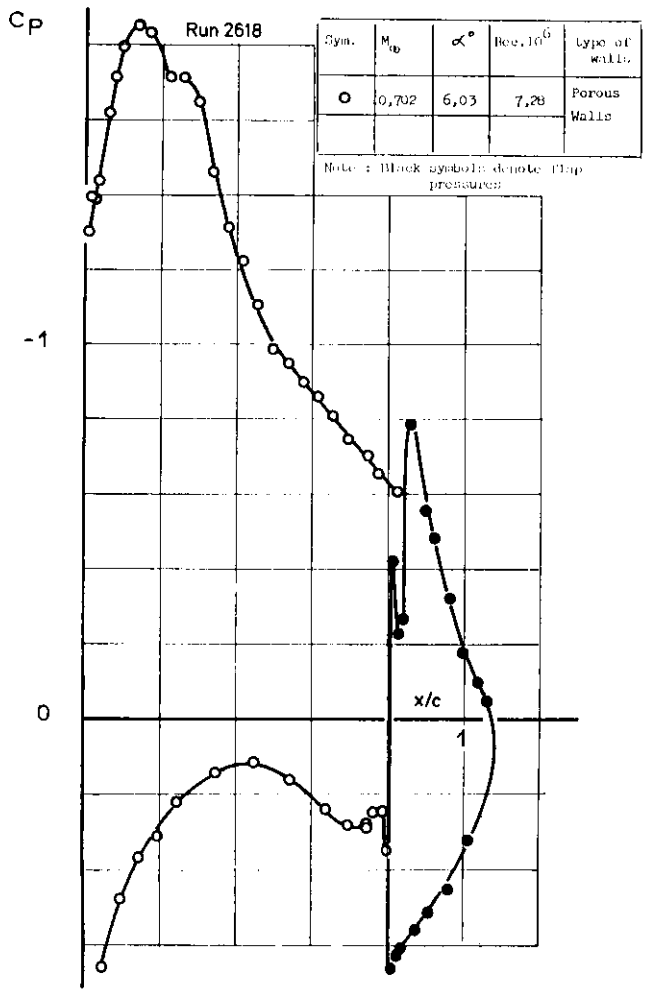
Sym	Run	Conf.	M_∞	α_g °
○	271	4	0.60	3.0
△	277	4	0.65	3.0
○	230	5	0.65	6.0
△	278	4	0.65	6.0

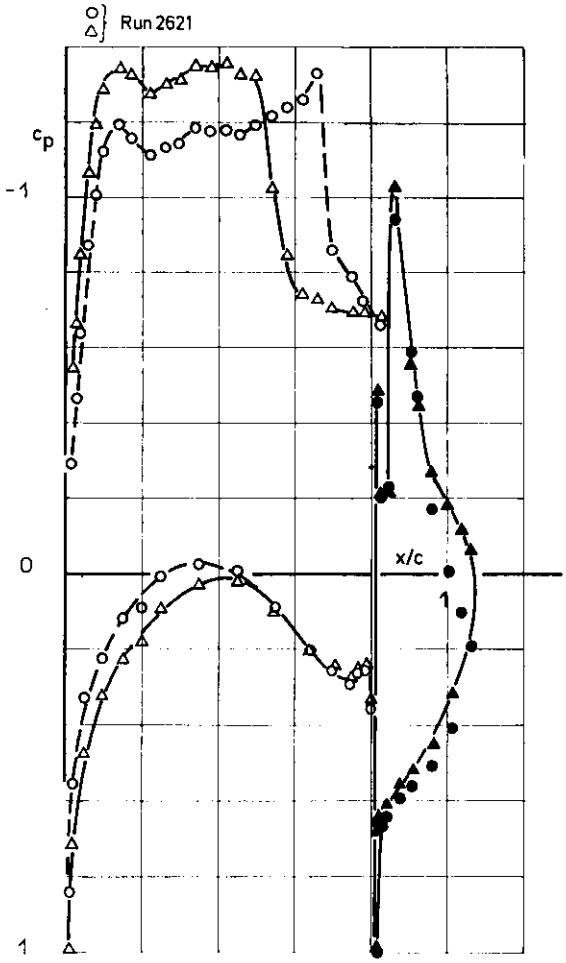
Note: See Table 5.6 for test conditions and aerodynamic coefficients

Figure 5.12 Concluded



Note:
See Table 5.7 for aerodynamic coefficients

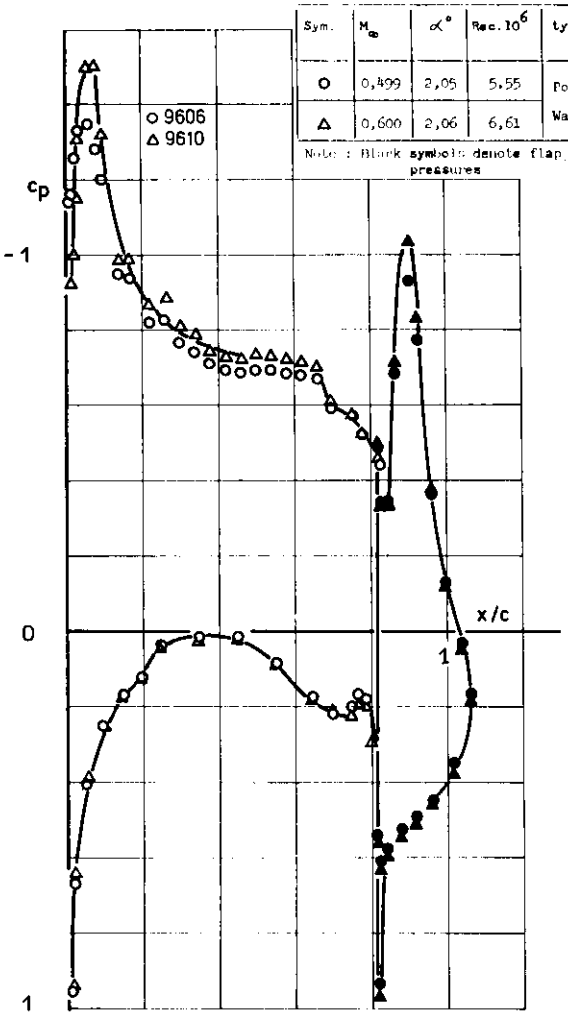




Sym.	M_∞	$\alpha°$	Rec.10^6	type of walls
O	0,760	2,05	7,73	Porous Walls
Δ	0,760	4,07	7,73	

Note : Black symbols denote flap pressures

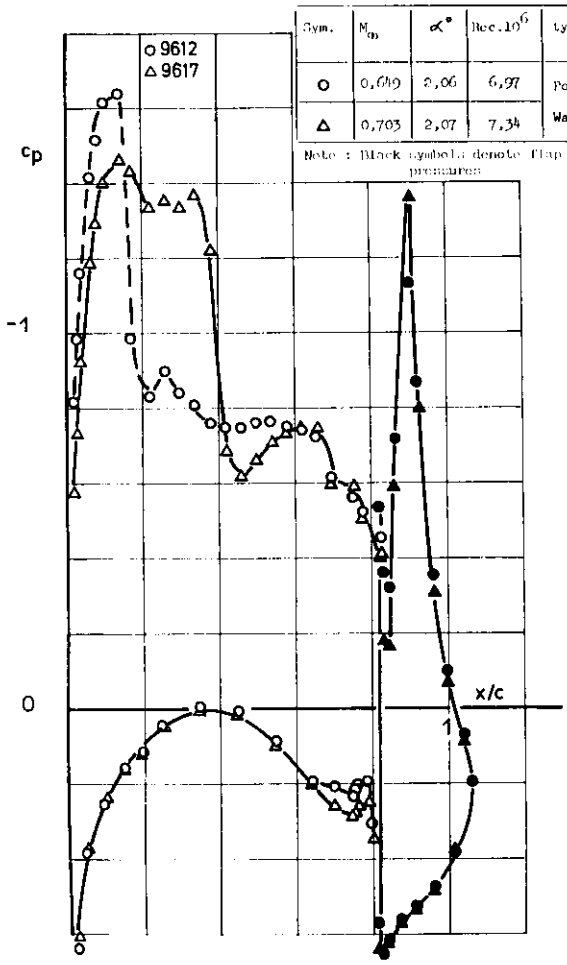
Figure 5.13 ONERA S3MA tests. Pressure distributions



Sym.	M_∞	$\alpha°$	Rec.10^6	type of walls
o	0,499	2,05	5,55	Porous
Δ	0,600	2,06	6,61	Walls

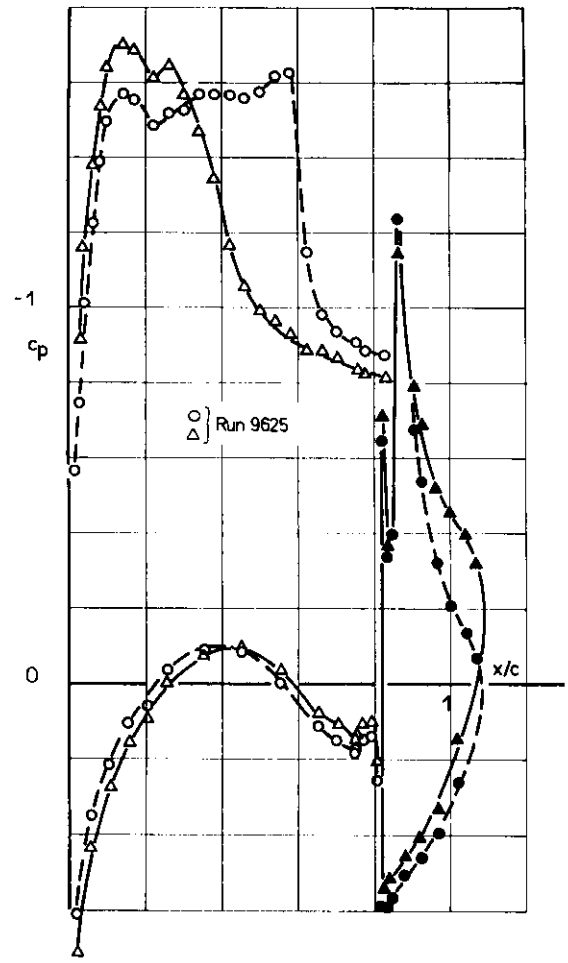
Note : Black symbols denote flap pressures

Note: See Table 5.7 for aerodynamic coefficients



Sym.	M_∞	$\alpha°$	Rec.10^6	type of walls
o	0,649	2,06	6,97	Porous
Δ	0,703	2,07	7,34	Walls

Note : Black symbols denote flap pressures



Sym.	M_∞	$\alpha°$	Rec.10^6	type of walls
o	0,700	2,11	7,59	Solid
Δ	0,702	4,06	7,52	Walls

Note : Black symbols denote flap pressures

Figure 5.13 Concluded

6. AEROFOIL RAE 2822 - PRESSURE DISTRIBUTIONS, AND BOUNDARY LAYER AND WAKE MEASUREMENTS

by

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1. INTRODUCTION

The examples presented have been selected to give a range of conditions from wholly subcritical flow to conditions where a comparatively strong shock wave exists in the flow above the upper surface of the aerofoil. In at least one example some boundary layer separation occurs due to the shock wave but reattachment occurs ahead of the trailing edge of the aerofoil.

The data include surface pressure measurements and mean flow boundary layer and wake profiles deduced from traverses of pitot and static pressure measuring probes. Where the measurements have been made close to the aerofoil (*ie* $x/c \leq 1.025$) the probes have been mounted from within the model, thus keeping the probe support interference to a minimum.

In all examples presented, attempts have been made to fix boundary-layer transition near to the leading edge of the aerofoil ($x/c = 0.03$ or $x/c = 0.11$), but as the measurements were made for a range of Reynolds numbers and Mach numbers, in some cases without changing the transition trip, the roughness size may be larger than would normally be used at the higher Reynolds numbers. In some examples the presence of the roughness has clearly had a strong local effect on the pressure distribution. The local disturbance to the boundary layers has not been measured but the downstream developments, of course, include the influence of the trip.

In parts of the flow the normal boundary-layer assumptions are violated by the normal pressure gradients which are significant near the trailing edge of the aerofoil and in the region of a shock wave. Ideally it is necessary to take account of the normal pressure gradients in defining the boundary layer integral parameters and in one example the data are presented with and without allowance for the normal pressure gradients (Case 9 - configurations C1 and C2 respectively). Where boundary layers are measured downstream of a shock wave the total pressure measured by the pitot tube is affected by the total head loss due to the shock wave. However the edge of the boundary layer was usually well defined. For traverses made in the near wake the measurements have been treated as two separate boundary layers, without extrapolation to a surface but with the division between the two parts taken at the point of minimum velocity ratio. Examples are given of traverses made well behind the trailing edge of the aerofoil the purpose of which has been to determine the total drag. Consequently the traverse has included as far as possible the complete region behind the shock wave as well as the viscous wake. The definition of momentum thickness is then different from that used for the boundary layers where shock losses outside the viscous layer are excluded.

In the data reduction it has been assumed that the flow is two-dimensional, and so the surface pressure distribution measured near the centre section of the aerofoil (see Fig 6.4) has been used in nearly all cases as the value of the static pressure at the aerofoil surface for determining the velocity profiles and any variation of the static pressure within a profile is only taken into account if actual measurements exist. The variation of the static pressure through the boundary layer and/or wake has normally been obtained from a traverse at one spanwise station and used at others. Although for the main part of the data this assumption is satisfactory, there are cases, for instance when the boundary layer is close to separation, where a significant difference may exist. The data presented in the tables have as far as possible been presented so that re-analysis is possible by the reader.

2. BOUNDARY LAYER AND WAKE ANALYSIS

2.1 Measured profiles

The local Mach number (M_L), within the boundary layer or wake, has been obtained from values of total pressure (P_0) and static pressure (P_L) at the measurement point from the equation

$$M_L = \sqrt{5}\left\{\left(\frac{P_L}{P_0}\right)^{-2/7} - 1\right\}^{\frac{1}{2}} . \qquad (1)$$

When $M_L \leq 1$ then $P_0 = P_{0_M}$, the measured value of the pitot pressure, and M_L can be obtained directly. When $M_L > 1$ then $P_0 \neq P_{0_M}$ and is given by

$$\frac{P_{0_M}}{P_0} = \left(\frac{6M_L^2}{M_L^2 + 5}\right)^{7/2}\left(\frac{6}{7M_L^2 - 1}\right)^{5/2} . \qquad (2)$$

Thus for $M_L > 1$ equations (1) and (2) were solved by iteration. Where the variation of static pressure has not been measured at the appropriate x/c location, the static pressure is assumed to be constant through the layer. The static pressure used in determining the local conditions is quoted for each point or profile as appropriate.

In regions of the flow where the static pressure varies significantly across the boundary layer, such as the trailing edge region, the velocity ratio (u/U_P) has been defined by assuming that the total temperature is constant throughout the flow and that the reference velocity can be determined from the local static pressure and the total pressure at the edge of the boundary layer. When the static pressure is taken as constant through the layer the same assumptions apply except that the local static pressure is taken to be the value measured at the surface. Thus the quantities measured in the boundary layer are referred to a fictitious flow which has the same static pressure distribution as measured, but a constant total pressure equal to that at the edge of the boundary layer. With these assumptions we get;

$$\frac{u}{U_P} = \frac{M_L}{M_P}\left(\frac{1 + 0.2M_P^2}{1 + 0.2M_L^2}\right)^{\frac{1}{2}} \tag{3}$$

and

$$\frac{\rho u}{\rho_P U_P} = \frac{M_L}{M_P}\left(\frac{1 + 0.2M_L^2}{1 + 0.2M_P^2}\right)^{\frac{1}{2}} \tag{4}$$

where

$$M_P = \sqrt{5}\left\{\frac{(1 + 0.2M_\infty^2)}{(1 + 0.7M_\infty^2(C_p)_P)^{2/7}} - 1\right\}^{\frac{1}{2}} \tag{5}$$

and M_∞ is the Mach number of the undisturbed stream and $(C_p)_P$ is the coefficient of static pressure.

2.2 Calculation of boundary layer integral quantities

The definitions of the displacement and momentum thicknesses, for compressible flow, are usually taken as

$$\delta^* = \int_0^\delta \left(1 - \frac{\rho u}{\rho_\delta U_\delta}\right) dz \tag{6}$$

and

$$\theta = \int_0^\delta \frac{\rho u}{\rho_\delta U_\delta}\left(1 - \frac{u}{U_\delta}\right) dz \tag{7}$$

when the usual boundary layer assumptions are made. However, near the trailing edge of an aerofoil, if account is to be taken of the change in static pressure across the layer when determining the decrement in mass or momentum flux through the boundary layer then the definitions need modification. In the data presented here the following definitions are used,

$$\int_0^{\delta^*} \rho_P U_P dz = \int_0^\delta \rho_P U_P\left(1 - \frac{\rho u}{\rho_P U_P}\right) dz \tag{8}$$

and

$$\int_0^\theta \rho_P U_P^2 dz = \int_0^\delta \rho_P U_P^2 \frac{\rho u}{\rho_P U_P}\left(1 - \frac{u}{U_P}\right) dz \tag{9}$$

which differ slightly from those recommended by Myring[1] for use in making comparisons with calculations. The main difference is that Myring takes the reference density and velocity as those for the equivalent inviscid flow for $z \geqslant \delta^*$ with constant values for $0 \leqslant z \leqslant \delta^*$, whereas we use as reference the density and velocity of a fictitious flow defined by the total pressure at the edge of the boundary layer and the measured local static pressure across the layer as noted above. Also the definition for momentum thickness is different*.The value obtained with Myring's definition, but with the reference quantities used here, may be up to 4% greater near the trailing edge than the values quoted. For the displacement thickness the two definitions are equivalent.

For convenience, values of $\rho_P U_P$ and $\rho_P U_P^2$ were obtained as ratios to their values at the wall or near the centre of the wake (*ie* point of lowest total pressure). The values of ρ_P, U_P, M_P, $(C_p)_P$ at the wall or centre of the wake are termed respectively ρ_W, U_W, M_W, $(C_p)_W$. Thus

---

* A reassessment of Myring's proposals is given by Zwaaneveld[2].

$$\frac{\rho_P U_P}{\rho_W U_W} = \frac{M_P}{M_W}\left(\frac{1 + 0.2M_P^2}{1 + 0.2M_W^2}\right)^{\frac{1}{2}}\left(\frac{1 + 0.7(C_p)_P M_\infty^2}{1 + 0.7(C_p)_W M_\infty^2}\right) \tag{10}$$

and

$$\frac{\rho_P U_P^2}{\rho_W U_W^2} = \left(\frac{M_P}{M_W}\right)^2\left(\frac{1 + 0.7(C_p)_P M_\infty^2}{1 + 0.7(C_p)_W M_\infty^2}\right). \tag{11}$$

The experimental values for δ^* and θ were then obtained by numerical integration of Eq.(8) and (9) using Eq.(10) and (11). As described in the next section analytic expressions were used to extend the profiles to the wall from the measured point nearest to the wall.

2.3 Extrapolation of the measured profiles to the surface

The extrapolation is based on the logarithmic form of the velocity profiles given by Winter and Gaudet[3] and the corresponding equation for the viscous sublayer,

$$\frac{u}{u_\tau^i} = 6.05 \log_{10}\left(\frac{zu_\tau^i}{\nu_\delta}\right) + 4.05 \tag{12}$$

and

$$\frac{u}{u_\tau^i} = \frac{zu_\tau^i}{\nu_\delta} . \tag{13}$$

These equations are modified slightly, so that they are written in terms of the local skin friction coefficient, and in terms of quantities measured in the experiments as follows

$$\frac{u}{U_P} = \frac{U_W}{U_P}\left[\frac{C_f}{2}(1 + 0.2M_W^2)^{\frac{1}{2}}\right]^{\frac{1}{2}}\left[6.05 \log_{10}\left\{Re_W \frac{z}{c}\left[\frac{C_f}{2}(1 + 0.2M_W^2)^{\frac{1}{2}}\right]^{\frac{1}{2}}\right\} + 4.05\right] \tag{14}$$

and

$$\frac{u}{U_P} = \frac{U_W}{U_P} Re_W \frac{z}{c}\frac{C_f}{2}(1 + 0.2M_W^2)^{\frac{1}{2}} \tag{15}$$

where

$$\frac{Re_W}{Re} = \frac{M_W}{M_\infty}\left\{\frac{(1 + 0.2M_\infty^2)}{(1 + 0.2M_W^2)}\right\}^{5/2}\left\{\frac{T_0 + 117(1 + 0.2M_W^2)}{T_0 + 117(1 + 0.2M_\infty^2)}\right\} \tag{16}$$

and Re is the Reynolds number for the experiments and based on the aerofoil chord and T_0 is the corresponding stagnation temperature in K.

From the values of u/U_P deduced previously it is possible using Eq.(14) to obtain an apparent skin friction coefficient (C_f) as a function of height above the aerofoil surface, which can then be used to extrapolate the profile to the aerofoil surface using in addition the profile for the viscous sublayer as given in Eq.(15). In practice a mean value has been obtained for the skin friction coefficient by averaging the values obtained for all measured points with $u/U_P \leqslant 0.6$ or, where there are less than three points meeting this condition, by averaging the values for the three points closest to the surface. The spread of values used is indicated by the vertical bars in Fig 6.6 with the symbol indicating the value used in the extrapolation to the surface*. The profile is assumed to change to the form of the viscous sublayer at the point where the two equations intersect, *ie*

$$\frac{z_s}{c} = \frac{10.135}{Re_W\left[\frac{C_f}{2}(1 + 0.2M_W^2)^{\frac{1}{2}}\right]^{\frac{1}{2}}} . \tag{17}$$

A check was made to see that measurements were not used in the extrapolation procedure if they were within the sublayer thickness of the surface. This did not occur unless the boundary layer was close to separation.

The contributions to the displacement and momentum thicknesses from the first measured point to the surface were then obtained by numerical integration using Eq.(14) and (15), with Eq.(3) and (4) to derive the density ratio.

* Near the trailing edge, the larger height of the vertical bar is caused by the boundary layer not obeying the law of the wall form up to $u/U_P = 0.6$, as the boundary layer approaches separation.

3. DATA SET

1. Aerofoil

1.1 Aerofoil designation	RAE 2822
1.2 Type of aerofoil	rear-loaded, subcritical, roof-top type pressure distribution at design conditions. Designed by second order method given in Ref 4
1.2.1 aerofoil geometry	see Fig 6.1 and Table 6.1
nose radius	0.00827 chord
maximum thickness	0.121 chord
base thickness	0
1.2.2 design condition	$M_\infty = 0.66$, $C_L = 0.56$ ($\alpha = 1.06^o$)
design pressure distribution	see Fig 6.2 and Ref 5
1.3 Additional remarks	characteristics of aerofoil section are described in Ref 5

2. Model geometry

2.1 Chord length	0.61 m
2.2 Span (exposed)	1.83 m
2.3 Actual model co-ordinates and accuracy	see Table 6.1
2.4 Maximum thickness	73.76 mm
2.5 Base thickness	0.06 mm (0.0001c)

3. Wind tunnel (Test conditions in brackets)

3.1 Designation	RAE 8ft × 6ft transonic wind tunnel
3.2 Type of tunnel	continuous, closed circuit
3.2.1 stagnation pressure	10 to 355 kN/m^2 (36 to 100 kN/m^2)
3.2.2 stagnation temperature	290 to 323 K (308 to 323 K)
3.2.3 humidity	<0.003 absolute humidity
3.3 Test section	
3.3.1 dimensions	height = 1.83 m, width = 2.43 m, rectangular with corner fillets 160.5 mm × 45°
3.3.2 type of walls	1.6% slotted side-walls having 5 slots 5.84 mm wide at 353 mm centres symmetrical about the centre line of each wall, solid roof and floor, large volume single plenum chamber
3.4 Flow field (empty test section)	
3.4.1 reference static pressure	plenum chamber
3.4.2 flow angularity	±0.03^o in the incidence plane ±0.125^o in the plane normal to the incidence plane
3.4.3 Mach number distribution 3.4.4 pressure gradient	$\Delta M < \pm 0.001$ on the centre line in the region 0.75 m upstream to 1.25 m downstream of 0.25c for $0.3 < M < 0.8$
3.4.5 turbulence/noise level	see Fig 6.3 (from Ref 6)
3.4.6 roof/floor boundary layer	not measured, approximately 4% to 5% of the test section semi-height at the model, no special treatment

4. Tests

4.1 Type of measurements	surface pressures wake pitot and static pressures boundary layer pitot and static pressures oilflow determination of flow separations

4.2 Tunnel/model dimensions

4.2.1 height/chord ratio	3.0 } NB model mounted vertically
4.2.2 width/chord ratio	4.0 }

4.3 Flow conditions included in present data base

4.3.1 angle of attack	see Table 6.2
4.3.2 Mach number	
4.3.3 Reynolds number	
4.3.4 transition	fixed
- transition fixing	ballotini (glass spheres), see Table 6.2
4.3.5 temperature equilibrium	yes

5. Instrumentation

5.1 Surface pressure measurements

5.1.1 pressure holes	
- size	0.35 mm diameter x/c = 0 to 0.01875 0.65 mm diameter x/c = 0.02709 to 0.95 0.35 mm diameter x/c = 0.975 to 1.0 depth/diameter ratio ≃ 2.0
- position	see Table 6.3 and 6.4, and Fig 6.4 tunnel centre line at y/c = 1.625
5.1.2 type of transducer and scanning devices	differential-pressure capsule-manometers with stagnation reference pressure. 1 atmosphere range calibrated to give ±0.03% FSD accuracy. Pressure readings frozen when steady and then scanned

5.2 Wake measurements

5.2.1 type	pitot	static
- size	0.5 mm OD 0.25 mm ID	1.0 mm OD
5.2.2 locations	see Table 6.5	
5.2.3 type of transducers and scanning devices		
5.2.3.1 pressure measurements	as 5.1.2	
5.2.3.2 positional measurements	x/c = 1.0 and 1.025, thin-film potentiometers calibrated to ±0.05 mm accuracy x/c = 2.0, tunnel centre-line-rig roll-unit giving ±0.5 mm accuracy	

5.3 Boundary-layer measurements

5.3.1 type	pitot	static
- size	rectangular (x/c < 0.6) 1.2 mm × 0.15 mm overall 1.0 mm × 0.05 mm orifice circular (x/c > 0.6) 0.5 mm OD 0.25 mm ID	1.0 mm OD
5.3.2 locations	see Table 6.5	
5.3.3 type of transducers and scanning devices		
5.3.3.1 pressure measurements	as 5.1.2	
5.3.3.2 positional measurements	thin-film potentiometers calibrated to give an accuracy of travel of 0.1% FSD for a range varying between 10 mm and 40 mm	

5.5 Flow visualization

5.5.2 surface flow	oilflow recorded on video tape (case 10)

6. Data

6.1 Accuracy (wall interference excluded)

6.1.1 angle of attack setting	$\pm 0.01^{\circ}$
6.1.2 free stream Mach number	
- setting	±0.001
- variation during one boundary layer or wake traverse	±0.002
6.1.3 pressure coefficients	$\Delta C_p < \pm 0.0026$ $Re = 6.5 \times 10^6$ $< \pm 0.0064$ $Re = 2.7 \times 10^6$
6.1.7 remarks	datum angle of attack determined from measurements made on a symmetrical aerofoil

6.2 Wall interference corrections

6.2.1 angle of attack

$$\Delta\alpha = \frac{cC_L}{h}\delta_0 + \frac{c^2}{\beta h^2}\delta_1\left(\frac{1}{4}C_L + C_m\right) \text{ radians}$$

$$\Delta C_L = -\frac{\pi}{2}\left(\frac{c}{\beta h}\right)^2 \delta_1 C_L$$

$$\Delta C_m = \frac{\pi}{8}\left(\frac{c}{\beta h}\right)^2 \delta_1 C_L$$

with

M	δ_0	δ_1
<0.7	-0.065 ± 8%	0.175 ± 17%
0.725	-0.040	0.100

(derived experimentally as in Ref 8 by tests with aerofoils of different chord)

$$NB - w_i = \frac{\delta_0 cC_L}{h} \text{ and } \frac{\partial w_i}{\partial x} = \frac{\delta_1 cC_L}{\beta h^2}$$

see Ref 7

6.2.2 blockage	set to zero by selecting slot width see Ref 8
6.2.3 streamline curvature	see 6.2.1

6.3 Presentation of data

6.3.1 aerodynamic coefficients	C_N, C_m and C_D - see Table 6.2
6.3.2 surface pressures	C_p and p/H vs x/c see Table 6.7 and Fig 6.5
6.3.3 boundary layer quantities	u/U_p, $C_{p_{static}}$ vs z/c see Table 6.8 C_f, δ^*, θ, H see Table 6.9 and Fig 6.6
6.3.4 wall interference corrections included?	no
6.3.5 corrections for model deflection	wing twist measured and found to be $<0.01^{\circ}$
6.3.6 empty test section calibrations taken into account?	yes
6.3.7 other corrections included?	'displacement' correction to position of circular section pitot tubes of 0.18 × OD ($\Delta z/c = 0.00015$), no correction to position of rectangular pitot tubes
6.3.8 additional remarks	
C_N and C_m deduced from:	C_p - with erroneous manometer readings eliminated x/c - design values for pressure holes NB - the manometers were read in groups designated by Bank number. The variation of Mach number with Bank number is given in Table 6.7 and the associated x/c positions can be obtained from Tables 6.3 and 6.6
z/c	datum for boundary layers the model surface, datum for wakes the chordal plane except $x/c = 1.025$ where the datum is arbitrary

	Tables 6.7 and 6.8	the contents of these tables are available on paper tape
6.4	Were tests carried out in different facilities on the current aerofoil?	no
6.5	To be contacted for further information on tests	Mr M.C.P. Firmin Mr P.H. Cook Aerodynamics Department, Royal Aircraft Establishment, Farnborough.

7. References

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3	K.G. Winter L.Gaudet	Turbulent boundary layer studies at high Reynolds number at Mach numbers between 0.2 and 2.8. ARC R & M 3712 (1970)
4	-	Second-order method for estimating the subcritical pressure distribution on a two-dimensional aerofoil in compressible inviscid flow. TD Memorandum ESDU 72025 (1973)
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6	D.G. Mabey	Boundary layer transition measurements on the AEDC 10° cone in three RAE wind tunnels and their implications. RAE Technical Report 76077 (1976)
7	H.C. Garner E.W.E. Rogers W.E.A. Acum E.C. Maskell	Subsonic wind tunnel wall corrections. AGARDograph 109 (1966)
8	M.C.P. Firmin T.A. Cook	Detailed exploration of the compressible viscous flow over two-dimensional aerofoils at high Reynolds numbers. (Lecture, International Council of Aeronautical Sciences 6th Congress, Munich, September 1968) RAE Technical Memorandum Aero 1076 (1968) ICAS Paper 68-09

8. List of symbols†

c(C)	chord length
C_D	drag coefficient
C_f	local skin friction coefficient based on conditions at the wall (see section 2.2)
C_L	lift coefficient
C_m	pitching moment coefficient (Ref 0.25c)
C_N	normal force coefficient
C_p(CP)	pressure coefficient
C_p^*	critical pressure coefficient
$(C_p)_P$	pressure coefficient at point P
h	height of tunnel
H	total head pressure, also δ^*/θ
M_∞(M)	free-stream Mach number
M_L	local Mach number
M_p	Mach number defined by local static pressure and the total pressure at the edge of the boundary layer or wake

† Additional symbols in brackets are used in line-printer output.

P	surface static pressure
P_0	total pressure
Re(RE)	free-stream Reynolds number
t	maximum thickness of aerofoil section
u(U)	local velocity within the boundary layer or wake
U_P(UP)	velocity obtained from the pitot pressure measured at the edge of the boundary layer or wake and static pressure measured at the appropriate value of z/c
U_W	value for U_P at wall or centre of the wake
u_τ^i	equivalent incompressible friction velocity (see Ref 3)
w_i	non-dimensional mean wall-interference velocity at mid-chord
x(X)	chordwise ordinate (datum at leading edge)
y(Y)	spanwise ordinate (datum 76 mm outside working section at the tunnel roof, see Fig 6.4) (y/c = 1.625 for tunnel centre line)
z(Z)	section ordinate, also position in the boundary layer from the model surface and the distance across the wake
α(ALPHA)	geometric incidence
δ	z/c for $u/U_P = 0.995$
δ_0	interference parameter associated with w_i
δ_1	interference parameter associated with streamline curvature
δ^*	displacement thickness } corrected for normal static pressure gradient when measured, see Eq.(8) and (9)
θ	momentum thickness } corrected for normal static pressure gradient when measured, see Eq.(8) and (9)
ν_δ	kinematic viscosity at edge of boundary layer
ρ_P	density at point in boundary layer defined in the same way as U_P
ρ_w	ρ_P at the wall or centre of the wake

Table 6.1

SECTION RAE2822
STATION Y/C= 1.504

X/C	DESIGN ORDINATES Z/C UPPER	DESIGN ORDINATES Z/C LOWER	MEASURED ORDINATES Z/C UPPER	ERROR	MEASURED ORDINATES Z/C LOWER	ERROR
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00060	0.00316	0.00316	0.00323	0.00006	0.00317	0.00001
0.00241	0.00631	0.00631	0.00642	0.00011	0.00658	0.00027
0.00541	0.00942	0.00944	0.00945	0.00003	0.00957	0.00013
0.00961	0.01248	0.01256	0.01269	0.00021	0.01273	0.00017
0.01498	0.01549	0.01565	0.01579	0.00030	0.01580	0.00015
0.02153	0.01844	0.01871	0.01875	0.00031	0.01880	0.00010
0.02923	0.02135	0.02172	0.02163	0.00028	0.02180	0.00007
0.03806	0.02422	0.02469	0.02445	0.00023	0.02472	0.00003
0.04801	0.02706	0.02759	0.02726	0.00020	0.02761	0.00003
0.05904	0.02987	0.03042	0.03004	0.00016	0.03042	0.00000
0.07114	0.03264	0.03317	0.03280	0.00016	0.03315	-0.00002
0.08427	0.03536	0.03584	0.03552	0.00016	0.03584	-0.00001
0.09840	0.03801	0.03843	0.03817	0.00016	0.03844	0.00001
0.11349	0.04059	0.04093	0.04073	0.00015	0.04094	0.00001
0.12952	0.04307	0.04333	0.04321	0.00014	0.04333	0.00000
0.14645	0.04546	0.04561	0.04558	0.00012	0.04561	-0.00000
0.16422	0.04773	0.04777	0.04778	0.00005	0.04775	-0.00002
0.18280	0.04987	0.04981	0.04987	-0.00000	0.04977	-0.00003
0.20215	0.05188	0.05169	0.05187	-0.00002	0.05167	-0.00002
0.22221	0.05375	0.05343	0.05377	0.00002	0.05340	-0.00002
0.24295	0.05547	0.05499	0.05556	0.00009	0.05498	-0.00001
0.26430	0.05703	0.05638	0.05713	0.00011	0.05638	-0.00000
0.28622	0.05841	0.05755	0.05848	0.00007	0.05753	-0.00001
0.30866	0.05963	0.05846	0.05967	0.00005	0.05843	-0.00003
0.33156	0.06066	0.05905	0.06070	0.00004	0.05900	-0.00005
0.35486	0.06150	0.05924	0.06155	0.00005	0.05919	-0.00005
0.37851	0.06213	0.05897	0.06220	0.00006	0.05893	-0.00004
0.40245	0.06256	0.05822	0.06263	0.00007	0.05817	-0.00006
0.42663	0.06278	0.05698	0.06285	0.00007	0.05689	-0.00009
0.45099	0.06277	0.05526	0.06286	0.00008	0.05515	-0.00010
0.47547	0.06253	0.05310	0.06261	0.00008	0.05297	-0.00013
0.50000	0.06203	0.05056	0.06212	0.00010	0.05044	-0.00012
0.52453	0.06125	0.04772	0.06135	0.00010	0.04761	-0.00011
0.54901	0.06019	0.04464	0.06030	0.00010	0.04452	-0.00012
0.57336	0.05885	0.04140	0.05895	0.00010	0.04127	-0.00013
0.59754	0.05722	0.03804	0.05733	0.00011	0.03791	-0.00013
0.62149	0.05534	0.03463	0.05547	0.00012	0.03463	-0.00000
0.64514	0.05326	0.03121	0.05339	0.00013	0.03110	-0.00011
0.66845	0.05099	0.02781	0.05112	0.00013	0.02770	-0.00011
0.69134	0.04857	0.02449	0.04857	0.00000	0.02438	-0.00011
0.71378	0.04603	0.02129	0.04612	0.00010	0.02118	-0.00011
0.73570	0.04338	0.01823	0.04338	-0.00000	0.01812	-0.00011
0.75705	0.04064	0.01536	0.04075	0.00011	0.01524	-0.00012
0.77778	0.03785	0.01269	0.03795	0.00011	0.01256	-0.00013
0.79785	0.03502	0.01024	0.03514	0.00013	0.01013	-0.00012
0.81720	0.03218	0.00803	0.03231	0.00014	0.00792	-0.00011
0.83578	0.02935	0.00605	0.02948	0.00014	0.00594	-0.00011
0.85355	0.02655	0.00431	0.02670	0.00014	0.00422	-0.00010
0.87048	0.02382	0.00283	0.02397	0.00015	0.00273	-0.00010
0.88651	0.02115	0.00159	0.02131	0.00016	0.00149	-0.00011
0.90160	0.01858	0.00060	0.01874	0.00016	0.00049	-0.00011
0.91574	0.01611	-0.00016	0.01627	0.00016	-0.00027	-0.00012
0.92886	0.01377	-0.00069	0.01393	0.00016	-0.00081	-0.00011
0.94096	0.01156	-0.00103	0.01170	0.00014	-0.00113	-0.00010
0.95200	0.00951	-0.00120	0.00964	0.00013	-0.00125	-0.00005
0.96194	0.00762	-0.00121	0.00775	0.00013	-0.00125	-0.00004
0.97077	0.00592	-0.00111	0.00606	0.00014	-0.00113	-0.00002
0.97847	0.00440	-0.00093	0.00455	0.00015	-0.00094	-0.00000
0.98502	0.00309	-0.00072	0.00326	0.00017	-0.00071	0.00001
0.99039	0.00200	-0.00050	0.00218	0.00018	-0.00048	0.00002
0.99459	0.00114	-0.00030	0.00132	0.00019	-0.00026	0.00004
0.99759	0.00051	-0.00014	0.00069	0.00018	-0.00009	0.00005
0.99940	0.00013	-0.00004	0.00030	0.00018	0.00001	0.00004
1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Table 6.2

TEST CASES

Case number		1	2	3	6	7	8	9	10	12	13	13A
M_∞		0.676	0.676	0.600	0.725	0.725	0.728	0.730	0.750	0.730	0.745	0.740
α^o		2.40	-2.18	2.57	2.92	2.55	3.22	3.19	3.19	3.19	3.19	3.19
Re × 10^{-6} (based on chord)		5.7	5.7	6.3	6.5	6.5	6.5	6.5	6.2	2.7	2.7	2.7
Transition trip	Diameter (mm)	0.127	0.127	1.270	0.254	0.254	0.254	0.762	0.762	0.762	0.762	0.762
	x/c	0.11	0.11	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Probe configuration		B	B	B	B	B	B	C1 C2 D1	C1	C D	D	C2
C_N		0.566	-0.121	0.522	0.743	0.658	0.802	0.803	0.743	0.721	0.705	0.733
C_m (0.25c)		-0.082	-0.028	-0.073	-0.095	-0.090	-0.100	-0.099	-0.106	-0.078	-0.087	-0.086
C_D		0.0085	0.0079	0.0101	0.0127	0.0107	0.0175	0.0168	0.0242	0.0133 0.0134	-	0.0188

NB 1) see table 6.5 for probe configurations.

2) Case 9 - Configuration C2 is the results of C1 analysed with the assumption of constant static pressure across the boundary layer or wake.

Configuration D1 measurements include repeats of C1.

3) Case 12 - Configuration D measurements include repeats of C.

Table 6.3

DESIGN LOCATION OF SURFACE PRESSURE HOLES

Hole No.	Surface	x/c	y/c	Hole No.	Surface	x/c	y/c	Hole No.	Surface	x/c	y/c	Hole No.	Surface	x/c	y/c
0		0	1.6250	40	U	0.70000	1.75625	81	L	0.45000	1.49375	122	U	0.98750	2.84917
1	U	0.00021	1.63334	41	U	0.75000	1.73209	82	L	0.47500	1.51459	123	U	0.99375	2.84375
2	U	0.00075	1.64167	42	U	0.77500	1.73209	83	L	0.50000	1.49375	124	L	0.05000	2.58372
3	U	0.00155	1.65000	43	U	0.80000	1.72084	84	L	0.52500	1.51459	125	L	0.10000	2.59712
4	U	0.00255	1.65834	44	U	0.82500	1.70959	85	L	0.55000	1.49375	126	L	0.15000	2.61052
5	U	0.00359	1.66667	45	U	0.85000	1.69834	86	L	0.57500	1.51459	127	L	0.20000	2.62391
6	U	0.00475	1.67500	46	U	0.87500	1.68709	87	L	0.60000	1.49375	128	L	0.25000	2.63731
7	U	0.00600	1.68334	47	U	0.90000	1.67584	88	L	0.61959	1.51459	129	L	0.30000	2.65071
8	U	0.00730	1.69167	48	U	0.92500	1.66459	89	L	0.65000	1.49375	130	L	0.35000	2.66411
9	U	0.00871	1.70000	49	U	0.95000	1.65334	90	L	0.67709	1.51459	131	L	0.40000	2.67750
10	U	0.01042	1.70834	50	U	0.97500	1.64209	91	L	0.70000	1.49375	132	L	0.45000	2.69090
11	U	0.01250	1.71667	51	U	0.98750	1.63667	92	L	0.75000	1.39709	133	L	0.50000	2.70430
12	U	0.01459	1.72500	52	U	0.99375	1.63125	93	L	0.77500	1.39709	134	L	0.55000	2.71770
13	U	0.01875	1.73334	53	L	0.00021	1.61667	94	L	0.80000	1.40834	135	L	0.60000	2.73109
14	U	0.02709	1.74584	54	L	0.00075	1.60834	95	L	0.82500	1.41959	136	L	0.65000	2.74449
15	U	0.03750	1.74584	55	L	0.00155	1.60000	96	L	0.85000	1.43084	137	L	0.70000	2.75789
16	U	0.05000	1.74584	56	L	0.00255	1.59167	97	L	0.87500	1.44209	138	L	0.77500	2.77542
17	U	0.06250	1.74584	57	L	0.00359	1.58334	98	L	0.90000	1.45334	139	L	0.82500	2.78667
18	U	0.07500	1.74584	58	L	0.00475	1.57500	99	L	0.92500	1.46459	140	L	0.87500	2.79792
19	U	0.10000	1.74584	59	L	0.00600	1.56667	100	L	0.95000	1.47584	141	L	0.92500	2.80917
20	U	0.15000	1.74584	60	L	0.00730	1.55834	101	L	0.97500	1.48709	142	L	0.97500	2.82042
21	U	0.20000	1.75625	61	L	0.00871	1.55000	102	L	0.98750	1.49250	143	L	0.98750	2.82584
22	U	0.22084	1.73542	62	L	0.01042	1.54167	103	L	0.99375	1.49792	144	L	0.99375	2.83125
222	U	0.25000	1.74584	63	L	0.01250	1.53334	104	U	0.05000	2.66474	145	U	0.20000	0.91667
23	U	0.27917	1.73542	64	L	0.01459	1.52500	105	U	0.10000	2.68294	146	U	0.20000	1.25417
24	U	0.30000	1.75625	65	L	0.01859	1.51667	106	U	0.15000	2.70114	1466	U	0.20000	1.42084
25	U	0.32500	1.73542	66	L	0.02709	1.50417	107	U	0.20000	2.71934	147	U	0.20000	1.58750
26	U	0.35000	1.75625	67	L	0.03750	1.50417	108	U	0.30000	2.75573	148	U	0.20000	2.02500
27	U	0.37500	1.73542	68	L	0.05000	1.50417	109	U	0.35000	2.77393	149	U	0.20000	2.24167
28	U	0.40000	1.75625	69	L	0.06250	1.50417	110	U	0.40000	2.79213	150	U	0.20000	2.48334
29	U	0.42500	1.73542	70	L	0.07500	1.50417	111	U	0.45000	2.81033	151	U	0.20000	2.88542
30	U	0.45000	1.75625	71	L	0.10000	1.50417	112	U	0.50000	2.82853	152	U	0.70000	1.22917
31	U	0.47500	1.73542	72	L	0.15000	1.50417	113	U	0.55000	2.84673	153	U	0.70000	1.40000
32	U	0.50000	1.75625	73	L	0.20000	1.49375	114	U	0.60000	2.86492	154	U	0.70000	2.00417
33	U	0.52500	1.73542	74	L	0.25000	1.51459	115	U	0.65000	2.88312	155	U	0.70000	2.25000
34	U	0.55000	1.75625	75	L	0.30000	1.49375	116	U	0.70000	2.90132	156	U	0.70000	2.41667
35	U	0.57500	1.73542	76	L	0.32500	1.51459	117	U	0.77500	2.89959	157	U	0.70000	2.61667
36	U	0.60000	1.75625	77	L	0.35000	1.49375	118	U	0.82500	2.88834	158	U	0.70000	3.05000
37	U	0.61959	1.73542	78	L	0.37500	1.51459	119	U	0.87500	2.87709				
38	U	0.65000	1.75625	79	L	0.40000	1.49375	120	U	0.92500	2.86584				
39	U	0.67709	1.73542	80	L	0.42500	1.51459	121	U	0.97500	2.85459				

Table 6.4

MEASURED LOCATION OF SURFACE PRESSURE HOLES
(Accuracy of measurement = ±0.00004)

Hole No.	Surface	x/c	y/c	Hole No.	Surface	x/c	y/c	Hole No.	Surface	x/c	y/c	Hole No.	Surface	x/c	y/c
0	U			40	U	0.69975	1.75666	81	L	0.44996	1.49427	122	U	0.98817	2.84947
1	U			41	U	0.75025	1.73372	82	L	0.47500	1.51503	123	U	0.99419	2.84410
2	U	0.00109	1.64164	42	U	0.77521	1.73366	83	L	0.50005	1.49418	124	L		
3	U	0.00159	1.64995	43	U	0.80006	1.72254	84	L	0.52499	1.51512	125	L	0.09977	2.59894
4	U	0.00259	1.65821	44	U	0.82513	1.75300	85	L	0.55006	1.49432	126	L	0.14972	2.61248
5	U	0.00356	1.66656	45	U	0.85005	1.69996	86	L	0.57492	1.51504	127	L	0.19988	2.62567
6	U	0.00462	1.67489	46	U	0.87519	1.68878	87	L	0.59993	1.49410	128	L	0.24980	2.63922
7	U	0.00579	1.68329	47	U	0.90009	1.67750	88	L	0.62355	1.51484	129	L	0.29973	2.65277
8	U	0.00710	1.69171	48	U	0.92505	1.66625	89	L	0.64980	1.49405	130	L	0.34973	2.66474
9	U	0.00863	1.69995	49	U	0.95008	1.65504	90	L	0.67696	1.51616	131	L	0.39980	2.67824
10	U	0.01022	1.70825	50	U	0.97540	1.64373	91	L	0.70009	1.49426	132	L	0.44978	2.69159
11	U	0.01244	1.71677	51	U	0.98787	1.63824	92	L	0.75018	1.51427	133	L	0.49972	2.70498
12	U	0.01440	1.72501	52	U	0.99394	1.63288	93	L	0.77529	1.51956	134	L	0.54985	2.71847
13	U			53	L			94	L	0.80015	1.53076	135	L	0.59973	2.73313
14	U	0.02671	1.74684	54	L			95	L	0.82508	1.54196	136	L	0.64985	2.74526
15	U	0.03719	1.74620	55	L	0.00149	1.59965	96	L	0.85020	1.55327	137	L	0.69970	2.75957
16	U	0.04978	1.74620	56	L	0.00219	1.59125	97	L	0.87506	1.56449	138	L	0.77558	2.77702
17	U	0.06230	1.74622	57	L	0.00327	1.58303	98	L	0.90003	1.57590	139	L	0.82556	2.78831
18	U	0.07478	1.74615	58	L	0.00444	1.57482	99	L	0.92508	1.58745	140	L	0.87555	2.79960
19	U	0.09972	1.74632	59	L	0.00565	1.56632	100	L	0.95003	1.59973	141	L	0.92540	2.81024
20	U	0.14919	1.74643	60	L	0.00700	1.55803	101	L	0.97493	1.61074	142	L	0.97564	2.82202
21	U	0.19965	1.75676	61	L	0.00827	1.54969	102	L	0.98762	1.61497	143	L	0.98813	2.82653
22	U	0.22176	1.73527	62	L	0.00998	1.54136	103	L	0.99387	1.62050	144	L	0.99433	2.83192
222	U	0.25015	1.75603	63	L	0.01209	1.53302	104	U			145	U	0.19978	0.19978
23	U	0.27777	1.73515	64	L	0.01434	1.52478	105	U	0.09959	2.68358	146	U	0.19972	1.25447
24	U	0.29988	1.75664	64	L	0.01833	1.51649	106	U	0.14921	2.70171	1466	U	0.19969	1.42107
25	U	0.32492	1.73591	66	L	0.02658	1.50435	107	U	0.19972	2.72004	147	U	0.19965	1.58787
26	U	0.34963	1.75680	67	L	0.03734	1.50428	108	U	0.29965	2.75663	148	U	0.19965	2.02552
27	U	0.37463	1.73592	68	L	0.04986	1.50436	109	U	0.34969	2.77446	149	U	0.19969	2.24209
28	U	0.39957	1.75680	69	L	0.06230	1.50435	110	U	0.39970	2.79381	150	U	0.19955	2.48377
29	U	0.42546	1.73577	70	L	0.07482	1.50443	111	U	0.44863	2.81097	151	U	0.19964	2.88576
30	U	0.44974	1.75659	71	L	0.09983	1.50417	112	U	0.49967	2.82919	152	U	0.69981	1.23005
31	U	0.47470	1.73590	72	L	0.14978	1.50442	113	U	0.54963	2.84722	153	U	0.69985	1.40097
32	U	0.49980	1.75664	73	L	0.19986	1.49523	114	U	0.59829	2.86562	154	U	0.69982	2.00629
33	U	0.52483	1.73580	74	L	0.24986	1.51500	115	U	0.64983	2.88361	155	U	0.69978	2.25214
34	U	0.54971	1.75666	75	L	0.29986	1.49412	116	U	0.69971	2.90174	156	U	0.69978	2.41767
35	U	0.57498	1.73583	76	L	0.32493	1.51488	117	U	0.77555	2.90015	157	U	0.69978	2.61758
36	U	0.59977	1.75710	77	L	0.34992	1.49391	118	U	0.82545	2.88883	158	U	0.69960	3.05087
37	U	0.619321	1.73589	78	L	0.37497	1.51495	119	U	0.87523	2.87747				
38	U	0.64981	1.75670	79	L	0.39998	1.49391	120	U						
39	U	0.67703	1.73585	80	L	0.42494	1.51472	121	U	0.97570	2.85490				

Table 6.5

BOUNDARY LAYER AND WAKE TRAVERSES

Configuration	x/c	y/c			Surface	Type of probe
B	0.152	1.17	2.42		Lower	Pitot
	0.179	1.04	2.29		Upper	Pitot
	0.319	1.15	2.40		Upper	Pitot
	0.75	2.18			Upper	Pitot
	0.90	2.64			Upper	Pitot
	0.95	2.44			Upper	Pitot
	1.00	2.02			Wake	Pitot
	1.025	2.82			Wake	Pitot
	2.00	1.5			Wake	Pitot and static
C	0.152	1.17			Lower	Pitot
	0.179	1.04			Upper	Pitot
	0.319	1.15			Upper	Pitot
	0.404	1.20			Upper	Pitot
	0.498	1.34			Upper	Pitot
C1 extra	0.574	1.31			Upper	Pitot and static
static at	0.65	2.60			Upper	Pitot and static
x/c = 0.498	0.75	2.21			Upper	Pitot
C2 no statics	0.90	2.43			Upper	Pitot and static
except at	1.00	2.02			Wake	Pitot and static
x/c = 2.0	1.025	2.82			Wake	Pitot and static
	2.00	1.5			Wake	Pitot and static
D	0.152	1.17	2.00	2.42	Lower	Pitot
	0.179	1.04	1.88	2.29	Upper	Pitot
	0.319	1.15	1.98	2.40	Upper	Pitot
	0.404	1.20	2.03	2.45	Upper	Pitot
	0.498	1.34	2.17	2.59	Upper	Pitot
	0.574	1.31	2.14	2.56	Upper	Pitot and static at y/c = 1.31
D1 extra	0.65	2.60			Upper	Pitot and static
static at	0.75	2.21			Upper	Pitot
x/c = 0.498	0.90	2.43			Upper	Pitot and static
y/c = 1.34	1.00	2.02			Wake	Pitot and static
D2 no statics	1.025	2.82			Wake	Pitot and static
except at	2.00	1.5			Wake	Pitot and static
x/c = 2.0						

Table 6.6

SURFACE PRESSURE HOLE CONNECTIONS

Case numbers	1,2,3,6,7,8					9,10,12,13				
Manometer No. \ Bank No.	1	2	3	4	5	1	2	3	4	5
1	0	15	29	44		0	19	37	107	
2	1	16	30	45		1	20	38	108	
3	2	17	31	46		2	21	39	109	
4	3	18	32	47		3	22	40	110	
5	4	19	33	48		4	222	41	111	
6	5	20	34	49		5	23	42	112	
7	6	21	35	50		6	24	43	113	
8	7	22	36	51		7	25	44	114	
9	8	222	37	52		8	26	45	115	
10	9	23	38	117		9	27	46	116	
11	10	24	39	118		10	28	47	117	
12	11	25	40	119		11	29	48	118	
13	12	26	41	120		12	30	49	119	
14	13	27	42	121		13	31	50	120	
15	14	28	43	122		14	32	51	121	
16	53	68	83	123		15	33	52	122	
17	54	69	84	98		16	34	104	123	
18	55	70	85	99	146	17	35	105	130	
19	56	71	86	100	1466	18	36	106	131	
20	57	72	87	101	147	53	72	91	132	
21	58	73	88	102	148	54	73	92	133	
22	59	74	89	103	149	55	74	93	134	
23	60	75	90	138	150	56	75	94	135	
24	61	76	91	139	151	57	76	95	136	
25	62	77	92	140	152	58	77	96	137	
26	63	78	93	141	153	59	78	97	138	
27	64	79	94	142	154	60	79	98	139	
28	65	80	95	143	155	61	80	99	140	
29	66	81	96	144	156	62	81	100	141	
30	67	82	97	145	157	63	82	101	142	
31	124		107	104	158	64	83	102	143	
32	125		108	105		65	84	103	144	
33	126		109	106		66	85	124	145	
34	127		110			67	86	125	146	
35	128		111			68	87	126	1466	
36	129		112			69	88	127	147	
37	130	134	113			70	89	128	148	
38	131	135	114			71	90	129	149	
39	132	136	115			152	155	158	150	
40	133	137	116			153	156		151	
41						154	157			

Table 6.7

SURFACE PRESSURE DISTRIBUTION

CASE 1 M = 0.676 ALPHA = 2.40 RE = 5700000

BANK	MACH NO	H(KN/SQ.M)	REYNOLDS NO
1	0.6768	84.29	5678000
2	0.6766	84.48	5690000
3	0.6773	84.48	5692000
4	0.6769	84.43	5691000

UPPER SURFACE

X/C	P/H	CP
0.9938	0.7699	0.1449
0.9875	0.7671	0.1328
0.9750	0.7611	0.1075
0.9500	0.7491	0.0567
0.9250	0.7350	-0.0030
0.9000	0.7223	-0.0570
0.8750	0.7105	-0.1070
0.8500	0.6988	-0.1565
0.8250	0.6875	-0.2043
0.8000	0.6770	-0.2477
0.7750	0.6665	-0.2920
0.7500	0.6564	-0.3348
0.7000	0.6347	-0.4265
0.6771	0.6261	-0.4632
0.6500	0.6130	-0.5186
0.6196	0.6004	-0.5720
0.6000	0.5931	-0.6029
0.5750	0.5831	-0.6451
0.5500	0.5755	-0.6773
0.5250	0.5685	-0.7069
0.5000	0.5648	-0.7227
0.4750	0.5609	-0.7393
0.4500	0.5590	-0.7471
0.4250	0.5569	-0.7559
0.4000	0.5545	-0.7694
0.3750	0.5528	-0.7766
0.3500	0.5523	-0.7788
0.3250	0.5524	-0.7782
0.3000	0.5496	-0.7900
0.2800	0.5443	-0.8126
0.2500	0.5412	-0.8259
0.2208	0.5465	-0.8033
0.2000	0.5474	-0.7996
0.1500	0.5397	-0.8322
0.1000	0.5317	-0.8661
0.0750	0.5307	-0.8705
0.0625	0.5276	-0.8833
0.0500	0.5208	-0.9122
0.0375	0.5098	-0.9591
0.0271	0.4915	-1.0355
0.0188	0.4863	-1.0575
0.0146	0.5091	-0.9606
0.0125	0.5232	-0.9008
0.0104	0.5384	-0.8367
0.0087	0.5490	-0.7917
0.0073	0.5626	-0.7340
0.0060	0.5816	-0.6536
0.0048	0.6052	-0.5533
0.0036	0.6366	-0.4205
0.0026	0.6649	-0.3002
0.0016	0.7205	-0.0646
0.0008	0.7585	0.0965
0.0002	0.8387	0.4361

LOWER SURFACE

X/C	P/H	CP
0.0000	0.9330	0.8359
0.0002	0.9799	1.0348
0.0008	0.9944	1.0962
0.0016	0.9985	1.1135
0.0026	0.9941	1.0946
0.0036	0.9825	1.0456
0.0048	0.9681	0.9847
0.0060	0.9539	0.9243
0.0073	0.9386	0.8598
0.0087	0.9275	0.8124
0.0104	0.9136	0.7538
0.0125	0.8982	0.6886
0.0146	0.8845	0.6302
0.0186	0.8645	0.5457
0.0271	0.8392	0.4384
0.0375	0.8124	0.3249
0.0500	0.7901	0.2296
0.0625	0.7755	0.1678
0.0750	0.7640	0.1190
0.1000	0.7452	0.0391
0.1500	0.7210	-0.0632
0.2000	0.7025	-0.1416
0.2500	0.6851	-0.2157
0.3000	0.6691	-0.2834
0.3250	0.6614	-0.3158
0.3500	0.6548	-0.3441
0.3750	0.6513	-0.3589
0.4000	0.6516	-0.3575
0.4250	0.6566	-0.3365
0.4500	0.6646	-0.3024
0.4750	0.6734	-0.2651
0.5000	0.6842	-0.2169
0.5250	0.6942	-0.1747
0.5500	0.7051	-0.1284
0.5750	0.7150	-0.0865
0.6000	0.7252	-0.0434
0.6196	0.7317	-0.0158
0.6500	0.7421	0.0279
0.6771	0.7515	0.0679
0.7000	0.7587	0.0984
0.7500	0.7728	0.1581
0.7750	0.7756	0.1828
0.8000	*	*
0.8250	*	*
0.8500	0.7947	0.2508
0.8750	0.7978	0.2639
0.9000	0.8011	0.2770
0.9250	0.8027	0.2837
0.9500	0.8020	0.2808
0.9750	0.7968	0.2588
0.9875	0.7910	0.2343
0.9938	0.7857	0.2117

Table 6.7 (continued)

SURFACE PRESSURE DISTRIBUTION

CASE 2 M = 0.676 ALPHA =-2.18 RE = 5700000

BANK	MACH NO	H(KN/SQ.M)	REYNOLDS NO
1	0.6772	84.69	5707000
2	0.6775	84.55	5699000
3	0.6770	84.45	5690000
4	0.6774	84.55	5699000

UPPER SURFACE

X/C	P/H	CP
0.9938	0.7794	0.1862
0.9875	0.7753	0.1690
0.9750	0.7674	0.1356
0.9500	0.7526	0.0729
0.9250	0.7398	0.0186
0.9000	0.7289	-0.0276
0.8750	0.7186	-0.0712
0.8500	0.7105	-0.1052
0.8250	0.7021	-0.1411
0.8000	0.6943	-0.1753
0.7750	0.6870	-0.2062
0.7500	0.6804	-0.2343
0.7000	0.6663	-0.2938
0.6771	0.6609	-0.3167
0.6500	0.6511	-0.3581
0.6196	0.6469	-0.3761
0.6000	0.6438	-0.3895
0.5750	0.6397	-0.4065
0.5500	0.6378	-0.4145
0.5250	0.6368	-0.4188
0.5000	0.6381	-0.4134
0.4750	0.6390	-0.4095
0.4500	0.6428	-0.3937
0.4250	0.6450	-0.3840
0.4000	0.6477	-0.3710
0.3750	0.6510	-0.3570
0.3500	0.6555	-0.3377
0.3250	0.6603	-0.3178
0.3000	0.6639	-0.3022
0.2800	0.6641	-0.3017
0.2500	0.6711	-0.2721
0.2208	0.6804	-0.2325
0.2000	0.6864	-0.2072
0.1500	0.7019	-0.1415
0.1000	0.7226	-0.0540
0.0750	0.7407	0.0225
0.0625	0.7524	0.0721
0.0500	0.7649	0.1251
0.0375	0.7823	0.1987
0.0271	0.8021	0.2816
0.0188	0.8265	0.3849
0.0146	0.8489	0.4802
0.0125	0.8623	0.5368
0.0104	0.8794	0.6090
0.0087	0.8933	0.6681
0.0073	0.9082	0.7312
0.0060	0.9248	0.8013
0.0048	0.9413	0.8712
0.0036	0.9588	0.9456
0.0026	0.9734	1.0074
0.0016	0.9912	1.0825
0.0008	0.9986	1.1141
0.0002	0.9973	1.1084

LOWER SURFACE

X/C	P/H	CP
0.0000	0.9599	0.9503
0.0002	0.9073	0.7272
0.0008	0.8680	0.5609
0.0016	0.8001	0.2733
0.0026	0.7634	0.1178
0.0036	0.7238	-0.0500
0.0048	0.6890	-0.1974
0.0060	0.6631	-0.3068
0.0073	0.6427	-0.3934
0.0087	0.6317	-0.4399
0.0104	0.6211	-0.4847
0.0125	0.6080	-0.5402
0.0146	0.5983	-0.5814
0.0186	0.5870	-0.6295
0.0271	0.5883	-0.6237
0.0375	0.5789	-0.6637
0.0500	0.5732	-0.6361
0.0625	0.5738	-0.6836
0.0750	0.5747	-0.6801
0.1000	0.5744	-0.6813
0.1500	0.5783	-0.6645
0.2000	0.5756	-0.6760
0.2500	0.5679	-0.7087
0.3000	0.5600	-0.7420
0.3250	0.5560	-0.7592
0.3500	0.5540	-0.7676
0.3750	0.5570	-0.7547
0.4000	0.5667	-0.7136
0.4250	0.5817	-0.6501
0.4500	0.5989	-0.5773
0.4750	0.6157	-0.5065
0.5000	0.6337	-0.4319
0.5250	0.6491	-0.3666
0.5500	0.6650	-0.2994
0.5750	0.6797	-0.2371
0.6000	0.6934	-0.1791
0.6196	0.7026	-0.1403
0.6500	0.7165	-0.0813
0.6771	0.7288	-0.0292
0.7000	0.7379	0.0095
0.7500	0.7559	0.0857
0.7750	0.7636	0.1184
0.8000	*	*
0.8250	*	*
0.8500	0.7842	0.2056
0.8750	0.7887	0.2245
0.9000	0.7931	0.2443
0.9250	0.7965	0.2585
0.9500	0.7981	0.2653
0.9750	0.7963	0.2577
0.9875	0.7936	0.2462
0.9938	0.7909	0.2347

Table 6.7 (continued)

SURFACE PRESSURE DISTRIBUTION

CASE 3 M=0.600 ALPHA=2.57 RE=6300000

BANK	MACH NO	H(KN/SQ.M)	REYNOLDS NO
1	0.6010	101.78	6335000
2	0.6007	102.02	6348000
3	0.6004	101.88	6337000
4	0.6005	101.83	6335000

UPPER SURFACE

X/C	P/H	CP
0.9938	0.8085	0.1256
0.9875	0.8059	0.1123
0.9750	0.8011	0.0882
0.9500	0.7924	0.0441
0.9250	0.7813	-0.0121
0.9000	0.7718	-0.0603
0.8750	0.7626	-0.1064
0.8500	0.7539	-0.1506
0.8250	0.7455	-0.1932
0.8000	0.7359	-0.2417
0.7750	0.7274	-0.2849
0.7500	0.7205	-0.3197
0.7000	0.7044	-0.4011
0.6771	0.6981	-0.4331
0.6500	0.6889	-0.4797
0.6196	0.6806	-0.5214
0.6000	0.6756	-0.5467
0.5750	0.6689	-0.5809
0.5500	0.6645	-0.6028
0.5250	0.6596	-0.6275
0.5000	0.6569	-0.6412
0.4750	0.6551	-0.6504
0.4500	0.6533	-0.6597
0.4250	0.6522	-0.6652
0.4000	0.6505	-0.6725
0.3750	0.6488	-0.6811
0.3500	0.6482	-0.6840
0.3250	0.6467	-0.6917
0.3000	0.6459	-0.6959
0.2800	0.6428	-0.7113
0.2500	0.6403	-0.7240
0.2208	0.6405	-0.7230
0.2000	0.6388	-0.7316
0.1500	0.6323	-0.7643
0.1000	0.6250	-0.8011
0.0750	0.6211	-0.8210
0.0625	0.6207	-0.8232
0.0500	0.6219	-0.8172
0.0375	*	*
0.0271	0.6020	-0.9156
0.0188	0.6081	-0.8846
0.0146	0.5917	-0.9676
0.0125	0.5895	-0.9788
0.0104	0.5937	-0.9577
0.0087	0.5961	-0.9456
0.0073	0.5982	-0.9348
0.0060	0.6138	-0.8561
0.0048	0.6292	-0.7784
0.0036	0.6546	-0.6500
0.0026	0.6783	-0.5303
0.0016	0.7253	-0.2932
0.0008	0.7704	-0.0652
0.0002	0.8295	0.2329

LOWER SURFACE

X/C	P/H	CP
0.0000	0.9238	0.7087
0.0002	0.9736	0.9606
0.0008	0.9905	1.0455
0.0016	0.9991	1.0891
0.0026	0.9980	1.0834
0.0036	0.9906	1.0464
0.0048	0.9801	0.9934
0.0060	0.9693	0.9386
0.0073	0.9570	0.8766
0.0087	0.9476	0.8301
0.0104	0.9363	0.7720
0.0125	0.9234	0.7070
0.0146	0.9126	0.6522
0.0186	0.8968	0.5725
0.0271	0.8866	0.5311
0.0375	0.8549	0.3612
0.0500	0.8336	0.2527
0.0625	0.8207	0.1877
0.0750	0.8107	0.1372
0.1000	0.7945	0.0552
0.1500	0.7740	-0.0483
0.2000	0.7596	-0.1199
0.2500	0.7462	-0.1888
0.3000	0.7342	-0.2497
0.3250	0.7282	-0.2800
0.3500	0.7234	-0.3043
0.3750	0.7205	-0.3187
0.4000	0.7211	-0.3159
0.4250	0.7243	-0.2996
0.4500	0.7297	-0.2723
0.4750	0.7359	-0.2408
0.5000	0.7434	-0.2039
0.5250	0.7504	-0.1684
0.5500	0.7587	-0.1268
0.5750	0.7665	-0.0871
0.6000	0.7741	-0.0488
0.6196	0.7804	-0.0167
0.6500	0.7872	0.0176
0.6771	0.7946	0.0548
0.7000	0.8003	0.0836
0.7500	0.8113	0.1394
0.7750	0.8158	0.1623
0.8000	*	*
0.8250	*	*
0.8500	0.8283	0.2254
0.8750	0.8312	0.2398
0.9000	0.8340	0.2544
0.9250	0.8353	0.2610
0.9500	0.8350	0.2596
0.9750	0.8302	0.2349
0.9875	0.8250	0.2089
0.9938	0.8207	0.1870

Table 6.7 (continued)

SURFACE PRESSURE DISTRIBUTION

CASE 6 M=0.725 ALPHA=2.92 RE=6500000

BANK	MACH NO	H(KN/SQ.M)	REYNOLDS NO
1	0.7250	93.09	6537000
2	0.7261	92.85	6526000
3	0.7264	92.81	6525000
4	0.7262	92.61	6509000

UPPER SURFACE

X/C	P/H	CP
0.9938	0.7412	0.1432
0.9875	0.7383	0.1318
0.9750	0.7321	0.1082
0.9500	0.7194	0.0592
0.9250	0.7070	0.0115
0.9000	0.6945	-0.0365
0.8750	0.6830	-0.0808
0.8500	0.6703	-0.1296
0.8250	0.6586	-0.1746
0.8000	0.6471	-0.2186
0.7750	0.6337	-0.2702
0.7500	0.6252	-0.3029
0.7000	0.6022	-0.3913
0.6771	0.5931	-0.4263
0.6500	0.5797	-0.4778
0.6196	0.5645	-0.5361
0.6000	0.5532	-0.5798
0.5750	0.5279	-0.6769
0.5500	0.4664	-0.9137
0.5250	0.3867	-1.2201
0.5000	0.3877	-1.2164
0.4750	0.3910	-1.2038
0.4500	0.3935	-1.1940
0.4250	0.3966	-1.1819
0.4000	0.4027	-1.1601
0.3750	0.4056	-1.1490
0.3500	0.4112	-1.1273
0.3250	0.4139	-1.1168
0.3000	0.4159	-1.1091
0.2800	0.4181	-1.1010
0.2500	0.4252	-1.0736
0.2208	0.4324	-1.0456
0.2000	0.4330	-1.0433
0.1500	0.4418	-1.0096
0.1000	0.4472	-0.9886
0.0750	0.4331	-1.0432
0.0625	0.4253	-1.0730
0.0500	0.4203	-1.0923
0.0375	0.4230	-1.0820
0.0271	0.4342	-1.0435
0.0188	0.4361	-1.0362
0.0146	0.4661	-0.9204
0.0125	0.4797	-0.8680
0.0104	0.4962	-0.8041
0.0087	0.5062	-0.7658
0.0073	0.5168	-0.7250
0.0060	0.5422	-0.6269
0.0048	0.5671	-0.5309
0.0036	0.5837	-0.4667
0.0026	0.6335	-0.2746
0.0016	0.6913	-0.0521
0.0008	0.7318	0.1042
0.0002	0.8142	0.4219

LOWER SURFACE

X/C	P/H	CP
0.0000	0.9207	0.8328
0.0002	0.9744	1.0396
0.0008	0.9914	1.1053
0.0016	0.9988	1.1338
0.0026	0.9958	1.1223
0.0036	0.9854	1.0823
0.0048	0.9712	1.0273
0.0060	0.9573	0.9736
0.0073	0.9420	0.9148
0.0087	0.9305	0.8703
0.0104	0.9161	0.8148
0.0125	0.9002	0.7537
0.0146	0.8858	0.6980
0.0186	0.8645	0.6159
0.0271	0.8459	0.5444
0.0375	0.8095	0.4040
0.0500	0.7843	0.3088
0.0625	0.7679	0.2454
0.0750	0.7542	0.1926
0.1000	0.7312	0.1042
0.1500	0.7020	-0.0081
0.2000	0.6797	-0.0940
0.2500	0.6585	-0.1754
0.3000	0.6390	-0.2506
0.3250	0.6286	-0.2904
0.3500	0.6206	-0.3214
0.3750	0.6156	-0.3406
0.4000	0.6157	-0.3403
0.4250	0.6211	-0.3194
0.4500	0.6293	-0.2881
0.4750	0.6399	-0.2469
0.5000	0.6499	-0.2079
0.5250	0.6608	-0.1657
0.5500	0.6735	-0.1169
0.5750	0.6849	-0.0731
0.6000	0.6961	-0.0301
0.6196	0.7038	-0.0003
0.6500	0.7151	0.0431
0.6771	0.7256	0.0836
0.7000	0.7334	0.1134
0.7500	0.7489	0.1731
0.7750	0.7556	0.1988
0.8000	*	*
0.8250	*	*
0.8500	0.7720	0.2618
0.8750	0.7761	0.2778
0.9000	0.7796	0.2907
0.9250	0.7812	0.2972
0.9500	0.7804	0.2937
0.9750	0.7736	0.2676
0.9875	0.7663	0.2396
0.9938	0.7598	0.2146

Table 6.7 (continued)

SURFACE PRESSURE DISTRIBUTION

CASE 7 M=0.725 ALPHA=2.55 RE=6500000

RANK	MACH NO	H(KN/SQ.M)	REYNOLDS NO
1	0.7257	94.09	6611000
2	0.7262	93.85	6597000
3	0.7258	93.17	6547000
4	0.7256	93.32	6556000

UPPER SURFACE

X/C	P/H	CP
0.9938	0.7435	0.1506
0.9875	0.7400	0.1372
0.9750	0.7343	0.1150
0.9500	0.7225	0.0699
0.9250	0.7093	0.0189
0.9000	0.6973	-0.0272
0.8750	0.6842	-0.0779
0.8500	0.6720	-0.1248
0.8250	0.6595	-0.1731
0.8000	0.6458	-0.2251
0.7750	0.6341	-0.2702
0.7500	0.6226	-0.3143
0.7000	0.5990	-0.4051
0.6771	0.5889	-0.4441
0.6500	0.5756	-0.4955
0.6196	0.5631	-0.5436
0.6000	0.5560	-0.5710
0.5750	0.5460	-0.6095
0.5500	0.5299	-0.6712
0.5250	0.4677	-0.9107
0.5000	0.4131	-1.1210
0.4750	0.4159	-1.1104
0.4500	0.4209	-1.0911
0.4250	0.4228	-1.0836
0.4000	0.4289	-1.0586
0.3750	0.4330	-1.0428
0.3500	0.4360	-1.0312
0.3250	0.4378	-1.0244
0.3000	0.4374	-1.0258
0.2800	0.4378	-1.0243
0.2500	0.4437	-1.0017
0.2208	0.4505	-0.9756
0.2000	0.4501	-0.9771
0.1500	0.4558	-0.9549
0.1000	0.4769	-0.8737
0.0750	0.4917	-0.8169
0.0625	0.4770	-0.8734
0.0500	0.4485	-0.9833
0.0375	0.4394	-1.0183
0.0271	0.4696	-0.9037
0.0188	0.4660	-0.9178
0.0146	0.4928	-0.8145
0.0125	0.5081	-0.7554
0.0104	0.5259	-0.6870
0.0087	0.5371	-0.6438
0.0073	0.5489	-0.5985
0.0060	0.5746	-0.4995
0.0048	0.5986	-0.4069
0.0036	0.6321	-0.2782
0.0026	0.6638	-0.1562
0.0016	0.7216	0.0665
0.0008	0.7599	0.2141
0.0002	0.8400	0.5227

LOWER SURFACE

X/C	P/H	CP
0.0000	0.9374	0.8976
0.0002	0.9829	1.0728
0.0008	0.9957	1.1224
0.0016	0.9977	1.1298
0.0026	0.9919	1.1074
0.0036	0.9785	1.0558
0.0048	*	*
0.0060	0.9466	0.9331
0.0073	0.9305	0.8712
0.0087	0.9176	0.8213
0.0104	0.9028	0.7646
0.0125	0.8861	0.7002
0.0146	0.8715	0.6439
0.0186	0.8502	0.5619
0.0271	0.8261	0.4689
0.0375	0.7948	0.3487
0.0500	0.7717	0.2603
0.0625	0.7554	0.1978
0.0750	0.7419	0.1460
0.1000	0.7196	0.0600
0.1500	0.6915	-0.0482
0.2000	*	*
0.2500	0.6492	-0.2110
0.3000	0.6296	-0.2863
0.3250	0.6193	-0.3259
0.3500	0.6123	-0.3528
0.3750	0.6066	-0.3747
0.4000	0.6072	-0.3725
0.4250	0.6135	-0.3481
0.4500	0.6222	-0.3146
0.4750	0.6338	-0.2700
0.5000	0.6454	-0.2267
0.5250	0.6570	-0.1818
0.5500	0.6699	-0.1323
0.5750	0.6821	-0.0852
0.6000	0.6938	-0.0403
0.6196	*	*
0.6500	0.7132	0.0346
0.6771	0.7241	0.0766
0.7000	0.7319	0.1064
0.7500	0.7476	0.1670
0.7750	0.7543	0.1926
0.8000	*	*
0.8250	*	*
0.8500	0.7710	0.2571
0.8750	0.7754	0.2738
0.9000	0.7797	0.2900
0.9250	0.7813	0.2960
0.9500	0.7808	0.2942
0.9750	0.7742	0.2690
0.9875	*	*
0.9938	0.7612	0.2188

Table 6.7 (continued)

SURFACE PRESSURE DISTRIBUTION

CASE 8 M=0.728 ALPHA=3.22 RE=6500000

BANK	MACH NO	H(KN/SQ.M)	REYNOLDS NO
1	0.7291	94.08	6628000
2	0.7286	94.06	6625000
3	0.7293	94.16	6636000
4	0.7285	94.08	6625000

UPPER SURFACE

X/C	P/H	CP
0.9938	0.7397	0.1424
0.9875	0.7366	0.1307
0.9750	0.7308	0.1084
0.9500	0.7188	0.0623
0.9250	0.7070	0.0171
0.9000	0.6956	-0.0264
0.8750	0.6841	-0.0706
0.8500	0.6725	-0.1149
0.8250	0.6609	-0.1594
0.8000	0.6491	-0.2063
0.7750	0.6368	-0.2494
0.7500	0.6250	-0.2945
0.7000	0.5994	-0.3926
0.6771	0.5884	-0.4349
0.6500	0.5712	-0.5007
0.6196	0.5504	-0.5800
0.6000	0.5340	-0.6428
0.5750	0.4985	-0.7787
0.5500	0.3929	-1.1829
0.5250	0.3558	-1.3132
0.5000	0.3654	-1.2882
0.4750	0.3711	-1.2661
0.4500	0.3750	-1.2514
0.4250	0.3804	-1.2305
0.4000	0.3851	-1.2155
0.3750	0.3894	-1.1990
0.3500	0.3931	-1.1851
0.3250	0.3969	-1.1706
0.3000	0.4000	-1.1586
0.2800	0.4018	-1.1516
0.2500	0.4079	-1.1282
0.2250	0.4164	-1.0957
0.2000	0.4167	-1.0947
0.1500	0.4178	-1.0904
0.1000	0.4220	-1.0744
0.0750	0.4107	-1.1175
0.0625	0.4115	-1.1133
0.0500	0.4098	-1.1209
0.0375	0.4007	-1.1558
0.0271	0.4035	-1.1432
0.0188	0.4232	-1.0676
0.0146	0.4501	-0.9648
0.0125	0.4626	-0.9170
0.0104	0.4777	-0.8592
0.0087	0.4872	-0.8225
0.0073	0.4981	-0.7808
0.0060	0.5241	-0.6814
0.0048	0.5458	-0.5870
0.0036	0.5825	-0.4580
0.0026	0.6147	-0.3347
0.0016	0.6749	-0.1041
0.0008	0.7149	0.0490
0.0002	0.7957	0.3696

LOWER SURFACE

X/C	P/H	CP
0.0000	0.9104	0.7970
0.0002	0.9685	1.0194
0.0008	0.9862	1.0949
0.0016	0.9967	1.1350
0.0026	0.9972	1.1295
0.0036	0.9857	1.0969
0.0048	0.9760	1.0483
0.0060	0.9631	0.9987
0.0073	0.9485	0.9430
0.0087	0.9373	0.9000
0.0104	*	*
0.0125	0.9078	0.7874
0.0146	0.8939	0.7338
0.0186	0.8728	0.6531
0.0271	0.8473	0.5557
0.0375	0.8160	0.4358
0.0500	0.7909	0.3389
0.0625	0.7739	0.2738
0.0750	0.7599	0.2201
0.1000	0.7365	0.1305
0.1500	0.7065	0.0155
0.2000	0.6840	-0.0705
0.2500	0.6619	-0.1551
0.3000	0.6419	-0.2321
0.3250	0.6312	-0.2728
0.3500	*	*
0.3750	0.6176	-0.3252
0.4000	0.6172	-0.3264
0.4250	0.6227	-0.3055
0.4500	0.6303	-0.2763
0.4750	0.6409	-0.2359
0.5000	0.6532	-0.1868
0.5250	0.6637	-0.1466
0.5500	0.6760	-0.0995
0.5750	0.6871	-0.0570
0.6000	0.6982	-0.0145
0.6196	0.7061	0.0155
0.6500	0.7169	0.0568
0.6771	0.7261	0.0922
0.7000	0.7346	0.1246
0.7500	*	*
0.7750	0.7565	0.2083
0.8000	*	*
0.8250	*	*
0.8500	0.7724	0.2693
0.8750	0.7763	0.2842
0.9000	0.7801	0.2974
0.9250	0.7817	0.3034
0.9500	0.7805	0.2988
0.9750	0.7733	0.2713
0.9875	0.7661	0.2439
0.9938	0.7592	0.2174

Table 6.7 (continued)

SURFACE PRESSURE DISTRIBUTION

CASE 9 M=0.730 ALPHA=3.19 RE=6500000

BANK	MACH NO	H(KN/SQ.M)	REYNOLDS NO
1	0.7307	89.59	6519000
2	0.7322	90.07	6511000
3	0.7290	90.41	6519000

UPPER SURFACE

X/C	P/H	CP
0.9937	0.7374	0.1347
0.9875	0.7344	0.1232
0.9750	0.7286	0.1012
0.9500	0.7171	0.0570
0.9250	0.7052	0.0114
0.9000	0.6937	-0.0325
0.8750	0.6823	-0.0760
0.8500	0.6702	-0.1226
0.8250	0.6590	-0.1654
0.8000	0.6472	-0.2103
0.7750	0.6360	-0.2535
0.7500	0.6243	-0.2983
0.7000	0.5999	-0.3915
0.6771	0.5880	-0.4370
0.6500	0.5729	-0.4949
0.6196	0.5538	-0.5681
0.6000	0.5336	-0.6338
0.5750	0.5017	-0.7552
0.5500	0.4045	-1.1249
0.5250	0.3560	-1.3097
0.5000	0.3624	-1.2853
0.4750	0.3692	-1.2593
0.4500	0.3737	-1.2420
0.4250	0.3772	-1.2290
0.4000	0.3826	-1.2085
0.3750	0.3870	-1.1917
0.3500	0.3920	-1.1727
0.3250	0.3938	-1.1658
0.3000	0.3970	-1.1535
0.2792	*	*
0.2500	0.4082	-1.1110
0.2208	0.4140	-1.0890
0.2000	0.4154	-1.0834
0.1500	0.4116	-1.0981
0.1000	0.4078	-1.1123
0.0750	0.3946	-1.1697
0.0625	0.3926	-1.1771
0.0500	0.3873	-1.1973
0.0375	0.3934	-1.1741
0.0271	0.4611	-0.9157
0.0187	0.4275	-1.0439
0.0146	0.4493	-0.9608
0.0125	0.4623	-0.9113
0.0104	0.4765	-0.8572
0.0087	0.4863	-0.8198
0.0073	0.5000	-0.7675
0.0060	0.5222	-0.6827
0.0047	0.5477	-0.5852
0.0036	0.5803	-0.4609
0.0025	0.6134	-0.3348
0.0015	0.6729	-0.1075
0.0007	0.7139	0.0491
0.0002	0.7996	0.3761

LOWER SURFACE

X/C	P/H	CP
0.0000	0.9097	0.7963
0.0002	0.9672	1.0157
0.0007	0.9870	1.0912
0.0015	0.9976	1.1315
0.0025	0.9961	1.1257
0.0036	0.9879	1.0944
0.0047	0.9754	1.0467
0.0060	0.9624	0.9971
0.0073	0.9474	0.9400
0.0087	0.9361	0.8967
0.0104	0.9223	0.8441
0.0125	0.9067	0.7849
0.0146	0.8926	0.7309
0.0186	0.8714	0.6501
0.0271	0.8492	0.5652
0.0375	0.8162	0.4393
0.0500	0.7914	0.3447
0.0625	0.7738	0.2776
0.0750	0.7604	0.2263
0.1000	*	*
0.1500	0.7054	0.0203
0.2000	0.6833	-0.0641
0.2500	0.6617	-0.1462
0.3000	0.6411	-0.2246
0.3250	0.6309	-0.2635
0.3500	0.6223	-0.2960
0.3750	0.6170	-0.3162
0.4000	0.6164	-0.3187
0.4250	0.6216	-0.2987
0.4500	0.6299	-0.2673
0.4750	0.6399	-0.2292
0.5000	0.6518	-0.1836
0.5250	0.6622	-0.1441
0.5500	0.6746	-0.0971
0.5750	0.6864	-0.0522
0.6000	0.6972	-0.0108
0.6196	0.7045	0.0168
0.6500	0.7157	0.0594
0.6771	*	*
0.7000	0.7335	0.1200
0.7500	0.7488	0.1786
0.7750	0.7554	0.2038
0.8000	0.7618	0.2281
0.8250	0.7667	0.2471
0.8500	0.7716	0.2657
0.8750	0.7751	0.2792
0.9000	0.7784	0.2917
0.9250	0.7796	0.2965
0.9500	0.7785	0.2922
0.9750	0.7711	0.2640
0.9875	0.7644	0.2381
0.9937	0.7571	0.2100

Table 6.7 (continued)

SURFACE PRESSURE DISTRIBUTION

CASE 10 M=0.750 ALPHA=3.19 RE=6200000

BANK	MACH NO	H(KN/SQ.M)	REYNOLDS NO
1	0.7502	85.11	6335000
2	0.7491	84.97	6270000
3	0.7510	84.77	6239000

UPPER SURFACE

X/C	P/H	CP
0.9937	0.6988	0.0399
0.9875	0.6952	0.0305
0.9750	0.6916	0.0134
0.9500	0.6820	-0.0218
0.9250	0.6745	-0.0495
0.9000	0.6623	-0.0944
0.8750	0.6516	-0.1338
0.8500	0.6390	-0.1801
0.8250	0.6281	-0.2202
0.8000	0.6155	-0.2668
0.7750	0.6036	-0.3106
0.7500	0.5916	-0.3545
0.7000	0.5676	-0.4431
0.6771	0.5572	-0.4814
0.6500	0.5446	-0.5279
0.6196	0.5295	-0.5834
0.6000	0.5186	-0.6301
0.5750	0.4890	-0.7394
0.5500	0.4002	-1.0674
0.5250	0.3477	-1.2612
0.5000	0.3532	-1.2412
0.4750	0.3602	-1.2150
0.4500	0.3663	-1.1927
0.4250	0.3735	-1.1660
0.4000	0.3774	-1.1515
0.3750	0.3829	-1.1314
0.3500	0.3888	-1.1096
0.3250	0.3909	-1.1016
0.3000	0.3958	-1.0836
0.2792	*	*
0.2500	0.4072	-1.0414
0.2208	0.4159	-1.0096
0.2000	0.4190	-0.9979
0.1500	0.4198	-0.9948
0.1000	0.4230	-0.9831
0.0750	0.4089	-1.0304
0.0625	0.4019	-1.0566
0.0500	0.3929	-1.0896
0.0375	0.3957	-1.0791
0.0271	0.4953	-0.7120
0.0187	0.4569	-0.8535
0.0146	0.4718	-0.7986
0.0125	0.4820	-0.7611
0.0104	0.5056	-0.6741
0.0087	0.5152	-0.6388
0.0073	0.5290	-0.5879
0.0060	0.5514	-0.5053
0.0047	0.5770	-0.4109
0.0036	0.6097	-0.2901
0.0025	0.6433	-0.1664
0.0015	0.7022	0.0506
0.0007	0.7421	0.1981
0.0002	0.8258	0.5064

LOWER SURFACE

X/C	P/H	CP
0.0000	0.9277	0.8821
0.0002	0.9773	1.0652
0.0007	0.9925	1.1212
0.0015	0.9972	1.1386
0.0025	0.9927	1.1219
0.0036	0.9809	1.0785
0.0047	0.9650	1.0199
0.0060	0.9504	0.9659
0.0073	0.9341	0.9057
0.0087	0.9215	0.8594
0.0104	0.9068	0.8053
0.0125	0.8902	0.7438
0.0146	0.8755	0.6896
0.0186	0.8544	0.6120
0.0271	0.8325	0.5311
0.0375	0.7971	0.4005
0.0500	0.7722	0.3089
0.0625	0.7543	0.2427
0.0750	0.7403	0.1914
0.1000	0.7160	0.1016
0.1500	0.6862	-0.0109
0.2000	0.6627	-0.0977
0.2500	0.6388	-0.1859
0.3000	0.6163	-0.2692
0.3250	0.6043	-0.3133
0.3500	0.5944	-0.3501
0.3750	0.5881	-0.3734
0.4000	0.5867	-0.3785
0.4250	0.5934	-0.3537
0.4500	0.6086	-0.2977
0.4750	0.6149	-0.2743
0.5000	0.6276	-0.2275
0.5250	0.6398	-0.1822
0.5500	0.6531	-0.1330
0.5750	0.6659	-0.0859
0.6000	0.6777	-0.0421
0.6196	0.6859	-0.0120
0.6500	0.6975	0.0310
0.6771	*	*
0.7000	0.7161	0.1037
0.7500	0.7322	0.1630
0.7750	0.7388	0.1875
0.8000	0.7453	0.2112
0.8250	0.7502	0.2295
0.8500	0.7548	0.2464
0.8750	0.7582	0.2586
0.9000	0.7610	0.2690
0.9250	0.7612	0.2698
0.9500	0.7584	0.2595
0.9750	0.7475	0.2193
0.9875	0.7365	0.1789
0.9937	0.7262	0.1410

Table 6.7 (continued)

SURFACE PRESSURE DISTRIBUTION

CASE 12 M=0.730 ALPHA=3.19 RE=2700000

BANK	MACH NO	H(KN/SQ•M)	REYNOLDS NO
1	0.7286	36.24	2708000
2	0.7294	36.34	2715000
3	0.7280	36.53	2723000

UPPER SURFACE

X/C	P/H	CP
0.9937	0.7274	0.0943
0.9875	0.7258	0.0878
0.9750	0.7223	0.0747
0.9500	0.7130	0.0390
0.9250	0.7044	0.0060
0.9000	0.6945	-0.0319
0.8750	0.6834	-0.0748
0.8500	0.6715	-0.1202
0.8250	0.6619	-0.1570
0.8000	0.6494	-0.2052
0.7750	0.6383	-0.2478
0.7500	0.6285	-0.2851
0.7000	0.6045	-0.3773
0.6771	0.5951	-0.4135
0.6500	0.5830	-0.4597
0.6196	0.5709	-0.5062
0.6000	0.5597	-0.5442
0.5750	0.5502	-0.5805
0.5500	0.5395	-0.6213
0.5250	0.5218	-0.6892
0.5000	0.4724	-0.8781
0.4750	0.4095	-1.1188
0.4500	0.3936	-1.1795
0.4250	0.3932	-1.1812
0.4000	0.3961	-1.1700
0.3750	0.3965	-1.1610
0.3500	0.4028	-1.1444
0.3250	0.4027	-1.1448
0.3000	0.4058	-1.1329
0.2792	*	*
0.2500	0.4152	-1.0971
0.2208	0.4222	-1.0701
0.2000	0.4233	-1.0661
0.1500	0.4204	-1.0771
0.1000	0.4172	-1.0893
0.0750	0.3988	-1.1635
0.0625	0.3907	-1.1944
0.0500	0.3850	-1.2163
0.0375	0.3899	-1.1976
0.0271	0.4652	-0.9091
0.0187	0.4318	-1.0371
0.0146	0.4519	-0.9603
0.0125	0.4654	-0.9065
0.0104	0.4800	-0.8524
0.0087	0.4912	-0.8097
0.0073	0.5049	-0.7571
0.0060	0.5271	-0.6718
0.0047	0.5528	-0.5736
0.0036	0.5849	-0.4504
0.0025	0.6185	-0.3219
0.0015	0.6779	-0.0941
0.0007	0.7188	0.0626
0.0002	0.8050	0.3926

LOWER SURFACE

X/C	P/H	CP
0.0000	0.9129	0.8063
0.0002	0.9690	1.0211
0.0007	0.9880	1.0939
0.0015	0.9975	1.1303
0.0025	0.9954	1.1221
0.0036	0.9864	1.0878
0.0047	0.9731	1.0368
0.0060	0.9601	0.9868
0.0073	0.9455	0.9312
0.0087	0.9332	0.8838
0.0104	0.9195	0.8313
0.0125	0.9035	0.7701
0.0146	0.8899	0.7180
0.0186	0.8696	0.6402
0.0271	0.8458	0.5489
0.0375	0.8129	0.4232
0.0500	0.7867	0.3227
0.0625	0.7693	0.2561
0.0750	0.7571	0.2091
0.1000	0.7355	0.1263
0.1500	0.7027	0.0028
0.2000	0.6801	-0.0834
0.2500	0.6591	-0.1640
0.3000	0.6381	-0.2441
0.3250	0.6281	-0.2826
0.3500	0.6198	-0.3144
0.3750	0.6141	-0.3362
0.4000	0.6139	-0.3370
0.4250	0.6187	-0.3185
0.4500	0.6270	-0.2868
0.4750	0.6369	-0.2488
0.5000	0.6489	-0.2031
0.5250	0.6599	-0.1608
0.5500	0.6719	-0.1151
0.5750	0.6832	-0.0716
0.6000	0.6939	-0.0306
0.6196	0.7012	-0.0028
0.6500	0.7125	0.0405
0.6771	0.7224	0.0782
0.7000	0.7289	0.0997
0.7500	0.7443	0.1590
0.7750	0.7510	0.1846
0.8000	0.7562	0.2045
0.8250	0.7617	0.2256
0.8500	0.7657	0.2410
0.8750	0.7691	0.2542
0.9000	0.7714	0.2627
0.9250	0.7729	0.2687
0.9500	0.7713	0.2623
0.9750	0.7633	0.2318
0.9875	0.7546	0.1983
0.9937	0.7482	0.1737

Table 6.7 (continued)

SURFACE PRESSURE DISTRIBUTION

CASE 13 M=0.745 ALPHA=3.19 RE=2700000

BANK	MACH NO	H(KN/SQ.M)	REYNOLDS NO
1	0.7428	37.55	2710000
2	0.7460	37.31	2698000
3	0.7468	36.83	2667000

UPPER SURFACE

X/C	P/H	CP
0.9937	0.7102	0.0727
0.9875	0.7084	0.0658
0.9750	0.7044	0.0509
0.9500	0.6962	0.0207
0.9250	0.6876	-0.0112
0.9000	0.6789	-0.0435
0.8750	0.6696	-0.0781
0.8500	0.6593	-0.1163
0.8250	0.6495	-0.1527
0.8000	0.6393	-0.1903
0.7750	0.6291	-0.2282
0.7500	0.6182	-0.2687
0.7000	0.5961	-0.3505
0.6771	0.5852	-0.3910
0.6500	0.5720	-0.4401
0.6196	0.5556	-0.5010
0.6000	0.5417	-0.5550
0.5750	0.5174	-0.6453
0.5500	0.4558	-0.8741
0.5250	0.3645	-1.2131
0.5000	0.3660	-1.2075
0.4750	0.3773	-1.1654
0.4500	0.3807	-1.1528
0.4250	0.3787	-1.1604
0.4000	0.3836	-1.1419
0.3750	0.3879	-1.1261
0.3500	0.3936	-1.1050
0.3250	0.3914	-1.1132
0.3000	0.3872	-1.1287
0.2792	*	*
0.2500	0.4249	-0.9889
0.2208	0.4207	-1.0044
0.2000	0.4222	-0.9988
0.1500	0.4228	-0.9967
0.1000	0.4269	-0.9815
0.0750	0.4048	-1.0776
0.0625	0.3968	-1.1075
0.0500	0.3887	-1.1375
0.0375	0.3916	-1.1268
0.0271	0.4855	-0.7762
0.0187	0.4496	-0.9100
0.0146	0.4677	-0.8424
0.0125	0.4815	-0.7909
0.0104	0.4975	-0.7313
0.0087	0.5095	-0.6864
0.0073	0.5237	-0.6331
0.0060	0.5460	-0.5500
0.0047	0.5723	-0.4519
0.0036	0.6041	-0.3331
0.0025	0.6380	-0.2065
0.0015	0.6964	0.0117
0.0007	0.7369	0.1630
0.0002	0.8216	0.4792

LOWER SURFACE

X/C	P/H	CP
0.0000	0.9245	0.8636
0.0002	0.9755	1.0543
0.0007	0.9913	1.1134
0.0015	0.9972	1.1352
0.0025	0.9933	1.1208
0.0036	0.9824	1.0800
0.0047	0.9672	1.0233
0.0060	0.9529	0.9698
0.0073	0.9374	0.9117
0.0087	0.9242	0.8626
0.0104	0.9069	0.7978
0.0125	0.8935	0.7478
0.0146	0.8785	0.6919
0.0186	0.8576	0.6139
0.0271	0.8336	0.5242
0.0375	0.8004	0.4002
0.0500	0.7735	0.2998
0.0625	0.7560	0.2343
0.0750	0.7424	0.1834
0.1000	0.7197	0.0988
0.1500	0.6875	-0.0136
0.2000	0.6642	-0.0999
0.2500	0.6417	-0.1838
0.3000	0.6193	-0.2667
0.3250	0.6079	-0.3092
0.3500	0.5994	-0.3408
0.3750	0.5927	-0.3656
0.4000	0.5930	-0.3644
0.4250	0.5978	-0.3465
0.4500	*	*
0.4750	0.6185	-0.2697
0.5000	0.6311	-0.2230
0.5250	0.6432	-0.1782
0.5500	0.6558	-0.1312
0.5750	0.6687	-0.0834
0.6000	0.6796	-0.0428
0.6196	0.6875	-0.0135
0.6500	0.6996	0.0313
0.6771	0.7091	0.0669
0.7000	0.7172	0.0984
0.7500	0.7328	0.1563
0.7750	0.7396	0.1817
0.8000	0.7455	0.2034
0.8250	0.7508	0.2230
0.8500	0.7555	0.2404
0.8750	0.7587	0.2524
0.9000	0.7619	0.2644
0.9250	0.7620	0.2646
0.9500	*	*
0.9750	0.7508	0.2231
0.9875	0.7410	0.1869
0.9937	0.7329	0.1566

Table 6.7 (concluded)

SURFACE PRESSURE DISTRIBUTION

CASE 13A M=0.740 ALPHA=3.19 RE=2700000

BANK	MACH NO	H(KN/SQ.M)	REYNOLDS NO
1	0.7392	36.38	2749000
2	0.7393	36.48	2749000
3	0.7387	36.58	2753000

UPPER SURFACE

X/C	P/H	CP
0.9937	0.7206	0.0929
0.9875	0.7184	0.0847
0.9750	0.7144	0.0698
0.9500	0.7057	0.0368
0.9250	0.6963	0.0014
0.9000	0.6867	-0.0347
0.8750	0.6768	-0.0718
0.8500	0.6656	-0.1141
0.8250	0.6554	-0.1522
0.8000	0.6445	-0.1935
0.7750	0.6342	-0.2323
0.7500	0.6229	-0.2747
0.7000	0.5994	-0.3631
0.6771	0.5894	-0.4005
0.6500	0.5761	-0.4507
0.6196	0.5622	-0.5031
0.6000	0.5505	-0.5448
0.5750	0.5319	-0.6147
0.5500	0.4938	-0.7580
0.5250	0.3975	-1.1199
0.5000	0.3673	-1.2331
0.4750	0.3706	-1.2210
0.4500	0.3756	-1.2020
0.4250	0.3783	-1.1919
0.4000	0.3836	-1.1720
0.3750	0.3883	-1.1544
0.3500	0.3937	-1.1339
0.3250	0.3947	-1.1305
0.3000	0.3991	-1.1139
0.2792	*	*
0.2500	0.4084	-1.0788
0.2208	0.4178	-1.0435
0.2000	0.4193	-1.0377
0.1500	0.4168	-1.0474
0.1000	0.4162	-1.0494
0.0750	0.4008	-1.1083
0.0625	0.3933	-1.1365
0.0500	0.3868	-1.1609
0.0375	0.3911	-1.1446
0.0271	0.4724	-0.8389
0.0187	0.4389	-0.9649
0.0146	0.4569	-0.8898
0.0125	0.4716	-0.8422
0.0104	0.4872	-0.7834
0.0087	0.4975	-0.7446
0.0073	0.5112	-0.6933
0.0060	0.5344	-0.6060
0.0047	0.5599	-0.5100
0.0036	0.5920	-0.3896
0.0025	0.6262	-0.2611
0.0015	0.6846	-0.0413
0.0007	0.7264	0.1158
0.0002	0.8117	0.4363

LOWER SURFACE

X/C	P/H	CP
0.0000	0.9187	0.8386
0.0002	0.9717	1.0377
0.0007	0.9896	1.1049
0.0015	0.9974	1.1345
0.0025	0.9945	1.1235
0.0036	0.9846	1.0861
0.0047	0.9705	1.0332
0.0060	0.9570	0.9825
0.0073	0.9409	0.9221
0.0087	0.9289	0.8769
0.0104	0.9150	0.8246
0.0125	0.8985	0.7628
0.0146	0.8844	0.7098
0.0186	0.8629	0.6287
0.0271	0.8397	0.5416
0.0375	0.8065	0.4166
0.0500	0.7795	0.3154
0.0625	0.7622	0.2504
0.0750	0.7489	0.2005
0.1000	0.7271	0.1185
0.1500	0.6959	0.0015
0.2000	0.6729	-0.0849
0.2500	0.6511	-0.1667
0.3000	0.6292	-0.2492
0.3250	0.6189	-0.2877
0.3500	0.6103	-0.3200
0.3750	0.6042	-0.3431
0.4000	0.6040	-0.3439
0.4250	0.6086	-0.3266
0.4500	0.6178	-0.2918
0.4750	0.6283	-0.2526
0.5000	0.6406	-0.2061
0.5250	0.6517	-0.1646
0.5500	0.6644	-0.1170
0.5750	0.6765	-0.0715
0.6000	0.6871	-0.0314
0.6196	0.6947	-0.0031
0.6500	0.7062	0.0402
0.6771	0.7168	0.0801
0.7000	0.7239	0.1053
0.7500	0.7391	0.1624
0.7750	0.7460	0.1884
0.8000	0.7514	0.2088
0.8250	0.7569	0.2296
0.8500	0.7612	0.2455
0.8750	0.7646	0.2586
0.9000	0.7669	0.2669
0.9250	0.7679	0.2709
0.9500	0.7662	0.2646
0.9750	0.7575	0.2317
0.9875	0.7493	0.2007
0.9937	0.7410	0.1698

Table 6.8

BOUNDARY LAYER AND WAKE PROFILES

CASE 1 PROBES B

M= 0.676 ALPHA= 2.40 RE=5700000

X/C= 0.152 Y/C= 1.17 LOWER

CONSTANT CP(STATIC)=-0.066

Z/C	U/UP
0.00015	0.6434
0.00023	0.7073
0.00032	0.7830
0.00038	0.8079
0.00051	0.8536
0.00067	0.8838
0.00073	0.8997
0.00084	0.9215
0.00094	0.9445
0.00103	0.9629
0.00113	0.9764
0.00113	0.9767
0.00122	0.9849
0.00133	0.9913
0.00145	0.9960
0.00152	0.9980
0.00163	0.9990
0.00177	0.9997
0.00184	1.0000
0.00192	1.0000
0.00207	1.0000

X/C= 0.152 Y/C= 2.42 LOWER

CONSTANT CP(STATIC)=-0.066

Z/C	U/UP
0.00011	0.5896
0.00019	0.6514
0.00027	0.7236
0.00038	0.7748
0.00050	0.8095
0.00060	0.8396
0.00074	0.8733
0.00080	0.8881
0.00093	0.9208
0.00103	0.9364
0.00117	0.9608
0.00133	0.9820
0.00147	0.9915
0.00163	0.9969
0.00180	0.9993
0.00197	1.0000
0.00213	1.0000

X/C= 0.179 Y/C= 1.04 UPPER

CONSTANT CP(STATIC)=-0.813

Z/C	U/UP
0.00023	0.7030
0.00030	0.7303
0.00049	0.7745
0.00064	0.8030
0.00069	0.8166
0.00079	0.8398
0.00090	0.8587
0.00102	0.8794
0.00113	0.8944
0.00115	0.8937
0.00121	0.9057
0.00128	0.9160
0.00138	0.9308
0.00146	0.9412
0.00159	0.9508
0.00167	0.9633
0.00177	0.9723
0.00188	0.9804
0.00200	0.9863
0.00213	0.9908
0.00225	0.9944
0.00236	0.9965
0.00250	0.9973
0.00261	0.9982
0.00280	0.9992
0.00290	0.9995
0.00306	0.9996
0.00320	0.9999
0.00330	0.9999
0.00340	1.0000
0.00355	1.0000

X/C= 0.179 Y/C= 2.29 UPPER

CONSTANT CP(STATIC)=-0.813

Z/C	U/UP
0.00018	0.6325
0.00027	0.6762
0.00033	0.7050
0.00042	0.7313
0.00051	0.7623
0.00055	0.7749
0.00057	0.7763
0.00063	0.7939
0.00070	0.8123
0.00074	0.8225
0.00086	0.8446
0.00093	0.8599
0.00107	0.8840
0.00113	0.8986
0.00124	0.9137
0.00134	0.9292
0.00145	0.9442
0.00155	0.9579
0.00165	0.9697
0.00180	0.9811
0.00190	0.9869
0.00203	0.9928
0.00215	0.9953
0.00228	0.9973
0.00245	0.9988
0.00259	0.9992
0.00272	0.9995
0.00288	0.9996
0.00307	0.9997
0.00322	1.0000
0.00338	1.0000

X/C= 0.319 Y/C= 1.15 UPPER

CONSTANT CP(STATIC)=-0.781

Z/C	U/UP
0.00027	0.6025
0.00038	0.6314
0.00051	0.6701
0.00063	0.6958
0.00069	0.7068
0.00079	0.7254
0.00089	0.7413
0.00100	0.7579
0.00112	0.7702
0.00112	0.7715
0.00118	0.7805
0.00124	0.7916
0.00137	0.8045
0.00145	0.8144
0.00155	0.8262
0.00166	0.8369
0.00174	0.8479
0.00185	0.8591
0.00199	0.8716
0.00212	0.8826
0.00223	0.8936
0.00236	0.9037
0.00249	0.9137
0.00256	0.9208
0.00280	0.9373
0.00298	0.9458
0.00312	0.9566
0.00323	0.9652
0.00340	0.9711
0.00347	0.9752
0.00365	0.9827
0.00377	0.9865
0.00388	0.9900
0.00405	0.9934
0.00416	0.9949
0.00432	0.9966
0.00448	0.9979
0.00457	0.9983
0.00467	0.9990
0.00480	0.9994
0.00494	0.9997
0.00507	0.9999
0.00516	1.0000
0.00532	1.0000

X/C= 0.319 Y/C= 2.40 UPPER

CONSTANT CP(STATIC)=-0.781

Z/C	U/UP
0.00016	0.5767
0.00016	0.5767
0.00023	0.6187
0.00030	0.6480
0.00035	0.6584
0.00047	0.6834
0.00057	0.6985
0.00069	0.7208
0.00076	0.7317
0.00083	0.7452
0.00095	0.7569
0.00104	0.7713
0.00114	0.7851
0.00126	0.7973
0.00137	0.8144
0.00150	0.8230
0.00161	0.8376
0.00171	0.8468
0.00183	0.8580
0.00199	0.8749
0.00211	0.8865
0.00225	0.8979
0.00241	0.9092
0.00260	0.9224
0.00276	0.9357
0.00293	0.9448
0.00307	0.9545
0.00322	0.9620
0.00335	0.9663
0.00344	0.9723
0.00359	0.9771
0.00373	0.9837
0.00385	0.9886
0.00401	0.9921
0.00422	0.9952
0.00433	0.9970
0.00443	0.9981
0.00463	0.9994
0.00480	1.0000

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 1 PROBES B (concluded)

M= 0.676 ALPHA= 2.40 RE=5700000

X/C= 0.750 Y/C= 2.18 UPPER

CONSTANT CP(STATIC)=-0.335

Z/C	U/UP
0.00073	0.5330
0.00133	0.5742
0.00158	0.5926
0.00206	0.6212
0.00287	0.6690
0.00351	0.7035
0.00447	0.7471
0.00526	0.7890
0.00677	0.8588
0.00771	0.8946
0.00849	0.9230
0.00927	0.9480
0.01099	0.9830
0.01157	0.9919
0.01273	0.9982
0.01337	1.0000
0.01459	1.0002
0.01530	1.0000
0.01712	1.0002
0.01823	1.0000

X/C= 0.900 Y/C= 2.64 UPPER

CONSTANT CP(STATIC)=-0.057

Z/C	U/UP
0.00098	0.4344
0.00123	0.4531
0.00156	0.4724
0.00206	0.4954
0.00239	0.5082
0.00289	0.5332
0.00347	0.5560
0.00388	0.5719
0.00463	0.6049
0.00559	0.6438
0.00566	0.6445
0.00653	0.6835
0.00824	0.7573
0.00925	0.7956
0.01004	0.8306
0.01012	0.8305
0.01091	0.8630
0.01272	0.9204
0.01350	0.9439
0.01475	0.9700
0.01577	0.9867
0.01685	0.9948
0.01778	0.9971
0.01903	0.9991
0.02113	0.9991
0.02332	1.0000
0.02332	1.0000
0.02530	1.0000

X/C= 0.950 Y/C= 2.44 UPPER

CONSTANT CP(STATIC)= 0.057

Z/C	U/UP
0.00096	0.3300
0.00132	0.3446
0.00176	0.3711
0.00230	0.3916
0.00266	0.4086
0.00338	0.4338
0.00427	0.4687
0.00427	0.4669
0.00525	0.5025
0.00695	0.5657
0.00780	0.6025
0.00856	0.6368
0.00864	0.6365
0.00940	0.6699
0.01092	0.7322
0.01168	0.7654
0.01281	0.8060
0.01386	0.8446
0.01490	0.8806
0.01594	0.9143
0.01705	0.9428
0.01815	0.9673
0.01916	0.9806
0.02018	0.9909
0.02127	0.9969
0.02127	0.9966
0.02245	0.9987
0.02345	0.9996
0.02738	1.0000
0.02949	1.0000

X/C= 1.000 Y/C= 2.02 WAKE

CONSTANT CP(STATIC)= 0.145

Z/C	U/UP
-0.02590	1.0000
-0.02402	1.0000
-0.02158	0.9991
-0.01935	0.9964
-0.01745	0.9852
-0.01513	0.9585
-0.01289	0.9255
-0.01090	0.8894
-0.00857	0.8412
-0.00641	0.7918
-0.00434	0.7548
-0.00217	0.6942
-0.00129	0.6039
-0.00055	0.2369
0.00033	0.2519
0.00242	0.3137
0.00457	0.3801
0.00662	0.4519
0.00882	0.5254
0.01111	0.6115
0.01302	0.6849
0.01507	0.7667
0.01716	0.8416
0.01927	0.9082
0.02139	0.9608
0.02345	0.9893
0.02540	0.9981
0.02739	0.9998
0.02927	1.0000

X/C= 1.025 Y/C= 2.82 WAKE

CONSTANT CP(STATIC)= 0.145

Z/C	U/UP
-0.02731	1.0000
-0.02546	0.9998
-0.02325	0.9981
-0.02091	0.9931
-0.01909	0.9820
-0.01674	0.9555
-0.01449	0.9166
-0.01252	0.8781
-0.01018	0.8383
-0.00798	0.7982
-0.00591	0.7395
-0.00380	0.6442
-0.00296	0.5873
-0.00167	0.4577
0.00078	0.4289
0.00299	0.4694
0.00507	0.5336
0.00715	0.5986
0.00931	0.6778
0.01120	0.7426
0.01337	0.8166
0.01545	0.8860
0.01743	0.9320
0.01948	0.9703
0.02157	0.9919
0.02354	0.9970
0.02536	0.9994
0.02742	1.0002
0.02742	0.9996
0.02937	1.0000

X/C= 2.000 Y/C= 1.50 WAKE

Z/C	U/UP	CP(STATIC)
-0.06370	1.0000	-0.0004
-0.05082	0.9993	0.0022
-0.04677	0.9989	0.0021
-0.03051	0.9849	0.0002
-0.02315	0.9687	0.0002
-0.01987	0.9599	0.0002
-0.01412	0.9422	-0.0007
-0.01001	0.9306	-0.0032
-0.00754	0.9225	-0.0033
-0.00754	0.9235	-0.0022
-0.00754	0.9237	-0.0037
-0.00754	0.9231	-0.0022
-0.00589	0.9177	-0.0022
-0.00011	0.9103	-0.0046
0.00267	0.9064	-0.0041
0.00681	0.9078	-0.0065
0.01095	0.9112	-0.0046
0.01593	0.9196	-0.0065
0.02092	0.9310	-0.0032
0.02757	0.9471	-0.0036
0.03090	0.9576	-0.0036
0.03674	0.9705	-0.0032
0.04174	0.9802	-0.0032
0.04759	0.9900	-0.0022
0.05343	0.9947	-0.0027
0.07350	0.9998	-0.0042
0.09356	1.0000	-0.0037

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 2 PROBES 8

M= 0.676 ALPHA=-2.18 RE= 5700000

X/C= 0.152 Y/C= 1.17 LOWER

CONSTANT CP(STATIC)=-0.665

Z/C	U/Up
0.00017	0.6710
0.00023	0.7145
0.00027	0.7444
0.00034	0.7793
0.00038	0.7964
0.00047	0.8213
0.00054	0.8389
0.00067	0.8667
0.00082	0.9022
0.00088	0.9219
0.00101	0.9413
0.00122	0.9735
0.00143	0.9910
0.00163	0.9974
0.00171	0.9986
0.00184	0.9994
0.00201	0.9998
0.00218	0.9999
0.00235	1.0000
0.00245	1.0000
0.00268	1.0000

X/C= 0.152 Y/C= 2.42 LOWER

CONSTANT CP(STATIC)=-0.665

Z/C	U/Up
0.00013	0.6476
0.00021	0.7087
0.00035	0.7627
0.00042	0.8015
0.00060	0.8400
0.00078	0.8851
0.00100	0.9278
0.00125	0.9718
0.00137	0.9835
0.00153	0.9931
0.00172	0.9986
0.00187	0.9996
0.00205	0.9999
0.00248	1.0000
0.00272	1.0000
0.00292	1.0000
0.00319	1.0000

X/C= 0.179 Y/C= 1.04 UPPER

CONSTANT CP(STATIC)=-0.180

Z/C	U/Up
0.00012	0.6272
0.00015	0.6775
0.00023	0.7304
0.00027	0.7492
0.00044	0.7760
0.00049	0.7922
0.00064	0.8202
0.00081	0.8571
0.00088	0.8745
0.00100	0.8926
0.00123	0.9257
0.00140	0.9518
0.00159	0.9721
0.00167	0.9796
0.00182	0.9886
0.00196	0.9942
0.00215	0.9978
0.00227	0.9986
0.00242	0.9991
0.00261	0.9994
0.00283	0.9997
0.00294	0.9997
0.00318	0.9997
0.00347	0.9998
0.00368	1.0000
0.00394	1.0000
0.00421	1.0000

X/C= 0.179 Y/C= 2.29 UPPER

CONSTANT CP(STATIC)=-0.180

Z/C	U/Up
0.00015	0.6505
0.00026	0.7149
0.00033	0.7430
0.00048	0.7874
0.00056	0.8116
0.00067	0.8357
0.00073	0.8502
0.00096	0.8973
0.00100	0.9078
0.00110	0.9255
0.00119	0.9382
0.00127	0.9502
0.00140	0.9677
0.00150	0.9791
0.00167	0.9894
0.00185	0.9955
0.00208	0.9985
0.00235	0.9996
0.00246	0.9995
0.00262	0.9995
0.00281	0.9999
0.00298	1.0000
0.00312	1.0000
0.00354	0.9999
0.00377	0.9999
0.00398	0.9998
0.00423	1.0000

X/C= 0.319 Y/C= 1.15 UPPER

CONSTANT CP(STATIC)=-0.314

Z/C	U/Up
0.00013	0.5356
0.00018	0.5810
0.00025	0.6241
0.00030	0.6391
0.00037	0.6586
0.00046	0.6829
0.00052	0.6965
0.00060	0.7193
0.00079	0.7487
0.00087	0.7631
0.00097	0.7782
0.00115	0.8059
0.00135	0.8303
0.00154	0.8520
0.00163	0.8624
0.00175	0.8762
0.00194	0.8913
0.00208	0.9072
0.00221	0.9186
0.00237	0.9309
0.00254	0.9465
0.00280	0.9615
0.00296	0.9685
0.00319	0.9804
0.00347	0.9909
0.00370	0.9954
0.00395	0.9979
0.00418	0.9994
0.00446	0.9998
0.00469	0.9999
0.00501	1.0000
0.00519	1.0000
0.00537	1.0000
0.00555	1.0000

X/C= 0.319 Y/C= 2.40 UPPER

CONSTANT CP(STATIC)=-0.314

Z/C	U/Up
0.00014	0.5635
0.00021	0.6334
0.00033	0.6727
0.00038	0.6873
0.00061	0.7334
0.00063	0.7423
0.00075	0.7574
0.00082	0.7693
0.00092	0.7806
0.00104	0.7988
0.00116	0.8138
0.00130	0.8321
0.00149	0.8511
0.00168	0.8724
0.00197	0.8960
0.00206	0.9056
0.00220	0.9181
0.00238	0.9328
0.00255	0.9447
0.00271	0.9546
0.00317	0.9768
0.00339	0.9861
0.00359	0.9913
0.00384	0.9961
0.00400	0.9976
0.00410	0.9984
0.00426	0.9991
0.00475	1.0000
0.00527	1.0000
0.00564	1.0000
0.00595	1.0000

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 2 PROBES B (concluded)

M= 0.676 ALPHA=-2.18 RE= 5700000

X/C= 0.750 Y/C= 2.18 UPPER

CONSTANT CP(STATIC)=-0.234

Z/C	U/UP
0.00075	0.5773
0.00109	0.6100
0.00126	0.6299
0.00193	0.6705
0.00241	0.6998
0.00313	0.7428
0.00370	0.7725
0.00417	0.8038
0.00513	0.8490
0.00608	0.8940
0.00711	0.9308
0.00813	0.9659
0.00976	0.9932
0.01139	0.9998
0.01284	1.0000
0.01405	1.0000
0.01583	1.0000
0.01758	1.0000

X/C= 0.900 Y/C= 2.64 UPPER

CONSTANT CP(STATIC)=-0.028

Z/C	U/UP
0.00080	0.4989
0.00105	0.5172
0.00146	0.5469
0.00179	0.5660
0.00204	0.5785
0.00254	0.6009
0.00279	0.6109
0.00320	0.6349
0.00403	0.6723
0.00469	0.7004
0.00527	0.7303
0.00628	0.7764
0.00738	0.8238
0.00839	0.8667
0.00964	0.9119
0.01130	0.9629
0.01326	0.9930
0.01506	0.9991
0.01654	0.9996
0.01848	0.9996
0.02050	0.9999
0.02229	1.0000
0.02379	1.0000

X/C= 0.950 Y/C= 2.44 UPPER

CONSTANT CP(STATIC)= 0.073

Z/C	U/UP
0.00069	0.4280
0.00104	0.4601
0.00122	0.4744
0.00167	0.5021
0.00248	0.5398
0.00301	0.5671
0.00355	0.5948
0.00453	0.6381
0.00561	0.6860
0.00659	0.7317
0.00779	0.7817
0.00930	0.8470
0.01107	0.9141
0.01272	0.9631
0.01420	0.9877
0.01610	0.9990
0.01805	1.0000
0.01982	1.0000
0.02133	1.0001
0.02326	1.0000
0.02475	1.0000

X/C= 1.000 Y/C=2.02 WAKE

CONSTANT CP(STATIC)= 0.186

Z/C	U/UP
-0.02864	0.9933
-0.02731	0.9877
-0.02565	0.9758
-0.02350	0.9538
-0.02141	0.9228
-0.01934	0.8893
-0.01702	0.8491
-0.01496	0.8092
-0.01280	0.7713
-0.01073	0.7431
-0.00848	0.7116
-0.00623	0.6825
-0.00408	0.6601
-0.00287	0.6405
-0.00155	0.5935
-0.00068	0.3836
0.00059	0.3250
0.00147	0.3714
0.00309	0.4383
0.00474	0.5069
0.00688	0.6070
0.00890	0.6941
0.01119	0.7870
0.01335	0.8742
0.01516	0.9339
0.01623	0.9643
0.01792	0.9895
0.02019	0.9988
0.02155	0.9997
0.02631	0.9997
0.02788	1.0000
0.02943	1.0000

X/C= 1.025 Y/C= 2.82 WAKE

CONSTANT CP(STATIC)= 0.186

Z/C	U/UP
-0.02893	0.9937
-0.02750	0.9913
-0.02591	0.9862
-0.02389	0.9735
-0.02175	0.9550
-0.01975	0.9260
-0.01740	0.8920
-0.01531	0.8507
-0.01315	0.8127
-0.01108	0.7773
-0.00883	0.7398
-0.00655	0.6992
-0.00439	0.6605
-0.00321	0.6138
-0.00186	0.5526
-0.00102	0.5085
0.00015	0.4927
0.00113	0.5092
0.00264	0.5638
0.00441	0.6174
0.00658	0.7133
0.00856	0.7877
0.01071	0.8658
0.01293	0.9365
0.01460	0.9746
0.01559	0.9886
0.01724	0.9962
0.01946	0.9984
0.02076	0.9995
0.02542	0.9995
0.02684	1.0000
0.02864	1.0000

X/C= 2.000 Y/C= 1.50 WAKE

Z/C	U/UP	CP(STATIC)
-0.20766	1.0000	-0.0014
-0.16639	1.0000	-0.0052
-0.14172	0.9998	-0.0009
-0.12682	1.0000	-0.0052
-0.10852	0.9998	-0.0028
-0.10019	0.9996	-0.0062
-0.09184	0.9973	-0.0047
-0.08432	0.9893	-0.0033
-0.07513	0.9714	-0.0047
-0.06760	0.9487	-0.0038
-0.05924	0.9236	-0.0058
-0.04974	0.9092	-0.0043
-0.04139	0.9119	-0.0057
-0.03304	0.9285	-0.0052
-0.02470	0.9514	-0.0063
-0.01555	0.9757	-0.0077
-0.00807	0.9899	-0.0072
0.00022	0.9979	-0.0071
0.00850	1.0000	-0.0081
0.02497	1.0000	-0.0076
0.04132	1.0000	-0.0081

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 3 PROBES B

M= 0.600 ALPHA= 2.57 RE=6300000

X/C= 0.152 Y/C= 1.17 LOWER

CONSTANT CP(STATIC)= -0.051

Z/C	U/UP
0.00017	0.6747
0.00026	0.7311
0.00036	0.7649
0.00045	0.7986
0.00054	0.8219
0.00077	0.8676
0.00100	0.8990
0.00122	0.9246
0.00137	0.9420
0.00163	0.9569
0.00185	0.9679
0.00207	0.9744
0.00220	0.9783
0.00242	0.9801
0.00265	0.9844
0.00291	0.9873
0.00312	0.9897
0.00333	0.9914
0.00358	0.9937
0.00379	0.9946
0.00400	0.9961
0.00422	0.9970
0.00443	0.9978
0.00462	0.9984
0.00483	0.9987
0.00494	0.9989
0.00520	0.9993
0.00543	0.9994
0.00563	0.9996
0.00590	0.9998
0.00622	1.0000
0.00661	1.0000
0.00712	1.0000

X/C= 0.152 Y/C= 2.42 LOWER

CONSTANT CP(STATIC)= -0.051

Z/C	U/UP
0.00012	0.6038
0.00025	0.7183
0.00053	0.7667
0.00064	0.8114
0.00078	0.8483
0.00090	0.8767
0.00115	0.9140
0.00139	0.9408
0.00161	0.9595
0.00180	0.9694
0.00213	0.9778
0.00231	0.9805
0.00250	0.9844
0.00275	0.9859
0.00295	0.9875
0.00322	0.9901
0.00345	0.9926
0.00368	0.9933
0.00391	0.9952
0.00413	0.9959
0.00442	0.9966
0.00482	0.9980
0.00503	0.9991
0.00568	0.9995
0.00597	1.0000
0.00756	1.0000

X/C= 0.179 Y/C= 1.04 UPPER

CONSTANT CP(STATIC)= -0.745

Z/C	U/UP
0.00015	0.6152
0.00023	0.6647
0.00038	0.6953
0.00052	0.7279
0.00062	0.7502
0.00083	0.7840
0.00108	0.8094
0.00128	0.8280
0.00146	0.8415
0.00167	0.8548
0.00190	0.8678
0.00212	0.8770
0.00229	0.8854
0.00252	0.8950
0.00270	0.9030
0.00297	0.9122
0.00313	0.9184
0.00333	0.9250
0.00357	0.9320
0.00380	0.9377
0.00402	0.9432
0.00420	0.9487
0.00442	0.9533
0.00459	0.9590
0.00480	0.9636
0.00494	0.9668
0.00519	0.9724
0.00543	0.9769
0.00562	0.9800
0.00592	0.9840
0.00625	0.9885
0.00660	0.9923
0.00713	0.9962
0.00752	0.9980
0.00795	0.9990
0.00834	1.0000
0.00877	1.0000
0.00926	1.0000

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 3 PROBES B (continued)

M= 0.600 ALPHA= 2.57 RE=6300000

X/C= 0.179 Y/C= 2.29 UPPER

CONSTANT CP(STATIC)= -0.745

Z/C	U/UP
0.00017	0.6048
0.00028	0.6616
0.00042	0.6909
0.00049	0.7119
0.00058	0.7279
0.00070	0.7425
0.00086	0.7588
0.00102	0.7744
0.00132	0.7937
0.00153	0.8094
0.00175	0.8225
0.00195	0.8317
0.00220	0.8463
0.00244	0.8546
0.00268	0.8634
0.00289	0.8761
0.00312	0.8836
0.00337	0.8911
0.00357	0.8998
0.00382	0.9069
0.00405	0.9154
0.00427	0.9215
0.00450	0.9315
0.00473	0.9364
0.00498	0.9456
0.00519	0.9512
0.00540	0.9567
0.00564	0.9641
0.00584	0.9671
0.00617	0.9744
0.00651	0.9804
0.00690	0.9868
0.00738	0.9918
0.00785	0.9948
0.00831	0.9974
0.00871	0.9986
0.00918	0.9994
0.00963	0.9996
0.01020	0.9999
0.01065	1.0000
0.01113	1.0000

X/C= 0.319 Y/C= 1.15 UPPER

CONSTANT CP(STATIC)= -0.693

Z/C	U/UP
0.00017	0.5467
0.00028	0.5765
0.00042	0.6072
0.00055	0.6284
0.00080	0.6565
0.00098	0.6839
0.00121	0.7029
0.00141	0.7152
0.00160	0.7295
0.00185	0.7457
0.00205	0.7539
0.00220	0.7640
0.00241	0.7780
0.00264	0.7880
0.00288	0.8001
0.00309	0.8095
0.00325	0.8167
0.00350	0.8287
0.00371	0.8378
0.00393	0.8456
0.00417	0.8554
0.00440	0.8661
0.00457	0.8715
0.00481	0.8810
0.00493	0.8867
0.00522	0.8985
0.00545	0.9074
0.00563	0.9126
0.00588	0.9235
0.00619	0.9340
0.00656	0.9458
0.00711	0.9605
0.00754	0.9707
0.00797	0.9788
0.00838	0.9858
0.00880	0.9911
0.00927	0.9946
0.00975	0.9970
0.01013	0.9984
0.01060	0.9991
0.01096	0.9995
0.01145	0.9998
0.01211	1.0000

X/C= 0.319 Y/C= 2.40 UPPER

CONSTANT CP(STATIC)= -0.693

Z/C	U/UP
0.00016	0.5770
0.00025	0.6337
0.00036	0.6745
0.00050	0.6985
0.00057	0.7177
0.00066	0.7330
0.00077	0.7487
0.00093	0.7658
0.00110	0.7833
0.00140	0.8049
0.00160	0.8197
0.00181	0.8326
0.00200	0.8427
0.00222	0.8562
0.00244	0.8649
0.00268	0.8754
0.00289	0.8850
0.00313	0.8916
0.00339	0.9021
0.00360	0.9098
0.00385	0.9132
0.00408	0.9216
0.00430	0.9261
0.00453	0.9327
0.00476	0.9359
0.00500	0.9436
0.00521	0.9493
0.00541	0.9515
0.00566	0.9574
0.00585	0.9597
0.00615	0.9658
0.00647	0.9707
0.00691	0.9752
0.00746	0.9822
0.00790	0.9859
0.00836	0.9904
0.00879	0.9933
0.00923	0.9959
0.00963	0.9969
0.01015	0.9983
0.01063	0.9989
0.01112	0.9995
0.01163	1.0000
0.01210	1.0000

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 3 PROBES B (concluded)

M= 0.600 ALPHA= 2.57 RE=6300000

X/C= 0.750 Y/C= 2.18 UPPER

CONSTANT CP(STATIC)= -0.320

Z/C	U/UP
0.00073	0.5063
0.00139	0.5633
0.00245	0.6163
0.00342	0.6568
0.00440	0.6983
0.00607	0.7622
0.00757	0.8161
0.00928	0.8716
0.01112	0.9230
0.01310	0.9645
0.01511	0.9893
0.01684	0.9977
0.01857	0.9995
0.02052	0.9999
0.02218	0.9999
0.02386	1.0000
0.02547	1.0000

X/C= 0.900 Y/C= 2.64 UPPER

CONSTANT CP(STATIC)= -0.060

Z/C	U/UP
0.00085	0.4041
0.00160	0.4436
0.00270	0.4868
0.00367	0.5219
0.00472	0.5590
0.00655	0.6249
0.00832	0.6768
0.01026	0.7386
0.01230	0.8091
0.01448	0.8730
0.01665	0.9266
0.01867	0.9630
0.02091	0.9893
0.02319	0.9979
0.02509	0.9996
0.02695	1.0000
0.02905	1.0000
0.03115	1.0000
0.03305	1.0000

X/C= 0.950 Y/C= 2.44 UPPER

CONSTANT CP(STATIC)= 0.046

Z/C	U/UP
0.00057	0.3053
0.00080	0.3234
0.00149	0.3570
0.00225	0.3874
0.00325	0.4250
0.00432	0.4565
0.00723	0.5506
0.00891	0.6061
0.01094	0.6721
0.01314	0.7426
0.01540	0.8106
0.01766	0.8727
0.01964	0.9221
0.02179	0.9645
0.02416	0.9899
0.02605	0.9972
0.02812	0.9998
0.03028	1.0000
0.03241	1.0000

X/C= 1.000 Y/C= 2.02 WAKE

CONSTANT CP(STATIC)= 0.126

Z/C	U/UP
-0.02453	1.0000
-0.02226	1.0000
-0.01995	0.9987
-0.01772	0.9917
-0.01558	0.9745
-0.01343	0.9431
-0.01110	0.8987
-0.00885	0.8516
-0.00673	0.8091
-0.00435	0.7591
-0.00310	0.7342
-0.00230	0.7156
-0.00122	0.6789
-0.00033	0.4668
0.00078	0.2272
0.00164	0.2535
0.00250	0.2756
0.00456	0.3345
0.00683	0.4057
0.00886	0.4615
0.01115	0.5356
0.01316	0.5996
0.01528	0.6734
0.01732	0.7393
0.01928	0.8066
0.02137	0.8726
0.02367	0.9295
0.02584	0.9725
0.02775	0.9913
0.02959	0.9983
0.03173	1.0000
0.03372	1.0000
0.03553	1.0000
0.03761	1.0000

X/C= 1.025 Y/C= 2.82 WAKE

CONSTANT CP(STATIC)= 0.126

Z/C	U/UP
-0.02429	1.0000
-0.02212	0.9987
-0.02003	0.9934
-0.01787	0.9787
-0.01592	0.9536
-0.01390	0.9182
-0.01166	0.8745
-0.00944	0.8291
-0.00750	0.7909
-0.00520	0.7375
-0.00389	0.6691
-0.00319	0.6016
-0.00214	0.5017
-0.00126	0.4290
-0.00049	0.3919
0.00066	0.3772
0.00152	0.3854
0.00348	0.4274
0.00562	0.4844
0.00750	0.5432
0.00983	0.6058
0.01193	0.6689
0.01400	0.7377
0.01603	0.7876
0.01787	0.8514
0.01976	0.8970
0.02191	0.9377
0.02408	0.9715
0.02599	0.9885
0.02780	0.9955
0.02992	0.9985
0.03196	0.9998
0.03380	0.9998
0.03574	1.0000

X/C= 2.000 Y/C= 1.50 WAKE

Z/C	U/UP	CP(STATIC)
-0.06090	1.0000	0.0005
-0.05448	1.0000	0.0010
-0.04723	1.0000	0.0005
-0.03833	0.9998	0.0000
-0.03020	0.9978	-0.0024
-0.02531	0.9947	-0.0010
-0.02122	0.9899	-0.0014
-0.01713	0.9822	-0.0014
-0.01385	0.9759	-0.0043
-0.00892	0.9631	-0.0033
-0.00481	0.9512	-0.0052
0.00014	0.9346	-0.0072
0.00427	0.9218	-0.0067
0.00675	0.9132	-0.0058
0.01171	0.9019	-0.0061
0.01503	0.8967	-0.0071
0.01948	0.8939	-0.0076
0.02363	0.8944	-0.0086
0.02861	0.8994	-0.0077
0.03694	0.9174	-0.0076
0.04527	0.9447	-0.0077
0.05362	0.9644	-0.0067
0.06114	0.9820	-0.0057
0.06867	0.9930	-0.0072
0.07786	0.9977	-0.0052
0.08673	0.9999	-0.0057
0.09877	0.9997	-0.0043
0.10962	0.9999	-0.0062
0.11880	0.9999	-0.0067
0.11963	0.9999	-0.0075
0.16103	0.9999	-0.0062
0.16273	0.9998	-0.0076
0.24180	0.9998	-0.0105
0.31828	1.0000	-0.0143

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 6 PROBES B

M= 0.725 ALPHA= 2.92 RE=6500000

X/C= 0.152 Y/C= 1.17 LOWER

CONSTANT CP(STATIC)= -0.012

Z/C	U/UP
0.00017	0.6854
0.00028	0.7374
0.00032	0.7580
0.00042	0.7860
0.00049	0.8121
0.00062	0.8364
0.00076	0.8667
0.00095	0.8998
0.00122	0.9337
0.00140	0.9582
0.00162	0.9755
0.00185	0.9883
0.00210	0.9945
0.00222	0.9976
0.00267	0.9996
0.00312	0.9999
0.00362	1.0001
0.00401	1.0000

X/C= 0.152 Y/C= 2.42 LOWER

CONSTANT CP(STATIC)= -0.012

Z/C	U/UP
0.00012	0.5873
0.00038	0.7174
0.00062	0.7617
0.00082	0.8134
0.00102	0.8578
0.00126	0.8986
0.00152	0.9313
0.00176	0.9581
0.00194	0.9743
0.00227	0.9917
0.00259	0.9984
0.00306	1.0006
0.00358	0.9999
0.00400	1.0000
0.00448	1.0000
0.00491	1.0000

X/C= 0.179 Y/C= 1.04 UPPER

CONSTANT CP(STATIC)= -1.029

Z/C	U/UP
0.00017	0.6102
0.00027	0.6565
0.00038	0.6792
0.00050	0.7140
0.00060	0.7401
0.00073	0.7655
0.00085	0.7879
0.00108	0.8205
0.00128	0.8541
0.00150	0.8836
0.00171	0.9041
0.00192	0.9260
0.00214	0.9470
0.00235	0.9626
0.00274	0.9855
0.00315	0.9949
0.00359	0.9996
0.00406	1.0000
0.00444	1.0000
0.00477	1.0000

X/C= 0.179 Y/C= 2.20 UPPER

CONSTANT CP(STATIC)= -1.029

Z/C	U/UP
0.00015	0.5634
0.00024	0.6278
0.00035	0.6856
0.00046	0.7135
0.00060	0.7480
0.00072	0.7718
0.00093	0.7976
0.00113	0.8294
0.00141	0.8630
0.00166	0.8884
0.00190	0.9118
0.00211	0.9294
0.00236	0.9538
0.00275	0.9742
0.00323	0.9941
0.00375	0.9991
0.00414	0.9998
0.00459	1.0000
0.00507	1.0000

X/C= 0.319 Y/C= 1.15 UPPER

CONSTANT CP(STATIC)= -1.115

Z/C	U/UP
0.00017	0.5675
0.00028	0.6267
0.00038	0.6579
0.00046	0.6734
0.00057	0.6969
0.00071	0.7165
0.00081	0.7345
0.00098	0.7523
0.00118	0.7733
0.00139	0.7974
0.00169	0.8183
0.00191	0.8362
0.00215	0.8498
0.00237	0.8669
0.00256	0.8804
0.00297	0.9041
0.00341	0.9297
0.00384	0.9516
0.00428	0.9698
0.00469	0.9838
0.00493	0.9918
0.00538	0.9965
0.00577	0.9995
0.00618	1.0000
0.00653	1.0000

X/C= 0.319 Y/C= 2.40 UPPER

CONSTANT CP(STATIC)= -1.115

Z/C	U/UP
0.00013	0.5462
0.00021	0.5929
0.00032	0.6444
0.00045	0.6709
0.00057	0.6998
0.00070	0.7200
0.00087	0.7447
0.00117	0.7736
0.00144	0.8012
0.00169	0.8197
0.00191	0.8376
0.00207	0.8510
0.00236	0.8721
0.00269	0.8937
0.00323	0.9266
0.00370	0.9505
0.00405	0.9656
0.00453	0.9832
0.00510	0.9932
0.00549	0.9983
0.00589	0.9994
0.00631	0.9999
0.00674	1.0000
0.00768	1.0000
0.00921	1.0000

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 6 PROBES 8 (concluded)

M= 0.725 ALPHA= 2.92 RE=6500000

X/C= 0.900 Y/C= 2.64 UPPER

CONSTANT CP(STATIC)= -0.037

Z/C	U/UP
0.00115	0.3642
0.00162	0.3904
0.00208	0.4067
0.00300	0.4304
0.00396	0.4643
0.00466	0.4840
0.00606	0.5260
0.00923	0.6201
0.01217	0.7167
0.01500	0.8150
0.01790	0.8929
0.02076	0.9586
0.02337	0.9865
0.02633	0.9980
0.02890	1.0000

X/C= 0.950 Y/C= 2.44 UPPER

CONSTANT CP(STATIC)= 0.059

Z/C	U/UP
0.00073	0.2874
0.00112	0.3057
0.00173	0.3306
0.00235	0.3514
0.00280	0.3691
0.00472	0.4116
0.00686	0.4657
0.01000	0.5512
0.01291	0.6350
0.01596	0.7254
0.01885	0.8088
0.02173	0.8843
0.02433	0.9370
0.02733	0.9795
0.03005	0.9959
0.03243	0.9997
0.03509	1.0000

X/C= 1.000 Y/C= 2.02 WAKE

CONSTANT CP(STATIC)= 0.143

Z/C	U/UP
-0.02583	1.0000
-0.02270	1.0000
-0.01978	0.9976
-0.01683	0.9850
-0.01397	0.9513
-0.01092	0.8969
-0.00805	0.8419
-0.00505	0.7869
-0.00293	0.7452
-0.00095	0.6699
0.00033	0.2257
0.00113	0.2574
0.00405	0.3233
0.00692	0.3841
0.00983	0.4577
0.01273	0.5291
0.01562	0.6058
0.01855	0.6930
0.02137	0.7739
0.02376	0.8333
0.02632	0.8921
0.02928	0.9425
0.03181	0.9753
0.03451	0.9916
0.03708	0.9993
0.03975	1.0000

X/C= 1.025 Y/C= 2.82 WAKE

CONSTANT CP(STATIC)= 0.143

Z/C	U/UP
-0.02847	1.0000
-0.02614	0.9994
-0.02310	0.9981
-0.02022	0.9912
-0.01742	0.9691
-0.01476	0.9284
-0.01188	0.8767
-0.00913	0.8240
-0.00650	0.7688
-0.00449	0.6657
-0.00361	0.5758
-0.00273	0.4879
-0.00182	0.4204
-0.00069	0.3903
0.00237	0.4001
0.00512	0.4551
0.00792	0.5302
0.01076	0.6091
0.01357	0.6858
0.01645	0.7726
0.01910	0.8460
0.02140	0.9028
0.02399	0.9472
0.02665	0.9803
0.02905	0.9944
0.03182	0.9986
0.03432	1.0000

X/C= 2.000 Y/C= 1.50 WAKE

Z/C	U/UP	CP(STATIC)
-0.07712	1.0000	0.0071
-0.07398	1.0000	0.0055
-0.06134	1.0003	0.0047
-0.04938	0.9998	0.0062
-0.04135	0.9993	0.0059
-0.03086	0.9970	0.0036
-0.02030	0.9889	0.0038
-0.01215	0.9767	0.0007
-0.00478	0.9586	0.0002
0.00591	0.9303	-0.0017
0.02077	0.9035	-0.0010
0.02853	0.9022	-0.0006
0.04682	0.9247	-0.0026
0.05849	0.9456	-0.0010
0.07269	0.9715	-0.0009
0.08105	0.9793	0.0003
0.09527	0.9858	-0.0021
0.10948	0.9903	-0.0017
0.11950	0.9915	-0.0013
0.12951	0.9933	-0.0032
0.16933	0.9949	-0.0041
0.23173	0.9990	-0.0085
0.32972	0.9999	-0.0144
0.39742	1.0000	-0.0160

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 7 PRORES B

M=0.725 ALPHA= 2.55 RE=6500000

X/C= 0.152 Y/C= 1.17 LOWER

CONSTANT CP(STATIC)= -0.051

Z/C	U/UP
0.00015	0.6703
0.00036	0.7652
0.00047	0.8036
0.00068	0.8502
0.00087	0.8857
0.00108	0.9139
0.00126	0.9399
0.00149	0.9618
0.00182	0.9868
0.00205	0.9945
0.00233	0.9990
0.00261	0.9999
0.00287	1.0000
0.00305	1.0000
0.00326	1.0002
0.00345	1.0000
0.00366	1.0000

X/C= 0.152 Y/C= 2.42 LOWER

CONSTANT CP(STATIC)= -0.051

Z/C	U/UP
0.00034	0.7308
0.00064	0.7910
0.00080	0.8364
0.00104	0.8755
0.00121	0.9059
0.00145	0.9335
0.00170	0.9588
0.00187	0.9743
0.00224	0.9926
0.00254	0.9987
0.00286	1.0000
0.00334	1.0000

X/C= 0.179 Y/C= 1.04 UPPER

CONSTANT CP(STATIC)= -0.968

Z/C	U/UP
0.00031	0.6937
0.00050	0.7407
0.00089	0.8171
0.00108	0.8427
0.00128	0.8730
0.00150	0.8981
0.00179	0.9404
0.00190	0.9454
0.00226	0.9704
0.00250	0.9836
0.00293	0.9956
0.00313	0.9980
0.00329	0.9989
0.00344	0.9995
0.00373	1.0000
0.00393	1.0000
0.00410	0.9999
0.00434	1.0000

X/C= 0.179 Y/C= 2.29 UPPER

CONSTANT CP(STATIC)= -0.968

Z/C	U/UP
0.00015	0.5995
0.00033	0.6893
0.00044	0.7334
0.00065	0.7752
0.00083	0.8037
0.00104	0.8327
0.00125	0.8611
0.00150	0.8840
0.00170	0.9028
0.00193	0.9226
0.00215	0.9363
0.00246	0.9598
0.00277	0.9772
0.00312	0.9919
0.00337	0.9958
0.00355	0.9981
0.00377	0.9991
0.00411	0.9998
0.00434	0.9999
0.00448	1.0000

X/C= 0.319 Y/C= 1.15 UPPER

CONSTANT CP(STATIC)= -1.025

Z/C	U/UP
0.00015	0.5562
0.00025	0.6073
0.00048	0.6743
0.00065	0.7052
0.00092	0.7386
0.00109	0.7623
0.00126	0.7798
0.00147	0.8007
0.00169	0.8199
0.00208	0.8502
0.00223	0.8632
0.00255	0.8844
0.00283	0.9023
0.00305	0.9166
0.00323	0.9253
0.00344	0.9374
0.00361	0.9449
0.00380	0.9549
0.00402	0.9650
0.00419	0.9713
0.00443	0.9789
0.00470	0.9858
0.00489	0.9903
0.00538	0.9961
0.00577	0.9985
0.00628	0.9993
0.00670	0.9996
0.00725	1.0000
0.00744	1.0000

X/C= 0.319 Y/C= 2.40 UPPER

CONSTANT CP(STATIC)= -1.025

Z/C	U/UP
0.00016	0.5545
0.00034	0.6273
0.00045	0.6699
0.00065	0.7067
0.00084	0.7344
0.00105	0.7628
0.00125	0.7898
0.00151	0.8103
0.00170	0.8262
0.00191	0.8431
0.00212	0.8565
0.00239	0.8793
0.00270	0.9003
0.00306	0.9257
0.00332	0.9379
0.00350	0.9476
0.00373	0.9583
0.00408	0.9689
0.00430	0.9771
0.00444	0.9827
0.00471	0.9895
0.00493	0.9940
0.00511	0.9961
0.00534	0.9977
0.00574	0.9995
0.00619	0.9999
0.00656	1.0001
0.00711	1.0000
0.00756	1.0000

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 7 PROBES 8 (concluded)

M=0.725 ALPHA= 2.55 RE=6500000

X/C= 0.900 Y/C= 2.64 UPPER

CONSTANT CP(STATIC)= -0.027

Z/C	U/UP
0.00066	0.3199
0.00103	0.3371
0.00169	0.3744
0.00206	0.3883
0.00262	0.4102
0.00422	0.4649
0.00545	0.5066
0.00702	0.5658
0.00843	0.6130
0.01002	0.6703
0.01143	0.7199
0.01301	0.7835
0.01446	0.8407
0.01591	0.8889
0.01754	0.9333
0.01911	0.9592
0.02076	0.9849
0.02312	0.9977
0.02602	1.0001
0.02843	1.0000
0.03354	1.0000

X/C=0.950 Y/C= 2.44 UPPER

CONSTANT CP(STATIC)= 0.070

Z/C	U/UP
0.00057	0.2783
0.00102	0.3007
0.00156	0.3224
0.00203	0.3339
0.00268	0.3495
0.00417	0.3963
0.00563	0.4366
0.00700	0.4899
0.00845	0.5327
0.01000	0.5837
0.01150	0.6294
0.01322	0.6837
0.01471	0.7400
0.01627	0.7892
0.01782	0.8420
0.01942	0.8796
0.02109	0.9265
0.02347	0.9650
0.02637	0.9905
0.02895	0.9992
0.03157	1.0000

X/C= 1.000 Y/C= 2.02 WAKE

CONSTANT CP(STATIC)= 0.151

Z/C	U/UP
-0.02511	1.0000
-0.02188	0.9992
-0.01831	0.9902
-0.01468	0.9617
-0.01182	0.9072
-0.00856	0.8387
-0.00512	0.7738
-0.00280	0.7353
-0.00197	0.7099
-0.00106	0.6630
0.00024	0.1992
0.00097	0.2245
0.00174	0.2421
0.00418	0.3078
0.00743	0.3927
0.01036	0.4733
0.01355	0.5777
0.01610	0.6702
0.01897	0.7588
0.02162	0.8456
0.02421	0.9147
0.02670	0.9586
0.02969	0.9910
0.03210	0.9985
0.03346	0.9992
0.03480	1.0002
0.03613	1.0000

X/C= 1.025 Y/C= 2.82 WAKE

CONSTANT CP(STATIC)= 0.151

Z/C	U/UP
-0.02533	1.0000
-0.02223	0.9969
-0.01868	0.9787
-0.01578	0.9423
-0.01281	0.8846
-0.00950	0.8209
-0.00642	0.7574
-0.00440	0.6466
-0.00361	0.5654
-0.00273	0.4766
-0.00182	0.4110
-0.00099	0.3779
0.00015	0.3673
0.00273	0.4026
0.00574	0.4856
0.00844	0.5688
0.01170	0.6710
0.01434	0.7523
0.01708	0.8316
0.01964	0.9046
0.02217	0.9553
0.02455	0.9799
0.02713	0.9953
0.02935	0.9990
0.03245	0.9998
0.03511	1.0000

X/C= 2.000 Y/C= 1.50 WAKE

Z/C	U/UP	CP(STATIC)
-0.16180	1.0000	0.0113
-0.11863	1.0000	0.0086
-0.09549	0.9994	0.0117
-0.08216	0.9994	0.0128
-0.07267	0.9996	0.0090
-0.06390	0.9994	0.0113
-0.05348	0.9993	0.0101
-0.03895	0.9989	0.0046
-0.03000	0.9951	0.0073
-0.02265	0.9890	0.0009
-0.01446	0.9749	0.0029
-0.00624	0.9544	0.0006
0.00200	0.9296	-0.0049
0.01027	0.9135	-0.0009
0.01803	0.9040	-0.0006
0.02800	0.9073	-0.0001
0.03633	0.9172	-0.0014
0.04383	0.9325	-0.0030
0.05050	0.9496	-0.0014
0.06053	0.9692	-0.0022
0.06805	0.9830	-0.0005
0.07390	0.9874	-0.0010
0.08478	0.9933	-0.0029
0.09063	0.9937	-0.0034
0.09983	0.9952	0.0009
0.10901	0.9969	-0.0010
0.11735	0.9972	-0.0019
0.16129	0.9990	-0.0046
0.24590	0.9998	-0.0066
0.31622	0.9997	-0.0121
0.38609	1.0000	-0.0137

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 8 PROBES B

M=0.728 ALPHA= 3.22 RE=6500000

X/C= 0.152 Y/C= 1.17 LOWER

CONSTANT CP(STATIC)= 0.012

Z/C	U/UP
0.00015	0.6623
0.00027	0.7215
0.00040	0.7725
0.00057	0.8253
0.00072	0.8555
0.00087	0.8896
0.00108	0.9134
0.00120	0.9314
0.00139	0.9556
0.00155	0.9689
0.00168	0.9796
0.00186	0.9888
0.00202	0.9934
0.00220	0.9962
0.00226	0.9985
0.00243	0.9993
0.00262	1.0000
0.00275	0.9999
0.00293	1.0000

X/C= 0.152 Y/C= 2.42 LOWER

CONSTANT CP(STATIC)= 0.012

Z/C	U/UP
0.00012	0.5899
0.00016	0.6346
0.00038	0.7318
0.00058	0.7799
0.00073	0.8211
0.00088	0.8441
0.00093	0.8541
0.00110	0.8801
0.00128	0.9054
0.00141	0.9275
0.00163	0.9491
0.00176	0.9669
0.00198	0.9799
0.00226	0.9921
0.00243	0.9968
0.00271	0.9993
0.00290	0.9998
0.00312	1.0000
0.00326	1.0001
0.00347	1.0000
0.00370	1.0000

X/C= 0.179 Y/C= 1.04 UPPER

CONSTANT CP(STATIC)= -1.093

Z/C	U/UP
0.00011	0.5585
0.00020	0.6105
0.00036	0.6795
0.00061	0.7421
0.00074	0.7731
0.00094	0.8078
0.00117	0.8389
0.00123	0.8471
0.00143	0.8780
0.00153	0.8942
0.00167	0.9088
0.00187	0.9267
0.00200	0.9399
0.00215	0.9533
0.00234	0.9679
0.00249	0.9779
0.00267	0.9859
0.00277	0.9923
0.00293	0.9961
0.00304	0.9980
0.00322	0.9988
0.00332	0.9993
0.00351	0.9998
0.00366	0.9999
0.00398	0.9998
0.00415	1.0000

X/C= 0.179 Y/C= 2.29 UPPER

CONSTANT CP(STATIC)= -1.093

Z/C	U/UP
0.00015	0.5988
0.00020	0.6429
0.00035	0.7095
0.00053	0.7530
0.00065	0.7767
0.00093	0.8108
0.00097	0.8193
0.00116	0.8487
0.00132	0.8702
0.00148	0.8877
0.00170	0.9066
0.00184	0.9240
0.00209	0.9395
0.00225	0.9583
0.00248	0.9718
0.00280	0.9863
0.00296	0.9921
0.00317	0.9957
0.00333	0.9982
0.00350	0.9994
0.00371	0.9997
0.00393	0.9999
0.00409	1.0000
0.00438	1.0000
0.00470	1.0000

X/C= 0.319 Y/C= 1.15 UPPER

CONSTANT CP(STATIC)= -1.168

Z/C	U/UP
0.00023	0.6037
0.00032	0.6380
0.00047	0.6759
0.00073	0.7171
0.00086	0.7380
0.00107	0.7618
0.00121	0.7789
0.00130	0.7882
0.00153	0.8097
0.00166	0.8226
0.00181	0.8335
0.00199	0.8453
0.00210	0.8555
0.00227	0.8657
0.00245	0.8783
0.00255	0.8876
0.00273	0.8972
0.00288	0.9057
0.00307	0.9167
0.00315	0.9238
0.00334	0.9323
0.00344	0.9380
0.00365	0.9484
0.00380	0.9573
0.00406	0.9670
0.00428	0.9749
0.00453	0.9824
0.00484	0.9895
0.00540	0.9969
0.00560	0.9979
0.00593	0.9995
0.00614	0.9996
0.00642	0.9999
0.00667	1.0000
0.00688	1.0000

X/C= 0.319 Y/C= 2.40 UPPER

CONSTANT CP(STATIC)= -1.168

Z/C	U/UP
0.00016	0.5732
0.00020	0.6057
0.00038	0.6614
0.00055	0.6990
0.00066	0.7197
0.00068	0.7234
0.00080	0.7430
0.00089	0.7504
0.00096	0.7580
0.00105	0.7652
0.00122	0.7825
0.00138	0.7985
0.00156	0.8130
0.00174	0.8294
0.00196	0.8426
0.00210	0.8542
0.00234	0.8708
0.00252	0.8853
0.00283	0.9043
0.00305	0.9148
0.00320	0.9272
0.00338	0.9365
0.00362	0.9484
0.00375	0.9558
0.00392	0.9643
0.00420	0.9722
0.00444	0.9819
0.00469	0.9888
0.00505	0.9931
0.00524	0.9962
0.00552	0.9983
0.00581	0.9995
0.00612	0.9999
0.00635	0.9998
0.00662	1.0000

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE B PROBES B (concluded)

M=0.728 ALPHA= 3.22 RE=6500000

X/C= 0.900 Y/C= 2.64 UPPER

CONSTANT CP(STATIC)= -0.026

Z/C	U/UP
0.00122	0.3608
0.00253	0.3977
0.00351	0.4280
0.00491	0.4543
0.00640	0.4954
0.00797	0.5398
0.00957	0.5740
0.01106	0.6101
0.01257	0.6687
0.01402	0.7035
0.01564	0.7520
0.01718	0.8077
0.01885	0.8541
0.02058	0.8881
0.02219	0.9227
0.02387	0.9504
0.02633	0.9782
0.02898	0.9934
0.03212	0.9995
0.03422	0.9999
0.03672	1.0000

X/C= 0.950 Y/C= 2.44 UPPER

CONSTANT CP(STATIC)= 0.062

Z/C	U/UP
0.00078	0.2927
0.00170	0.3267
0.00300	0.3565
0.00407	0.3824
0.00545	0.4014
0.00698	0.4367
0.00858	0.4802
0.01013	0.5098
0.01320	0.5919
0.01476	0.6191
0.01640	0.6629
0.01795	0.7157
0.01963	0.7628
0.02123	0.7929
0.02289	0.8360
0.02463	0.8720
0.02715	0.9176
0.02996	0.9568
0.03312	0.9837
0.03508	0.9930
0.03782	0.9959
0.04029	1.0003
0.04301	1.0000

X/C= 1.025 Y/C= 2.87 WAKE

CONSTANT CP(STATIC)= 0.142

Z/C	U/UP
-0.02635	1.0000
-0.02338	0.9992
-0.02060	0.9940
-0.01800	0.9779
-0.01504	0.9386
-0.01225	0.8865
-0.00932	0.8305
-0.00668	0.7774
-0.00493	0.6977
-0.00396	0.6173
-0.00309	0.5377
-0.00229	0.4644
-0.00145	0.4208
-0.00031	0.3966
0.00246	0.4065
0.00547	0.4569
0.00783	0.5077
0.01076	0.5788
0.01340	0.6362
0.01630	0.7136
0.01823	0.7718
0.02133	0.8430
0.02399	0.8940
0.02623	0.9363
0.02775	0.9555
0.02935	0.9737
0.03090	0.9863
0.03245	0.9917
0.03379	0.9945
0.03518	0.9962
0.03654	1.0000

X/C= 2.000 Y/C= 1.50 WAKE

Z/C	U/UP	CP(STATIC)
-0.31541	1.0000	0.0217
-0.26876	0.9996	0.0196
-0.22542	0.9995	0.0181
-0.17790	0.9990	0.0177
-0.12886	0.9991	0.0165
-0.08738	0.9986	0.0204
-0.06715	0.9986	0.0138
-0.06007	0.9992	0.0130
-0.05295	0.9987	0.0118
-0.04099	0.9977	0.0134
-0.03458	0.9964	0.0118
-0.02572	0.9926	0.0094
-0.01924	0.9859	0.0106
-0.01112	0.9743	0.0099
-0.00214	0.9560	0.0075
0.00605	0.9377	0.0083
0.01510	0.9170	0.0040
0.02335	0.9045	0.0051
0.03109	0.9006	0.0044
0.03937	0.9024	0.0048
0.04270	0.9044	0.0055
0.04768	0.9087	0.0044
0.05684	0.9195	0.0032
0.06518	0.9292	0.0016
0.07185	0.9371	0.0106
0.08105	0.9496	0.0024
0.08773	0.9619	0.0044
0.09860	0.9738	0.0056
0.10613	0.9756	0.0032
0.11365	0.9788	0.0032
0.12118	0.9816	0.0044
0.13036	0.9825	0.0032
0.14453	0.9857	0.0048
0.17934	0.9912	0.0021
0.26876	0.9974	-0.0007
0.34468	0.9998	-0.0070
0.40596	1.0000	-0.0098

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 9 PROBES C1

M= 0.730 ALPHA= 3.19 RE= 6500000.

X/C= 0.152 Y/C= 1.17 LOWER

CONSTANT CP(STATIC)= 0.020

Z/C	U/UP
0.00014	0.6042
0.00034	0.7507
0.00067	0.8407
0.00083	0.8727
0.00103	0.9114
0.00128	0.9379
0.00163	0.9748
0.00198	0.9917
0.00224	0.9969
0.00261	0.9989
0.00301	0.9997
0.00338	1.0000

X/C= 0.179 Y/C= 1.04 UPPER

CONSTANT CP(STATIC)=-1.090

Z/C	U/UP
0.00017	0.5487
0.00040	0.6363
0.00123	0.7958
0.00166	0.8465
0.00209	0.8969
0.00251	0.9408
0.00285	0.9676
0.00333	0.9904
0.00366	0.9983
0.00416	1.0000
0.00499	1.0001
0.00527	1.0000

X/C= 0.319 Y/C= 1.15 UPPER

CONSTANT CP(STATIC)=-1.160

Z/C	U/UP
0.00042	0.6617
0.00082	0.7295
0.00154	0.7943
0.00186	0.8268
0.00225	0.8569
0.00268	0.8853
0.00307	0.9113
0.00358	0.9385
0.00387	0.9541
0.00440	0.9749
0.00466	0.9844
0.00507	0.9922
0.00543	0.9964
0.00584	0.9986
0.00647	0.9999
0.00705	0.9997
0.00766	1.0002
0.00816	0.9999
0.00871	1.0000

X/C= 0.404 Y/C= 1.20 UPPER

CONSTANT CP(STATIC)=-1.210

Z/C	U/UP
0.00023	0.5551
0.00059	0.6672
0.00084	0.7100
0.00128	0.7486
0.00168	0.7863
0.00240	0.8389
0.00308	0.8776
0.00370	0.9101
0.00467	0.9478
0.00515	0.9720
0.00585	0.9880
0.00671	0.9963
0.00753	0.9995
0.00830	0.9992
0.00874	1.0000
0.00975	1.0000

X/C= 0.498 Y/C= 1.34 UPPER

Z/C	U/UP	CP(STATIC)
0.00040	0.6292	-1.2813
0.00068	0.6922	-1.2808
0.00115	0.7366	-1.2800
0.00178	0.7894	-1.2788
0.00271	0.8266	-1.2772
0.00311	0.8575	-1.2765
0.00417	0.8946	-1.2746
0.00459	0.9182	-1.2739
0.00523	0.9402	-1.2728
0.00607	0.9621	-1.2713
0.00662	0.9780	-1.2703
0.00731	0.9899	-1.2691
0.00776	0.9952	-1.2683
0.00857	0.9991	-1.2669
0.00900	0.9995	-1.2661
0.00953	0.9999	-1.2652
0.01005	1.0000	-1.2643

X/C= 0.574 Y/C= 1.31 UPPER

Z/C	U/UP	CP(STATIC)
0.00055	0.2927	-0.7700
0.00099	0.3740	-0.7700
0.00150	0.4329	-0.7700
0.00192	0.4825	-0.7700
0.00260	0.5427	-0.7700
0.00304	0.5968	-0.7700
0.00350	0.6363	-0.7700
0.00398	0.6804	-0.7700
0.00452	0.7216	-0.7700
0.00510	0.7632	-0.7652
0.00541	0.7829	-0.7623
0.00609	0.8256	-0.7560
0.00640	0.8426	-0.7531
0.00688	0.8720	-0.7486
0.00734	0.8966	-0.7444
0.00778	0.9143	-0.7403
0.00856	0.9478	-0.7330
0.00923	0.9702	-0.7268
0.00988	0.9862	-0.7208
0.01065	0.9935	-0.7136
0.01120	0.9979	-0.7084
0.01170	0.9995	-0.7038
0.01220	1.0000	-0.6991

X/C= 0.650 Y/C= 2.60 UPPER

Z/C	U/UP	CP(STATIC)
0.00057	0.3500	-0.4947
0.00197	0.3958	-0.4935
0.00361	0.4893	-0.4921
0.00550	0.6007	-0.4906
0.00712	0.7084	-0.4893
0.01051	0.9024	-0.4865
0.01185	0.9684	-0.4853
0.01316	0.9904	-0.4843
0.01493	0.9985	-0.4828
0.01645	0.9995	-0.4816
0.01815	0.9998	-0.4801
0.01952	0.9998	-0.4790
0.02040	1.0000	-0.4782

X/C= 0.750 Y/C= 2.21 UPPER

CONSTANT CP(STATIC)=-0.300

Z/C	U/UP
0.00085	0.3432
0.00168	0.3850
0.00231	0.3991
0.00258	0.4062
0.00383	0.4339
0.00533	0.4958
0.00829	0.6174
0.00968	0.7008
0.01232	0.8044
0.01333	0.8553
0.01490	0.8995
0.01619	0.9434
0.01765	0.9745
0.01890	0.9836
0.01958	0.9944
0.02038	0.9966
0.02202	0.9983
0.02480	0.9991
0.02637	1.0002
0.02779	1.0000

X/C= 0.900 Y/C= 2.43 UPPER

Z/C	U/UP	CP(STATIC)
0.00065	0.3595	-0.0309
0.00199	0.4081	-0.0332
0.00350	0.4503	-0.0359
0.00530	0.4910	-0.0390
0.00688	0.5252	-0.0418
0.00975	0.6031	-0.0469
0.01156	0.6542	-0.0500
0.01279	0.6854	-0.0505
0.01464	0.7262	-0.0505
0.01602	0.7652	-0.0505
0.01759	0.8190	-0.0505
0.01889	0.8494	-0.0505
0.01978	0.8919	-0.0505
0.02075	0.9102	-0.0505
0.02257	0.9352	-0.0505
0.02420	0.9649	-0.0505
0.02607	0.9710	-0.0505
0.02810	0.9955	-0.0505
0.02985	0.9977	-0.0505
0.03149	0.9997	-0.0505
0.03343	1.0000	-0.0505
0.03512	1.0000	-0.0505

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 9 PROBES C1 (concluded)

M= 0.730 ALPHA= 3.19 RE= 6500000.

X/C= 1.000 Y/C= 2.02 WAKE

Z/C	U/UP	CP(STATIC)
-0.02070	0.9978	0.1843
-0.02062	0.9974	0.1842
-0.01842	0.9926	0.1820
-0.01565	0.9734	0.1792
-0.01300	0.9336	0.1764
-0.01002	0.8725	0.1734
-0.00734	0.8169	0.1707
-0.00440	0.7584	0.1670
-0.00153	0.6566	0.1582
0.00022	0.2171	0.1538
0.00102	0.2514	0.1515
0.00174	0.2635	0.1494
0.00284	0.2995	0.1461
0.00496	0.3634	0.1399
0.00679	0.4031	0.1346
0.00825	0.4334	0.1303
0.00945	0.4658	0.1268
0.01060	0.4934	0.1235
0.01234	0.5237	0.1201
0.01464	0.5744	0.1188
0.01630	0.6109	0.1179
0.01810	0.6571	0.1170
0.02190	0.7436	0.1149
0.02353	0.7717	0.1140
0.02535	0.8142	0.1130
0.02834	0.8580	0.1114
0.02984	0.8805	0.1105
0.03113	0.8985	0.1098
0.03269	0.9314	0.1090
0.03385	0.9470	0.1084
0.03770	0.9793	0.1063
0.03893	0.9884	0.1056
0.04047	0.9956	0.1047
0.04178	0.9970	0.1040
0.04284	0.9977	0.1034
0.04305	1.0001	0.1033
0.04361	1.0000	0.1030

X/C= 1.025 Y/C= 2.82 WAKE

Z/C	U/UP	CP(STATIC)
-0.03052	1.0000	0.1518
-0.02826	0.9994	0.1512
-0.02530	0.9998	0.1505
-0.02259	0.9981	0.1499
-0.01952	0.9898	0.1491
-0.01670	0.9680	0.1485
-0.01382	0.9229	0.1478
-0.01081	0.8688	0.1471
-0.00923	0.8392	0.1467
-0.00840	0.8262	0.1465
-0.00763	0.8095	0.1463
-0.00636	0.7858	0.1460
-0.00416	0.7111	0.1455
-0.00211	0.5395	0.1450
-0.00048	0.4257	0.1446
0.00104	0.4058	0.1427
0.00220	0.4165	0.1404
0.00410	0.4532	0.1366
0.00646	0.4916	0.1319
0.00831	0.5278	0.1296
0.01018	0.5728	0.1276
0.01245	0.6158	0.1252
0.01454	0.6750	0.1230
0.01633	0.7076	0.1211
0.01836	0.7512	0.1189
0.01931	0.7784	0.1179
0.02025	0.7895	0.1169
0.02159	0.8216	0.1155
0.02322	0.8514	0.1138
0.02469	0.8771	0.1122
0.02638	0.9119	0.1104
0.02757	0.9300	0.1091
0.03032	0.9712	0.1062
0.03182	0.9771	0.1046
0.03327	0.9872	0.1031
0.03499	0.9956	0.1013
0.03654	0.9981	0.0996
0.03793	0.9999	0.0981
0.03855	1.0000	0.0975

X/C= 2.000 Y/C= 1.50 WAKE

Z/C	U/UP	CP(STATIC)
-0.38178	1.0000	0.0409
-0.37465	0.9999	0.0440
-0.35317	0.9998	0.0428
-0.31800	0.9993	0.0362
-0.26914	0.9994	0.0296
-0.21062	0.9985	0.0294
-0.13711	0.9988	0.0273
-0.10512	0.9985	0.0265
-0.05862	0.9980	0.0225
-0.05148	0.9989	0.0233
-0.04431	0.9988	0.0225
-0.04031	0.9986	0.0273
-0.03630	0.9974	0.0280
-0.03147	0.9978	0.0263
-0.02825	0.9957	0.0187
-0.02340	0.9936	0.0228
-0.02016	0.9914	0.0306
-0.01529	0.9863	0.0245
-0.01203	0.9816	0.0194
-0.00551	0.9712	0.0210
-0.00142	0.9642	0.0184
0.00103	0.9552	0.0196
0.00678	0.9411	0.0150
0.01088	0.9322	0.0152
0.01418	0.9238	0.0138
0.01995	0.9124	0.0132
0.02408	0.9075	0.0117
0.02739	0.9022	0.0170
0.03070	0.9002	0.0097
0.03514	0.9001	0.0060
0.03929	0.9002	0.0149
0.04344	0.9024	0.0072
0.04760	0.9063	0.0114
0.05092	0.9099	0.0124
0.05675	0.9197	0.0118
0.06009	0.9252	0.0118
0.06426	0.9302	0.0110
0.06927	0.9374	0.0191
0.07260	0.9430	0.0163
0.07678	0.9477	0.0192
0.08096	0.9564	0.0145
0.08932	0.9657	0.0164
0.09852	0.9722	0.0148
0.10772	0.9778	0.0203
0.11691	0.9794	0.0229
0.12276	0.9819	0.0100
0.13027	0.9828	0.0162
0.13861	0.9851	0.0142
0.14694	0.9858	0.0116
0.16271	0.9882	0.0090
0.18089	0.9900	0.0101
0.22170	0.9946	0.0083
0.26157	0.9967	0.0035
0.33727	0.9993	-0.0010
0.40633	0.9996	-0.0076
0.46421	1.0000	-0.0066

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 9 PROBES C2

M= 0.730 ALPHA= 3.19 RE= 6500000.

X/C= 0.498 Y/C= 1.34 UPPER

CONSTANT CP(STATIC)=-1.282

Z/C	U/UP
0.00040	0.6290
0.00068	0.6920
0.00115	0.7366
0.00178	0.7894
0.00271	0.8267
0.00311	0.8575
0.00417	0.8947
0.00459	0.9182
0.00523	0.9402
0.00607	0.9620
0.00662	0.9779
0.00731	0.9898
0.00776	0.9951
0.00857	0.9990
0.00900	0.9995
0.00953	0.9999
0.01005	1.0000

X/C= 0.574 Y/C= 1.31 UPPER

CONSTANT CP(STATIC)=-0.770

Z/C	U/UP
0.00055	0.2926
0.00099	0.3738
0.00150	0.4327
0.00192	0.4823
0.00260	0.5425
0.00304	0.5966
0.00350	0.6361
0.00396	0.6801
0.00452	0.7214
0.00510	0.7641
0.00541	0.7843
0.00609	0.8277
0.00640	0.8448
0.00688	0.8742
0.00734	0.8987
0.00778	0.9163
0.00856	0.9492
0.00923	0.9710
0.00988	0.9866
0.01065	0.9937
0.01120	0.9979
0.01170	0.9995
0.01220	1.0000

X/C= 0.650 Y/C= 2.60 UPPER

CONSTANT CP(STATIC)=-0.495

Z/C	U/UP
0.00057	0.3504
0.00197	0.3973
0.00361	0.4913
0.00550	0.6027
0.00712	0.7102
0.01051	0.9033
0.01185	0.9687
0.01316	0.9906
0.01493	0.9986
0.01645	0.9995
0.01815	0.9998
0.01952	0.9999
0.02040	1.0000

X/C= 0.750 Y/C= 2.21 UPPER

CONSTANT CP(STATIC)=-0.300

Z/C	U/UP
0.00085	0.3432
0.00168	0.3850
0.00231	0.3991
0.00258	0.4062
0.00383	0.4339
0.00533	0.4958
0.00829	0.6174
0.00968	0.7008
0.01232	0.8044
0.01333	0.8553
0.01490	0.8995
0.01619	0.9434
0.01765	0.9745
0.01890	0.9836
0.01958	0.9944
0.02038	0.9966
0.02202	0.9983
0.02480	0.9991
0.02637	1.0002
0.02779	1.0000

X/C= 0.900 Y/C= 2.43 UPPER

CONSTANT CP(STATIC)=-0.030

Z/C	U/UP
0.00065	0.3585
0.00199	0.4045
0.00350	0.4446
0.00530	0.4834
0.00688	0.5162
0.00975	0.5934
0.01156	0.6446
0.01279	0.6766
0.01464	0.7188
0.01602	0.7591
0.01759	0.8145
0.01889	0.8457
0.01978	0.8893
0.02075	0.9082
0.02257	0.9337
0.02420	0.9641
0.02607	0.9703
0.02810	0.9955
0.02985	0.9977
0.03140	0.9997
0.03343	1.0000
0.03512	1.0000

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 9 PROBES C2 (concluded)

M= 0.750 ALPHA= 3.19 RE= 6500000.

X/C= 1.000 Y/C= 2.02 WAKE

CONSTANT CP(STATIC)= 0.1347

Z/C	U/UP
-0.02070	0.9979
-0.02062	0.9975
-0.01842	0.9930
-0.01565	0.9749
-0.01300	0.9371
-0.01002	0.8788
-0.00734	0.8257
-0.00440	0.7691
-0.00153	0.6688
0.00022	0.2641
0.00102	0.2876
0.00174	0.2939
0.00284	0.3204
0.00496	0.3712
0.00679	0.4032
0.00825	0.4284
0.00945	0.4577
0.01060	0.4827
0.01234	0.5110
0.01464	0.5629
0.01630	0.6002
0.01810	0.6475
0.02190	0.7362
0.02353	0.7650
0.02535	0.8086
0.02834	0.8536
0.02984	0.8768
0.03113	0.8953
0.03269	0.9291
0.03385	0.9452
0.03770	0.9786
0.03893	0.9881
0.04047	0.9955
0.04178	0.9968
0.04284	0.9976
0.04305	1.0000
0.04361	1.0000

X/C= 1.025 Y/C= 2.82 WAKE

CONSTANT CP(STATIC)= 0.1347

Z/C	U/UP
-0.03052	1.0000
-0.02826	0.9994
-0.02530	0.9998
-0.02259	0.9982
-0.01952	0.9900
-0.01670	0.9685
-0.01382	0.9241
-0.01081	0.8709
-0.00923	0.8417
-0.00840	0.8289
-0.00763	0.8125
-0.00636	0.7891
-0.00416	0.7156
-0.00211	0.5477
-0.00048	0.4371
0.00104	0.4161
0.00220	0.4238
0.00410	0.4556
0.00646	0.4892
0.00831	0.5237
0.01018	0.5678
0.01245	0.6101
0.01454	0.6694
0.01633	0.7018
0.01836	0.7457
0.01931	0.7733
0.02025	0.7844
0.02159	0.8170
0.02322	0.8473
0.02469	0.8735
0.02638	0.9092
0.02757	0.9278
0.03032	0.9703
0.03182	0.9763
0.03327	0.9868
0.03499	0.9954
0.03654	0.9980
0.03793	0.9998
0.03855	1.0000

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 9 PROBES D/

M= 0.730 ALPHA= 3.19 RE= 6500000.

X/C= 0.152 Y/C= 1.17 LOWER

CONSTANT CP(STATIC)= 0.020

Z/C	U/UP
0.00016	0.6097
0.00030	0.7385
0.00044	0.7836
0.00076	0.8510
0.00095	0.8946
0.00136	0.9438
0.00161	0.9645
0.00180	0.9826
0.00199	0.9913
0.00215	0.9953
0.00245	0.9978
0.00280	0.9993
0.00328	0.9997
0.00354	0.9991
0.00399	1.0000

X/C= 0.152 Y/C= 2.00 LOWER

CONSTANT CP(STATIC)= 0.020

Z/C	U/UP
0.00019	0.6035
0.00029	0.6912
0.00038	0.7341
0.00054	0.7820
0.00066	0.8142
0.00083	0.8519
0.00099	0.8821
0.00128	0.9275
0.00156	0.9593
0.00196	0.9841
0.00255	0.9947
0.00290	0.9963
0.00350	1.0005
0.00407	0.9992
0.00477	1.0000
0.00540	1.0002
0.00588	1.0000

X/C= 0.152 Y/C= 2.42 LOWER

CONSTANT CP(STATIC)= 0.020

Z/C	U/UP
0.00013	0.6041
0.00028	0.7273
0.00043	0.7847
0.00062	0.8292
0.00086	0.8707
0.00104	0.8987
0.00112	0.9186
0.00177	0.9840
0.00212	0.9958
0.00256	0.9986
0.00281	0.9992
0.00300	1.0000

X/C= 0.179 Y/C= 1.04 UPPER

CONSTANT CP(STATIC)=-1.090

Z/C	U/UP
0.00015	0.5317
0.00030	0.6283
0.00053	0.6999
0.00071	0.7349
0.00096	0.7745
0.00125	0.8159
0.00145	0.8397
0.00188	0.8875
0.00222	0.9241
0.00266	0.9571
0.00310	0.9831
0.00355	0.9962
0.00397	0.9999
0.00443	1.0004
0.00495	0.9998
0.00550	1.0000

X/C= 0.179 Y/C= 1.88 UPPER

CONSTANT CP(STATIC)=-1.090

Z/C	U/UP
0.00023	0.5849
0.00051	0.6885
0.00089	0.7629
0.00147	0.8432
0.00181	0.8782
0.00245	0.9401
0.00307	0.9813
0.00372	0.9975
0.00432	0.9999
0.00487	0.9996
0.00523	0.9999
0.00578	1.0000

X/C= 0.179 Y/C= 2.29 UPPER

CONSTANT CP(STATIC)=-1.090

Z/C	U/UP
0.00017	0.5356
0.00053	0.6952
0.00111	0.7984
0.00141	0.8349
0.00158	0.8542
0.00190	0.8908
0.00234	0.9326
0.00273	0.9623
0.00320	0.9879
0.00366	0.9973
0.00412	1.0000
0.00457	1.0006
0.00512	1.0002
0.00561	1.0000

X/C= 0.319 Y/C= 1.15 UPPER

CONSTANT CP(STATIC)=-1.160

Z/C	U/UP
0.00012	0.5174
0.00038	0.6321
0.00061	0.6743
0.00090	0.7529
0.00124	0.7920
0.00166	0.8230
0.00213	0.8586
0.00252	0.8921
0.00292	0.9198
0.00345	0.9463
0.00403	0.9687
0.00461	0.9873
0.00508	0.9951
0.00557	0.9984
0.00618	0.9998
0.00663	1.0000
0.00732	1.0000

X/C= 0.319 Y/C= 1.98 UPPER

CONSTANT CP(STATIC)=-1.160

Z/C	U/UP
0.00025	0.5799
0.00055	0.6739
0.00095	0.7372
0.00156	0.8138
0.00224	0.8638
0.00282	0.9011
0.00346	0.9355
0.00409	0.9665
0.00462	0.9820
0.00505	0.9916
0.00551	0.9973
0.00634	0.9994
0.00701	0.9996
0.00789	1.0002
0.00851	1.0000

X/C= 0.319 Y/C= 2.40 UPPER

CONSTANT CP(STATIC)=-1.160

Z/C	U/UP
0.00059	0.6684
0.00088	0.7171
0.00103	0.7363
0.00125	0.7816
0.00173	0.8238
0.00213	0.8568
0.00265	0.8901
0.00316	0.9200
0.00363	0.9467
0.00411	0.9680
0.00469	0.9857
0.00523	0.9951
0.00560	0.9981
0.00625	0.9998
0.00673	1.0001
0.00735	1.0000

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 9 PROBES D1 (continued)

M= 0.730 ALPHA= 3.19 RE= 6500000.

X/C= 0.404 Y/C= 1.20 UPPER

CONSTANT CP(STATIC)=-1.210

Z/C	U/UP
0.00019	0.5105
0.00031	0.5799
0.00051	0.6665
0.00071	0.6900
0.00112	0.7411
0.00148	0.7706
0.00200	0.8090
0.00228	0.8331
0.00273	0.8607
0.00323	0.8891
0.00358	0.9048
0.00422	0.9389
0.00488	0.9641
0.00558	0.9847
0.00641	0.9952
0.00729	0.9988
0.00793	1.0000
0.00870	1.0002
0.00971	1.0000

X/C= 0.404 Y/C= 2.03 UPPER

CONSTANT CP(STATIC)=-1.210

Z/C	U/UP
0.00021	0.6191
0.00052	0.6877
0.00110	0.7432
0.00163	0.7911
0.00232	0.8402
0.00342	0.8975
0.00396	0.9260
0.00507	0.9735
0.00610	0.9945
0.00723	0.9996
0.00840	1.0004
0.00913	0.9996
0.00986	1.0000

X/C= 0.404 Y/C= 2.45 UPPER

CONSTANT CP(STATIC)=-1.210

Z/C	U/UP
0.00018	0.5257
0.00086	0.7167
0.00175	0.7791
0.00277	0.8493
0.00308	0.8771
0.00346	0.8944
0.00387	0.9249
0.00479	0.9501
0.00538	0.9811
0.00644	0.9955
0.00718	0.9993
0.00800	0.9999
0.00875	1.0000

X/C= 0.498 Y/C= 1.34 UPPER

Z/C	U/UP	CP(STATIC)
0.00016	0.5294	-1.2817
0.00032	0.6060	-1.2814
0.00044	0.6376	-1.2812
0.00095	0.6979	-1.2803
0.00119	0.7257	-1.2799
0.00167	0.7578	-1.2791
0.00198	0.7804	-1.2785
0.00246	0.8042	-1.2777
0.00305	0.8321	-1.2766
0.00338	0.8468	-1.2760
0.00425	0.8812	-1.2745
0.00477	0.9059	-1.2736
0.00553	0.9297	-1.2722
0.00626	0.9548	-1.2709
0.00702	0.9735	-1.2696
0.00768	0.9863	-1.2684
0.00833	0.9950	-1.2673
0.00916	0.9984	-1.2658
0.01009	1.0000	-1.2642
0.01080	0.9998	-1.2629
0.01144	1.0000	-1.2618

X/C= 0.498 Y/C= 2.17 UPPER

Z/C	U/UP	CP(STATIC)
0.00025	0.5867	-1.2816
0.00070	0.6917	-1.2808
0.00121	0.7386	-1.2799
0.00187	0.7832	-1.2787
0.00277	0.8321	-1.2771
0.00316	0.8544	-1.2764
0.00415	0.9001	-1.2747
0.00505	0.9339	-1.2731
0.00596	0.9657	-1.2715
0.00702	0.9889	-1.2696
0.00770	0.9961	-1.2684
0.00835	0.9994	-1.2673
0.00904	1.0003	-1.2660
0.01026	1.0000	-1.2639

X/C= 0.498 Y/C= 2.59 UPPER

Z/C	U/UP	CP(STATIC)
0.00029	0.5994	-1.2815
0.00038	0.6332	-1.2813
0.00050	0.6533	-1.2811
0.00115	0.7313	-1.2800
0.00183	0.7778	-1.2788
0.00265	0.8291	-1.2773
0.00305	0.8510	-1.2766
0.00341	0.8629	-1.2760
0.00389	0.8880	-1.2751
0.00468	0.9151	-1.2737
0.00522	0.9386	-1.2728
0.00592	0.9629	-1.2716
0.00663	0.9808	-1.2703
0.00744	0.9924	-1.2680
0.00797	0.9973	-1.2679
0.00879	0.9989	-1.2665
0.00956	0.9998	-1.2651
0.00993	1.0000	-1.2645

X/C= 0.574 Y/C= 1.31 UPPER

Z/C	U/UP	CP(STATIC)
0.00023	0.2836	-0.7700
0.00053	0.2735	-0.7700
0.00086	0.3046	-0.7700
0.00109	0.3179	-0.7700
0.00160	0.3777	-0.7700
0.00200	0.4205	-0.7700
0.00255	0.4550	-0.7700
0.00305	0.5174	-0.7700
0.00360	0.5676	-0.7700
0.00410	0.6210	-0.7700
0.00470	0.6691	-0.7689
0.00527	0.7104	-0.7636
0.00596	0.7572	-0.7572
0.00655	0.8016	-0.7517
0.00707	0.8401	-0.7469
0.00783	0.8807	-0.7398
0.00835	0.9194	-0.7350
0.00908	0.9525	-0.7282
0.00991	0.9727	-0.7205
0.01075	0.9854	-0.7127
0.01186	0.9954	-0.7023
0.01279	0.9986	-0.6937
0.01359	1.0000	-0.6862
0.01453	0.9998	-0.6775
0.01542	1.0000	-0.6692

X/C= 0.574 Y/C= 2.14 UPPER

Z/C	U/UP	CP(STATIC)
0.00026	0.3172	-0.7700
0.00047	0.3342	-0.7700
0.00076	0.3417	-0.7700
0.00115	0.3859	-0.7700
0.00149	0.4355	-0.7700
0.00215	0.5036	-0.7700
0.00252	0.5290	-0.7700
0.00335	0.6058	-0.7700
0.00405	0.6622	-0.7700
0.00468	0.7158	-0.7691
0.00549	0.7766	-0.7616
0.00609	0.8012	-0.7560
0.00656	0.8338	-0.7516
0.00712	0.8596	-0.7464
0.00804	0.9094	-0.7378
0.00885	0.9448	-0.7303
0.00985	0.9816	-0.7210
0.01065	0.9922	-0.7135
0.01140	0.9972	-0.7065
0.01224	0.9997	-0.6988
0.01310	1.0000	-0.6908

X/C= 0.574 Y/C= 2.56 UPPER

Z/C	U/UP	CP(STATIC)
0.00044	0.3383	-0.7700
0.00095	0.3571	-0.7700
0.00167	0.4281	-0.7700
0.00199	0.4703	-0.7700
0.00227	0.4846	-0.7700
0.00258	0.5293	-0.7700
0.00317	0.5630	-0.7700
0.00369	0.6045	-0.7700
0.00416	0.6541	-0.7700
0.00488	0.6979	-0.7672
0.00525	0.7379	-0.7639
0.00577	0.7771	-0.7589
0.00649	0.8102	-0.7523
0.00715	0.8537	-0.7461
0.00750	0.8789	-0.7429
0.00833	0.9137	-0.7352
0.00884	0.9431	-0.7304
0.00970	0.9707	-0.7224
0.01051	0.9897	-0.7149
0.01147	0.9974	-0.7059
0.01237	0.9996	-0.6976
0.01326	1.0000	-0.6893

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 9 PROBES D1 (concluded)

M= 0.730 ALPHA= 3.19 RE= 6500000.

X/C= 0.650 Y/C= 2.60 UPPER

Z/C	U/UP	CP(STATIC)
0.00057	0.3655	-0.4947
0.00127	0.3880	-0.4941
0.00584	0.5500	-0.4903
0.00797	0.6749	-0.4885
0.00968	0.7611	-0.4871
0.01178	0.8700	-0.4854
0.01380	0.9496	-0.4837
0.01655	0.9906	-0.4815
0.01858	1.0011	-0.4798
0.02067	0.9994	-0.4780
0.02237	1.0000	-0.4762

X/C= 0.750 Y/C= 2.21 UPPER

CONSTANT CP(STATIC)=-0.300

Z/C	U/UP
0.00057	0.3211
0.00092	0.3305
0.00168	0.3508
0.00265	0.3763
0.00321	0.4002
0.00383	0.4174
0.00437	0.4295
0.00655	0.4893
0.00832	0.5824
0.01015	0.6752
0.01155	0.7415
0.01270	0.8305
0.01450	0.9024
0.01688	0.9637
0.01864	0.9903
0.02055	0.9916
0.02249	0.9994
0.02603	0.9993
0.02792	1.0000

X/C= 0.900 Y/C= 2.43 UPPER

Z/C	U/UP	CP(STATIC)
0.00088	0.3730	-0.0313
0.00144	0.3926	-0.0323
0.00381	0.4367	-0.0364
0.00580	0.4850	-0.0399
0.00779	0.5381	-0.0434
0.00924	0.5826	-0.0460
0.01177	0.6405	-0.0504
0.01387	0.6906	-0.0505
0.01640	0.7550	-0.0505
0.01840	0.8113	-0.0505
0.02067	0.8408	-0.0505
0.02288	0.8975	-0.0505
0.02490	0.9173	-0.0505
0.02732	0.9600	-0.0505
0.02977	0.9837	-0.0505
0.03141	0.9939	-0.0505
0.03320	0.9938	-0.0505
0.03512	0.9985	-0.0505
0.03706	0.9999	-0.0505
0.03881	1.0000	-0.0515

X/C= 1.000 Y/C= 2.02 WAKE

Z/C	U/UP	CP(STATIC)
-0.01994	0.9709	0.1835
-0.01774	0.9657	0.1813
-0.01533	0.9463	0.1788
-0.01300	0.9155	0.1764
-0.01056	0.8880	0.1740
-0.00819	0.8399	0.1715
-0.00591	0.8122	0.1692
-0.00415	0.7732	0.1662
-0.00250	0.7437	0.1612
-0.00137	0.6495	0.1577
-0.00089	0.3428	0.1563
0.00102	0.1140	0.1515
0.00276	0.1833	0.1464
0.00425	0.2207	0.1420
0.00535	0.2474	0.1388
0.00736	0.2816	0.1329
0.00929	0.3217	0.1273
0.01134	0.3796	0.1213
0.01342	0.4343	0.1195
0.01543	0.4893	0.1184
0.01716	0.5157	0.1175
0.01935	0.5758	0.1163
0.02190	0.6374	0.1149
0.02393	0.7101	0.1138
0.02796	0.8238	0.1116
0.02984	0.8501	0.1105
0.03223	0.8969	0.1092
0.03400	0.9319	0.1083
0.03583	0.9531	0.1073
0.03718	0.9707	0.1065
0.03871	0.9777	0.1057
0.04060	0.9870	0.1048
0.04235	0.9988	0.1037
0.04277	0.9999	0.1035
0.04375	0.9993	0.1029
0.04547	1.0006	0.1020
0.04588	0.9996	0.1018
0.04649	1.0000	0.1014

X/C= 1.025 Y/C= 2.82 WAKE

Z/C	U/UP	CP(STATIC)
-0.03052	1.0000	0.1518
-0.02817	0.9988	0.1512
-0.02581	0.9971	0.1507
-0.02344	0.9976	0.1501
-0.02092	0.9926	0.1495
-0.01845	0.9785	0.1489
-0.01619	0.9526	0.1483
-0.01441	0.9232	0.1479
-0.01273	0.8928	0.1475
-0.01148	0.8723	0.1472
-0.01098	0.8622	0.1471
-0.00932	0.8339	0.1467
-0.00915	0.8272	0.1467
-0.00738	0.7969	0.1462
-0.00577	0.7577	0.1458
-0.00458	0.7090	0.1456
-0.00244	0.5250	0.1450
-0.00010	0.4090	0.1446
0.00203	0.4081	0.1407
0.00418	0.4467	0.1365
0.00638	0.4937	0.1321
0.00815	0.5274	0.1298
0.01068	0.5869	0.1271
0.01354	0.6550	0.1241
0.01576	0.7118	0.1217
0.01803	0.7647	0.1193
0.02049	0.8224	0.1167
0.02245	0.8582	0.1146
0.02508	0.9045	0.1118
0.02705	0.9352	0.1097
0.02902	0.9604	0.1076
0.03054	0.9741	0.1060
0.03266	0.9842	0.1037
0.03463	0.9924	0.1016
0.03661	1.0012	0.0995
0.03724	1.0001	0.0989
0.03786	0.9999	0.0982
0.03828	1.0000	0.0978

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 10 PROBES C1

M= 0.750 ALPHA= 3.19 RE= 6200000.

X/C= 0.152 Y/C= 1.17 LOWER

CONSTANT CP(STATIC)=-0.010

Z/C	U/UP
0.00032	0.6893
0.00079	0.8522
0.00113	0.9127
0.00138	0.9403
0.00156	0.9583
0.00169	0.9712
0.00193	0.9861
0.00206	0.9909
0.00235	0.9969
0.00248	0.9983
0.00279	0.9990
0.00318	0.9999
0.00349	1.0000

X/C= 0.179 Y/C= 1.04 UPPER

CONSTANT CP(STATIC)=-0.995

Z/C	U/UP
0.00028	0.5745
0.00053	0.6595
0.00059	0.6907
0.00092	0.7500
0.00121	0.7941
0.00135	0.8200
0.00167	0.8552
0.00208	0.8897
0.00226	0.9132
0.00266	0.9451
0.00298	0.9693
0.00335	0.9849
0.00357	0.9940
0.00382	0.9977
0.00414	0.9998
0.00448	0.9999
0.00481	1.0000

X/C= 0.319 Y/C= 1.15 UPPER

CONSTANT CP(STATIC)=-1.095

Z/C	U/UP
0.00031	0.6468
0.00042	0.6816
0.00080	0.7345
0.00128	0.7830
0.00150	0.8056
0.00186	0.8358
0.00222	0.8631
0.00255	0.8833
0.00284	0.8997
0.00306	0.9144
0.00341	0.9335
0.00369	0.9475
0.00407	0.9655
0.00443	0.9778
0.00481	0.9877
0.00509	0.9930
0.00544	0.9968
0.00585	0.9988
0.00627	0.9996
0.00668	0.9998
0.00702	1.0000
0.00738	1.0000

X/C= 0.404 Y/C= 1.20 UPPER

CONSTANT CP(STATIC)=-1.152

Z/C	U/UP
0.00015	0.5293
0.00068	0.6854
0.00120	0.7557
0.00176	0.7944
0.00196	0.8078
0.00248	0.8467
0.00293	0.8706
0.00316	0.8851
0.00374	0.9127
0.00426	0.9373
0.00467	0.9543
0.00530	0.9764
0.00589	0.9892
0.00644	0.9953
0.00706	0.9983
0.00753	0.9990
0.00809	0.9997
0.00870	0.9997
0.00934	1.0000

X/C= 0.498 Y/C= 1.34 UPPER

Z/C	U/UP	CP(STATIC)
0.00036	0.5879	-1.2347
0.00095	0.7044	-1.2342
0.00143	0.7455	-1.2338
0.00155	0.7572	-1.2337
0.00218	0.7949	-1.2331
0.00258	0.8184	-1.2328
0.00295	0.8341	-1.2325
0.00342	0.8598	-1.2321
0.00397	0.8850	-1.2316
0.00448	0.9018	-1.2312
0.00507	0.9241	-1.2307
0.00558	0.9440	-1.2302
0.00618	0.9594	-1.2297
0.00658	0.9704	-1.2294
0.00692	0.9787	-1.2291
0.00742	0.9878	-1.2287
0.00794	0.9932	-1.2282
0.00840	0.9970	-1.2278
0.00896	0.9986	-1.2274
0.00948	0.9995	-1.2269
0.00993	0.9993	-1.2265
0.01039	1.0000	-1.2261

X/C= 0.574 Y/C= 1.31 UPPER

Z/C	U/UP	CP(STATIC)
0.00034	0.1143	-0.7522
0.00065	0.3129	-0.7540
0.00106	0.4296	-0.7566
0.00138	0.4893	-0.7587
0.00155	0.5205	-0.7597
0.00196	0.5771	-0.7623
0.00233	0.6264	-0.7646
0.00265	0.6529	-0.7666
0.00312	0.6924	-0.7695
0.00352	0.7198	-0.7721
0.00390	0.7419	-0.7745
0.00422	0.7732	-0.7764
0.00457	0.7860	-0.7786
0.00494	0.8194	-0.7809
0.00535	0.8400	-0.7836
0.00577	0.8694	-0.7862
0.00616	0.8885	-0.7886
0.00663	0.9122	-0.7916
0.00701	0.9224	-0.7939
0.00743	0.9413	-0.7966
0.00790	0.9584	-0.8046
0.00838	0.9738	-0.8137
0.00887	0.9836	-0.8231
0.00928	0.9874	-0.8309
0.00966	0.9937	-0.8381
0.01001	0.9948	-0.8449
0.01058	0.9973	-0.8557
0.01099	0.9986	-0.8636
0.01136	0.9992	-0.8706
0.01181	0.9998	-0.8791
0.01254	1.0000	-0.8932
0.01285	1.0000	-0.8991

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 10 PROBES C1 (continued)

M= 0.750 ALPHA= 3.19 RE= 6200000.

X/C= 0.650 Y/C= 2.60 UPPER

Z/C	U/UP	CP(STATIC)
0.00109	0.0963	-0.5250
0.00162	0.1133	-0.5250
0.00240	0.1198	-0.5250
0.00344	0.1389	-0.5250
0.00490	0.2277	-0.5250
0.00610	0.2827	-0.5250
0.00770	0.3887	-0.5250
0.00948	0.5250	-0.5250
0.01117	0.6539	-0.5250
0.01284	0.7798	-0.5220
0.01453	0.8904	-0.5190
0.01645	0.9612	-0.5156
0.01805	0.9890	-0.5127
0.01878	0.9954	-0.5114
0.01997	0.9986	-0.5093
0.02061	0.9989	-0.5081
0.02146	0.9991	-0.5066
0.02273	0.9994	-0.5043
0.02415	0.9996	-0.5018
0.02565	0.9997	-0.4991
0.02753	0.9994	-0.4957
0.02938	0.9996	-0.4924
0.03127	1.0000	-0.4890
0.03291	1.0000	-0.4861

X/C= 0.750 Y/C= 2.21 UPPER

CONSTANT CP(STATIC)=-0.355

Z/C	U/UP
0.00099	0.0661
0.00279	0.0665
0.00328	0.0584
0.00403	0.0500
0.00499	0.0504
0.00735	0.1070
0.00869	0.1596
0.01021	0.2166
0.01163	0.2763
0.01304	0.3371
0.01457	0.3911
0.01618	0.4511
0.01758	0.5245
0.01827	0.5710
0.01939	0.6281
0.01995	0.6534
0.02207	0.7454
0.02362	0.8104
0.02496	0.8665
0.02616	0.8980
0.02747	0.9318
0.02913	0.9541
0.03063	0.9687
0.03215	0.9856
0.03317	0.9869
0.03373	0.9925
0.03428	0.9936
0.03516	0.9939
0.03606	0.9968
0.03685	0.9976
0.03760	0.9998
0.03906	1.0000

X/C= 0.900 Y/C= 2.43 UPPER

Z/C	U/UP	CP(STATIC)
0.00088	0.2463	-0.1014
0.00167	0.2558	-0.1029
0.00262	0.2587	-0.1048
0.00514	0.2737	-0.1096
0.00672	0.3060	-0.1126
0.00836	0.3497	-0.1158
0.00974	0.3745	-0.1184
0.01177	0.4259	-0.1223
0.01364	0.4573	-0.1259
0.01548	0.4982	-0.1294
0.01694	0.5424	-0.1322
0.01776	0.5737	-0.1338
0.01890	0.6012	-0.1350
0.01955	0.6140	-0.1348
0.02210	0.6689	-0.1338
0.02390	0.7259	-0.1331
0.02561	0.7726	-0.1324
0.02710	0.7915	-0.1319
0.02880	0.8360	-0.1312
0.03090	0.8634	-0.1304
0.03267	0.8867	-0.1297
0.03467	0.9372	-0.1289
0.03596	0.9459	-0.1284
0.03678	0.9545	-0.1281
0.03755	0.9640	-0.1278
0.03992	0.9766	-0.1269
0.04097	0.9821	-0.1265
0.04195	0.9915	-0.1261
0.04396	0.9951	-0.1253
0.04604	0.9961	-0.1245
0.04670	0.9972	-0.1242
0.04736	0.9975	-0.1240
0.04913	1.0004	-0.1233
0.05029	1.0000	-0.1228
0.05113	1.0000	-0.1225

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 10 PROBES C1 (concluded)

M= 0.750 ALPHA= 3.19 RE= 6200000.

X/C= 1.000 Y/C= 2.02 WAKE

Z/C	U/UP	CP(STATIC)
-0.01926	1.0000	0.0787
-0.01743	0.9918	0.0742
-0.01565	0.9815	0.0699
-0.01348	0.9556	0.0646
-0.01203	0.9318	0.0610
-0.01064	0.9042	0.0576
-0.00880	0.8700	0.0512
-0.00773	0.8490	0.0459
-0.00616	0.8256	0.0382
-0.00516	0.8078	0.0332
-0.00449	0.7942	0.0299
-0.00373	0.7838	0.0262
-0.00282	0.7655	0.0217
-0.00210	0.7346	0.0181
-0.00145	0.6081	0.0149
-0.00043	0.1563	0.0114
0.00005	0.1510	0.0090
0.00076	0.1987	0.0058
0.00150	0.1759	0.0018
0.00417	0.2297	-0.0104
0.00551	0.2557	-0.0124
0.00687	0.2399	-0.0144
0.00825	0.2615	-0.0165
0.00905	0.2873	-0.0177
0.00985	0.2698	-0.0189
0.01126	0.2992	-0.0210
0.01350	0.2852	-0.0244
0.01551	0.3091	-0.0260
0.01755	0.3589	-0.0267
0.01919	0.3724	-0.0272
0.02074	0.4065	-0.0277
0.02243	0.4176	-0.0283
0.02425	0.4372	-0.0288
0.02581	0.4306	-0.0294
0.02675	0.4839	-0.0297
0.02735	0.5010	-0.0299
0.02841	0.5100	-0.0302
0.02917	0.5098	-0.0305
0.03051	0.5185	-0.0309
0.03215	0.5593	-0.0314
0.03370	0.5965	-0.0319
0.03511	0.6071	-0.0324
0.03654	0.6334	-0.0329
0.03789	0.6800	-0.0333
0.03914	0.6873	-0.0337
0.04005	0.7222	-0.0340
0.04123	0.7366	-0.0344
0.04207	0.7585	-0.0347
0.04270	0.7581	-0.0349
0.04312	0.7890	-0.0350
0.04389	0.7592	-0.0353
0.04458	0.7962	-0.0355
0.04520	0.7860	-0.0357
0.04602	0.7989	-0.0360
0.04669	0.8030	-0.0362
0.04675	0.8045	-0.0362
0.06265	1.0000	-0.0412

X/C= 1.025 Y/C= 2.82 WAKE

Z/C	U/UP	CP(STATIC)
-0.02910	1.0000	0.1287
-0.02717	0.9992	0.1279
-0.02522	0.9995	0.1271
-0.02310	0.9978	0.1262
-0.02158	0.9964	0.1255
-0.02010	0.9923	0.1249
-0.01812	0.9818	0.1241
-0.01703	0.9698	0.1236
-0.01560	0.9527	0.1230
-0.01450	0.9362	0.1226
-0.01382	0.9254	0.1223
-0.01315	0.9129	0.1220
-0.01222	0.8964	0.1216
-0.01140	0.8815	0.1213
-0.01073	0.8687	0.1210
-0.00998	0.8549	0.1207
-0.00940	0.8458	0.1204
-0.00865	0.8343	0.1192
-0.00780	0.8174	0.1178
-0.00611	0.7887	0.1148
-0.00492	0.7555	0.1127
-0.00342	0.6696	0.1101
-0.00187	0.5498	0.1074
-0.00048	0.4508	0.1050
0.00033	0.4216	0.1035
0.00154	0.3999	0.1020
0.00310	0.3997	0.0992
0.00533	0.4118	0.0953
0.00743	0.4375	0.0917
0.00967	0.4825	0.0877
0.01153	0.5173	0.0845
0.01329	0.5447	0.0814
0.01519	0.5761	0.0781
0.01715	0.6093	0.0747
0.01883	0.6273	0.0731
0.01986	0.6550	0.0726
0.02049	0.6703	0.0722
0.02174	0.6892	0.0715
0.02252	0.7024	0.0711
0.02408	0.7245	0.0702
0.02584	0.7611	0.0692
0.02757	0.7920	0.0682
0.02909	0.8134	0.0674
0.03061	0.8379	0.0665
0.03228	0.8667	0.0656
0.03365	0.8827	0.0648
0.03478	0.9036	0.0642
0.03605	0.9181	0.0634
0.03703	0.9255	0.0629
0.03780	0.9357	0.0625
0.03821	0.9444	0.0622
0.03985	0.9552	0.0613
0.04053	0.9586	0.0609
0.04147	0.9629	0.0604
0.04234	0.9681	0.0599
0.05015	1.0000	0.0486

X/C= 2.000 Y/C= 1.50 WAKE

Z/C	U/UP	CP(STATIC)
-0.14581	1.0000	0.0255
-0.13638	0.9991	0.0320
-0.12313	0.9988	0.0225
-0.11342	0.9993	0.0250
-0.10663	0.9991	0.0264
-0.09904	0.9996	0.0248
-0.09138	0.9988	0.0251
-0.08289	0.9991	0.0253
-0.07277	0.9983	0.0265
-0.06650	0.9990	0.0237
-0.06020	0.9980	0.0222
-0.05228	0.9977	0.0218
-0.04271	0.9937	0.0236
-0.03550	0.9904	0.0220
-0.02663	0.9837	0.0170
-0.01854	0.9747	0.0166
-0.01203	0.9662	0.0198
-0.00306	0.9477	0.0134
0.00595	0.9287	0.0144
0.01418	0.9174	0.0078
0.02078	0.9092	0.0032
0.03152	0.9004	0.0117
0.03929	0.8988	0.0136
0.04760	0.9012	0.0099
0.05509	0.9051	0.0072
0.06426	0.9140	0.0093
0.07177	0.9193	0.0050
0.07929	0.9309	0.0067
0.08932	0.9412	0.0088
0.09768	0.9497	0.0098
0.10437	0.9547	0.0100
0.11273	0.9607	0.0109
0.12276	0.9668	0.0090
0.12944	0.9703	0.0128
0.13778	0.9717	0.0148
0.14611	0.9752	0.0117
0.16437	0.9791	0.0068
0.18089	0.9822	0.0089
0.19976	0.9851	0.0116
0.22413	0.9868	0.0068
0.26157	0.9900	0.0078
0.33582	0.9945	0.0057
0.40633	0.9981	-0.0015
0.46367	0.9985	-0.0050
0.51265	0.9991	-0.0051
0.54738	0.9999	-0.0095
0.56943	1.0000	-0.0095

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 12 PROBES C

M= 0.730 ALPHA= 3.19 RE= 2700000.

X/C= 0.152 Y/C= 1.17 LOWER

CONSTANT CP(STATIC)= 0.003

Z/C	U/UP
0.00014	0.5708
0.00026	0.7134
0.00053	0.8132
0.00071	0.8509
0.00095	0.8930
0.00114	0.9147
0.00129	0.9373
0.00144	0.9530
0.00160	0.9669
0.00184	0.9833
0.00199	0.9894
0.00219	0.9947
0.00234	0.9972
0.00250	0.9982
0.00285	0.9996
0.00305	1.0000
0.00322	1.0000

X/C= 0.179 Y/C= 1.04 UPPER

CONSTANT CP(STATIC)=-1.072

Z/C	U/UP
0.00023	0.5074
0.00042	0.6029
0.00061	0.6646
0.00084	0.7277
0.00098	0.7477
0.00119	0.7689
0.00150	0.8021
0.00164	0.8263
0.00192	0.8545
0.00207	0.8630
0.00221	0.8817
0.00253	0.9093
0.00275	0.9237
0.00295	0.9386
0.00321	0.9527
0.00353	0.9667
0.00370	0.9823
0.00408	0.9912
0.00444	0.9954
0.00488	0.9992
0.00527	0.9597
0.00563	0.9998
0.00601	1.0000

X/C= 0.404 Y/C= 1.20 UPPER

CONSTANT CP(STATIC)=-1.176

Z/C	U/UP
0.00039	0.5509
0.00039	0.5824
0.00059	0.6448
0.00108	0.7003
0.00128	0.7173
0.00168	0.7558
0.00200	0.7789
0.00237	0.8050
0.00267	0.8205
0.00301	0.8376
0.00354	0.8646
0.00370	0.8762
0.00414	0.8974
0.00438	0.9051
0.00471	0.9189
0.00523	0.9413
0.00560	0.9542
0.00593	0.9662
0.00648	0.9766
0.00706	0.9857
0.00745	0.9923
0.00809	0.9973
0.00866	0.9988
0.00938	0.9999
0.01008	0.9997
0.01087	1.0000

X/C= 0.498 Y/C= 1.34 UPPER

CONSTANT CP(STATIC)=-0.916

Z/C	U/UP
0.00032	0.4965
0.00071	0.5409
0.00087	0.5442
0.00114	0.5839
0.00144	0.6083
0.00182	0.6426
0.00214	0.6566
0.00242	0.6794
0.00299	0.7190
0.00323	0.7283
0.00379	0.7595
0.00405	0.7667
0.00427	0.7870
0.00467	0.8144
0.00492	0.8276
0.00530	0.8461
0.00577	0.8623
0.00628	0.8871
0.00652	0.8967
0.00707	0.9230
0.00760	0.9367
0.00831	0.9624
0.00913	0.9759
0.00966	0.9865
0.01008	0.9926
0.01084	0.9970
0.01150	0.9985
0.01214	0.9992
0.01273	0.9996
0.01359	0.9999
0.01441	1.0000
0.01517	1.0000

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 12 PROBES C (concluded)

M= 0.730 ALPHA= 3.19 RE= 2700000.

X/C= 0.650 Y/C= 2.60 UPPER

Z/C	U/UP	CP(STATIC)
0.00074	0.4475	-0.4596
0.00135	0.4972	-0.4592
0.00214	0.5455	-0.4586
0.00283	0.5712	-0.4581
0.00378	0.6172	-0.4574
0.00456	0.6587	-0.4569
0.00525	0.7043	-0.4564
0.00627	0.7457	-0.4557
0.00712	0.7814	-0.4551
0.00804	0.8207	-0.4544
0.00897	0.8657	-0.4538
0.00974	0.8960	-0.4532
0.01041	0.9220	-0.4528
0.01117	0.9466	-0.4522
0.01209	0.9704	-0.4516
0.01308	0.9879	-0.4509
0.01445	0.9977	-0.4499
0.01653	1.0002	-0.4485
0.01756	1.0003	-0.4477
0.01902	0.9998	-0.4467
0.02045	1.0000	-0.4457
0.02140	1.0000	-0.4450
0.02260	1.0000	-0.4442

X/C= 0.750 Y/C= 2.21 UPPER

CONSTANT CP(STATIC)=-0.288

Z/C	U/UP
0.00078	0.3794
0.00140	0.4173
0.00217	0.4392
0.00258	0.4624
0.00286	0.4776
0.00335	0.4984
0.00410	0.5284
0.00472	0.5442
0.00547	0.5748
0.00622	0.6052
0.00682	0.6424
0.00762	0.6713
0.00833	0.6971
0.00909	0.7283
0.00991	0.7668
0.01053	0.7933
0.01110	0.8157
0.01169	0.8415
0.01250	0.8641
0.01330	0.9001
0.01456	0.9342
0.01637	0.9743
0.01726	0.9857
0.01845	0.9947
0.01976	0.9984
0.02067	0.9994
0.02201	0.9995
0.02338	0.9997
0.02461	0.9995
0.02566	1.0000

X/C= 0.900 Y/C= 2.43 UPPER

Z/C	U/UP	CP(STATIC)
0.00065	0.2551	-0.0302
0.00128	0.2801	-0.0306
0.00207	0.3097	-0.0309
0.00270	0.3260	-0.0313
0.00350	0.3467	-0.0316
0.00428	0.3684	-0.0320
0.00503	0.3988	-0.0324
0.00587	0.4261	-0.0328
0.00670	0.4414	-0.0332
0.00752	0.4732	-0.0336
0.00844	0.5052	-0.0341
0.00897	0.5321	-0.0343
0.00962	0.5542	-0.0346
0.01020	0.5769	-0.0349
0.01136	0.5998	-0.0355
0.01251	0.6447	-0.0361
0.01402	0.6871	-0.0368
0.01602	0.7585	-0.0378
0.01708	0.7899	-0.0383
0.01839	0.8356	-0.0389
0.01977	0.8781	-0.0396
0.02090	0.9103	-0.0402
0.02247	0.9412	-0.0410
0.02411	0.9696	-0.0418
0.02559	0.9881	-0.0425
0.02707	0.9957	-0.0432
0.02877	0.9974	-0.0440
0.03028	1.0004	-0.0448
0.03184	1.0003	-0.0456
0.03317	1.0000	-0.0462
0.03486	1.0000	-0.0470

X/C= 1.000 Y/C= 2.02 WAKE

Z/C	U/UP	CP(STATIC)
-0.02062	0.9911	0.1490
-0.01667	0.9673	0.1413
-0.01453	0.9395	0.1325
-0.01235	0.8985	0.1237
-0.01025	0.8566	0.1151
-0.00827	0.8138	0.1070
-0.00633	0.7800	0.1036
-0.00633	0.7800	0.1036
-0.00440	0.7393	0.1022
-0.00258	0.6842	0.1010
-0.00043	0.2278	0.0997
0.00166	0.2309	0.0982
0.00347	0.2417	0.0970
0.00496	0.2361	0.0959
0.00655	0.3277	0.0948
0.00825	0.3497	0.0936
0.00985	0.3542	0.0925
0.01143	0.4009	0.0914
0.01325	0.4538	0.0901
0.01488	0.4979	0.0890
0.01638	0.5320	0.0879
0.01787	0.5753	0.0869
0.01966	0.6406	0.0857
0.02105	0.6809	0.0847
0.02259	0.7362	0.0836
0.02425	0.7739	0.0825
0.02574	0.8247	0.0814
0.02683	0.8482	0.0807
0.02811	0.8798	0.0798
0.02939	0.9149	0.0789
0.03028	0.9363	0.0782
0.03207	0.9565	0.0770
0.03323	0.9781	0.0762
0.03408	0.9992	0.0756
0.03485	1.0000	0.0751

X/C= 1.025 Y/C= 2.82 WAKE

Z/C	U/UP	CP(STATIC)
-0.03441	1.0000	0.1241
-0.03060	0.9992	0.1231
-0.02842	0.9984	0.1225
-0.02615	0.9940	0.1219
-0.02395	0.9850	0.1213
-0.02174	0.9648	0.1208
-0.01993	0.9401	0.1203
-0.01993	0.9401	0.1203
-0.01795	0.9079	0.1198
-0.01602	0.8727	0.1193
-0.01408	0.8345	0.1187
-0.01198	0.7897	0.1182
-0.00981	0.7541	0.1176
-0.00823	0.6908	0.1172
-0.00636	0.5249	0.1167
-0.00458	0.3592	0.1163
-0.00285	0.2839	0.1158
-0.00084	0.2811	0.1154
0.00112	0.3189	0.1149
0.00269	0.3400	0.1144
0.00443	0.3826	0.1140
0.00605	0.4355	0.1123
0.00799	0.4873	0.1090
0.00959	0.5319	0.1063
0.01136	0.5854	0.1042
0.01312	0.6343	0.1027
0.01478	0.6890	0.1014
0.01609	0.7163	0.1003
0.01755	0.7541	0.0991
0.01899	0.8029	0.0980
0.02002	0.8284	0.0971
0.02198	0.8669	0.0952
0.02337	0.9039	0.0934
0.02438	0.9164	0.0921
0.02515	0.9352	0.0911
0.02584	0.9475	0.0902
0.02653	0.9537	0.0893
0.02720	0.9645	0.0884
0.02808	0.9710	0.0872
0.02888	0.9800	0.0862
0.02960	0.9860	0.0852
0.03039	0.9907	0.0842
0.03105	0.9926	0.0833
0.03190	0.9954	0.0822
0.03274	0.9962	0.0811
0.03343	0.9981	0.0802
0.03425	0.9989	0.0791
0.03492	0.9992	0.0782
0.03506	0.9993	0.0781
0.03549	1.0000	0.0775
0.03619	1.0004	0.0766
0.03668	0.9996	0.0759
0.03703	1.0000	0.0755

X/C= 2.000 Y/C= 1.50 WAKE

Z/C	U/UP	CP(STATIC)
-0.10588	1.0000	0.0246
-0.08521	1.0004	0.0168
-0.06729	0.9992	0.0269
-0.05862	1.0000	0.0188
-0.05069	0.9993	0.0192
-0.04191	0.9986	0.0188
-0.03469	0.9971	0.0245
-0.02663	0.9938	0.0232
-0.01854	0.9870	0.0197
-0.01040	0.9740	0.0192
-0.00142	0.9533	0.0177
0.00678	0.9362	0.0133
0.01418	0.9187	0.0123
0.02325	0.9032	0.0221
0.03017	0.8990	0.0113
0.04012	0.9010	0.0123
0.04760	0.9108	0.0225
0.05592	0.9234	0.0177
0.06426	0.9396	0.0104
0.07260	0.9551	0.0162
0.08096	0.9695	0.0109
0.08932	0.9796	0.0182
0.09852	0.9868	0.0187
0.11691	0.9938	0.0118
0.13945	0.9967	0.0128
0.18089	0.9978	0.0118
0.22413	0.9996	0.0089
0.25842	0.9996	0.0054
0.33218	1.0000	0.0020
0.40633	1.0000	-0.0055

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 12 PROBES D

M= 0.730 ALPHA= 3.19 RE= 2700000.

X/C= 0.152 Y/C= 1.17 LOWER

CONSTANT CP(STATIC)= 0.003

Z/C	U/UP
0.00014	0.5707
0.00021	0.6816
0.00032	0.7528
0.00051	0.7969
0.00065	0.8295
0.00074	0.8498
0.00097	0.8848
0.00115	0.9031
0.00132	0.9298
0.00147	0.9438
0.00163	0.9616
0.00182	0.9783
0.00199	0.9874
0.00225	0.9928
0.00238	0.9961
0.00252	0.9979
0.00285	0.9993
0.00305	0.9993
0.00331	1.0000
0.00363	1.0000
0.00382	1.0000

X/C= 0.152 Y/C= 2.42 LOWER

CONSTANT CP(STATIC)= 0.003

Z/C	U/UP
0.00013	0.5558
0.00018	0.5821
0.00054	0.8001
0.00067	0.8352
0.00078	0.8560
0.00090	0.8737
0.00103	0.8912
0.00110	0.9040
0.00127	0.9237
0.00140	0.9383
0.00155	0.9535
0.00167	0.9660
0.00185	0.9782
0.00203	0.9864
0.00218	0.9923
0.00227	0.9947
0.00246	0.9972
0.00271	0.9987
0.00300	1.0000
0.00317	0.9996
0.00342	1.0004
0.00367	1.0001
0.00396	1.0000

X/C= 0.179 Y/C= 1.04 UPPER

CONSTANT CP(STATIC)=-1.072

Z/C	U/UP
0.00017	0.5192
0.00023	0.5659
0.00040	0.6191
0.00045	0.6605
0.00061	0.6940
0.00071	0.7146
0.00088	0.7396
0.00119	0.7833
0.00140	0.8051
0.00162	0.8313
0.00187	0.8521
0.00206	0.8717
0.00228	0.8920
0.00255	0.9135
0.00282	0.9352
0.00318	0.9548
0.00348	0.9744
0.00380	0.9872
0.00424	0.9956
0.00467	0.9992
0.00512	1.0003
0.00549	1.0000
0.00581	1.0000

X/C= 0.179 Y/C= 1.88 UPPER

CONSTANT CP(STATIC)=-1.072

Z/C	U/UP
0.00014	0.4785
0.00016	0.5261
0.00023	0.5994
0.00036	0.6470
0.00047	0.6830
0.00054	0.6981
0.00062	0.7190
0.00091	0.7574
0.00121	0.7910
0.00140	0.8172
0.00175	0.8432
0.00222	0.8861
0.00250	0.9137
0.00279	0.9380
0.00311	0.9592
0.00337	0.9770
0.00368	0.9875
0.00399	0.9941
0.00430	0.9973
0.00460	0.9986
0.00486	0.9995
0.00521	1.0002
0.00565	0.9999
0.00598	0.9999
0.00621	1.0000

X/C= 0.179 Y/C= 2.29 UPPER

CONSTANT CP(STATIC)=-1.072

Z/C	U/UP
0.00015	0.4820
0.00030	0.6334
0.00048	0.6811
0.00069	0.7150
0.00073	0.7206
0.00100	0.7670
0.00130	0.7988
0.00160	0.8314
0.00179	0.8525
0.00209	0.8765
0.00230	0.8996
0.00260	0.9242
0.00287	0.9443
0.00321	0.9665
0.00356	0.9821
0.00390	0.9925
0.00421	0.9971
0.00456	0.9994
0.00475	0.9997
0.00515	0.9999
0.00557	0.9997
0.00590	1.0000

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 12 PROBES D (continued)

M= 0.730 ALPHA= 3.19 RE= 2700000.

X/C= 0.319 Y/C= 1.15 UPPER

CONSTANT CP(STATIC)=-1.142

Z/C	U/UP
0.00012	0.5107
0.00020	0.6290
0.00046	0.6769
0.00068	0.7098
0.00087	0.7384
0.00105	0.7549
0.00125	0.7715
0.00150	0.7924
0.00181	0.8151
0.00218	0.8357
0.00245	0.8550
0.00274	0.8763
0.00316	0.8984
0.00374	0.9228
0.00417	0.9425
0.00457	0.9583
0.00495	0.9697
0.00523	0.9782
0.00543	0.9820
0.00584	0.9906
0.00618	0.9953
0.00659	0.9978
0.00686	0.9985
0.00744	0.9995
0.00752	0.9998
0.00754	0.9998
0.00754	0.9995
0.00781	1.0003
0.00781	1.0002
0.00788	0.9999
0.00810	1.0001
0.00833	1.0000

X/C= 0.319 Y/C= 1.98 UPPER

CONSTANT CP(STATIC)=-1.142

Z/C	U/UP
0.00025	0.5867
0.00038	0.6383
0.00050	0.6686
0.00060	0.6812
0.00072	0.6987
0.00098	0.7283
0.00126	0.7527
0.00146	0.7708
0.00176	0.7912
0.00222	0.8226
0.00255	0.8431
0.00283	0.8631
0.00312	0.8789
0.00342	0.8953
0.00369	0.9087
0.00400	0.9232
0.00431	0.9365
0.00457	0.9471
0.00495	0.9610
0.00527	0.9729
0.00567	0.9827
0.00607	0.9899
0.00643	0.9946
0.00676	0.9978
0.00676	0.9980
0.00681	0.9977
0.00712	0.9990
0.00752	0.9997
0.00784	0.9998
0.00809	0.9998
0.00845	1.0000

X/C= 0.319 Y/C= 2.40 UPPER

CONSTANT CP(STATIC)=-1.142

Z/C	U/UP
0.00013	0.4808
0.00053	0.6587
0.00079	0.7058
0.00112	0.7365
0.00138	0.7585
0.00169	0.7801
0.00197	0.8025
0.00226	0.8258
0.00258	0.8454
0.00295	0.8668
0.00331	0.8865
0.00368	0.9056
0.00402	0.9216
0.00444	0.9387
0.00467	0.9484
0.00498	0.9618
0.00545	0.9768
0.00578	0.9853
0.00616	0.9920
0.00647	0.9953
0.00675	0.9981
0.00675	0.9982
0.00680	0.9977
0.00714	0.9992
0.00742	0.9997
0.00772	1.0001
0.00790	1.0000

X/C= 0.404 Y/C= 1.20 UPPER

CONSTANT CP(STATIC)=-1.176

Z/C	U/UP
0.00020	0.4758
0.00044	0.5816
0.00060	0.6278
0.00076	0.6673
0.00100	0.6906
0.00116	0.7067
0.00148	0.7297
0.00165	0.7468
0.00189	0.7681
0.00212	0.7818
0.00239	0.8024
0.00295	0.8330
0.00326	0.8500
0.00358	0.8695
0.00395	0.8875
0.00435	0.9021
0.00477	0.9201
0.00521	0.9389
0.00565	0.9574
0.00630	0.9735
0.00696	0.9851
0.00749	0.9934
0.00826	0.9983
0.00910	0.9995
0.00980	1.0000
0.01051	1.0001
0.01113	0.9999
0.01163	1.0000

X/C= 0.404 Y/C= 2.03 UPPER

CONSTANT CP(STATIC)=-1.176

Z/C	U/UP
0.00035	0.5798
0.00061	0.6174
0.00079	0.6459
0.00088	0.6737
0.00115	0.7047
0.00142	0.7239
0.00167	0.7516
0.00180	0.7617
0.00206	0.7772
0.00249	0.8009
0.00298	0.8243
0.00342	0.8474
0.00396	0.8648
0.00530	0.9250
0.00570	0.9462
0.00628	0.9652
0.00685	0.9800
0.00732	0.9907
0.00790	0.9953
0.00840	0.9972
0.00882	0.9983
0.00943	0.9990
0.01066	0.9992
0.01137	0.9991
0.01204	0.9995
0.01275	1.0000

X/C= 0.404 Y/C= 2.45 UPPER

CONSTANT CP(STATIC)=-1.176

Z/C	U/UP
0.00033	0.5666
0.00049	0.6437
0.00062	0.6867
0.00118	0.7241
0.00158	0.7446
0.00181	0.7681
0.00193	0.7728
0.00244	0.8050
0.00287	0.8309
0.00328	0.8583
0.00360	0.8771
0.00397	0.8955
0.00453	0.9180
0.00520	0.9394
0.00572	0.9565
0.00643	0.9759
0.00693	0.9881
0.00756	0.9956
0.00809	0.9982
0.00870	0.9998
0.00912	1.0000
0.00970	1.0001
0.01053	1.0000

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 12 PROBES D (continued)

M= 0.730 ALPHA= 3.19 RE= 2700000.

X/C= 0.498 Y/C= 1.34 UPPER

CONSTANT CP(STATIC)=-0.916

Z/C	U/UP
0.00028	0.4312
0.00047	0.5011
0.00060	0.5068
0.00083	0.5404
0.00099	0.5481
0.00111	0.5687
0.00143	0.5881
0.00151	0.6030
0.00187	0.6334
0.00210	0.6518
0.00242	0.6662
0.00306	0.7200
0.00336	0.7260
0.00366	0.7582
0.00409	0.7843
0.00453	0.7957
0.00491	0.8137
0.00529	0.8381
0.00578	0.8640
0.00645	0.8801
0.00685	0.9039
0.00740	0.9256
0.00808	0.9412
0.00885	0.9638
0.00953	0.9828
0.01005	0.9919
0.01063	0.9954
0.01108	0.9976
0.01123	0.9986
0.01190	0.9997
0.01246	1.0009
0.01307	1.0000
0.01344	0.9983
0.01344	0.9988
0.01344	0.9991
0.01353	0.9997
0.01432	1.0004
0.01498	1.0000

X/C= 0.498 Y/C= 2.17 UPPER

CONSTANT CP(STATIC)=-0.916

Z/C	U/UP
0.00015	0.3939
0.00038	0.4531
0.00057	0.4827
0.00070	0.5107
0.00076	0.5339
0.00099	0.5557
0.00121	0.5829
0.00131	0.5943
0.00150	0.6093
0.00194	0.6461
0.00240	0.6824
0.00268	0.7077
0.00310	0.7310
0.00381	0.7774
0.00434	0.8029
0.00477	0.8272
0.00519	0.8454
0.00570	0.8736
0.00603	0.8983
0.00653	0.9176
0.00702	0.9335
0.00738	0.9442
0.00786	0.9591
0.00833	0.9707
0.00891	0.9858
0.00947	0.9925
0.00996	0.9963
0.01067	0.9987
0.01067	0.9989
0.01067	0.9990
0.01134	0.9998
0.01196	1.0003
0.01243	1.0001
0.01278	1.0000

X/C= 0.498 Y/C= 2.59 UPPER

CONSTANT CP(STATIC)=-0.916

Z/C	U/UP
0.00041	0.5234
0.00057	0.5351
0.00065	0.5401
0.00074	0.5459
0.00091	0.5607
0.00112	0.5734
0.00141	0.5977
0.00176	0.6173
0.00203	0.6330
0.00227	0.6536
0.00232	0.6584
0.00279	0.6869
0.00322	0.7155
0.00375	0.7398
0.00400	0.7632
0.00448	0.7788
0.00480	0.8040
0.00529	0.8299
0.00573	0.8512
0.00623	0.8755
0.00678	0.8999
0.00732	0.9230
0.00790	0.9389
0.00829	0.9524
0.00862	0.9647
0.00902	0.9744
0.00966	0.9858
0.01003	0.9927
0.01060	0.9961
0.01108	0.9982
0.01158	0.9989
0.01158	0.9993
0.01212	0.9994
0.01264	0.9995
0.01305	0.9998
0.01341	1.0000
0.01403	1.0000

X/C= 0.574 Y/C= 2.14 UPPER

Z/C	U/UP	CP(STATIC)
0.00018	0.4013	-0.5797
0.00031	0.4352	-0.5795
0.00052	0.4547	-0.5792
0.00057	0.4543	-0.5792
0.00068	0.4769	-0.5790
0.00086	0.4642	-0.5787
0.00094	0.4938	-0.5786
0.00110	0.4897	-0.5784
0.00120	0.4864	-0.5782
0.00133	0.5052	-0.5780
0.00164	0.5362	-0.5776
0.00195	0.5304	-0.5771
0.00218	0.5465	-0.5768
0.00252	0.5676	-0.5763
0.00310	0.5890	-0.5754
0.00343	0.6197	-0.5749
0.00383	0.6540	-0.5744
0.00414	0.6771	-0.5739
0.00451	0.6891	-0.5733
0.00480	0.6954	-0.5729
0.00518	0.7185	-0.5723
0.00549	0.7328	-0.5719
0.00582	0.7572	-0.5714
0.00621	0.7804	-0.5708
0.00653	0.8083	-0.5704
0.00702	0.8226	-0.5696
0.00741	0.8483	-0.5691
0.00781	0.8734	-0.5685
0.00840	0.8999	-0.5676
0.00848	0.9072	-0.5675
0.00856	0.9097	-0.5674
0.00891	0.9318	-0.5669
0.00932	0.9488	-0.5662
0.00969	0.9592	-0.5657
0.00994	0.9683	-0.5653
0.01052	0.9809	-0.5645
0.01093	0.9893	-0.5639
0.01135	0.9929	-0.5632
0.01170	0.9965	-0.5627
0.01202	0.9971	-0.5623
0.01258	0.9986	-0.5614
0.01299	0.9997	-0.5608
0.01396	1.0002	-0.5594
0.01521	1.0001	-0.5575
0.01683	1.0000	-0.5552

X/C= 0.574 Y/C= 2.56 UPPER

Z/C	U/UP	CP(STATIC)
0.00032	0.3974	-0.5795
0.00055	0.4281	-0.5792
0.00084	0.4494	-0.5788
0.00105	0.4698	-0.5784
0.00127	0.4849	-0.5781
0.00131	0.4869	-0.5781
0.00172	0.5116	-0.5775
0.00205	0.5329	-0.5770
0.00247	0.5475	-0.5764
0.00267	0.5657	-0.5761
0.00305	0.5814	-0.5755
0.00333	0.6022	-0.5751
0.00377	0.6344	-0.5744
0.00411	0.6562	-0.5739
0.00450	0.6840	-0.5734
0.00493	0.7036	-0.5727
0.00538	0.7289	-0.5721
0.00587	0.7500	-0.5713
0.00620	0.7684	-0.5709
0.00647	0.7926	-0.5704
0.00680	0.8084	-0.5700
0.00733	0.8352	-0.5692
0.00761	0.8577	-0.5688
0.00803	0.8762	-0.5682
0.00840	0.8964	-0.5676
0.00879	0.9170	-0.5670
0.00879	0.9302	-0.5670
0.00882	0.9308	-0.5670
0.00923	0.9440	-0.5664
0.00966	0.9568	-0.5657
0.01000	0.9658	-0.5652
0.01029	0.9749	-0.5648
0.01080	0.9836	-0.5641
0.01132	0.9904	-0.5633
0.01166	0.9936	-0.5628
0.01194	0.9964	-0.5624
0.01236	0.9981	-0.5618
0.01287	0.9990	-0.5610
0.01317	0.9996	-0.5606
0.01448	1.0000	-0.5586
0.01600	1.0000	-0.5564
0.01728	1.0000	-0.5545

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 12 PROBES D (concluded)

M= 0.730 ALPHA= 3.19 RE= 2700000.

X/C= 0.650 Y/C= 2.60 UPPER

Z/C	U/UP	CP(STATIC)
0.00083	0.4554	-0.4595
0.00135	0.4777	-0.4592
0.00214	0.5285	-0.4586
0.00214	0.5247	-0.4586
0.00344	0.6013	-0.4577
0.00525	0.6804	-0.4564
0.00695	0.7704	-0.4552
0.00873	0.8556	-0.4540
0.01043	0.9158	-0.4528
0.01251	0.9770	-0.4513
0.01470	0.9975	-0.4498
0.01693	0.9995	-0.4482
0.01896	1.0000	-0.4468
0.02087	1.0000	-0.4454

X/C= 0.750 Y/C= 2.21 UPPER

CONSTANT CP(STATIC)=-0.288

Z/C	U/UP
0.00078	0.3670
0.00148	0.4122
0.00189	0.4297
0.00238	0.4457
0.00300	0.4789
0.00300	0.4631
0.00300	0.4684
0.00341	0.4799
0.00390	0.4912
0.00403	0.5215
0.00513	0.5710
0.00669	0.6271
0.00819	0.6919
0.00965	0.7598
0.01096	0.8120
0.01277	0.8820
0.01477	0.9410
0.01669	0.9809
0.01846	0.9955
0.02019	0.9994
0.02159	0.9994
0.02332	0.9999
0.02473	1.0000

X/C= 0.900 Y/C= 2.43 UPPER

Z/C	U/UP	CP(STATIC)
0.00080	0.2719	-0.0303
0.00128	0.2929	-0.0306
0.00207	0.3120	-0.0309
0.00207	0.3207	-0.0309
0.00326	0.3488	-0.0315
0.00503	0.3939	-0.0324
0.00661	0.4422	-0.0332
0.00827	0.4904	-0.0340
0.00962	0.5287	-0.0346
0.01215	0.5942	-0.0359
0.01449	0.6558	-0.0370
0.01662	0.7259	-0.0381
0.01847	0.7784	-0.0390
0.02049	0.8406	-0.0400
0.02208	0.8761	-0.0408
0.02419	0.9252	-0.0418
0.02590	0.9485	-0.0426
0.02808	0.9773	-0.0437
0.02998	0.9916	-0.0446
0.03162	0.9950	-0.0454
0.03348	0.9983	-0.0464
0.03517	0.9996	-0.0472
0.03859	1.0003	-0.0494
0.04011	1.0000	-0.0510

X/C= 1.000 Y/C= 2.02 WAKE

Z/C	U/UP	CP(STATIC)
-0.02032	0.9856	0.1490
-0.02025	0.9849	0.1490
-0.01850	0.9726	0.1487
-0.01652	0.9482	0.1407
-0.01445	0.9222	0.1322
-0.01227	0.8904	0.1233
-0.01056	0.8644	0.1164
-0.00827	0.8350	0.1070
-0.00675	0.8209	0.1039
-0.00507	0.7964	0.1027
-0.00266	0.7517	0.1010
-0.00043	0.0000	0.0997
0.00174	0.0000	0.0982
0.00386	0.0000	0.0967
0.00598	0.0992	0.0952
0.00784	0.1805	0.0939
0.00970	0.2335	0.0926
0.01143	0.3134	0.0914
0.01333	0.3631	0.0901
0.01528	0.4328	0.0887
0.01880	0.5201	0.0863
0.02090	0.5658	0.0848
0.02259	0.6278	0.0836
0.02464	0.7066	0.0822
0.02620	0.7396	0.0811
0.02804	0.7913	0.0798
0.02984	0.8477	0.0786
0.03176	0.8852	0.0772
0.03370	0.9291	0.0759
0.03550	0.9599	0.0746
0.03680	0.9764	0.0737
0.03815	0.9849	0.0728
0.03949	0.9916	0.0718
0.04192	0.9951	0.0701
0.04333	0.9972	0.0691
0.04458	0.9986	0.0683
0.04554	0.9997	0.0676
0.04635	1.0000	0.0670

X/C= 1.025 Y/C= 2.82 WAKE

Z/C	U/UP	CP(STATIC)
-0.03085	1.0000	0.1231
-0.02901	1.0000	0.1227
-0.02691	0.9993	0.1221
-0.02480	0.9993	0.1216
-0.02267	0.9960	0.1210
-0.02084	0.9897	0.1205
-0.01845	0.9730	0.1199
-0.01686	0.9529	0.1195
-0.01517	0.9270	0.1190
-0.01273	0.8851	0.1184
-0.01073	0.8461	0.1179
-0.00823	0.7997	0.1172
-0.00823	0.8025	0.1172
-0.00823	0.8036	0.1172
-0.00602	0.7527	0.1166
-0.00375	0.6438	0.1160
-0.00171	0.4707	0.1155
0.00033	0.3045	0.1150
0.00245	0.2800	0.1145
0.00443	0.3008	0.1140
0.00662	0.3515	0.1113
0.00847	0.3971	0.1082
0.01043	0.4528	0.1049
0.01287	0.5141	0.1030
0.01495	0.5696	0.1013
0.01706	0.6302	0.0995
0.01875	0.6865	0.0982
0.02088	0.7371	0.0964
0.02283	0.7971	0.0941
0.02508	0.8437	0.0912
0.02713	0.8939	0.0885
0.02902	0.9321	0.0860
0.03046	0.9557	0.0841
0.03213	0.9744	0.0819
0.03373	0.9849	0.0798
0.03542	0.9930	0.0776
0.03640	0.9939	0.0763
0.03654	0.9958	0.0761
0.03780	0.9973	0.0745
0.03924	1.0000	0.0726

X/C= 2.000 Y/C= 1.50 WAKE

Z/C	U/UP	CP(STATIC)
-0.06650	1.0000	0.0263
-0.05148	1.0003	0.0230
-0.04351	1.0000	0.0142
-0.03389	0.9990	0.0210
-0.03067	0.9978	0.0186
-0.02744	0.9967	0.0152
-0.02178	0.9929	0.0186
-0.02016	0.9899	0.0210
-0.01447	0.9842	0.0171
-0.00959	0.9764	0.0166
-0.00633	0.9708	0.0186
-0.00224	0.9611	0.0195
0.00267	0.9495	0.0084
0.00513	0.9419	0.0152
0.00513	0.9428	0.0195
0.00513	0.9435	0.0210
0.01006	0.9295	0.0152
0.01418	0.9188	0.0152
0.01830	0.9119	0.0210
0.02325	0.9047	0.0142
0.02739	0.9011	0.0162
0.03070	0.8983	0.0166
0.03348	0.8984	0.0162
0.04012	0.9006	0.0152
0.04427	0.9036	0.0196
0.04760	0.9076	0.0148
0.05259	0.9168	0.0069
0.05509	0.9211	0.0099
0.05925	0.9287	0.0153
0.06509	0.9378	0.0069
0.06760	0.9459	0.0144
0.07344	0.9520	0.0099
0.07762	0.9603	0.0104
0.08096	0.9649	0.0030
0.08597	0.9724	0.0095
0.09016	0.9765	0.0129
0.09434	0.9795	0.0124
0.09768	0.9842	0.0100
0.10605	0.9865	0.0218
0.11273	0.9913	0.0101
0.12109	0.9937	0.0125
0.13194	0.9956	0.0136
0.14694	0.9963	0.0156
0.16437	0.9967	0.0101
0.18007	0.9984	0.0201
0.19731	0.9981	0.0116
0.22976	1.0000	0.0089
0.24655	0.9997	0.0035
0.26235	1.0000	0.0000

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 13 PROBES D

M= 0.745 ALPHA= 3.19 RE= 2700000.

X/C= 0.152 Y/C= 1.17 LOWER

CONSTANT CP(STATIC)=-0.018

Z/C	U/UP
0.00014	0.5739
0.00025	0.6962
0.00032	0.7556
0.00044	0.7901
0.00055	0.8057
0.00069	0.8361
0.00079	0.8566
0.00088	0.8765
0.00097	0.8877
0.00111	0.9046
0.00120	0.9221
0.00131	0.9333
0.00146	0.9456
0.00152	0.9546
0.00167	0.9638
0.00173	0.9720
0.00185	0.9823
0.00202	0.9893
0.00213	0.9917
0.00243	0.9967
0.00273	0.9993
0.00297	0.9993
0.00318	1.0000
0.00362	1.0000
0.00408	1.0000

X/C= 0.152 Y/C= 2.00 LOWER

CONSTANT CP(STATIC)=-0.018

Z/C	U/UP
0.00017	0.6056
0.00023	0.6911
0.00029	0.7229
0.00038	0.7533
0.00044	0.7753
0.00060	0.8132
0.00070	0.8365
0.00079	0.8580
0.00089	0.8733
0.00106	0.9005
0.00118	0.9159
0.00132	0.9331
0.00137	0.9410
0.00146	0.9499
0.00158	0.9620
0.00166	0.9684
0.00175	0.9751
0.00186	0.9824
0.00197	0.9862
0.00203	0.9888
0.00212	0.9916
0.00223	0.9937
0.00232	0.9945
0.00262	0.9977
0.00295	1.0000
0.00319	0.9989
0.00344	0.9984
0.00392	0.9994
0.00505	1.0000
0.00559	1.0000
0.00608	1.0000

X/C= 0.152 Y/C= 2.42 LOWER

CONSTANT CP(STATIC)=-0.018

Z/C	U/UP
0.00013	0.5681
0.00018	0.6472
0.00026	0.7312
0.00043	0.7990
0.00052	0.8162
0.00062	0.8370
0.00075	0.8563
0.00082	0.8691
0.00093	0.8836
0.00103	0.8982
0.00120	0.9200
0.00125	0.9276
0.00133	0.9359
0.00142	0.9461
0.00150	0.9535
0.00157	0.9609
0.00170	0.9711
0.00179	0.9771
0.00190	0.9829
0.00210	0.9901
0.00222	0.9944
0.00239	0.9971
0.00275	0.9994
0.00293	1.0000
0.00331	1.0000

X/C= 0.179 Y/C= 1.04 UPPER

CONSTANT CP(STATIC)=-0.996

Z/C	U/UP
0.00017	0.4893
0.00024	0.5565
0.00034	0.6074
0.00038	0.6324
0.00045	0.6522
0.00055	0.6810
0.00063	0.6959
0.00073	0.7176
0.00086	0.7372
0.00094	0.7468
0.00106	0.7585
0.00129	0.7901
0.00146	0.8097
0.00156	0.8223
0.00194	0.8608
0.00218	0.8832
0.00240	0.9028
0.00265	0.9216
0.00318	0.9602
0.00367	0.9841
0.00401	0.9933
0.00435	0.9973
0.00483	0.9997
0.00535	0.9998
0.00570	0.9997
0.00606	1.0000

X/C= 0.179 Y/C= 1.88 UPPER

CONSTANT CP(STATIC)=-0.996

Z/C	U/UP
0.00023	0.5492
0.00030	0.5996
0.00036	0.6331
0.00051	0.6754
0.00060	0.6934
0.00067	0.7139
0.00078	0.7252
0.00084	0.7441
0.00091	0.7515
0.00100	0.7645
0.00113	0.7753
0.00121	0.7859
0.00153	0.8214
0.00185	0.8589
0.00211	0.8784
0.00237	0.9024
0.00290	0.9434
0.00341	0.9761
0.00399	0.9927
0.00454	0.9984
0.00499	0.9997
0.00569	0.9998
0.00642	1.0000
0.00685	1.0000

X/C= 0.179 Y/C= 2.29 UPPER

CONSTANT CP(STATIC)=-0.996

Z/C	U/UP
0.00017	0.5063
0.00035	0.6414
0.00053	0.6853
0.00071	0.7195
0.00098	0.7556
0.00134	0.8029
0.00149	0.8201
0.00194	0.8679
0.00241	0.9097
0.00292	0.9484
0.00337	0.9755
0.00390	0.9924
0.00430	0.9979
0.00479	0.9999
0.00530	1.0004
0.00576	1.0000

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 13 PROBES D (continued)

M= 0.745 ALPHA= 3.19 RE= 2700000.

X/C= 0.319 Y/C= 1.15 UPPER

CONSTANT CP(STATIC)=-1.110

Z/C	U/UP
0.00012	0.4724
0.00038	0.6382
0.00059	0.6769
0.00070	0.6948
0.00109	0.7442
0.00128	0.7660
0.00150	0.7838
0.00173	0.8013
0.00230	0.8414
0.00275	0.8705
0.00305	0.8916
0.00346	0.9082
0.00401	0.9326
0.00450	0.9535
0.00487	0.9664
0.00532	0.9792
0.00566	0.9862
0.00600	0.9924
0.00649	0.9970
0.00685	0.9990
0.00710	0.9993
0.00760	1.0000
0.00800	1.0000

X/C= 0.319 Y/C= 1.98 UPPER

CONSTANT CP(STATIC)=-1.110

Z/C	U/UP
0.00022	0.5609
0.00027	0.6040
0.00035	0.6321
0.00050	0.6678
0.00062	0.6802
0.00068	0.6975
0.00080	0.7066
0.00090	0.7201
0.00098	0.7239
0.00110	0.7348
0.00121	0.7433
0.00128	0.7498
0.00156	0.7778
0.00189	0.8042
0.00214	0.8178
0.00242	0.8388
0.00293	0.8692
0.00345	0.8961
0.00400	0.9225
0.00454	0.9468
0.00510	0.9664
0.00572	0.9846
0.00612	0.9915
0.00650	0.9958
0.00698	0.9985
0.00743	0.9997
0.00780	0.9994
0.00818	1.0001
0.00861	1.0000

X/C= 0.319 Y/C= 2.40 UPPER

CONSTANT CP(STATIC)=-1.110

Z/C	U/UP
0.00033	0.6455
0.00072	0.7100
0.00085	0.7268
0.00140	0.7775
0.00195	0.8145
0.00252	0.8494
0.00301	0.8791
0.00354	0.9068
0.00397	0.9287
0.00454	0.9517
0.00505	0.9718
0.00552	0.9838
0.00588	0.9913
0.00623	0.9955
0.00653	0.9979
0.00699	0.9991
0.00726	0.9996
0.00760	0.9995
0.00794	1.0001
0.00835	0.9998
0.00887	1.0001
0.00920	1.0000

X/C= 0.404 Y/C= 1.20 UPPER

CONSTANT CP(STATIC)=-1.148

Z/C	U/UP
0.00019	0.5186
0.00031	0.5920
0.00059	0.6421
0.00068	0.6683
0.00084	0.6900
0.00092	0.7056
0.00116	0.7196
0.00128	0.7333
0.00140	0.7435
0.00152	0.7543
0.00168	0.7645
0.00188	0.7793
0.00205	0.7891
0.00220	0.8041
0.00242	0.8159
0.00254	0.8238
0.00277	0.8330
0.00318	0.8545
0.00346	0.8682
0.00362	0.8780
0.00422	0.9054
0.00462	0.9243
0.00506	0.9406
0.00543	0.9552
0.00650	0.9816
0.00741	0.9939
0.00797	0.9979
0.00858	0.9988
0.00938	0.9999
0.01025	1.0000

X/C= 0.404 Y/C= 2.45 UPPER

CONSTANT CP(STATIC)=-1.148

Z/C	U/UP
0.00018	0.5202
0.00038	0.6309
0.00042	0.6424
0.00082	0.6925
0.00119	0.7258
0.00151	0.7482
0.00182	0.7730
0.00225	0.7998
0.00290	0.8362
0.00318	0.8530
0.00375	0.8925
0.00467	0.9284
0.00577	0.9614
0.00655	0.9832
0.00752	0.9955
0.00825	0.9988
0.00905	1.0000
0.01081	1.0000

Table 6.8 (continued)

CASE 13 PROBES D (continued)

M= 0.745 ALPHA= 3.19 RE= 2700000.

X/C= 0.498 Y/C= 1.34 UPPER

CONSTANT CP(STATIC)=-1.202

Z/C	U/UP
0.00020	0.4756
0.00028	0.5886
0.00036	0.6276
0.00055	0.6525
0.00068	0.6693
0.00087	0.6818
0.00095	0.6944
0.00115	0.7029
0.00123	0.7124
0.00135	0.7214
0.00155	0.7345
0.00175	0.7433
0.00198	0.7591
0.00218	0.7706
0.00225	0.7764
0.00249	0.7848
0.00279	0.8075
0.00313	0.8215
0.00329	0.8302
0.00406	0.8591
0.00441	0.8755
0.00476	0.8885
0.00510	0.9016
0.00605	0.9333
0.00679	0.9540
0.00735	0.9673
0.00787	0.9777
0.00858	0.9894
0.00937	0.9956
0.00999	0.9974
0.01058	0.9987
0.01093	0.9993
0.01150	0.9992
0.01231	0.9986
0.01277	1.0000
0.01321	0.9995
0.01392	1.0000

X/C= 0.498 Y/C= 2.17 UPPER

CONSTANT CP(STATIC)=-1.202

Z/C	U/UP
0.00037	0.5723
0.00046	0.6244
0.00075	0.6651
0.00085	0.6808
0.00098	0.6921
0.00120	0.7144
0.00132	0.7239
0.00145	0.7387
0.00160	0.7470
0.00175	0.7594
0.00185	0.7632
0.00200	0.7728
0.00217	0.7804
0.00228	0.7877
0.00270	0.8130
0.00312	0.8394
0.00352	0.8530
0.00388	0.8729
0.00463	0.9015
0.00545	0.9291
0.00633	0.9529
0.00717	0.9734
0.00793	0.9869
0.00885	0.9964
0.00937	0.9980
0.01005	0.9993
0.01073	0.9996
0.01150	1.0000

X/C= 0.498 Y/C= 2.50 UPPER

CONSTANT CP(STATIC)=-1.202

Z/C	U/UP
0.00031	0.5791
0.00036	0.5941
0.00038	0.6095
0.00041	0.6260
0.00043	0.6416
0.00048	0.6540
0.00053	0.6646
0.00057	0.6689
0.00076	0.6946
0.00079	0.6985
0.00119	0.7177
0.00124	0.7243
0.00159	0.7462
0.00180	0.7599
0.00200	0.7790
0.00238	0.7976
0.00297	0.8233
0.00324	0.8370
0.00387	0.8676
0.00465	0.8933
0.00553	0.9214
0.00621	0.9455
0.00696	0.9681
0.00760	0.9805
0.00832	0.9911
0.00896	0.9974
0.00974	0.9987
0.01024	0.9988
0.01136	1.0000
0.01198	1.0001
0.01239	1.0000

X/C= 0.574 Y/C= 1.31 UPPER

Z/C	U/UP	CP(STATIC)
0.00023	0.2044	-0.6600
0.00040	0.2163	-0.6600
0.00053	0.2216	-0.6600
0.00065	0.2289	-0.6600
0.00095	0.2517	-0.6600
0.00111	0.2665	-0.6600
0.00123	0.2784	-0.6600
0.00190	0.3323	-0.6600
0.00223	0.3582	-0.6600
0.00253	0.3882	-0.6600
0.00310	0.4376	-0.6600
0.00374	0.4870	-0.6600
0.00411	0.5388	-0.6600
0.00458	0.5663	-0.6600
0.00510	0.6145	-0.6593
0.00613	0.7089	-0.6517
0.00663	0.7358	-0.6480
0.00700	0.7675	-0.6453
0.00747	0.7903	-0.6418
0.00809	0.8371	-0.6372
0.00845	0.8545	-0.6346
0.00873	0.8825	-0.6325
0.00933	0.9056	-0.6280
0.00988	0.9258	-0.6240
0.01019	0.9412	-0.6217
0.01053	0.9482	-0.6192
0.01092	0.9573	-0.6163
0.01140	0.9736	-0.6128
0.01179	0.9827	-0.6099
0.01234	0.9891	-0.6059
0.01282	0.9882	-0.6024
0.01312	0.9908	-0.6001
0.01378	0.9922	-0.5953
0.01507	1.0000	-0.5857

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 13 PROBES D (continued)

M= 0.745 ALPHA= 3.19 RE= 2700000.

X/C= 0.650 Y/C= 2.60 UPPER

Z/C	U/UP	CP(STATIC)
0.00061	0.2061	-0.4400
0.00090	0.2392	-0.4400
0.00129	0.2383	-0.4400
0.00158	0.2649	-0.4400
0.00178	0.2878	-0.4400
0.00217	0.3025	-0.4400
0.00246	0.3256	-0.4400
0.00265	0.3344	-0.4400
0.00285	0.3011	-0.4400
0.00323	0.3332	-0.4400
0.00362	0.3373	-0.4400
0.00381	0.3738	-0.4400
0.00410	0.4134	-0.4400
0.00439	0.3885	-0.4400
0.00458	0.3757	-0.4400
0.00487	0.4106	-0.4400
0.00516	0.4238	-0.4400
0.00545	0.4364	-0.4400
0.00554	0.4418	-0.4400
0.00583	0.4879	-0.4400
0.00602	0.4746	-0.4400
0.00640	0.4740	-0.4400
0.00858	0.5450	-0.4400
0.01064	0.5969	-0.4400
0.01276	0.6648	-0.4400
0.01479	0.7303	-0.4378
0.01681	0.7845	-0.4356
0.01906	0.8511	-0.4332
0.02150	0.9304	-0.4306
0.02384	0.9768	-0.4280
0.02619	0.9967	-0.4270
0.02820	1.0002	-0.4270
0.02937	0.9998	-0.4270
0.03058	1.0000	-0.4270

X/C= 0.750 Y/C= 2.21 UPPER

CONSTANT CP(STATIC)=-0.2720

Z/C	U/UP
0.00057	0.1992
0.00105	0.1999
0.00154	0.2161
0.00203	0.2190
0.00217	0.2175
0.00258	0.2359
0.00286	0.2449
0.00335	0.2574
0.00369	0.2578
0.00554	0.2860
0.00723	0.3324
0.00886	0.3711
0.01037	0.4373
0.01138	0.4724
0.01194	0.5082
0.01375	0.5894
0.01572	0.6868
0.01763	0.7648
0.01950	0.8302
0.02128	0.9069
0.02242	0.9379
0.02366	0.9597
0.02483	0.9823
0.02616	0.9882
0.02688	0.9964
0.02718	0.9974
0.02759	0.9987
0.02806	0.9992
0.02858	0.9989
0.02988	0.9997
0.03095	0.9999
0.03171	1.0000

X/C= 0.900 Y/C= 2.43 UPPER

Z/C	U/UP	CP(STATIC)
0.00057	0.1878	-0.0473
0.00239	0.2382	-0.0527
0.00625	0.2995	-0.0606
0.00782	0.3376	-0.0614
0.00942	0.3915	-0.0622
0.01195	0.4405	-0.0635
0.01425	0.4997	-0.0647
0.01633	0.5432	-0.0658
0.01845	0.5359	-0.0669
0.02048	0.6434	-0.0680
0.02190	0.6745	-0.0687
0.02346	0.7003	-0.0695
0.02478	0.7389	-0.0702
0.02752	0.7998	-0.0716
0.02791	0.8062	-0.0718
0.02845	0.8198	-0.0721
0.02905	0.8299	-0.0724
0.02965	0.8304	-0.0727
0.03122	0.8676	-0.0735
0.03249	0.9064	-0.0742
0.03350	0.9226	-0.0747
0.03472	0.9347	-0.0754
0.03587	0.9493	-0.0760
0.03659	0.9524	-0.0763
0.03758	0.9698	-0.0769
0.03891	0.9755	-0.0775
0.04038	0.9867	-0.0783
0.04151	0.9847	-0.0789
0.04297	0.9937	-0.0796
0.04441	0.9995	-0.0804
0.04595	1.0002	-0.0812
0.04733	1.0000	-0.0819
0.04801	0.9997	-0.0823
0.04833	0.9991	-0.0825
0.04899	1.0000	-0.0828
0.04970	1.0001	-0.0831
0.05062	1.0000	-0.0836

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 13 PROBES D (concluded)

M= 0.745 ALPHA= 3.19 RE= 2700000.

X/C= 1.025 Y/C= 2.82 WAKE

Z/C	U/UP	CP(STATIC)
-0.02515	1.0000	0.1130
	Incomplete traverse	
-0.02047	0.9435	0.1112
-0.01945	0.9243	0.1107
-0.01807	0.9000	0.1101
-0.01670	0.8886	0.1095
-0.01567	0.8593	0.1091
-0.01420	0.8435	0.1084
-0.01412	0.8342	0.1084
-0.01291	0.8192	0.1079
-0.01205	0.7943	0.1075
-0.01096	0.7785	0.1070
-0.00971	0.7393	0.1065
-0.00838	0.6786	0.1059
-0.00713	0.6535	0.1054
-0.00619	0.5953	0.1050
-0.00560	0.5272	0.1047
-0.00484	0.4696	0.1044
-0.00390	0.3808	0.1040
-0.00167	0.2801	0.1032
0.00031	0.2711	0.1023
0.00214	0.3045	0.1009
0.00391	0.3416	0.0993
0.00533	0.3532	0.0980
0.00722	0.3865	0.0962
0.00875	0.4217	0.0948
0.00987	0.4563	0.0937
0.01067	0.4752	0.0930
0.01188	0.4995	0.0919
0.01318	0.5397	0.0907
0.01430	0.5618	0.0896
0.01589	0.5922	0.0881
0.01762	0.6259	0.0865
0.01832	0.6431	0.0859
0.01894	0.6581	0.0853
0.01941	0.6643	0.0849
0.01990	0.6619	0.0844
0.02080	0.6844	0.0836
0.02275	0.7336	0.0817
0.02426	0.7593	0.0803
0.02590	0.7991	0.0788
0.02723	0.8218	0.0776
0.02927	0.8582	0.0757
0.03129	0.8970	0.0738
0.03335	0.9255	0.0719
0.03537	0.9493	0.0700
0.03724	0.9653	0.0683
0.03874	0.9792	0.0669
0.04034	0.9849	0.0654
0.04204	0.9917	0.0638
0.04368	0.9965	0.0623
0.04537	1.0000	0.0607
0.04562	1.0008	0.0605
0.04575	1.0015	0.0603
0.04588	1.0004	0.0602
0.04607	1.0004	0.0600
0.04626	1.0008	0.0599
0.04639	1.0001	0.0597
0.04657	0.9995	0.0596
0.04670	0.9994	0.0595
0.04695	1.0012	0.0592
0.04708	1.0000	0.0591
0.04727	0.9995	0.0589
0.04752	0.9996	0.0587
0.04770	0.9989	0.0585
0.04820	1.0002	0.0581
0.04832	1.0002	0.0579
0.04845	1.0000	0.0578

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 13A PROBES C2

M= 0.740 ALPHA= 3.19 RE= 2700000.

X/C= 0.152 Y/C= 1.17 LOWER

CONSTANT CP(STATIC)= 0.000

Z/C	U/UP
0.00018	0.6065
0.00032	0.7205
0.00040	0.7587
0.00048	0.7908
0.00065	0.8269
0.00079	0.8618
0.00087	0.8712
0.00099	0.8872
0.00112	0.9060
0.00125	0.9253
0.00158	0.9626
0.00178	0.9757
0.00202	0.9888
0.00222	0.9939
0.00222	0.9939
0.00242	0.9970
0.00268	0.9994
0.00290	0.9996
0.00312	1.0000
0.00334	1.0000

X/C= 0.179 Y/C= 1.04 UPPER

CONSTANT CP(STATIC)=-1.038

Z/C	U/UP
0.00017	0.4915
0.00038	0.5995
0.00044	0.6444
0.00055	0.6772
0.00067	0.6992
0.00084	0.7220
0.00118	0.7669
0.00137	0.7993
0.00166	0.8236
0.00193	0.8491
0.00193	0.8599
0.00209	0.8713
0.00235	0.8930
0.00256	0.9156
0.00279	0.9358
0.00302	0.9505
0.00325	0.9647
0.00340	0.9719
0.00364	0.9800
0.00385	0.9882
0.00406	0.9940
0.00426	0.9964
0.00446	0.9982
0.00457	0.9993
0.00488	0.9997
0.00514	1.0003
0.00563	1.0001
0.00593	1.0000

X/C= 0.404 Y/C= 1.20 UPPER

CONSTANT CP(STATIC)=-1.172

Z/C	U/UP
0.00043	0.6158
0.00055	0.6638
0.00063	0.6789
0.00084	0.6942
0.00108	0.7176
0.00144	0.7543
0.00148	0.7555
0.00172	0.7754
0.00200	0.7890
0.00225	0.8061
0.00289	0.8417
0.00323	0.8620
0.00366	0.8826
0.00394	0.9012
0.00398	0.9035
0.00426	0.9138
0.00478	0.9331
0.00511	0.9483
0.00552	0.9634
0.00596	0.9752
0.00640	0.9843
0.00667	0.9874
0.00721	0.9929
0.00753	0.9963
0.00793	0.9985
0.00830	0.9991
0.00862	0.9995
0.00882	0.9999
0.00934	1.0001
0.00983	1.0000

X/C= 0.498 Y/C= 1.34 UPPER

CONSTANT CP(STATIC)=-1.232

Z/C	U/UP
0.00032	0.5642
0.00047	0.6246
0.00055	0.6436
0.00083	0.6589
0.00091	0.6812
0.00122	0.7159
0.00136	0.7225
0.00149	0.7387
0.00166	0.7500
0.00210	0.7663
0.00269	0.7991
0.00304	0.8193
0.00349	0.8374
0.00391	0.8569
0.00391	0.8589
0.00421	0.8682
0.00463	0.8824
0.00485	0.8956
0.00519	0.9106
0.00556	0.9237
0.00599	0.9377
0.00621	0.9422
0.00658	0.9523
0.00685	0.9613
0.00723	0.9699
0.00750	0.9756
0.00782	0.9805
0.00804	0.9844
0.00849	0.9901
0.00898	0.9942
0.00978	0.9980
0.01016	0.9988
0.01016	0.9986
0.01078	0.9993
0.01151	1.0000
0.01216	0.9996
0.01386	1.0000

Table 6.8 (concluded)

BOUNDARY LAYER AND WAKE PROFILES

CASE 13A PROBES C2 (concluded)

M= 0.740 ALPHA= 3.19 RE= 2700000.

X/C= 0.650 Y/C= 2.60 UPPER

CONSTANT CP(STATIC)=-0.450

Z/C	U/UP
0.00083	0.3412
0.00118	0.3522
0.00205	0.3877
0.00404	0.4753
0.00507	0.5587
0.00686	0.6374
0.00864	0.7573
0.01025	0.8387
0.01034	0.8351
0.01168	0.9083
0.01357	0.9745
0.01517	0.9939
0.01525	0.9951
0.01709	0.9994
0.01871	0.9998
0.02046	1.0000
0.02181	1.0000

X/C= 0.750 Y/C= 2.21 UPPER

CONSTANT CP(STATIC)=-0.275

Z/C	U/UP
0.00057	0.2729
0.00105	0.2969
0.00175	0.3029
0.00245	0.3360
0.00279	0.3399
0.00307	0.3443
0.00397	0.3654
0.00574	0.4117
0.00805	0.5107
0.00957	0.5913
0.01089	0.6356
0.01089	0.6439
0.01210	0.6945
0.01378	0.7760
0.01522	0.8252
0.01815	0.9167
0.01976	0.9685
0.02111	0.9827
0.02111	0.9853
0.02249	0.9931
0.02368	0.9977
0.02622	0.9995
0.02753	0.9998
0.02877	1.0000

X/C= 0.900 Y/C= 2.43 UPPER

CONSTANT CP(STATIC)=-0.034

Z/C	U/UP
0.00080	0.2196
0.00112	0.2254
0.00191	0.2492
0.00381	0.2827
0.00639	0.3499
0.00813	0.4038
0.00945	0.4381
0.00945	0.4432
0.01082	0.4813
0.01318	0.5446
0.01479	0.5832
0.01647	0.6485
0.01980	0.7501
0.02148	0.7921
0.02148	0.7995
0.02304	0.8379
0.02445	0.8836
0.02609	0.9173
0.02772	0.9463
0.02933	0.9707
0.03090	0.9846
0.03375	0.9961
0.03552	0.9967
0.03707	1.0000
0.03889	1.0000
0.04077	1.0000

X/C= 1.000 Y/C= 2.02 WAKE

CONSTANT CP(STATIC)= 0.0929

Z/C	U/UP
-0.02047	0.9912
-0.01873	0.9882
-0.01698	0.9735
-0.01477	0.9456
-0.01300	0.9154
-0.01087	0.8784
-0.00911	0.8408
-0.00709	0.7824
-0.00424	0.7367
-0.00202	0.6548
0.00038	0.1978
0.00245	0.1703
0.00457	0.1880
0.01242	0.3203
0.01391	0.3362
0.01559	0.4085
0.01716	0.4516
0.01873	0.5081
0.02028	0.5391
0.02190	0.5646
0.02337	0.5954
0.02495	0.6234
0.02495	0.6249
0.02652	0.6689
0.02811	0.6913
0.02961	0.7635
0.03113	0.8168
0.03113	0.7859
0.03254	0.8323
0.03423	0.8572
0.03550	0.8837
0.03550	0.8846
0.03673	0.9199
0.03807	0.9360
0.04178	0.9796
0.04256	0.9887
0.04284	0.9917
0.04312	0.9917
0.04333	0.9929
0.04375	0.9939
0.04431	0.9940
0.04472	0.9955
0.04486	0.9963
0.04520	0.9974
0.04575	0.9986
0.04649	1.0000

X/C= 1.025 Y/C= 2.82 WAKE

CONSTANT CP(STATIC)= 0.0929

Z/C	U/UP
-0.03094	1.0000
-0.02868	1.0000
-0.02683	0.9982
-0.02454	0.9919
-0.02267	0.9797
-0.02059	0.9470
-0.01778	0.9119
-0.01543	0.8684
-0.01315	0.8251
-0.01090	0.7851
-0.01090	0.7890
-0.00857	0.7310
-0.00602	0.5756
-0.00383	0.3697
-0.00181	0.3151
0.00022	0.3178
0.00178	0.3464
0.00352	0.3791
0.00525	0.4062
0.00702	0.4449
0.00879	0.4945
0.01060	0.5252
0.01220	0.5631
0.01396	0.6091
0.01396	0.6035
0.01576	0.6498
0.01763	0.6981
0.01931	0.7441
0.02104	0.7913
0.02104	0.7815
0.02260	0.8233
0.02446	0.8568
0.02577	0.8895
0.02577	0.8836
0.02727	0.9160
0.02888	0.9402
0.03039	0.9656
0.03128	0.9658
0.03320	0.9843
0.03418	0.9866
0.03485	0.9913
0.03506	0.9935
0.03549	0.9947
0.03612	0.9955
0.03654	0.9970
0.03675	0.9974
0.03724	0.9981
0.03780	0.9988
0.03903	1.0000

X/C= 2.000 Y/C= 1.50 WAKE

Z/C	U/UP	CP(STATIC)
-0.37450	1.0000	0.0381
-0.35289	1.0000	0.0339
-0.31842	0.9996	0.0325
-0.26968	0.9987	0.0283
-0.21062	0.9990	0.0216
-0.17677	0.9983	0.0272
-0.14220	0.9986	0.0277
-0.12535	0.9983	0.0263
-0.10512	0.9983	0.0272
-0.10512	0.9980	0.0183
-0.08521	0.9986	0.0268
-0.06572	0.9983	0.0324
-0.05862	0.9979	0.0187
-0.04989	0.9970	0.0215
-0.04191	0.9962	0.0197
-0.03389	0.9929	0.0210
-0.02582	0.9897	0.0211
-0.01854	0.9817	0.0183
-0.00959	0.9673	0.0187
-0.00142	0.9546	0.0215
0.00595	0.9380	0.0116
0.01418	0.9216	0.0158
0.02243	0.9065	0.0120
0.02243	0.9085	0.0116
0.03070	0.8996	0.0073
0.03929	0.8958	0.0106
0.04760	0.9021	0.0120
0.05592	0.9097	0.0101
0.06426	0.9225	0.0187
0.07260	0.9307	0.0144
0.08180	0.9423	0.0097
0.08932	0.9538	0.0126
0.09768	0.9633	0.0159
0.11273	0.9758	0.0073
0.13778	0.9837	0.0112
0.16106	0.9885	0.0078
0.20140	0.9921	0.0074
0.22170	0.9935	0.0064
0.30019	0.9976	0.0060
0.33727	0.9983	0.0050
0.37321	0.9984	-0.0057
0.40633	0.9984	-0.0008
0.46528	0.9993	-0.0052
0.51265	0.9994	-0.0013
0.54824	0.9997	-0.0042
0.56972	1.0001	-0.0136
0.57685	1.0000	-0.0033

Table 6.9

BOUNDARY LAYER AND WAKE PARAMETERS

Case 1 $M_\infty = 0.676$, $\alpha = 2.40^\circ$, $Re = 5.7 \times 10^6$, Probes B

x/c	y/c	Surface	C_f	δ^*/c	θ/c	H
0.152	1.17	Lower	0.004348	0.000236	0.000140	1.692
0.152	2.42	Lower	0.004037	0.000277	0.000163	1.700
0.179	1.04	Upper	0.003783	0.000391	0.000216	1.811
0.179	2.29	Upper	0.003455	0.000402	0.000216	1.864
0.319	1.15	Upper	0.002811	0.000801	0.000436	1.836
0.319	2.40	Upper	0.003067	0.000773	0.000430	1.799
0.75	2.18	Upper	0.001806	0.002813	0.001553	1.812
0.90	2.64	Upper	0.001308	0.004740	0.002482	1.910
0.95	2.44	Upper	0.000930	0.006818	0.003244	2.102
1.00	2.02	Upper wake	-	0.009472	0.004044	2.342
1.00	2.02	Lower wake	-	0.003189	0.002046	1.559
1.00	2.02	Total wake	-	0.012661	0.006090	2.079
1.025	2.82	Wake	-	0.010994	0.006091	1.805
2.00	1.50	Wake	-	0.005321	0.004239	1.256

Case 2 $M_\infty = 0.676$, $\alpha = -2.18^\circ$, $Re = 5.7 \times 10^6$, Probes B

x/c	y/c	Surface	C_f	δ^*/c	θ/c	H
0.152	1.17	Lower	0.004021	0.000271	0.000150	1.813
0.152	2.42	Lower	0.004029	0.000285	0.000157	1.809
0.179	1.04	Upper	0.004351	0.000321	0.000197	1.632
0.179	2.29	Upper	0.004138	0.000307	0.000184	1.667
0.319	1.15	Upper	0.003163	0.000650	0.000385	1.688
0.319	2.40	Upper	0.003411	0.000629	0.000380	1.654
0.75	2.18	Upper	0.002123	0.002124	0.001230	1.728
0.90	2.64	Upper	0.001668	0.003364	0.001887	1.783
0.95	2.44	Upper	0.001435	0.004072	0.002207	1.845
1.00	2.02	Upper wake	-	0.006364	0.003074	2.070
1.00	2.02	Lower wake	-	0.006052	0.003793	1.596
1.00	2.02	Total wake	-	0.012416	0.006867	1.808
1.025	2.82	Wake	-	0.009963	0.006036	1.650
2.00	1.50	Wake	-	0.004949	0.003935	1.258

Case 3 $M_\infty = 0.600$, $\alpha = 2.57^\circ$, $Re = 6.3 \times 10^6$, Probes B

x/c	y/c	Surface	C_f	δ^*/c	θ/c	H
0.152	1.17	Lower	0.004241	0.000343	0.000229	1.497
0.152	2.42	Lower	0.003990	0.000369	0.000240	1.536
0.179	1.04	Upper	0.003400	0.000850	0.000542	1.569
0.179	2.29	Upper	0.003196	0.001072	0.000678	1.581
0.319	1.15	Upper	0.002609	0.001629	0.000990	1.645
0.319	2.40	Upper	0.003101	0.001089	0.000698	1.561
0.75	2.18	Upper	0.001688	0.003556	0.002061	1.726
0.90	2.64	Upper	0.001173	0.006077	0.003255	1.867
0.95	2.44	Upper	0.000875	0.007912	0.003928	2.015
1.00	2.02	Upper wake	-	0.010887	0.004662	2.335
1.00	2.02	Lower wake	-	0.003157	0.002090	1.511
1.00	2.02	Total wake	-	0.014044	0.006752	2.080
1.025	2.82	Wake	-	0.012665	0.006849	1.849
2.00	1.50	Wake	-	0.006204	0.005030	1.233

Table 6.9 (continued)

BOUNDARY LAYER AND WAKE PARAMETERS

Case 6 $M_\infty = 0.725$, $\alpha = 2.92^\circ$, $Re = 6.5 \times 10^6$, Probes B

x/c	y/c	Surface	C_f	δ^*/c	θ/c	H
0.152	1.17	Lower	0.004210	0.000305	0.000188	1.622
0.152	2.42	Lower	0.003640	0.000419	0.000250	1.673
0.179	1.04	Upper	0.003016	0.000610	0.000305	2.001
0.179	2.29	Upper	0.002913	0.000641	0.000322	1.994
0.319	1.15	Upper	0.002726	0.001025	0.000513	1.998
0.319	2.40	Upper	0.002739	0.001001	0.000500	2.002
0.75	2.18	Upper	-	-	-	-
0.90	2.64	Upper	0.000924	0.007850	0.003761	2.087
0.95	2.44	Upper	0.000740	0.010243	0.004663	2.197
1.00	2.02	Upper wake	-	0.012949	0.005530	2.342
1.00	2.02	Lower wake	-	0.003192	0.002005	1.592
1.00	2.02	Total wake	-	0.016141	0.007535	2.142
1.025	2.82	Wake	-	0.013899	0.007135	1.948
2.00	1.50	Wake	-	0.008103	0.006319	1.282

NB x/c = 2.0, includes shock losses.

Case 7 $M_\infty = 0.725$, $\alpha = 2.55^\circ$, $Re = 6.5 \times 10^6$, Probes B

x/c	y/c	Surface	C_f	δ^*/c	θ/c	H
0.152	1.17	Lower	0.004180	0.000311	0.000190	1.635
0.152	2.42	Lower	0.003839	0.000382	0.000231	1.649
0.179	1.04	Upper	0.003230	0.000535	0.000273	1.959
0.179	2.29	Upper	0.003162	0.000595	0.000307	1.936
0.319	1.15	Upper	0.002723	0.000997	0.000508	1.965
0.319	2.40	Upper	0.002677	0.000966	0.000490	1.974
0.75	2.18	Upper	-	-	-	-
0.90	2.64	Upper	0.000892	0.007295	0.003409	2.140
0.95	2.44	Upper	0.000787	0.009263	0.004185	2.213
1.00	2.02	Upper wake	-	0.011919	0.004823	2.471
1.00	2.02	Lower wake	-	0.003374	0.002083	1.619
1.00	2.02	Total wake	-	0.015293	0.006906	2.214
1.025	2.82	Wake	-	0.013314	0.006796	1.959
2.00	1.50	Wake	-	0.006902	0.005346	1.291

NB x/c = 2.0, includes shock losses.

Case 8 $M_\infty = 0.728$, $\alpha = 3.22^\circ$, $Re = 6.5 \times 10^6$, Probes B

x/c	y/c	Surface	C_f	δ^*/c	θ/c	H
0.152	1.17	Lower	0.004121	0.000311	0.000191	1.631
0.152	2.42	Lower	0.003799	0.000388	0.000236	1.647
0.179	1.04	Upper	0.002947	0.000601	0.000292	2.056
0.179	2.29	Upper	0.003149	0.000584	0.000291	2.005
0.319	1.15	Upper	0.002705	0.001011	0.000497	2.035
0.319	2.40	Upper	0.002783	0.000995	0.000490	2.028
0.75	2.18	Upper	-	-	-	-
0.90	2.64	Upper	0.000929	0.009289	0.004415	2.104
0.95	2.44	Upper	0.000777	0.011954	0.005466	2.187
1.00	2.02	Upper wake	-	-	-	-
1.00	2.02	Lower wake	-	-	-	-
1.00	2.02	Total wake	-	-	-	-
1.025	2.82	Wake	-	0.014895	0.007690	1.937
2.00	1.50	Wake	-	0.011161	0.008758	1.274

NB x/c = 2.0, includes shock losses.

Table 6.9 (continued)

BOUNDARY LAYER AND WAKE PARAMETERS

Case 9 $M_\infty = 0.730$, $\alpha = 3.19^\circ$, $Re = 6.5 \times 10^6$ Probes C1

x/c	y/c	Surface	C_f	δ^*/c	θ/c	H
0.152	1.17	Lower	0.003983	0.000325	0.000196	1.661
0.179	1.04	Upper	0.002700	0.000803	0.000378	2.123
0.319	1.15	Upper	0.002723	0.001060	0.000516	2.052
0.404	1.20	Upper	0.002489	0.001311	0.000626	2.093
0.498	1.34	Upper	0.002533	0.001533	0.000731	2.097
0.574	1.31	Upper	0.001049	0.003395	0.001418	2.394
0.65	2.60	Upper	0.000901	0.004956	0.002043	2.426
0.75	2.21	Upper	0.000831	0.006884	0.002999	2.296
0.90	2.43	Upper	0.000959	0.008958	0.004360	2.055
1.00	2.02	Upper wake	-	0.014433	0.006510	2.217
1.00	2.02	Lower wake	-	0.003233	0.001982	1.631
1.00	2.02	Total wake	-	0.017666	0.008492	2.080
1.025	2.82	Wake	-	0.014709	0.007907	1.860
2.00	1.50	Wake	-	0.010809	0.008430	1.282

NB x/c = 2.0, includes shock losses

Case 9 $M_\infty = 0.730$, $\alpha = 3.19^\circ$, $Re = 6.5 \times 10^6$ Probes C2

x/c	y/c	Surface	C_f	δ^*/c	θ/c	H
0.152	1.17	Lower	-	-	-	-
0.179	1.04	Upper	-	-	-	-
0.319	1.15	Upper	-	-	-	-
0.404	1.20	Upper	-	-	-	-
0.498	1.34	Upper	0.002532	0.001539	0.000735	2.094
0.574	1.31	Upper	0.001048	0.003391	0.001422	2.385
0.65	2.60	Upper	0.000906	0.004942	0.002050	2.410
0.75	2.21	Upper	-	-	-	-
0.90	2.43	Upper	0.000985	0.009080	0.004372	2.077
1.00	2.02	Upper wake	-	0.014452	0.006498	2.224
1.00	2.02	Lower wake	-	0.003101	0.001936	1.602
1.00	2.02	Total wake	-	0.017553	0.008433	2.081
1.025	2.82	Wake	-	0.014694	0.007873	1.867
2.00	1.50	Wake	-	-	-	-

NB Reanalysis of data for probes C1 taking static pressure coefficient as constant

Case 9 $M_\infty = 0.730$, $\alpha = 3.19^\circ$, $Re = 6.5 \times 10^6$ Probes D1

x/c	y/c	Surface	C_f	δ^*/c	θ/c	H
0.152	1.17	Lower	0.003933	0.000331	0.000201	1.649
0.152	2.00	Lower	0.003619	0.000371	0.000222	1.667
0.152	2.42	Lower	0.003990	0.000326	0.000198	1.650
0.179	1.04	Upper	0.002717	0.000744	0.000359	2.075
0.179	1.88	Upper	0.002776	0.000754	0.000364	2.069
0.179	2.29	Upper	0.002764	0.000753	0.000359	2.095
0.319	1.15	Upper	0.002573	0.001000	0.000481	2.077
0.319	1.98	Upper	0.002595	0.001050	0.000507	2.070
0.319	2.40	Upper	0.002581	0.001051	0.000507	2.075
0.404	1.20	Upper	0.002381	0.001285	0.000614	2.093
0.404	2.03	Upper	0.002765	0.001232	0.000602	2.048
0.404	2.45	Upper	0.002491	0.001332	0.000628	2.119
0.498	1.34	Upper	0.002487	0.001712	0.000820	2.087
0.498	2.17	Upper	0.002528	0.001528	0.000722	2.117
0.498	2.59	Upper	0.002537	0.001552	0.000738	2.103
0.574	1.31	Upper	0.000840	0.003977	0.001540	2.582
0.574	2.14	Upper	0.000967	0.003547	0.001488	2.383
0.574	2.56	Upper	0.001034	0.003697	0.001534	2.411
0.65	2.60	Upper	0.000982	0.005912	0.002522	2.344
0.75	2.21	Upper	0.000808	0.007260	0.003009	2.413
0.90	2.43	Upper	0.000980	0.009824	0.004845	2.028
1.00	2.02	Upper wake	-	0.017673	0.006410	2.757
1.00	2.02	Lower wake	-	0.003256	0.002049	1.589
1.00	2.02	Total wake	-	0.020929	0.008459	2.474
1.025	2.82	Wake	-	0.014680	0.007847	1.871
2.00	1.50	Wake	-	-	-	-

NB For traverses $0.65 \leqslant x/c \leqslant 1.025$, probes situated upstream may affect results

Table 6.9 (continued)

BOUNDARY LAYER AND WAKE PARAMETERS

Case 10 $M_\infty = 0.750$, $\alpha = 3.19^\circ$, $Re = 6.2 \times 10^6$ Probes C1

x/c	y/c	Surface	C_f	δ^*/c	θ/c	H
0.152	1.17	Lower	0.003983	0.000359	0.000213	1.688
0.179	1.04	Upper	0.002602	0.000810	0.000386	2.097
0.319	1.15	Upper	0.002871	0.001022	0.000500	2.043
0.404	1.20	Upper	0.002596	0.001293	0.000613	2.109
0.498	1.34	Upper	0.002421	0.001660	0.000775	2.143
0.574	1.31	Upper	‡	0.002857	0.001209	2.364
0.65	2.60	Upper	‡	0.009403	0.002437	3.859
0.75	2.21	Upper	‡	0.017408	0.004016	4.335
0.90	2.43	Upper	0.000591	0.016740	0.006588	2.541
†1.00	2.02	Upper wake	-	0.029063	0.010528	2.761
1.00	2.02	Lower wake	-	0.002931	0.001710	1.714
†1.00	2.02	Total wake	-	0.031994	0.012239	2.614
†1.025	2.82	Wake	-	0.019007	0.009871	1.926
2.00	1.50	Wake	-	0.015919	0.012314	1.293

NB x/c = 2.0, includes shock losses
† Linear extrapolation to edge of wake
‡ Near separation, method of deduction not accurate

Case 12 $M_\infty = 0.730$, $\alpha = 3.19^\circ$, $Re = 2.7 \times 10^6$ Probes C

x/c	y/c	Surface	C_f	δ^*/c	θ/c	H
0.152	1.17	Lower	0.005053	0.000340	0.000197	1.725
0.179	1.04	Upper	0.002993	0.000946	0.000444	2.130
0.319	1.15	Upper	-	-	-	-
0.404	1.20	Upper	0.002844	0.001591	0.000759	2.097
0.498	1.34	Upper	0.002213	0.002571	0.001231	2.088
0.574	1.31	Upper	-	-	-	-
0.65	2.60	Upper	0.001683	0.003977	0.001940	2.051
0.75	2.21	Upper	0.001323	0.005814	0.002729	2.131
0.90	2.43	Upper	0.000961	0.009854	0.004231	2.329
1.00	2.02	Upper wake	-	0.015553	0.005857	2.656
1.00	2.02	Lower wake	-	0.003846	0.002191	1.755
1.00	2.02	Total wake	-	0.019399	0.008048	2.410
1.025	2.82	Wake	-	0.018150	0.008295	2.188
2.00	1.50	Wake	-	0.008693	0.006722	1.293

NB x/c = 2.0, includes shock losses

Case 12 $M_\infty = 0.730$, $\alpha = 3.19^\circ$, $Re = 2.7 \times 10^6$ Probes D

x/c	y/c	Surface	C_f	δ^*/c	θ/c	H
0.152	1.17	Lower	0.005077	0.000355	0.000209	1.696
0.152	2.00	Lower	-	-	-	-
0.152	2.42	Lower	0.004618	0.000379	0.000213	1.781
0.179	1.04	Upper	0.003239	0.000894	0.000427	2.094
0.179	1.88	Upper	0.003288	0.000851	0.000411	2.068
0.179	2.29	Upper	0.003382	0.000859	0.000411	2.087
0.319	1.15	Upper	0.003685	0.001163	0.000576	2.018
0.319	1.98	Upper	0.003402	0.001282	0.000627	2.044
0.319	2.40	Upper	0.003197	0.001318	0.000633	2.081
0.404	1.20	Upper	0.002749	0.001614	0.000762	2.117
0.404	2.03	Upper	0.002850	0.001697	0.000810	2.094
0.404	2.45	Upper	0.003137	0.001543	0.000743	2.075
0.498	1.34	Upper	0.002068	0.002665	0.001264	2.108
0.498	2.17	Upper	0.002054	0.002474	0.001162	2.129
0.498	2.59	Upper	0.002222	0.002679	0.001274	2.104
0.574	1.31	Upper	-	-	-	-
0.574	2.14	Upper	0.001775	0.003441	0.001645	2.092
0.574	2.56	Upper	0.001638	0.003575	0.001656	2.159
0.65	2.60	Upper	0.001598	0.004084	0.001964	2.080
0.75	2.21	Upper	0.001261	0.005830	0.002707	2.154
0.90	2.43	Upper	0.000903	0.010859	0.004767	2.278
1.00	2.02	Upper wake	-	0.019805	0.005295	3.740
1.00	2.02	Lower wake	-	0.003847	0.001931	1.992
1.00	2.02	Total wake	-	0.023653	0.007227	3.273
1.025	2.82	Wake	-	0.018124	0.008298	2.184
2.00	1.50	Wake	-	0.008766	0.006774	1.294

NB For traverses $0.65 \leqslant x/c \leqslant 1.025$, probes situated upstream may affect results.
x/c = 2.0, includes shock losses

Table 6.9 (concluded)

BOUNDARY LAYER AND WAKE PARAMETERS

Case 13 $M_\infty = 0.745$, $\alpha = 3.19^\circ$, $Re = 2.7 \times 10^6$ Probes D

x/c	y/c	Surface	C_f	δ^*/c	θ/c	H
0.152	1.17	Lower	0.005023	0.000354	0.000205	1.723
0.152	2.00	Lower	0.005003	0.000356	0.000207	1.721
0.152	2.42	Lower	0.005038	0.000342	0.000199	1.716
0.179	1.04	Upper	0.003115	0.000893	0.000425	2.100
0.179	1.88	Upper	0.003318	0.000870	0.000419	2.075
0.179	2.29	Upper	0.003385	0.000860	0.000412	2.087
0.319	1.15	Upper	0.003241	0.001230	0.000590	2.085
0.319	1.98	Upper	0.003387	0.001289	0.000624	2.065
0.319	2.40	Upper	0.003466	0.001229	0.000597	2.059
0.404	1.20	Upper	0.003061	0.001524	0.000726	2.099
0.404	2.03	Upper	-	-	-	-
0.404	2.45	Upper	0.003248	0.001516	0.000724	2.095
0.498	1.34	Upper	0.003048	0.001880	0.000893	2.106
0.498	2.17	Upper	0.002958	0.001752	0.000826	2.120
0.498	2.59	Upper	0.003070	0.001766	0.000840	2.103
0.574	1.31	Upper	0.000828	0.004791	0.001754	2.732
0.574	2.14	Upper	-	-	-	-
0.574	2.56	Upper	-	-	-	-
0.65	2.60	Upper	0.000793	0.009960	0.003987	2.498
0.75	2.21	Upper	0.000578	0.011946	0.004037	2.959
0.90	2.43	Upper	0.000749	0.016542	0.006569	2.518
1.00	2.02	Upper wake	-	-	-	-
1.00	2.02	Lower wake	-	-	-	-
1.00	2.02	Total wake	-	-	-	-
†1.025	2.82	Wake	-	0.021960	0.010036	2.188
2.00	1.50	Wake	-	-	-	-

NB For traverses $0.65 \leqslant x/c \leqslant 1.025$, probes situated upstream may affect results.
† Linear extrapolation to edge of wake

Case 13A $M_\infty = 0.740$, $\alpha = 3.19^\circ$, $Re = 2.7 \times 10^6$ Probes C2

x/c	y/c	Surface	C_f	δ^*/c	θ/c	H
0.152	1.17	Lower	0.004894	0.000360	0.000208	1.733
0.179	1.04	Upper	0.003116	0.000919	0.000430	2.135
0.319	1.15	Upper	-	-	-	-
0.404	1.20	Upper	0.003178	0.001479	0.000704	2.100
0.498	1.34	Upper	0.002995	0.001863	0.000874	2.131
0.574	1.31	Upper	-	-	-	-
0.65	2.60	Upper	0.001100	0.005524	0.002285	2.418
0.75	2.21	Upper	0.000848	0.008696	0.003465	2.510
0.90	2.43	Upper	0.000775	0.012874	0.005084	2.532
1.00	2.02	Upper wake	-	0.020360	0.006964	2.924
1.00	2.02	Lower wake	-	0.003717	0.002157	1.723
1.00	2.02	Total wake	-	0.024077	0.009121	2.640
1.025	2.82	Wake	-	0.018937	0.008884	2.132
2.00	1.50	Wake	-	0.012273	0.009502	1.292

NB $x/c = 2.0$, includes shock losses

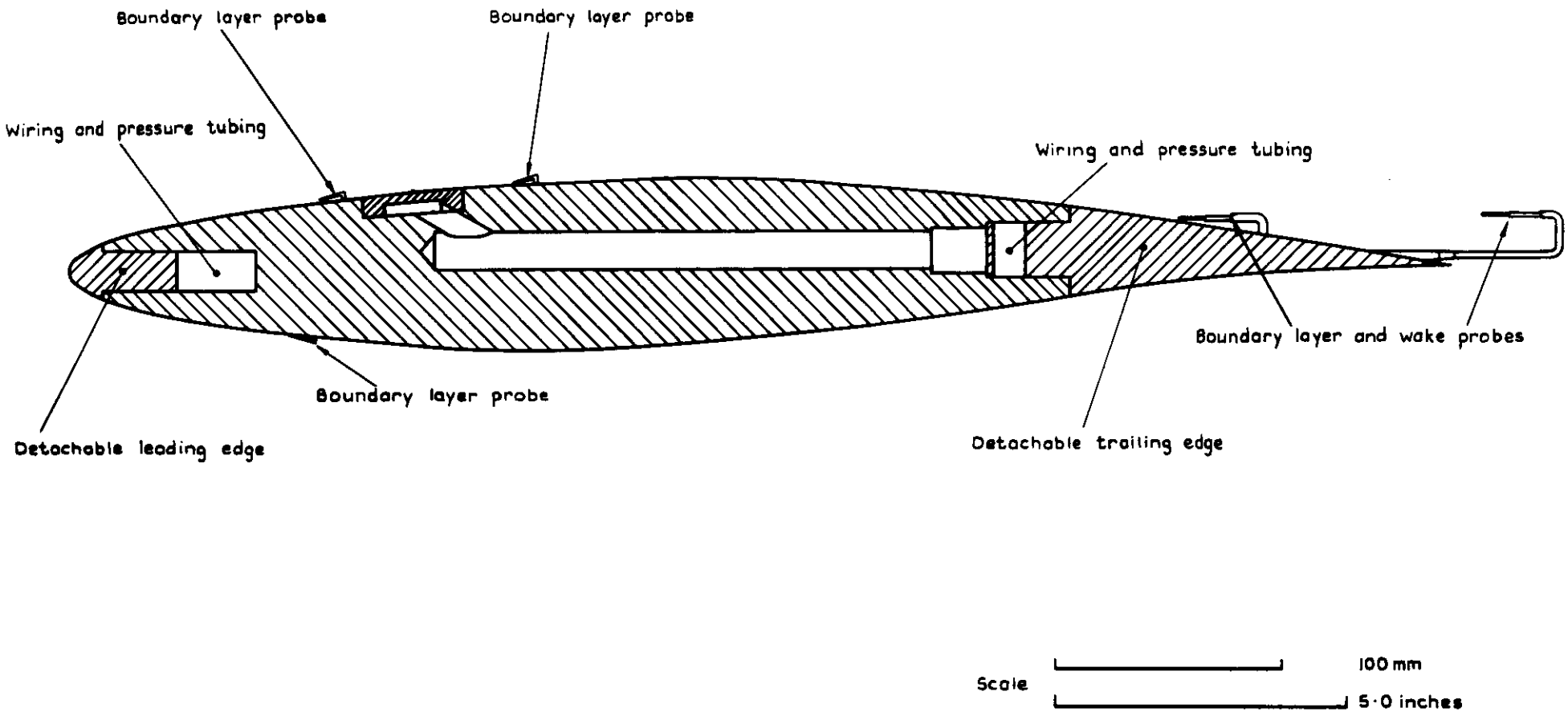


Fig 6.1 Cross-section through a normal chord illustrating the suction ducts and various probes

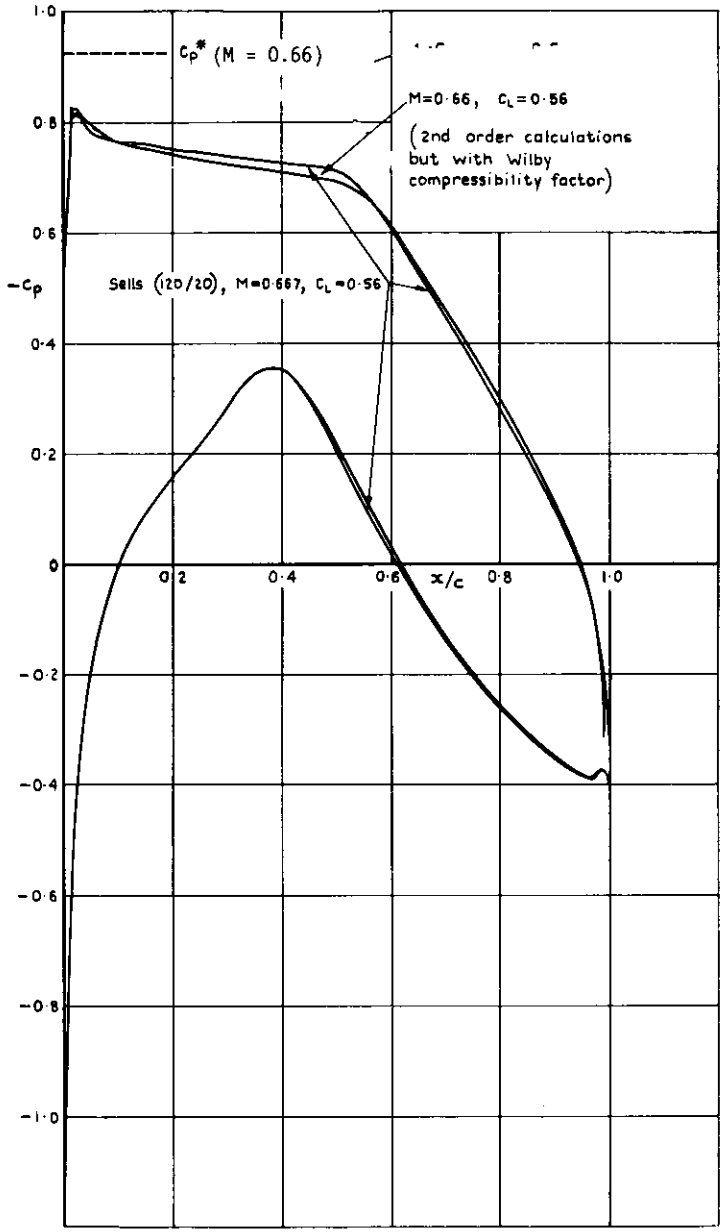


Fig 6.2 Calculated inviscid pressure distributions RAE 2822 section, α = 1.06 degrees

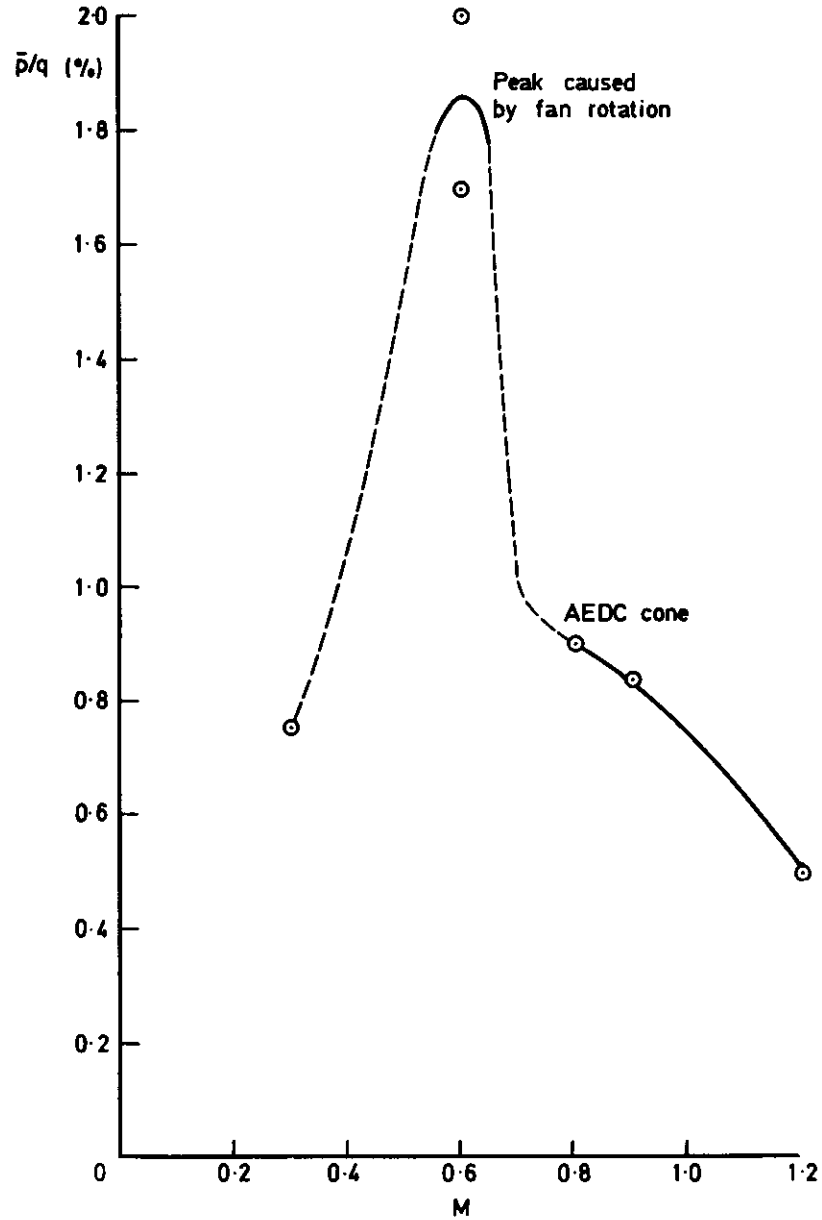


Fig 6.3 RAE 8ft × 6ft tunnel - variation of tunnel pressure fluctuations with Mach number

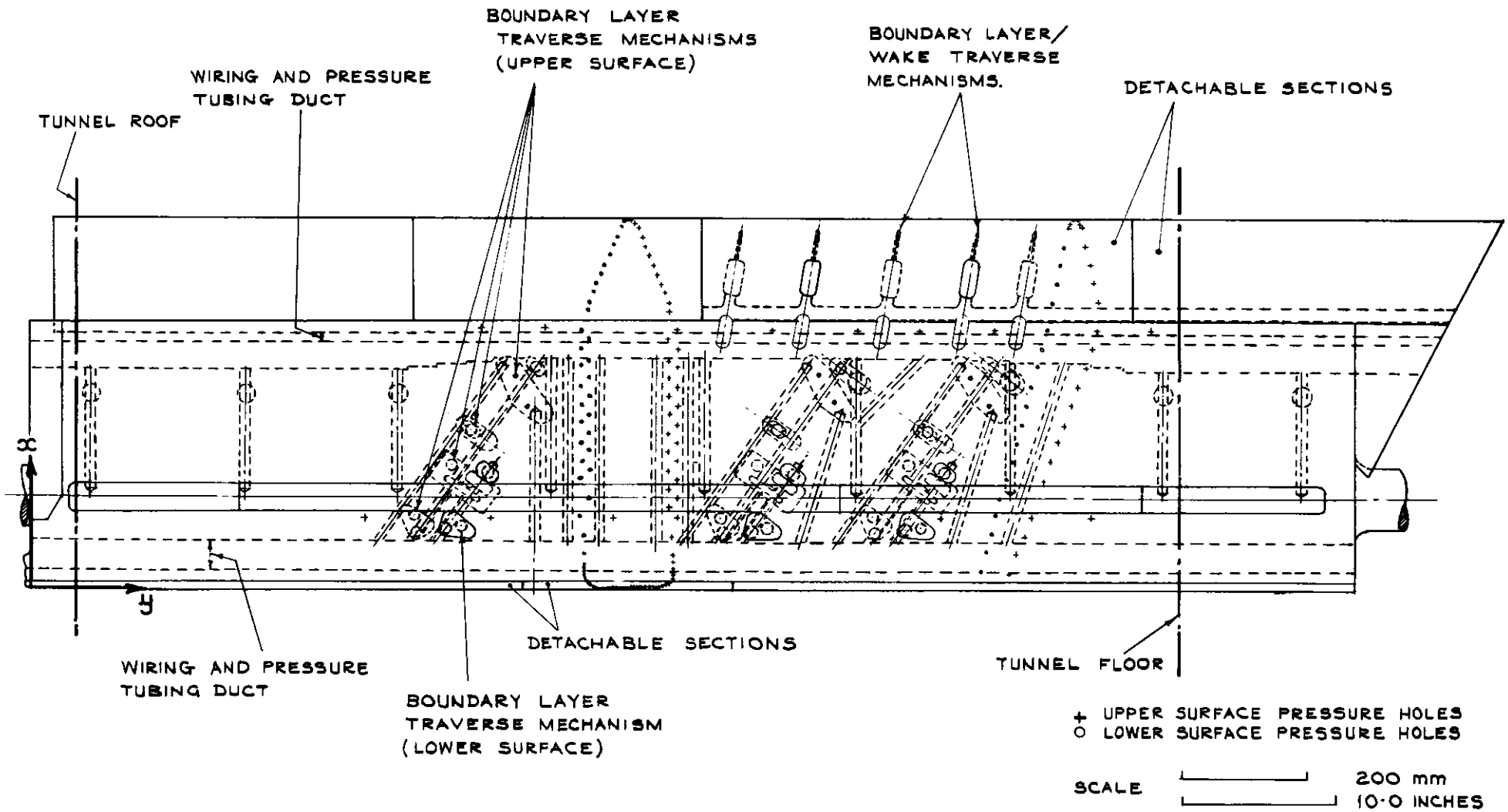
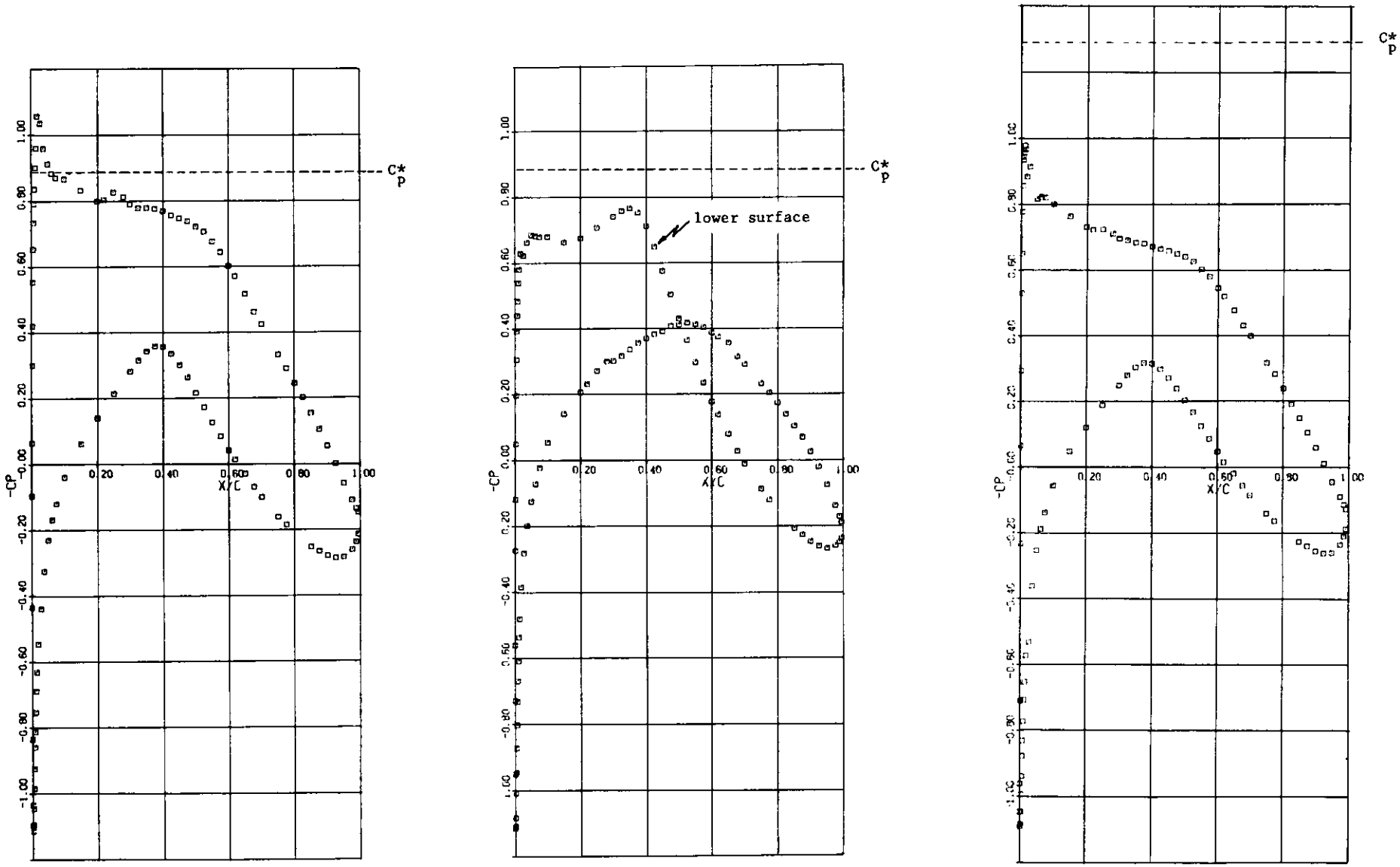


Fig 6.4 Plan view of model showing locations of traverse mechanisms and surface pressure holes

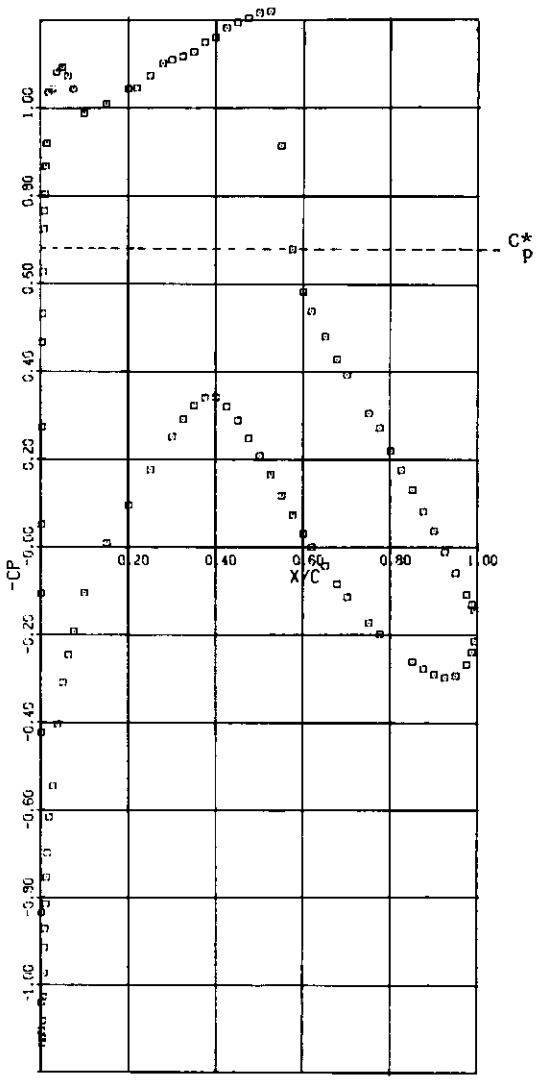


Case 1 $M_\infty = 0.676$, $\alpha = 2.40^0$, $Re = 5.7 \times 10^6$

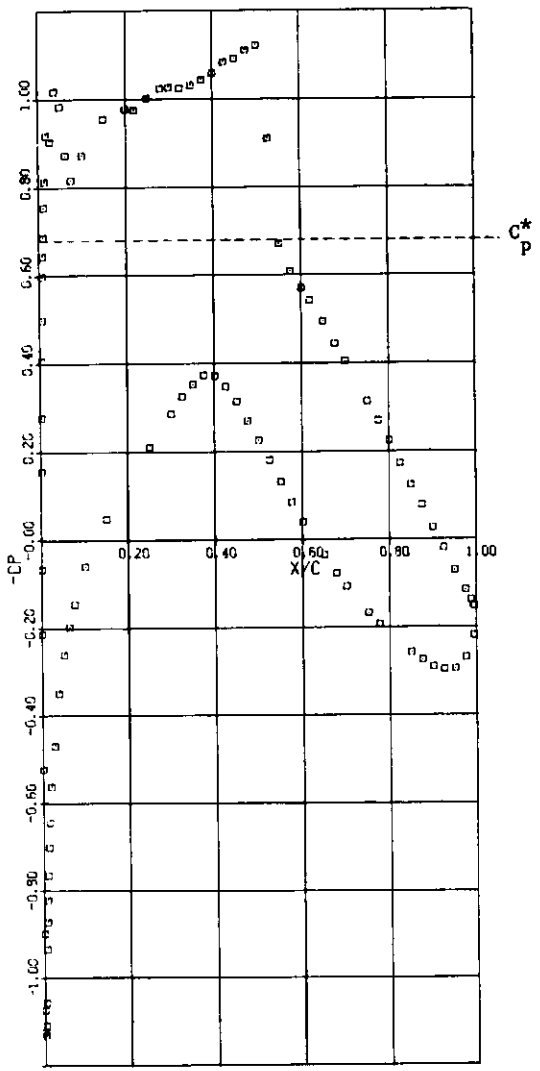
Case 2 $M_\infty = 0.676$, $\alpha = -2.18^0$, $Re = 5.7 \times 10^6$

Case 3 $M_\infty = 0.600$, $\alpha = 2.57^0$, $Re = 6.3 \times 10^6$

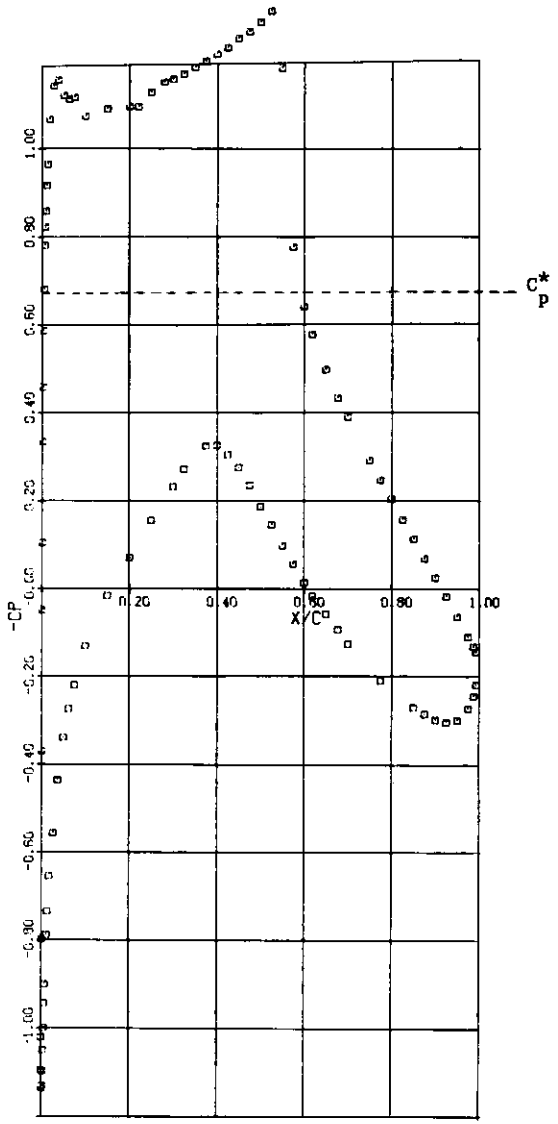
Fig 6.5 Surface pressure distribution



Case 6 $M_\infty = 0.725$, $\alpha = 2.92^o$, $Re = 6.5 \times 10^6$

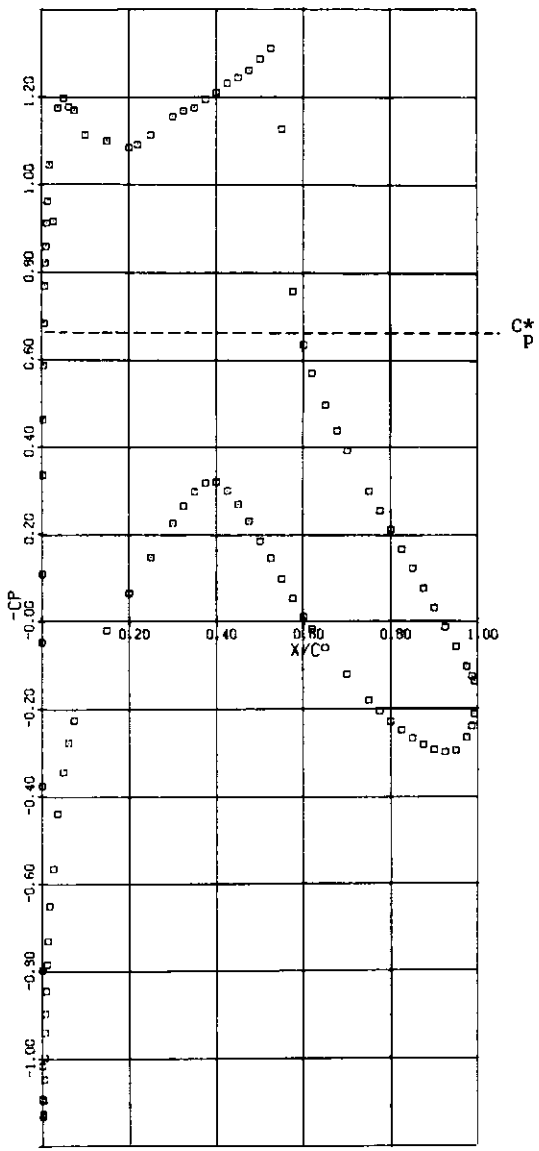


Case 7 $M_\infty = 0.725$, $\alpha = 2.55^o$, $Re = 6.5 \times 10^6$

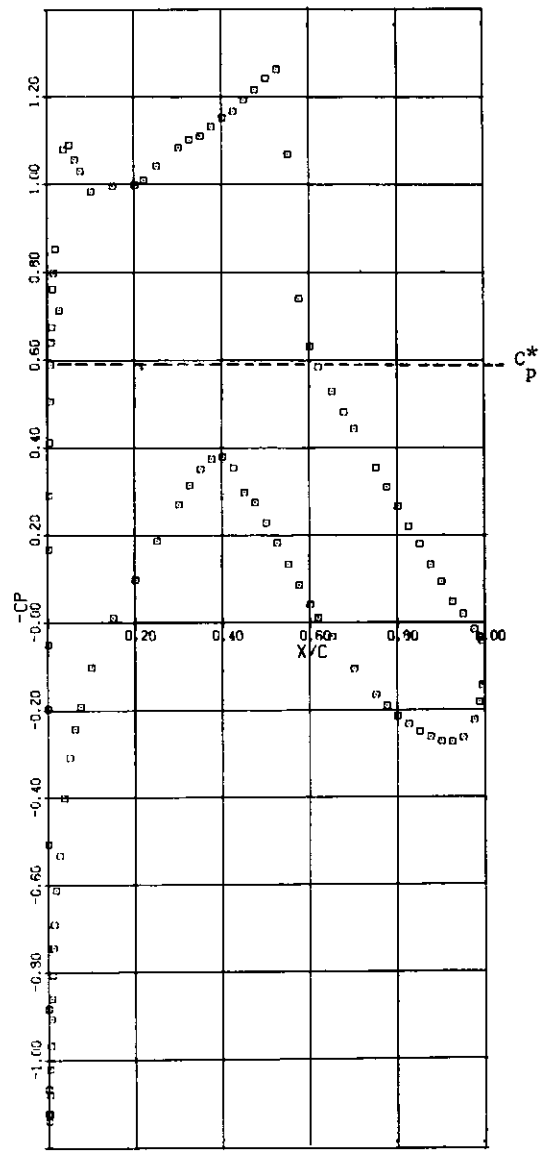


Case 8 $M_\infty = 0.728$, $\alpha = 3.22^o$, $Re = 6.5 \times 10^6$

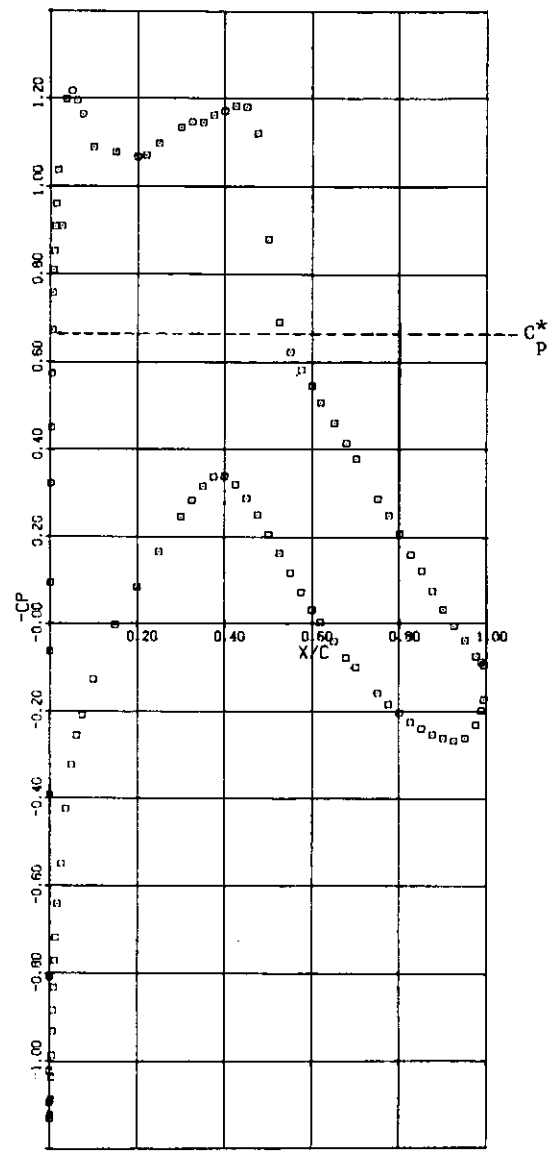
Fig 6.5 (contd) Surface pressure distribution



Case 9 $M_\infty = 0.730$, $\alpha = 3.19^0$, $Re = 6.5 \times 10^6$

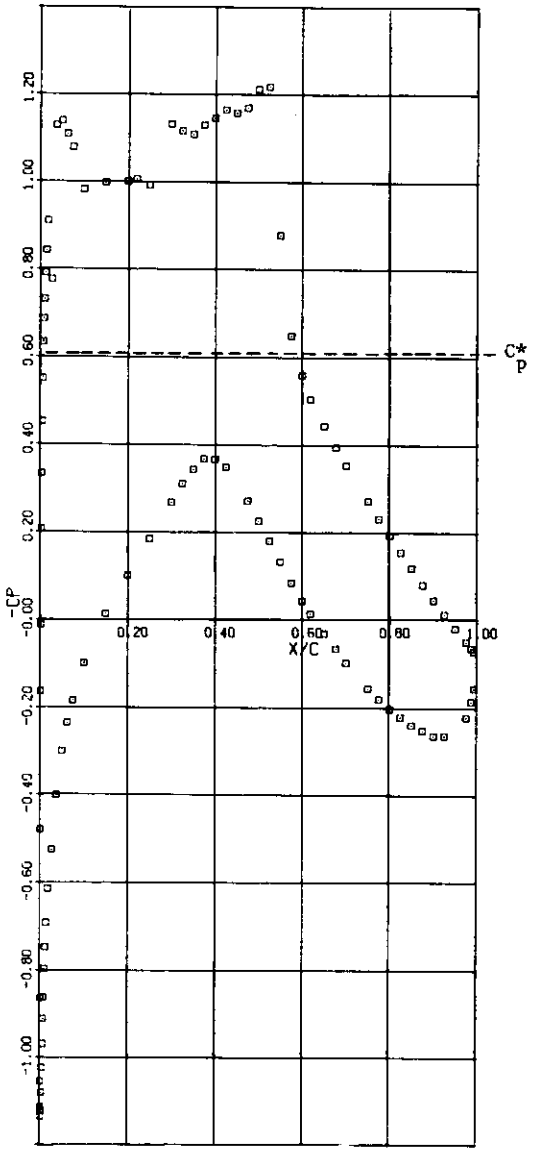


Case 10 $M_\infty = 0.750$, $\alpha = 3.19^0$, $Re = 6.2 \times 10^6$

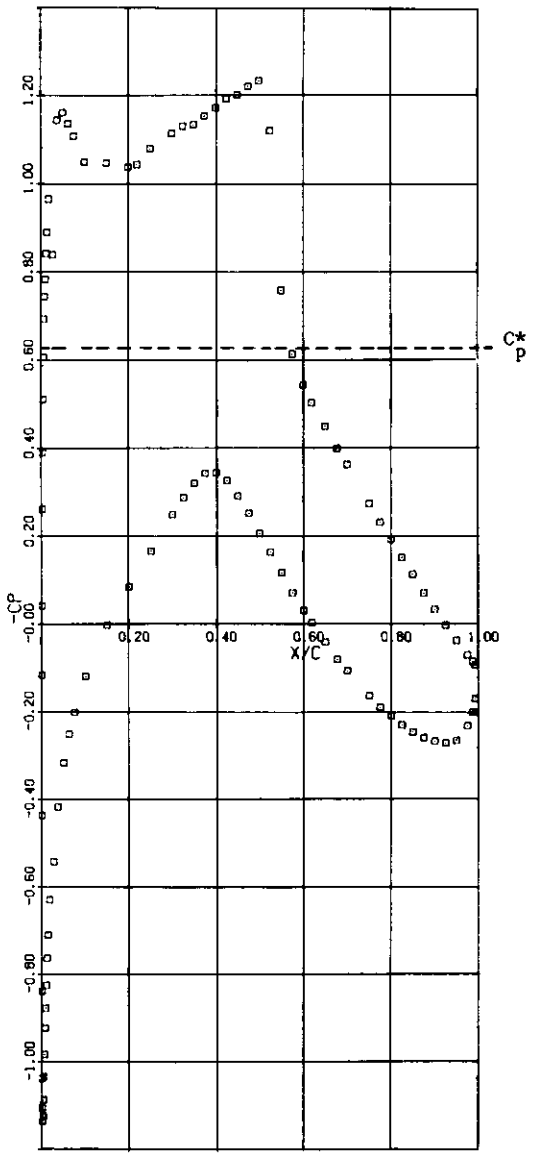


Case 12 $M_\infty = 0.730$, $\alpha = 3.19^0$, $Re = 2.7 \times 10^6$

Fig 6.5 (contd) Surface pressure distribution

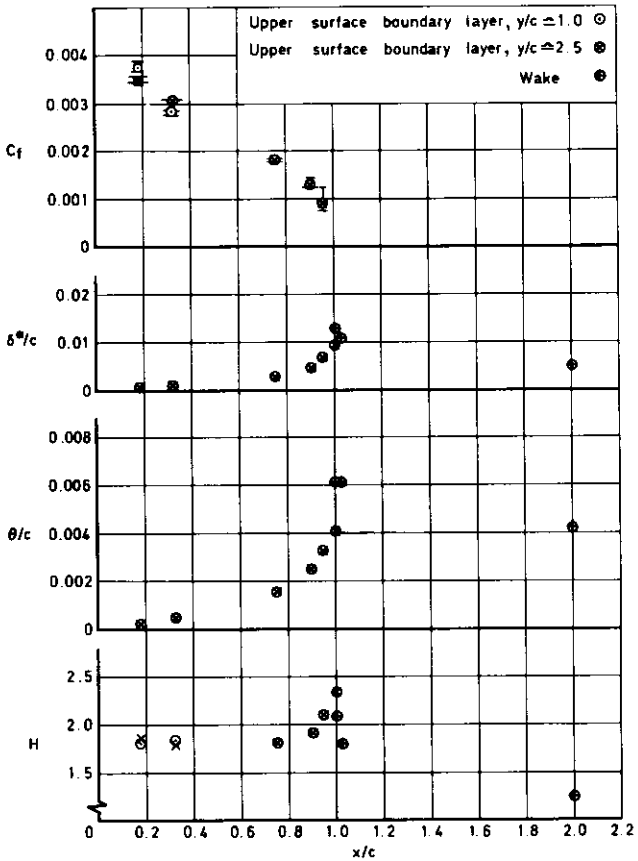


Case 13 $M_\infty = 0.745$, $\alpha = 3.19^o$, $Re = 2.7 \times 10^6$



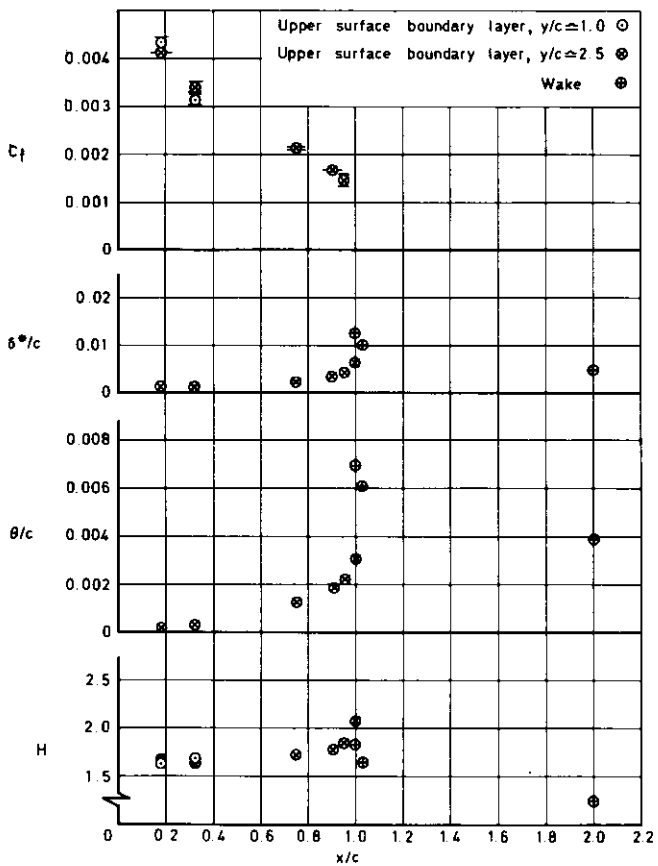
Case 13a $M_\infty = 0.740$, $\alpha = 3.19^o$, $Re = 2.7 \times 10^6$

Fig 6.5 (concld) Surface pressure distribution



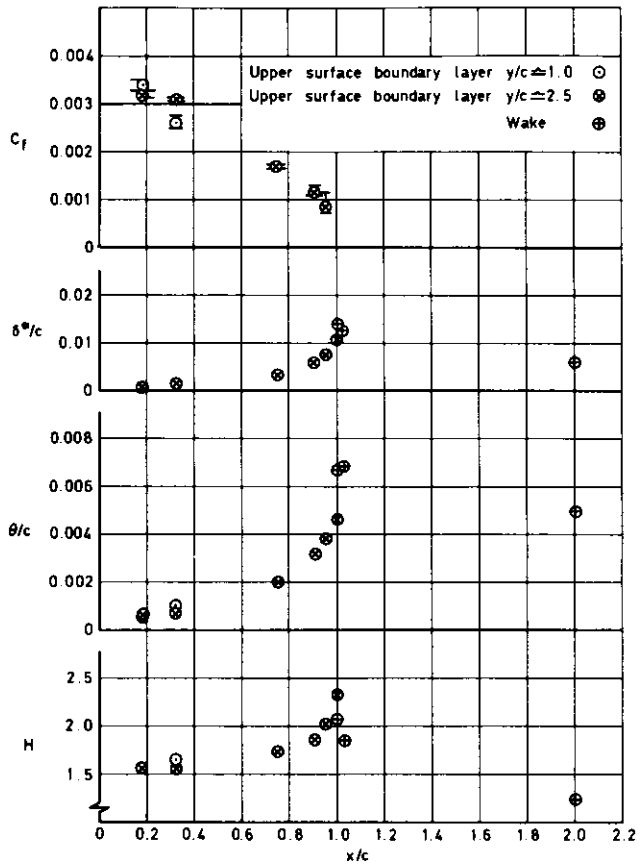
Case 1 Probes B

$M_\infty = 0.676$, $\alpha = 2.40^0$, $Re = 5.7 \times 10^6$



Case 2 Probes B

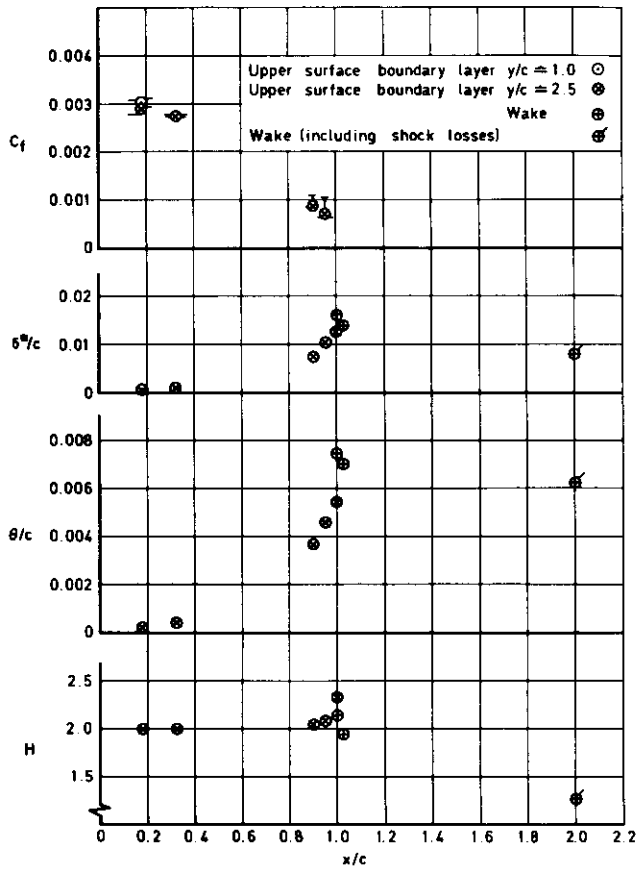
$M_\infty = 0.676$, $\alpha = -2.18^0$, $Re = 5.7 \times 10^6$



Case 3 Probes B

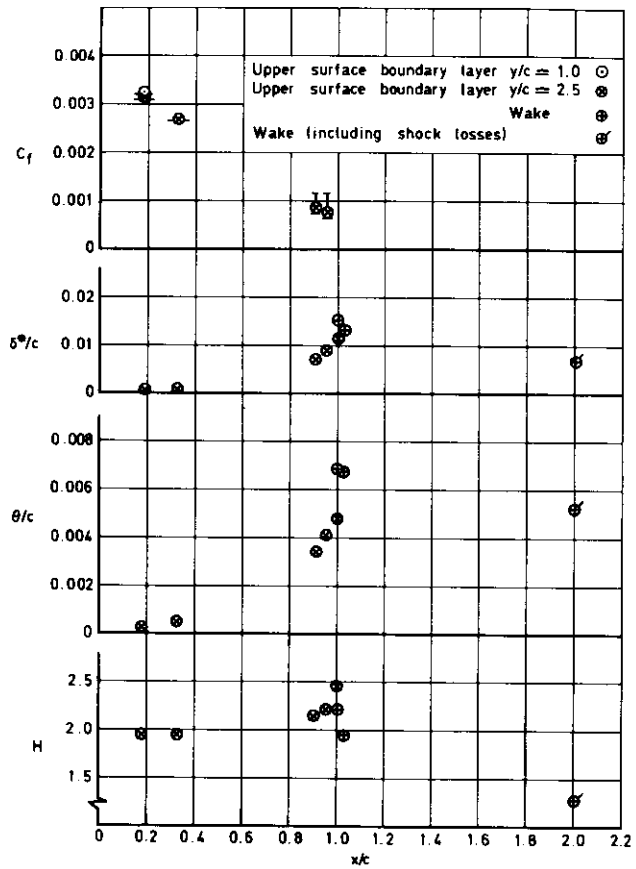
$M_\infty = 0.600$, $\alpha = 2.57^0$, $Re = 6.3 \times 10^6$

Fig 6.6 Boundary layer and wake parameters



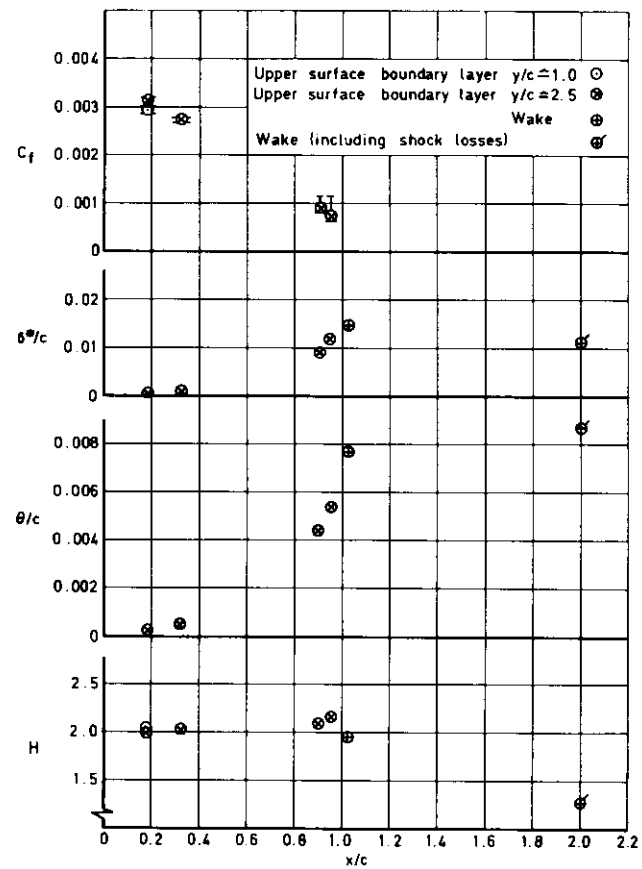
Case 6 Probes B

$M_\infty = 0.725$, $\alpha = 2.92^0$, $Re = 6.5 \times 10^6$



Case 7 Probes B

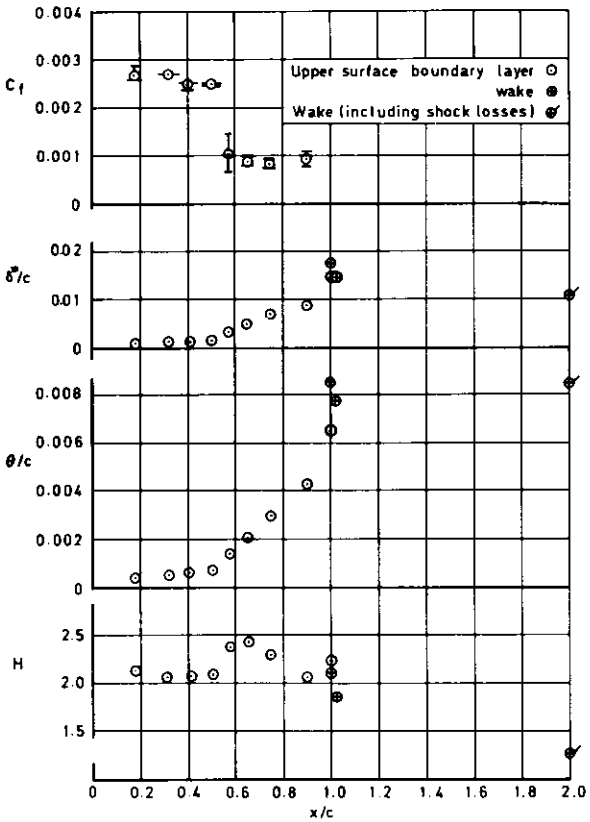
$M_\infty = 0.725$, $\alpha = 2.55^0$, $Re = 6.5 \times 10^6$



Case 8 Probes B

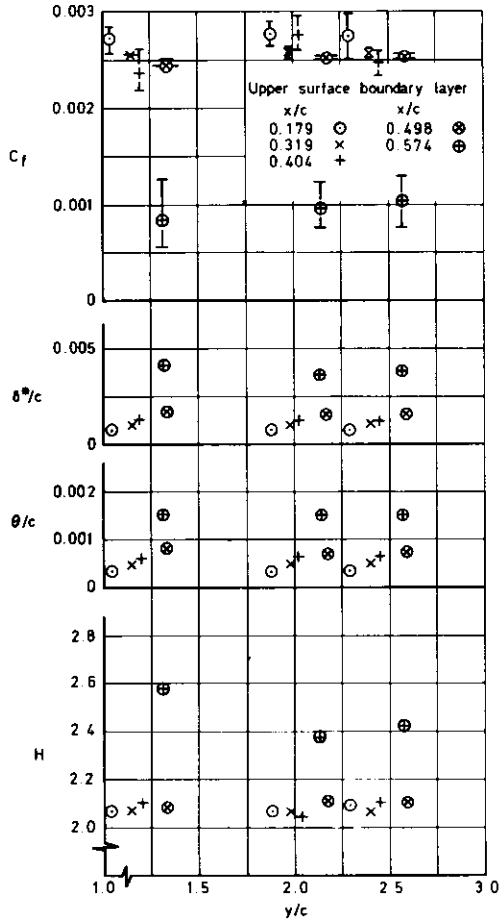
$M_\infty = 0.728$, $\alpha = 3.22^0$, $Re = 6.5 \times 10^6$

Fig 6.6 (contd) Boundary layer and wake parameters



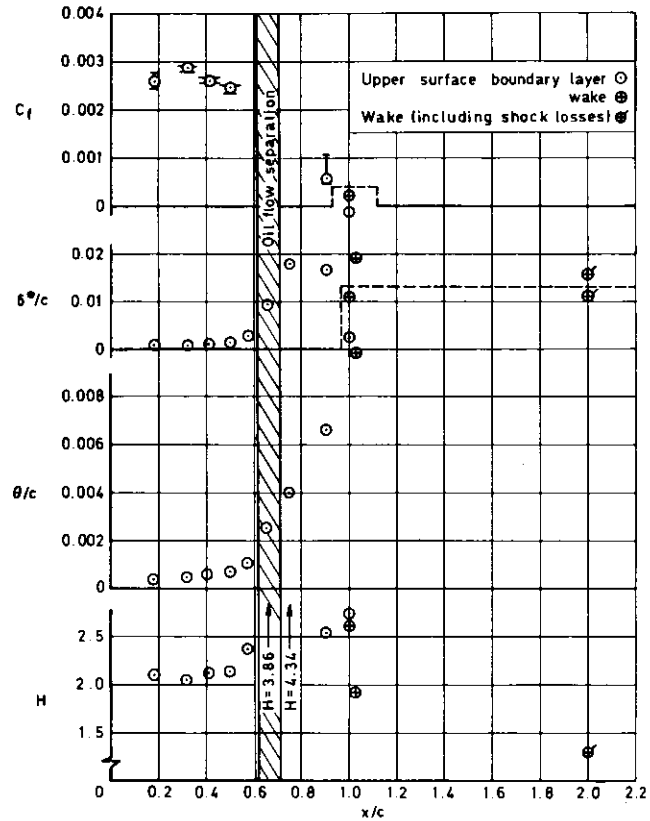
Case 9 Probes C1

$M_\infty = 0.730$, $\alpha = 3.19^o$, $Re = 6.5 \times 10^6$



Case 9 Probes D1

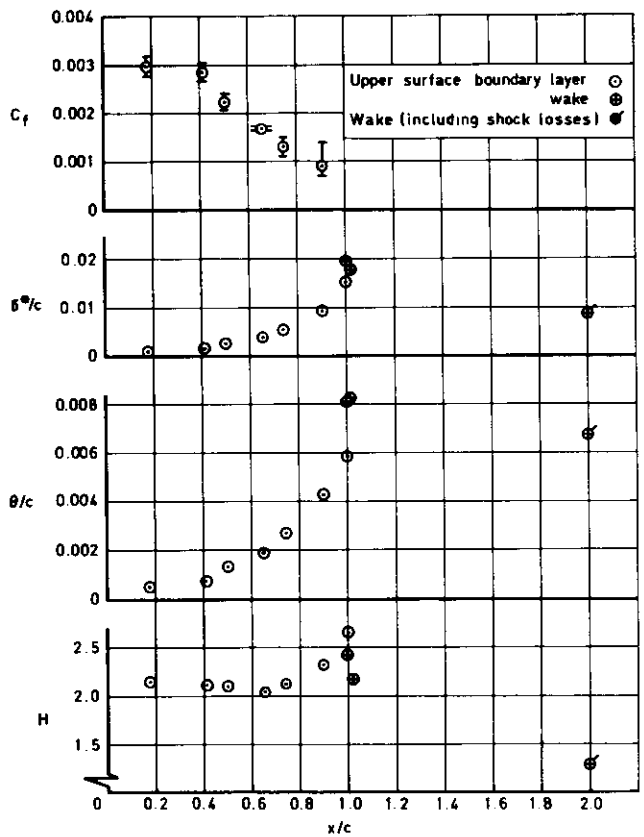
$M_\infty = 0.730$, $\alpha = 3.19^o$, $Re = 6.5 \times 10^6$



Case 10 Probes C1

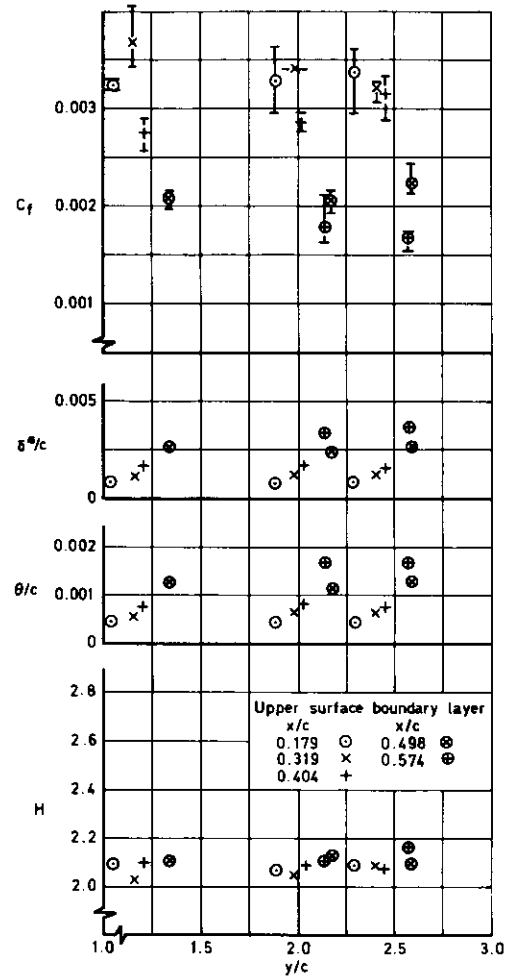
$M_\infty = 0.750$, $\alpha = 3.19^o$, $Re = 6.2 \times 10^6$

Fig 6.6 (contd) Boundary layer and wake parameters



Case 12 Probes C

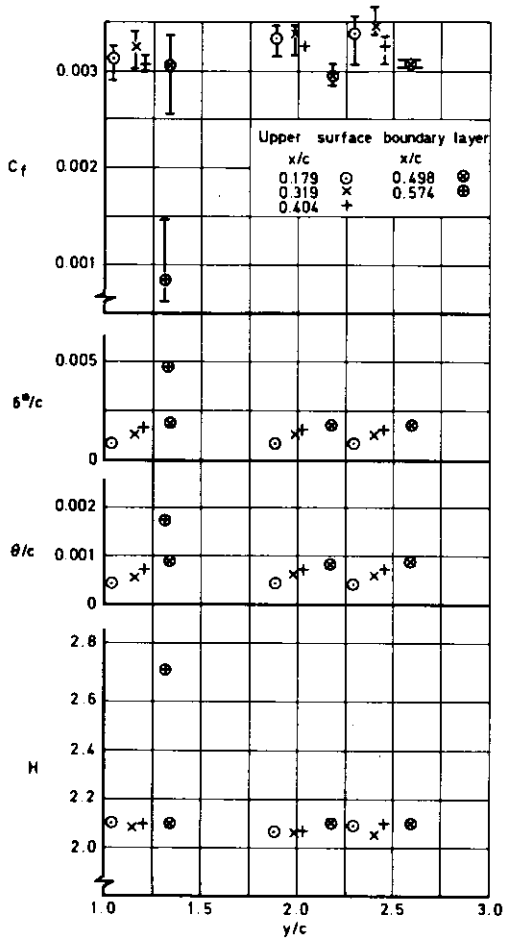
$M_\infty = 0.730$, $\alpha = 3.19^0$, $Re = 2.7 \times 10^6$



Case 12 Probes D

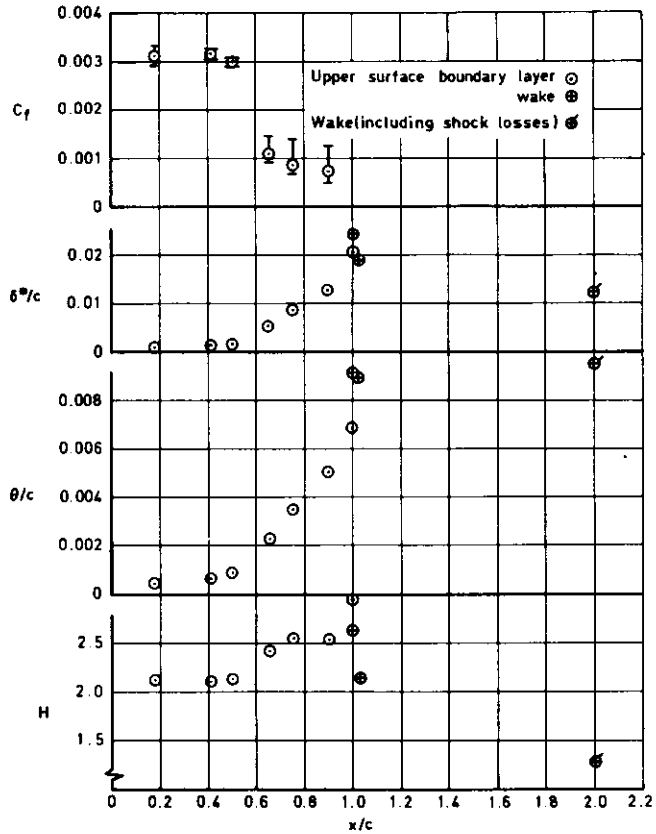
$M_\infty = 0.730$, $\alpha = 3.19^0$, $Re = 2.7 \times 10^6$

Fig 6.6 (contd) Boundary layer and wake parameters



Case 13 Probes D

$M_\infty = 0.745$, $\alpha = 3.19^o$, $Re = 2.7 \times 10^6$



Case 13a Probes C2

$M_\infty = 0.740$, $\alpha = 3.19^o$, $Re = 2.7 \times 10^6$

Fig 6.6 (concld) Boundary layer and wake parameters

7. PRESSURE DISTRIBUTIONS FOR AIRFOIL NAE 75-036-13: 2 AT REYNOLDS NUMBERS FROM 14 TO 30 MILLION

submitted by

High Speed Aerodynamics Laboratory, NAE/NRC, Canada

This is a 13% thick section designed for a lift coefficient of 0.36 at a Mach number of 0.75, but with the constraint that the lower surface Mach number must not exceed 0.93. The data comprise pressure distributions with trailing edge pressure, wake drag, aerodynamic coefficients from balance measurements as well as pressure integration and floor and ceiling pressure distributions.

1. Airfoil

1.1 Airfoil designation	NAE 75-036-13:2 (also DHC JJK 13)
1.2 Type of airfoil	Low lift, near shockless, supercritical
1.2.1 airfoil geometry	Fig. 7.1, Table 7.1
nose radius	$r/c \sim 2.2\%$
maximum thickness	$t/c = 13\%$
base thickness	0
1.2.2 design condition	Potential flow, direct method
	$\left.\begin{array}{l} M_d = 0.75 \\ C_{L_d} = 0.36 \end{array}\right\}$ $C_{p_{min}}$ (lower surface) $\geq C_p^* + 0.2$
	T.E. angle $\simeq 15°$
	Viscous calcs for Re = 20×10^6
design pressure distribution	-
1.3 Additional remarks	Buffet free operation required up to $M=M_d+0.05$ $C_L=1.5\ C_{L_d}$
1.4 References on airfoil	1, 2

2. Model Geometry

2.1 Chord length	0.254 m
2.2 Span	0.381 m
2.3 Actual model co-ordinates and accuracy	Table 7.2 Y_d in Table 7.2 obtained by cubic spline fit to values given in Table 7.1
2.4 Maximum thickness	$t/c = 13\%$
2.5 Base thickness	0.1% chord
2.6 Additional remarks	surface finish $\leq$ 0.25 μm theoretical shape altered after 95% chord to accommodate finite TE
2.7 References on model	2

2. Wind tunnel

3.1 Designation	NAE 5-ft x 5-ft trisonic W/T with 2-D insert
3.2 Type of tunnel	Blowdown
3.2.1 stagnation pressure	2 - 11 bars
3.2.2 stagnation temperature	293 K, max drop ~5K during a run
3.2.3 humidity/dew point	0.0002 kg H_2O/Kg air
3.3 Test section	Rectangular, Fig. 7.2
3.3.1 dimensions	0.38m x 1.52m
3.3.2 type of walls	Perforated top and bottom 20.5% porosity ϕ12.7mm normal holes at 26.4 mm spacing

3.4 Flow field (empty test section)	
3.4.1 reference static pressure	at sidewall, 7.7 chord upstream of model LE
3.4.2 flow angularity	not determined
3.4.3 Mach no. distribution	Fig. 7.3
3.4.4 pressure gradient	Fig. 7.3
3.4.5 turbulence/noise level	free stream $\left(\frac{\Delta p}{q}\right)_{rms} = 0.008$ at $M_\infty = 0.8$
3.4.6 side wall boundary layer	$\delta^* \leqslant 2.5$ mm $\frac{2\,\delta^*}{B} \leqslant 0.013$
3.5 Additional remarks	sidewall suction over an area 1.8x2.4 chord around model
3.6 References on wind tunnel	3,4

4. Tests

4.1 Type of measurements	Force balance surface pressure wake pitot pressure
4.2 Tunnel/model dimenstions	
4.2.1 height/chord ratio	6/1
4.2.3 width/chord ratio	1.5/1
4.3 Flow conditions included in present data base	Fig. 7.4 and Table 7.3
4.3.1 angle of attack	0 to 4° for $M_\infty = 0.75$ 2° for other M_∞
4.3.2 Mach number	0.5 to 0.84
4.3.3 Reynolds number	14, 25 and 30 x 10^6 based on 10" chord.
4.3.4 transition	free transition
-position of free transition	Not established
-transition fixing	
4.3.5 temperature equilibrium	Yes
4.4 Additional remarks	
4.5 Reference on tests	2

5. Instrumentation

5.1 Surface pressure measurements	
5.1.1 pressure holes	80
-size	ϕ 0.37 mm, depth/diameter ratio $\sim$1.7
-spanwise station(s)	centre span
-chordwise positions	Table 7.2
5.1.2 type of transducers and scanning devices	Two D9 scanivalves with 200 psia Kulite VQS-500-200A
5.1.3 other	scan rate for 5.1.2 20 ports/sec.
5.2 Wake measurements	
5.2.1 type/size of instrument(s)	Traversing probe, see Fig.7.2 OD/ID = 1.6/0.51 mm
5.2.2 streamwise position(s)	1.5 x chord downstream T.E.
5.2.3 type of transducers and scanning devices	50 psid Statham PM 131 TC

5.5 Flow visualisation	
5.5.2 surface flow	at $C_N = 0.36$, $M = 0.75, 0.8$, $Re = 25 \times 10^6$
5.7 Additional remarks	Two three-component side wall balances for force measurements
5.8 References on instrumentation	4

6. Data

6.1 Accuracy (wall interference excluded)	
6.1.1 angle of attack setting	± 0.02°
6.1.2 free stream Mach number:	
-setting	± 0.003
-variation during one pressure scan	± 0.003
6.1.6 repeatability	Generally: $\Delta C_{N_P} < \pm 0.005$ $\Delta C_{X_P} < \pm 0.0005$ $\Delta C_{M_P} < \pm 0.0005$ $\Delta C_{N_B} < \pm 0.005$ $\Delta C_{X_B} < \pm 0.0005$ $\Delta C_{M_B} < \pm 0.0005$ $\Delta C_{D_W} < \pm 0.0015$
6.2 Wall interference corrections (indicate estimated accuracy)	
6.2.1 angle of attack	$\Delta\alpha° \sim -1.2\ C_L$ at $M = 0.75$ (estim. for $P_U = 1.5$, $P_L = 0.5$)
6.2.2 blockage (solid/wake) " (lift)	Negligible $\Delta M \simeq -0.013\ C_L$ at $M = 0.75$ (estim. for $P_U = 1.5$, $P_L = 0.5$)
6.2.3 streamline curvature (lift)	Negligible
6.2.4 other	
6.2.5 remarks	Results from pressure measurements with wall mounted rails, with pressure ports 4.8 cm from the wall, are included for evaluating wall corrections. Tables 7.4 - 7.20
6.2.6 references on wall interference correction	5, 6
6.3 Presentation of data	
6.3.1 aerodynamic coefficients	Table 7.3
6.3.2 surface pressures	Table 7.4-7.20 Figure7.5-7.21
6.3.3 boundary layer quantities	
6.3.4 wall interference corrections included ?	No
6.3.5 corrections for model deflection	No
6.3.6 empty test section calibration taken into account ?	Yes
6.3.7 other correction included ?	No
6.3.8 additional remarks	wake drag data are those obtained from probe on ℄ only
6.4 Were tests carried out in different facilities on the current airfoil ? If so, what facilities. Are data included in the present data base ?	No
6.5 To be contacted for further information on tests	D.J. Jones, High Speed Aerodynamics Laboratory, NAE/NRC, Montreal Road, Ottawa, Ontario, Canada K1A 0R6

7. References

1. J.J. Kacprzynski — Low lift supercritical 13% thick airfoil (CONFIDENTIAL) NRC/NAE LTR-HA-19 January, 1974

2. J.J. Kacprzynski — Wind Tunnel test results of 2-D flow past the supercritical airfoil DHC JJK 13. NRC/NAE LTR-HA-5x5/0089 February, 1975

3. L.H. Öhman et al — The NAE high Reynolds number 15in x 16in two-dimensional test facility. NRC/NAE LTR-HA-4 April, 1970

4. L.H. Öhman — The NAE 15in x 60in two-dimensional test facility: new features and some related observations, results of new centre line calibration at 20.5% porosity. NRC/NAE LTR-HA-15 March, 1973

5. D.J. Peake, A.J. Bowker — A simple streamwise momentum analysis to indicate an empirical correction to angle of incidence in two-dimensional, transonic flow, due to a perforated floor and ceiling of the wind tunnel NRC/NAE LTR-HA-11 January, 1973

6. M. Mokry et al — Wall interference on 2D supercritical airfoils, using wall pressure measurements to determine the porosity factors for tunnel floor and ceiling. NRC/NAE LR-575 February, 1974

8. List of symbols

B	tunnel width = model span
c	model chord
H	tunnel height
M	local Mach number
M_∞	free stream Mach number
P	local static pressure
P_∞	free stream static pressure
PO	free stream total pressure
Re	Reynolds number based on model chord
P_U, P_L	porosity factor for upper and lower walls (ceiling and floor of W/T). See reference 6
q_∞, Q	free stream dynamic pressure
V/U	relative sidewall suction; $\frac{\text{velocity} \perp \text{sidewall}}{\text{free stream velocity}}$
C_p, CP	$\frac{p - p_\infty}{q_\infty}$ pressure coefficient
C_N, CN	normal force coefficient
C_X, CX	chord force coefficient
C_M, CMC4	pitching moment coefficient about 1/4 chord
CL	lift coefficient
CDP	pressure drag coefficient
C_{D_W}	wake drag coefficient
X	streamwise coordinate, model origin: LE W/T origin: balance ℄ = 0.4 model X/c
α_g	geometric angle of attack, angle between chordline and tunnel centre line.

subscript P refers to pressure data

B	balance data
d	design data
m	to model data

TABLE 7.1 GEOMETRY OF AIRFOIL NAE 75-036-13:2

X	Y
1.0000000000	0.0
0.9588627219	-0.0025380601
0.9497243166	-0.0032185803
0.9397662282	-0.0039974563
0.9290056229	-0.0048585348
0.9174426794	-0.0057985671
0.9050719142	-0.0068275258
0.8918876648	-0.0079767257
0.8778962493	-0.0093075596
0.8631553054	-0.0108950250
0.8477554917	-0.0127766207
0.8317798376	-0.0149654262
0.8153115511	-0.0174696930
0.7984392643	-0.0202913359
0.7812631726	-0.0234245956
0.7639027238	-0.0268456899
0.7464876771	-0.0304865353
0.7291263342	-0.0342253694
0.7118707895	-0.0379012600
0.6946936250	-0.0413526781
0.6774995327	-0.0444772728
0.6601991057	-0.0472533256
0.6427395344	-0.0496878028
0.6250831465	-0.0517869776
0.6071890593	-0.0535653718
0.5890001655	-0.0550666824
0.5705260038	-0.0564164296
0.5518553853	-0.0576529652
0.5330401659	-0.0587904677
0.5141375065	-0.0598358773
0.4951956868	-0.0607833937
0.4762558341	-0.0616254285
0.4573546648	-0.0623558164
0.4385300875	-0.0629680753
0.4198209047	-0.0634485483
0.4012580514	-0.0637767315
0.3828586936	-0.0639327765
0.3646319509	-0.0639030337
0.3465782404	-0.0636887550
0.3287088275	-0.0633063316
0.3110473156	-0.0627698302
0.2936185002	-0.0620881133
0.2764459848	-0.0612707362
0.2595542669	-0.0603280589
0.2429699898	-0.0592708625
0.2267201543	-0.0581104532
0.2108338475	-0.0568587743
0.1953449845	-0.0555280671
0.1802969575	-0.0541263260
0.1657267809	-0.0526405424
0.1516562104	-0.0510608107
0.1381024718	-0.0493831933
0.1250799298	-0.0476080589

X	Y
0.1126026511	-0.0457400717
0.1006855965	-0.0437880531
0.0893458128	-0.0417665169
0.0786110759	-0.0396950990
0.0685327649	-0.0375878215
0.0591621995	-0.0354067944
0.0504946497	-0.0331038274
0.0425026417	-0.0306794271
0.0351843238	-0.0281558484
0.0285677314	-0.0255403407
0.0226559639	-0.0228067972
0.0174276233	-0.0199506432
0.0128520094	-0.0169846304
0.0089095235	-0.0139730759
0.0056819320	-0.0109855086
0.0032637711	-0.0079333000
0.0015638144	-0.0047051162
0.0005211232	-0.0013293617
0.0001209378	0.0055720881
0.0007786751	0.0089869462
0.0020155311	0.0123039149
0.0038598776	0.0154602826
0.0063722730	0.0183953494
0.0096784197	0.0211086795
0.0138361417	0.0237286985
0.0187317729	0.0263369754
0.0242959857	0.0288453512
0.0305774808	0.0311898850
0.0376430154	0.0333898552
0.0454972908	0.0355092548
0.0541231595	0.0375852734
0.0634580851	0.0396570191
0.0734440088	0.0417036340
0.0840565562	0.0436983742
0.0952787399	0.0456231311
0.1070998311	0.0474640541
0.1195113659	0.0492120497
0.1325066090	0.0508648530
0.1460770369	0.0524319485
0.1601989865	0.0539268367
0.1748388410	0.0553531088
0.1899665594	0.0567063503
0.2055557370	0.0579809770
0.2215807438	0.0591710359
0.2380197048	0.0602709502
0.2548545599	0.0612763688
0.2720716596	0.0621936135
0.2896448970	0.0630438924
0.3075250983	0.0638387799
0.3256675005	0.0645711422
0.3440346122	0.0652311444
0.3625930548	0.0658095479
0.3813108206	0.0662971735
0.4001580477	0.0666856766
0.4191055894	0.0669666529
0.4381252527	0.0671324134
0.4571908116	0.0671758652
0.4762765169	0.0670903325
0.4953578115	0.0668703318
0.5144102573	0.0665101409
0.5334110260	0.0660050511

X	Y
0.5523374677	0.0653434992
0.5711979270	0.0645132651
0.5899974704	0.0635518432
0.6087096930	0.0625036743
0.6272829175	0.0614152700
0.6456207633	0.0603144020
0.6636392474	0.0591498396
0.6815043952	0.0578714125
0.6986052990	0.0564346239
0.7155507803	0.0548132360
0.7321501374	0.0530047454
0.7484040260	0.0510125272
0.7643131614	0.0488414094
0.7798804045	0.0465055369
0.7951023579	0.0440255255
0.8099714518	0.0414229706
0.8244790435	0.0387208425
0.8386152983	0.0359456551
0.8523659110	0.0331282951
0.8657134175	0.0302999951
0.8786356449	0.0274950266
0.8911036849	0.0247504972
0.9030751586	0.0220994577
0.9145035148	0.0195598528
0.9253491759	0.0171405934
0.9355786443	0.0148491189
0.9451606870	0.0126925260
0.9540667534	0.0106776990
1.0000000000	0.0

TABLE 7.2 MODEL GEOMETRY AND PRESSURE HOLE LOCATIONS (INCH UNITS).

UPPER SURFACE

HOLE	STATION X	X_m	Y_d	Y_m	$Y_m - Y_d$	HOLE	STATION X	X_m	Y_d	Y_m	$Y_m - Y_d$
1	.0005	.0000	.0400	.0335	-	17	2.000	1.9989	.5753	.5758	.0005
2	.050	.0475	.1660	.1689	.0029	18	2.250	2.2492	.5940	.5943	.0003
3	.100	.0988	.2126	.2142	.0016	19	2.375	2.3739	.6023	.6024	.0001
4	.200	.1982	.2687	.2697	.0010	20	2.750	2.7488	.6234	.6237	.0003
5	.300	.2994	.3097	.3106	.0009	21	3.000	2.9992	.6351	.6358	.0007
6	.400	.3980	.3401	.3409	-.0008	22	3.250	3.2485	.6454	.6459	.0005
7	.500	.4989	.3660	.3670	.0010	23	3.500	3.4986	.6542	.6546	-.0004
8	.600	.5985	.3887	.3900	.0013	24	3.750	3.7486	.6614	.6614	.0000
9	.700	.6983	.4098	.4099	.0001	25	4.000	3.9993	.6668	.6669	.0001
10	.800	.7982	.4292	.4301	.0009	26	4.250	4.2484	.6703	.6702	-.0001
11	.900	.8967	.4468	.4481	.0013	27	4.500	4.4987	.6717	.6717	-.0000
12	1.000	.9987	.4636	.4643	.0007	28	4.750	4.7490	.6710	.6709	-.0001
13	1.200	1.1991	.4927	.4932	.0005	29	5.000	4.9987	.6680	.6677	-.0003
14	1.400	1.3989	.5173	.5181	.0008	30	5.200	5.1997	.6638	.6632	-.0006
15	1.600	1.5991	.5390	.5396	.0006	31	5.400	5.3980	.6580	.6575	-.0005
16	1.800	1.7984	.5581	.5588	.0007	32	5.600	5.5989	.6503	.6497	-.0006

TABLE 7.2 (Cont.)

UPPER SURFACE

HOLE	STATION X	X_m	Y_d	Y_m	$Y_m - Y_d$
33	5.800	5.7989	.6409	.6405	-.0004
34	6.000	5.9987	.6300	.6299	-.0001
35	6.200	6.1988	.6185	.6182	-.0003
36	6.400	6.3992	.6067	.6062	-.0005
37	6.600	6.5986	.5941	.5935	-.0006
38	6.800	6.7997	.5797	.5790	-.0013
39	7.000	6.9990	.5632	.5627	-.0005
40	7.200	7.1982	.5437	.5434	-.0003
41	7.400	7.3991	.5208	.5209	.0001
42	7.600	7.5998	.4945	.4950	.0005
43	7.800	7.7997	.4649	.4659	.0010
44	8.000	7.9971	.4324	.4301	-.0023
45	8.200	8.1992	.3959	.3965	.0006
46	8.400	8.3997	.3567	.3573	.0006
47	8.600	8.5985	.3157	.3162	.0005
48	8.800	8.7994	.2721	.2729	.0008
49	9.000	8.9988	.2281	.2290	.0009
50	9.250	9.2486	.1725	.1738	.0013
51	9.500	9.4988	.1163	.1180	.0017
52	10.000	10.0010	.0050		

LOWER SURFACE

HOLE	STATION X	X_m	Y_d	Y_m	$Y_m - Y_d$
53	.050	.0479	-.0994	-.1016	-.0022
54	.100	.1010	-.1496	-.1498	-.0002
55	.200	.1997	-.2141	-.2135	.0006
56	.300	.2988	-.2610	-.2603	.0007
57	.400	.3995	-.2983	-.2978	.0015
58	.500	.5003	-.3297	-.3286	.0011
59	.750	.7490	-.3894	-.3882	.0012
60	1.000	.9995	-.4366	-.4356	.0010
61	1.500	1.4991	-.5085	-.5069	.0016
Bal. Pins	1.750				
62	2.000	1.9976	-.5592	-.5582	.0010
63	2.500	2.5006	-.5974	-.5962	.0012
64	3.000	2.9974	-.6234	-.6227	.0017
65	3.500	3.4996	-.6374	-.6367	.0007
66	4.000	3.9998	-.6379	-.6375	.0004
67	4.500	4.4983	-.6261	-.6255	.0006
68	5.000	4.9984	-.6056	-.6049	.0017
69	5.625	5.6233	-.5698	-.5697	.0001
70	6.000	5.9997	-.5420	-.5419	.0001
Bal. Pins	6.250				
71	6.500	6.4988	-.4874	-.4872	.0002
72	7.000	6.9991	-.4033	-.4030	.0003
73	7.250	7.2491	-.3513	-.3512	-.0001
74	7.500	7.4988	-.2976	-.2977	-.0001
75	7.750	7.7496	-.2464	-.2464	-.0000
76	8.000	7.9987	-.2004	-.2007	-.0003
77	8.250	8.2475	-.1600	-.1602	-.0002
78	8.500	8.5003	-.1248	-.1251	-.0003
79	9.000	9.0000	-.0726	-.0726	.0000
80	9.500	9.5021	-.0318	-.0342	-.0024
T.E.	10.000	10.0011	-.0050		

TABLE 7.3

AERODYNAMIC COEFFICIENTS

TABLE	FIG.	M_∞	Rex10-6	α_W^o	PRESSURE C_{N_P}	PRESSURE C_{M_P}	PRESSURE C_{X_P}	BALANCE C_{N_B}	BALANCE C_{M_B}	BALANCE C_{X_B}	C_{D_W}	RUN	SCAN
4	5	.511	14.35	1.989	0.335	-0.0416	-0.00669	0.324	-0.0431	-0.001	0.00792	4979	2
5	6	.699	14.34	1.994	0.366	-0.0426	-0.00547	0.359	-0.0450	-0.002	0.00906	4976	3
6	7	.754	13.84	1.994	0.389	-0.0408	-0.00530	0.381	-0.0454	0.000	0.00922	4974	5
7	8	.794	14.29	1.474	0.351	-0.0596	0.00416	0.328	-0.0518	0.006	0.01084	4970	4
8	9	.702	25.53	1.999	0.381	-0.0477	-0.00557	0.374	-0.0480	-0.003	0.00850	4944	2
9	10	.754	25.18	-0.047	0.102	-0.0498	0.00295	0.096	-0.0505	0.010	0.00907	4936	1
10	11	.755	25.41	0.962	0.246	-0.0501	0.00125	0.237	-0.0506	0.007	0.00859	4936	3
11	12	.756	25.15	1.485	0.326	-0.0489	-0.00128	0.321	-0.0495	0.003	0.0091	5001	1
12	13	.757	25.29	1.742	0.368	-0.0485	-0.00243	0.359	-0.0491	0.001	0.00893	5001	2
13	14	.757	25.37	2.011	0.403	-0.0476	-0.00442	0.399	-0.0484	-0.002	0.00910	5001	3
14	15	.754	25.37	2.513	0.461	-0.0438	-0.00889	0.452	-0.0445	-0.005	0.00996	4937	3
15	16	.751	25.14	3.034	0.534	-0.0394	-0.01398	0.521	-0.0404	-0.010	0.01245	4938	1
16	17	.752	25.30	4.057	0.659	-0.0410	-0.01832	0.631	-0.0372	-0.015	0.01967	4938	2
17	18	.806	24.87	1.465	0.338	-0.0572	0.00366	0.333	-0.0592	0.008	0.01208	4999	1
18	19	.841	25.19	1.001	0.113	-0.0043	0.02548	0.097	-0.0097	0.028	0.03481	4951	3
19	20	.756	29.69	2.013	0.400	-0.0478	-0.00401	0.388	-0.0476	-0.001	0.01012	4982	1
20	21	.801	29.96	2.000	0.393	-0.0538	0.00073	0.374	-0.0521	0.005	0.01165	4986	1

TABLE 7.4

SURFACE PRESSURE MEASUREMENTS

RUN NUMBER =4979
SCAN NUMBER = 2
CONFIGURATION = DHCJJK
TEST MACH NUMBER= 0.511
REYNOLDS NUMBER = 0.1435E 08
INCIDENCE(NORTH)= 1.989
PO = 81.84PSIA
Q = 12.50PSI
V/U (SIDEWALL) =0.0052
CN = 0.335
CX =-.00569
CMC4 =-0.0416
CL = 0.3354
CDP = 0.0050

ORIFICE	X/C	CP	M(LOCAL)
TE UPPER	1.0000	0.2395	0.445
51	0.9500	0.1311	0.476
50	0.9250	0.0706	0.494
49	0.9000	0.0101	0.510
47	0.8600	-0.1096	0.542
46	0.8400	-0.1619	0.556
45	0.8200	-0.2163	0.570
43	0.7800	-0.3197	0.596
42	0.7600	-0.3571	0.605
41	0.7400	-0.3739	0.610
40	0.7200	-0.3664	0.614
39	0.7000	-0.3926	0.615
38	0.6800	-0.3976	0.616
37	0.6600	-0.3914	0.615
36	0.6400	-0.3877	0.615
35	0.6200	-0.3962	0.617
34	0.6000	-0.4098	0.619
33	0.5800	-0.4271	0.623
32	0.5600	-0.4390	0.628
31	0.5400	-0.4465	0.630
30	0.5200	-0.4478	0.630
29	0.5000	-0.4575	0.631
28	0.4750	-0.4641	0.634
27	0.4500	-0.4646	0.635
26	0.4250	-0.4695	0.635
25	0.4000	-0.4660	0.634
24	0.3750	-0.4652	0.634
23	0.3500	-0.4712	0.635
22	0.3250	-0.4696	0.635
21	0.3000	-0.4770	0.638
19	0.2375	-0.5164	0.644
18	0.2250	-0.5202	0.646
17	0.2000	-0.5387	0.651
16	0.1800	-0.5613	0.656
15	0.1600	-0.5867	0.662
14	0.1400	-0.6121	0.668
13	0.1200	-0.6306	0.672
12	0.1000	-0.6795	0.685
11	0.0900	-0.6805	0.686
10	0.0800	-0.7046	0.691
9	0.0700	-0.7083	0.692
8	0.0600	-0.7401	0.701
7	0.0500	-0.8073	0.717
6	0.0400	-0.8663	0.734
5	0.0300	-1.0001	0.761
3	0.0100	-1.0077	0.765
2	0.0050	-0.6179	0.671
1	0.0000	0.9098	0.188
53	0.0050	0.8811	0.205
54	0.0100	0.6324	0.317
55	0.0200	0.3384	0.417
56	0.0300	0.1674	0.468
57	0.0400	0.1021	0.487
58	0.0500	0.0424	0.503
59	0.0750	-0.0256	0.522
62	0.2000	-0.1815	0.562
63	0.2500	-0.2124	0.571
64	0.3000	-0.2410	0.579
65	0.3500	-0.2655	0.585
66	0.4000	-0.2678	0.585
67	0.4500	-0.2484	0.580
68	0.5000	-0.2385	0.578
69	0.5625	-0.2396	0.575

ORIFICE	X/C	CP	M(LOCAL)
70	0.6000	-0.2560	0.579
71	0.6500	-0.2369	0.575
72	0.7000	-0.1131	0.543
73	0.7250	-0.0281	0.521
74	0.7500	0.0429	0.503
75	0.7750	0.1148	0.483
76	0.8000	0.1602	0.471
77	0.8250	0.1695	0.462
78	0.8500	0.2091	0.456
79	0.9000	0.2193	0.453
80	0.9500	0.2266	0.451
TE LOWER	1.0000	0.2395	0.445

STATIC PRESSURES AT CEILING AND FLOOR

	CEILING		FLOOR	
X/C	CP	M	CP	M
-4.5000	0.003	0.514	0.007	0.511
-4.2000	0.006	0.513	0.006	0.510
-3.9000	-0.002	0.516	0.005	0.512
-3.6000	0.006	0.513	0.002	0.512
-3.3000	0.005	0.514	0.006	0.513
-3.0000	0.001	0.514	0.005	0.512
-2.7000	-0.001	0.515	0.015	0.510
-2.4000	-0.003	0.516	0.012	0.510
-2.1000	-0.002	0.515	0.011	0.511
-1.8000	0.002	0.515	0.012	0.510
-1.5000	-0.015	0.519	0.019	0.509
-1.3500	-0.009	0.517	-0.005	0.514
-1.2000	-0.011	0.517	0.015	0.509
-1.0500	-0.007	0.517	0.020	0.509
-0.9000	-0.009	0.517	0.016	0.510
-0.7500	-0.010	0.517	0.017	0.509
-0.6500	-0.015	0.519	0.015	0.510
-0.5500	-0.011	0.518	0.017	0.508
-0.4500	-0.011	0.518	0.012	0.509
-0.3500	-0.017	0.519	0.022	0.508
-0.2500	-0.017	0.518	0.011	0.512
-0.1500	-0.017	0.518	0.020	0.509
-0.0500	-0.017	0.519	0.025	0.508
0.0500	-0.019	0.519	0.029	0.507
0.1500	-0.021	0.518	0.023	0.509
0.2500	-0.019	0.518	0.029	0.507
0.3500	-0.017	0.518	0.024	0.509
0.4500	-0.019	0.518	0.027	0.507
0.5500	-0.019	0.520	0.021	0.509
0.6500	-0.012	0.516	0.026	0.508
0.7500	-0.013	0.517	0.001	0.514
0.9000	-0.012	0.516	0.024	0.509
1.0500	-0.007	0.515	0.020	0.510
1.2000	-0.006	0.516	0.019	0.510
1.3500	-0.016	0.518	0.021	0.509
1.5000	-0.011	0.516	0.023	0.509
1.8000	-0.008	0.516	0.018	0.510
2.1000	-0.013	0.516	0.018	0.509
2.4000	0.007	0.512	0.015	0.511
2.7000	-0.011	0.515	0.003	0.514

TABLE 7.5

SURFACE PRESSURE MEASUREMENTS

RUN NUMBER =4976
SCAN NUMBER = 3
CONFIGURATION = DHCJJK
TEST MACH NUMBER= 0.699
REYNOLDS NUMBER = 0.1434E 08
INCIDENCE(NORTH)= 1.994
PO = 65.11PSIA
Q = 16.07PSI
V/U (SIDEWALL) =0.0058
CN = 0.366
CX =-.00547
CMC4 =-0.0426
CL = 0.3658
CDP = 0.0073

ORIFICE	X/C	CP	M(LOCAL)
TE UPPER	1.0000	0.2366	0.610
51	0.9500	0.1692	0.638
50	0.9250	0.1149	0.660
49	0.9000	0.0506	0.684
47	0.8600	-0.0692	0.731
46	0.8400	-0.1258	0.753
45	0.8200	-0.1986	0.781
43	0.7800	-0.3249	0.828
42	0.7600	-0.3704	0.847
41	0.7400	-0.4172	0.864
40	0.7200	-0.4481	0.876
39	0.7000	-0.4558	0.879
38	0.6800	-0.4549	0.879
37	0.6600	-0.4491	0.876
36	0.6400	-0.4509	0.877
35	0.6200	-0.4579	0.880
34	0.6000	-0.4707	0.885
33	0.5800	-0.4976	0.895
32	0.5600	-0.5172	0.901
31	0.5400	-0.5409	0.911
30	0.5200	-0.5490	0.914
29	0.5000	-0.5574	0.919
28	0.4750	-0.5585	0.920
27	0.4500	-0.5671	0.922
26	0.4250	-0.5669	0.923
25	0.4000	-0.5547	0.918
24	0.3750	-0.5576	0.918
23	0.3500	-0.5635	0.920
22	0.3250	-0.5598	0.919
21	0.3000	-0.5548	0.921
19	0.2375	-0.6128	0.940
18	0.2250	-0.6237	0.945
17	0.2000	-0.6625	0.960
16	0.1800	-0.6828	0.967
15	0.1600	-0.7038	0.976
14	0.1400	-0.7287	0.987
13	0.1200	-0.7596	0.998
12	0.1000	-0.8355	1.029
11	0.0900	-0.8074	1.018
10	0.0800	-0.7890	1.010
9	0.0700	-0.7609	0.998
8	0.0600	-0.7562	0.996
7	0.0500	-0.9474	1.075
6	0.0400	-1.1341	1.156
5	0.0300	-1.1160	1.147
3	0.0100	-0.7740	1.003
2	0.0050	-0.2577	0.803
1	0.0000	1.0388	0.180
53	0.0050	0.8899	0.298
54	0.0100	0.6424	0.434
55	0.0200	0.3661	0.558
56	0.0300	0.1862	0.632
57	0.0400	0.0888	0.670
58	0.0500	0.0320	0.692
59	0.0750	-0.0378	0.719
62	0.2000	-0.2201	0.787
63	0.2500	-0.2627	0.803
64	0.3000	-0.3025	0.820
65	0.3500	-0.3306	0.831
66	0.4000	-0.3398	0.833
67	0.4500	-0.3107	0.822
68	0.5000	-0.2949	0.817
69	0.5625	-0.2749	0.816

ORIFICE	X/C	CP	M(LOCAL)
70	0.6000	-0.3138	0.824
71	0.6500	-0.2894	0.815
72	0.7000	-0.1363	0.756
73	0.7250	-0.0312	0.716
74	0.7500	0.0553	0.682
75	0.7750	0.1312	0.652
76	0.8000	0.1756	0.635
77	0.8250	0.2144	0.620
78	0.8500	0.2318	0.612
79	0.9000	0.2444	0.607
80	0.9500	0.2492	0.606
TE LOWER	1.0000	0.2366	0.610

STATIC PRESSURES AT CEILING AND FLOOR

	CEILING		FLOOR	
X/C	CP	M	CP	M
-4.5000	0.012	0.699	0.008	0.701
-4.2000	0.018	0.696	0.013	0.698
-3.9000	0.006	0.702	0.016	0.698
-3.6000	0.016	0.698	0.016	0.699
-3.3000	0.020	0.697	0.016	0.698
-3.0000	0.016	0.698	0.019	0.697
-2.7000	0.012	0.699	0.016	0.698
-2.4000	0.013	0.699	0.020	0.697
-2.1000	0.005	0.702	0.018	0.697
-1.8000	0.003	0.703	0.022	0.696
-1.5000	-0.002	0.704	0.025	0.694
-1.3500	-0.003	0.704	0.021	0.697
-1.2000	-0.000	0.703	0.026	0.694
-1.0500	-0.001	0.704	0.029	0.693
-0.9000	-0.001	0.705	0.028	0.693
-0.7500	-0.002	0.705	0.028	0.694
-0.6500	-0.007	0.707	0.027	0.694
-0.5500	-0.010	0.707	0.021	0.696
-0.4500	-0.010	0.709	0.027	0.694
-0.3500	-0.016	0.711	0.025	0.695
-0.2500	-0.019	0.711	0.027	0.693
-0.1500	-0.023	0.713	0.030	0.693
-0.0500	-0.024	0.713	0.033	0.692
0.0500	-0.027	0.714	0.036	0.690
0.1500	-0.021	0.713	0.037	0.689
0.2500	-0.020	0.713	0.042	0.689
0.3500	-0.025	0.714	0.043	0.688
0.4500	-0.021	0.712	0.037	0.690
0.5500	-0.016	0.711	0.038	0.690
0.6500	-0.020	0.712	0.035	0.690
0.7500	-0.014	0.710	0.005	0.702
0.9000	-0.009	0.708	0.034	0.691
1.0500	-0.012	0.709	0.034	0.691
1.2000	-0.009	0.708	0.032	0.691
1.3500	-0.009	0.708	0.030	0.693
1.5000	-0.006	0.706	0.036	0.690
1.8000	-0.008	0.707	0.032	0.690
2.1000	-0.003	0.706	0.032	0.692
2.4000	-0.004	0.706	0.028	0.693
2.7000	-0.010	0.707	0.018	0.696

TABLE 7.6

SURFACE PRESSURE MEASUREMENTS

RUN NUMBER =4974
SCAN NUMBER = 5
CONFIGURATION = DHCJJK
TEST MACH NUMBER= 0.754
REYNOLDS NUMBER = 0.1384E 08
INCIDENCE(NORTH)= 1.994
PO = 60.15PSIA
Q = 16.41PSI
V/U (SIDEWALL) =0.0052
CN = 0.389
CX =-.00530
CMC4 =-0.0408
CL = 0.3888
CDP = 0.0082

ORIFICE	X/C	CP	M(LOCAL)
TE UPPER	1.0000	0.2329	0.659
51	0.9500	0.1765	0.684
50	0.9250	0.1347	0.703
49	0.9000	0.0807	0.727
47	0.8600	-0.0308	0.774
46	0.8400	-0.0909	0.799
45	0.8200	-0.1648	0.828
43	0.7800	-0.3071	0.888
42	0.7600	-0.3625	0.912
41	0.7400	-0.4132	0.934
40	0.7200	-0.4470	0.949
39	0.7000	-0.4689	0.957
38	0.6800	-0.4771	0.960
37	0.6600	-0.4722	0.959
36	0.6400	-0.4692	0.958
35	0.6200	-0.4790	0.962
34	0.6000	-0.4911	0.968
33	0.5800	-0.5285	0.986
32	0.5600	-0.5699	1.003
31	0.5400	-0.6083	1.020
30	0.5200	-0.6187	1.025
29	0.5000	-0.6371	1.035
28	0.4750	-0.6481	1.039
27	0.4500	-0.6503	1.040
26	0.4250	-0.6462	1.038
25	0.4000	-0.6255	1.029
24	0.3750	-0.6067	1.021
23	0.3500	-0.6004	1.017
22	0.3250	-0.5880	1.011
21	0.3000	-0.5780	1.007
19	0.2375	-0.7812	1.103
18	0.2250	-0.8183	1.120
17	0.2000	-0.8538	1.134
16	0.1800	-0.8645	1.138
15	0.1600	-0.8543	1.134
14	0.1400	-0.8621	1.137
13	0.1200	-0.9050	1.158
12	0.1000	-0.9077	1.160
11	0.0900	-0.8931	1.151
10	0.0800	-0.9120	1.159
9	0.0700	-0.9395	1.175
8	0.0600	-0.9677	1.189
7	0.0500	-0.9861	1.198
6	0.0400	-0.9989	1.206
5	0.0300	-0.9169	1.166
4	0.0100	-0.5857	1.010
2	0.0050	-0.0957	0.900
1	0.0000	1.0857	0.161
53	0.0050	0.3893	0.329
54	0.0100	0.6324	0.475
55	0.0200	0.3578	0.605
56	0.0300	0.1889	0.679
57	0.0400	0.0977	0.718
58	0.0500	0.0356	0.744
59	0.0750	-0.0443	0.777
62	0.2000	-0.2364	0.859
63	0.2500	-0.2894	0.880
64	0.3000	-0.3397	0.902
65	0.3500	-0.3782	0.919
66	0.4000	-0.3879	0.923
67	0.4500	-0.3560	0.909
68	0.5000	-0.3267	0.897
69	0.5625	-0.3327	0.899

ORIFICE	X/C	CP	M(LOCAL)
70	0.6000	-0.3609	0.913
71	0.6500	-0.3134	0.894
72	0.7000	-0.1314	0.817
73	0.7250	-0.0209	0.769
74	0.7500	0.0654	0.731
75	0.7750	0.1362	0.700
76	0.8000	0.1835	0.680
77	0.8250	0.2195	0.665
78	0.8500	0.2396	0.656
79	0.9000	0.2519	0.650
80	0.9500	0.2557	0.650
TE LOWER	1.0000	0.2329	0.659

STATIC PRESSURES AT CEILING AND FLOOR

	CEILING		FLOOR	
X/C	CP	M	CP	M
-4.5000	0.020	0.751	0.013	0.755
-4.2000	0.021	0.749	0.013	0.753
-3.9000	0.008	0.756	0.017	0.751
-3.6000	0.023	0.749	0.018	0.753
-3.3000	0.022	0.749	0.017	0.751
-3.0000	0.027	0.748	0.022	0.749
-2.7000	0.026	0.748	0.025	0.748
-2.4000	0.020	0.750	0.025	0.748
-2.1000	0.019	0.752	0.022	0.749
-1.8000	0.014	0.753	0.023	0.751
-1.5000	0.004	0.756	0.030	0.746
-1.3500	0.007	0.756	0.009	0.755
-1.2000	0.007	0.756	0.037	0.744
-1.0500	0.003	0.757	0.030	0.745
-0.9000	0.002	0.759	0.032	0.745
-0.7500	0.002	0.759	0.035	0.746
-0.6500	-0.006	0.762	0.027	0.746
-0.5500	-0.001	0.759	0.027	0.749
-0.4500	-0.005	0.762	0.024	0.749
-0.3500	-0.009	0.763	0.031	0.746
-0.2500	-0.015	0.765	0.028	0.747
-0.1500	-0.021	0.767	0.036	0.744
-0.0500	-0.023	0.768	0.035	0.744
0.0500	-0.028	0.770	0.041	0.742
0.1500	-0.021	0.770	0.040	0.741
0.2500	-0.021	0.769	0.044	0.741
0.3500	-0.025	0.771	0.046	0.740
0.4500	-0.022	0.770	0.043	0.742
0.5500	-0.017	0.765	0.039	0.743
0.6500	-0.016	0.768	0.042	0.741
0.7500	-0.014	0.763	0.002	0.759
0.9000	-0.014	0.765	0.040	0.741
1.0500	-0.008	0.762	0.037	0.743
1.2000	-0.006	0.761	0.037	0.743
1.3500	-0.002	0.760	0.038	0.743
1.5000	-0.003	0.760	0.036	0.744
1.8000	0.005	0.757	0.032	0.744
2.1000	0.001	0.758	0.032	0.746
2.4000	0.006	0.756	0.028	0.747
2.7000	-0.008	0.762	0.021	0.750

TABLE 7.7

SURFACE PRESSURE MEASUREMENTS

RUN NUMBER =4970
SCAN NUMBER = 4
CONFIGURATION = DHCJJK
TEST MACH NUMBER= 0.794
REYNOLDS NUMBER = 0.1429E 08
INCIDENCE(NORTH)= 1.474
PO = 60.19PSIA
Q = 17.52PSI
V/U (SIDEWALL) =0.0049
CN = 0.335
CX =0.00066
CMC4 =-0.0496
CL = 0.3353
CDP = 0.0093

ORIFICE	X/C	CP	M(LOCAL)
TE UPPER	1.0000	0.2407	0.690
51	0.9500	0.1874	0.715
50	0.9250	0.1485	0.733
49	0.9000	0.1002	0.754
47	0.8600	-0.0103	0.804
46	0.8400	-0.0687	0.830
45	0.8200	-0.1328	0.860
43	0.7800	-0.2673	0.919
42	0.7600	-0.3240	0.945
41	0.7400	-0.3743	0.970
40	0.7200	-0.4017	0.983
39	0.7000	-0.4074	0.985
38	0.6800	-0.3999	0.982
37	0.6600	-0.4040	0.985
36	0.6400	-0.4524	1.008
35	0.6200	-0.5324	1.047
34	0.6000	-0.7354	1.149
33	0.5800	-0.7871	1.175
32	0.5600	-0.7641	1.162
31	0.5400	-0.7872	1.174
30	0.5200	-0.7844	1.171
29	0.5000	-0.7751	1.166
28	0.4750	-0.7534	1.155
27	0.4500	-0.7611	1.160
26	0.4250	-0.7662	1.164
25	0.4000	-0.7661	1.163
24	0.3750	-0.7614	1.160
23	0.3500	-0.7593	1.159
22	0.3250	-0.7527	1.157
21	0.3000	-0.7704	1.167
19	0.2375	-0.7687	1.164
18	0.2250	-0.7726	1.166
17	0.2000	-0.7585	1.160
16	0.1800	-0.7524	1.156
15	0.1600	-0.7324	1.143
14	0.1400	-0.7048	1.130
13	0.1200	-0.6672	1.112
12	0.1000	-0.6363	1.097
11	0.0900	-0.6072	1.082
10	0.0800	-0.6345	1.096
9	0.0700	-0.6588	1.109
8	0.0600	-0.6760	1.118
7	0.0500	-0.7349	1.148
6	0.0400	-0.7457	1.154
5	0.0300	-0.7019	1.131
3	0.0100	-0.3213	0.945
2	0.0050	0.1165	0.746
1	0.0000	1.1411	0.105
53	0.0050	0.8177	0.397
54	0.0100	0.5474	0.545
55	0.0200	0.2671	0.679
56	0.0300	0.0967	0.756
57	0.0400	-0.0034	0.800
58	0.0500	-0.0620	0.827
59	0.0750	-0.1263	0.857
62	0.2000	-0.3184	0.943
63	0.2500	-0.3716	0.968
64	0.3000	-0.4324	0.998
65	0.3500	-0.5079	1.034
66	0.4000	-0.5238	1.041
67	0.4500	-0.4369	0.998
68	0.5000	-0.3914	0.977
69	0.5625	-0.3922	0.978

ORIFICE	X/C	CP	M(LOCAL)
70	0.6000	-0.4239	0.993
71	0.6500	-0.3539	0.961
72	0.7000	-0.1363	0.861
73	0.7250	-0.0243	0.810
74	0.7500	0.0605	0.772
75	0.7750	0.1317	0.740
76	0.8000	0.1832	0.717
77	0.8250	0.2167	0.702
78	0.8500	0.2413	0.690
79	0.9000	0.2596	0.681
80	0.9500	0.2666	0.678
TE LOWER	1.0000	0.2407	0.690

STATIC PRESSURES AT CEILING AND FLOOR

	CEILING		FLOOR	
X/C	CP	M	CP	M
-4.5000	0.017	0.792	0.016	0.792
-4.2000	0.023	0.788	0.015	0.792
-3.9000	0.007	0.797	0.015	0.791
-3.6000	0.024	0.789	0.014	0.792
-3.3000	0.025	0.789	0.015	0.794
-3.0000	0.025	0.787	0.018	0.792
-2.7000	0.027	0.787	0.020	0.791
-2.4000	0.024	0.789	0.021	0.790
-2.1000	0.015	0.792	0.023	0.789
-1.8000	0.010	0.795	0.022	0.790
-1.5000	0.009	0.795	0.027	0.788
-1.3500	0.012	0.794	0.003	0.797
-1.2000	0.008	0.795	0.024	0.789
-1.0500	0.011	0.795	0.024	0.788
-0.9000	0.006	0.797	0.028	0.787
-0.7500	0.003	0.798	0.025	0.788
-0.6500	0.001	0.798	0.023	0.789
-0.5500	-0.005	0.802	0.021	0.789
-0.4500	-0.007	0.803	0.019	0.791
-0.3500	-0.015	0.805	0.021	0.790
-0.2500	-0.017	0.808	0.024	0.788
-0.1500	-0.023	0.810	0.024	0.788
-0.0500	-0.026	0.812	0.027	0.787
0.0500	-0.028	0.812	0.028	0.786
0.1500	-0.027	0.811	0.033	0.784
0.2500	-0.027	0.811	0.034	0.784
0.3500	-0.027	0.811	0.037	0.783
0.4500	-0.023	0.810	0.028	0.786
0.5500	-0.021	0.810	0.028	0.786
0.6500	-0.016	0.806	0.027	0.787
0.7500	-0.015	0.807	-0.002	0.801
0.9000	-0.014	0.805	0.027	0.787
1.0500	-0.009	0.804	0.032	0.785
1.2000	-0.010	0.804	0.032	0.785
1.3500	-0.009	0.804	0.030	0.786
1.5000	-0.006	0.801	0.031	0.786
1.8000	-0.004	0.802	0.032	0.784
2.1000	-0.002	0.799	0.029	0.786
2.4000	0.001	0.799	0.028	0.787
2.7000	-0.007	0.802	0.015	0.792

TABLE 7.8.

SURFACE PRESSURE MEASUREMENTS

RUN NUMBER =4944
SCAN NUMBER = 2
CONFIGURATION = DHCJJK
TEST MACH NUMBER= 0.702
REYNOLDS NUMBER = 0.2553E 08
INCIDENCE(NORTH)= 1.999
PO =114.80PSIA
Q = 28.52PSI
V/U (SIDEWALL) =0.0051
CN = 0.381
CX =-.00557
CMC4 =-0.0477
CL = 0.3814
CDP = 0.0077

ORIFICE	X/C	CP	M(LOCAL)
TE UPPER	1.0000	0.2569	0.604
51	0.9500	0.1698	0.640
50	0.9250	0.1096	0.664
49	0.9000	0.0440	0.690
47	0.8600	-0.0824	0.740
46	0.8400	-0.1453	0.764
45	0.8200	-0.2144	0.791
43	0.7800	-0.3485	0.842
42	0.7600	-0.3938	0.859
41	0.7400	-0.4376	0.876
40	0.7200	-0.4530	0.883
39	0.7000	-0.4723	0.890
38	0.6800	-0.4741	0.890
37	0.6600	-0.4663	0.887
36	0.6400	-0.4647	0.886
35	0.6200	-0.4748	0.890
34	0.6000	-0.4863	0.895
33	0.5800	-0.5098	0.905
32	0.5600	-0.5304	0.911
31	0.5400	-0.5545	0.921
30	0.5200	-0.5598	0.923
29	0.5000	-0.5676	0.927
28	0.4750	-0.5824	0.934
27	0.4500	-0.5761	0.931
26	0.4250	-0.5808	0.934
25	0.4000	-0.5734	0.930
24	0.3750	-0.5676	0.926
23	0.3500	-0.5778	0.931
22	0.3250	-0.5677	0.927
21	0.3000	-0.5856	0.934
19	0.2375	-0.6292	0.952
18	0.2250	-0.6457	0.959
17	0.2000	-0.6630	0.966
16	0.1800	-0.6894	0.977
15	0.1600	-0.7147	0.986
14	0.1400	-0.7383	0.995
13	0.1200	-0.7794	1.012
12	0.1000	-0.8386	1.036
11	0.0900	-0.8178	1.028
10	0.0800	-0.7978	1.018
9	0.0700	-0.7760	1.009
8	0.0600	-0.7833	1.012
7	0.0500	-1.0354	1.118
6	0.0400	-1.1473	1.168
5	0.0300	-1.0944	1.145
3	0.0100	-0.7402	0.994
2	0.0050	-0.2595	0.307
1	0.0000	1.0377	0.183
53	0.0050	0.8898	0.301
54	0.0100	0.6339	0.441
55	0.0200	0.3619	0.563
56	0.0300	0.1958	0.631
57	0.0400	0.0860	0.673
58	0.0500	0.0285	0.696
59	0.0750	-0.0459	0.726
62	0.2000	-0.2185	0.791
63	0.2500	-0.2563	0.806
64	0.3000	-0.2970	0.821
65	0.3500	-0.3298	0.834
66	0.4000	-0.3335	0.835
67	0.4500	-0.3089	0.826
68	0.5000	-0.2908	0.819
69	0.5625	-0.2962	0.820

ORIFICE	X/C	CP	M(LOCAL)
70	0.6000	-0.3219	0.830
71	0.6500	-0.2900	0.818
72	0.7000	-0.1316	0.758
73	0.7250	-0.0270	0.718
74	0.7500	0.0657	0.681
75	0.7750	0.1450	0.650
76	0.8000	0.1905	0.632
77	0.8250	0.2246	0.618
78	0.8500	0.2452	0.610
79	0.9000	0.2526	0.607
80	0.9500	0.2607	0.604
TE LOWER	1.0000	0.2569	0.604

STATIC PRESSURES AT CEILING AND FLOOR

	CEILING		FLOOR	
X/C	CP	M	CP	M
-4.5000	0.008	0.704	0.002	0.707
-4.2000	0.014	0.702	0.007	0.703
-3.9000	0.004	0.705	0.007	0.705
-3.6000	0.013	0.703	0.003	0.706
-3.3000	0.014	0.702	0.006	0.705
-3.0000	0.017	0.701	0.010	0.703
-2.7000	0.016	0.701	0.011	0.703
-2.4000	0.013	0.702	0.011	0.703
-2.1000	0.005	0.705	0.014	0.703
-1.8000	0.005	0.705	0.012	0.702
-1.5000	0.000	0.707	0.019	0.700
-1.3500	-0.000	0.707	-0.002	0.708
-1.2000	-0.004	0.708	0.020	0.700
-1.0500	-0.001	0.708	0.020	0.700
-0.9000	-0.001	0.709	0.019	0.700
-0.7500	-0.005	0.710	0.020	0.700
-0.6500	-0.014	0.712	0.018	0.700
-0.5500	-0.008	0.710	0.014	0.702
-0.4500	-0.015	0.714	0.017	0.700
-0.3500	-0.019	0.715	0.019	0.701
-0.2500	-0.019	0.715	0.018	0.700
-0.1500	-0.026	0.718	0.024	0.699
-0.0500	-0.024	0.716	0.025	0.698
0.0500	-0.025	0.718	0.029	0.696
0.1500	-0.028	0.719	0.037	0.693
0.2500	-0.026	0.718	0.032	0.696
0.3500	-0.027	0.718	0.038	0.692
0.4500	-0.024	0.716	0.030	0.695
0.5500	-0.020	0.715	0.032	0.695
0.6500	-0.021	0.716	0.031	0.694
0.7500	-0.017	0.714	-0.006	0.709
0.9000	-0.014	0.712	0.029	0.696
1.0500	-0.011	0.713	0.032	0.695
1.2000	-0.009	0.711	0.032	0.695
1.3500	-0.010	0.711	0.030	0.696
1.5000	-0.008	0.711	0.028	0.697
1.8000	-0.006	0.710	0.029	0.696
2.1000	-0.009	0.711	0.030	0.697
2.4000	-0.009	0.708	0.024	0.699
2.7000	-0.010	0.710	0.013	0.702

TABLE 7.9

SURFACE PRESSURE MEASUREMENTS

RUN NUMBER =4936
SCAN NUMBER = 1
CONFIGURATION = DHCJJK
TEST MACH NUMBER= 0.754
REYNOLDS NUMBER = 0.2518E 08
INCIDENCE(NORTH)=-0.047
PO =109.96PSIA
Q = 30.01PSI
V/U (SIDEWALL) =0.0036
CN = 0.102
CX =0.00295
CMC4 =-0.0498
CL = 0.1023
CDP = 0.0029

ORIFICE	X/C	CP	M(LOCAL)
TE UPPER	1.0000	0.2758	0.641
51	0.9500	0.1807	0.681
50	0.9250	0.1239	0.706
49	0.9000	0.0616	0.733
47	0.8600	-0.0679	0.789
46	0.8400	-0.1384	0.819
45	0.8200	-0.2028	0.847
43	0.7800	-0.3477	0.907
42	0.7600	-0.4043	0.930
41	0.7400	-0.4508	0.951
40	0.7200	-0.4735	0.961
39	0.7000	-0.4820	0.965
38	0.6800	-0.4755	0.962
37	0.6600	-0.4620	0.955
36	0.6400	-0.4503	0.950
35	0.6200	-0.4540	0.953
34	0.6000	-0.4673	0.958
33	0.5800	-0.4959	0.969
32	0.5600	-0.5257	0.983
31	0.5400	-0.5380	0.991
30	0.5200	-0.5400	0.991
29	0.5000	-0.5401	0.990
28	0.4750	-0.5407	0.991
27	0.4500	-0.5190	0.983
26	0.4250	-0.5163	0.982
25	0.4000	-0.4955	0.972
24	0.3750	-0.4870	0.965
23	0.3500	-0.4817	0.962
22	0.3250	-0.4579	0.954
21	0.3000	-0.4537	0.953
19	0.2375	-0.4684	0.960
18	0.2250	-0.4707	0.961
17	0.2000	-0.4698	0.962
16	0.1800	-0.4708	0.963
15	0.1600	-0.4764	0.963
14	0.1400	-0.4781	0.962
13	0.1200	-0.4674	0.958
12	0.1000	-0.4707	0.960
11	0.0900	-0.4368	0.945
10	0.0800	-0.4150	0.935
9	0.0700	-0.3930	0.925
8	0.0600	-0.3924	0.925
7	0.0500	-0.4100	0.934
6	0.0400	-0.4177	0.936
5	0.0300	-0.4260	0.939
3	0.0100	-0.0662	0.788
2	0.0050	0.3410	0.613
1	0.0000	1.1501	*******
53	0.0050	0.5762	0.503
54	0.0100	0.2988	0.632
55	0.0200	-0.0150	0.767
56	0.0300	-0.2105	0.849
57	0.0400	-0.3047	0.886
58	0.0500	-0.3552	0.907
59	0.0750	-0.3957	0.927
62	0.2000	-0.4877	0.965
63	0.2500	-0.5201	0.980
64	0.3000	-0.5635	1.000
65	0.3500	-0.6163	1.023
66	0.4000	-0.5738	1.005
67	0.4500	-0.4939	0.971
68	0.5000	-0.4431	0.949
69	0.5625	-0.4175	0.936

ORIFICE	X/C	CP	M(LOCAL)
70	0.6000	-0.4457	0.947
71	0.6500	-0.3841	0.921
72	0.7000	-0.1693	0.831
73	0.7250	-0.0511	0.782
74	0.7500	0.0305	0.745
75	0.7750	0.1127	0.711
76	0.8000	0.1591	0.691
77	0.8250	0.1971	0.675
78	0.8500	0.2214	0.664
79	0.9000	0.2445	0.655
80	0.9500	0.2613	0.648
TE LOWER	1.0000	0.2758	0.641

STATIC PRESSURES AT CEILING AND FLOOR

	CEILING		FLOOR	
X/C	CP	M	CP	M
-4.5000	0.007	0.756	0.007	0.756
-4.2000	0.016	0.753	0.013	0.753
-3.9000	0.000	0.759	0.007	0.757
-3.6000	0.016	0.754	0.006	0.758
-3.3000	0.021	0.751	0.006	0.757
-3.0000	0.019	0.752	0.005	0.757
-2.7000	0.016	0.751	0.008	0.756
-2.4000	0.012	0.754	0.009	0.755
-2.1000	0.006	0.755	0.014	0.755
-1.8000	0.009	0.756	0.004	0.757
-1.5000	0.004	0.757	0.007	0.756
-1.3500	0.006	0.757	-0.005	0.761
-1.2000	0.002	0.757	0.004	0.757
-1.0500	0.011	0.754	0.005	0.757
-0.9000	0.007	0.758	0.002	0.758
-0.7500	0.001	0.759	-0.000	0.760
-0.6500	-0.000	0.760	-0.001	0.760
-0.5500	-0.003	0.760	0.001	0.760
-0.4500	-0.003	0.761	-0.006	0.761
-0.3500	-0.005	0.761	-0.001	0.762
-0.2500	-0.004	0.760	-0.008	0.764
-0.1500	-0.005	0.761	-0.008	0.762
-0.0500	-0.008	0.762	-0.005	0.763
0.0500	-0.003	0.763	-0.002	0.761
0.1500	-0.010	0.764	-0.004	0.760
0.2500	-0.013	0.766	-0.002	0.761
0.3500	-0.010	0.765	-0.001	0.759
0.4500	-0.013	0.764	-0.009	0.762
0.5500	-0.010	0.763	-0.005	0.762
0.6500	-0.009	0.763	-0.010	0.763
0.7500	-0.010	0.763	-0.010	0.763
0.9000	-0.011	0.763	-0.005	0.762
1.0500	-0.004	0.763	-0.005	0.761
1.2000	-0.006	0.762	-0.007	0.762
1.3500	-0.010	0.763	-0.009	0.761
1.5000	-0.004	0.761	0.000	0.760
1.8000	-0.004	0.760	-0.002	0.760
2.1000	-0.007	0.762	0.000	0.761
2.4000	0.003	0.758	-0.001	0.759
2.7000	-0.003	0.760	-0.013	0.763

TABLE 7.10

SURFACE PRESSURE MEASUREMENTS

RUN NUMBER =4936
SCAN NUMBER = 3
CONFIGURATION = DHCJJK
TEST MACH NUMBER= 0.755
REYNOLDS NUMBER = 0.2541E 08
INCIDENCE(NORTH)= 0.962
PO =109.88PSIA
Q = 30.06PSI
V/U (SIDEWALL) =0.0035
CN = 0.246
CX =0.00125
CMC4 =-0.0501
CL = 0.2456
CDP = 0.0054

ORIFICE	X/C	CP	M(LOCAL)
TE UPPER	1.0000	0.2699	0.645
51	0.9500	0.1880	0.682
50	0.9250	0.1268	0.707
49	0.9000	0.0593	0.735
47	0.8600	-0.0591	0.786
46	0.8400	-0.1348	0.817
45	0.8200	-0.2059	0.846
43	0.7800	-0.3491	0.908
42	0.7600	-0.4029	0.932
41	0.7400	-0.4558	0.955
40	0.7200	-0.4865	0.969
39	0.7000	-0.4988	0.974
38	0.6800	-0.4912	0.972
37	0.6600	-0.4815	0.967
36	0.6400	-0.4761	0.963
35	0.6200	-0.4816	0.965
34	0.6000	-0.4873	0.969
33	0.5800	-0.5327	0.989
32	0.5600	-0.5716	1.004
31	0.5400	-0.5986	1.016
30	0.5200	-0.6095	1.022
29	0.5000	-0.6180	1.027
28	0.4750	-0.6135	1.025
27	0.4500	-0.6019	1.021
26	0.4250	-0.5991	1.020
25	0.4000	-0.5780	1.010
24	0.3750	-0.5627	1.004
23	0.3500	-0.5556	1.002
22	0.3250	-0.5374	0.994
21	0.3000	-0.5441	0.995
19	0.2375	-0.5726	1.007
18	0.2250	-0.5916	1.014
17	0.2000	-0.6029	1.018
16	0.1800	-0.6132	1.023
15	0.1600	-0.6272	1.030
14	0.1400	-0.6350	1.034
13	0.1200	-0.6754	1.053
12	0.1000	-0.6823	1.056
11	0.0900	-0.6253	1.031
10	0.0800	-0.5917	1.017
9	0.0700	-0.5633	1.003
8	0.0600	-0.5858	1.011
7	0.0500	-0.6177	1.025
6	0.0400	-0.6377	1.036
5	0.0300	-0.7186	1.073
3	0.0100	-0.2864	0.880
2	0.0050	0.1217	0.708
1	0.0000	1.1248	0.102
53	0.0050	0.7218	0.429
54	0.0100	0.4744	0.553
55	0.0200	0.1656	0.691
56	0.0300	-0.0233	0.771
57	0.0400	-0.1165	0.811
58	0.0500	-0.1601	0.831
59	0.0750	-0.2110	0.852
62	0.2000	-0.3606	0.914
63	0.2500	-0.4080	0.934
64	0.3000	-0.4580	0.956
65	0.3500	-0.4947	0.972
66	0.4000	-0.4773	0.965
67	0.4500	-0.4291	0.943
68	0.5000	-0.3955	0.928
69	0.5625	-0.3802	0.923

ORIFICE	X/C	CP	M(LOCAL)
70	0.6000	-0.4010	0.933
71	0.6500	-0.3539	0.912
72	0.7000	-0.1560	0.826
73	0.7250	-0.0389	0.777
74	0.7500	0.0503	0.739
75	0.7750	0.1241	0.708
76	0.8000	0.1713	0.687
77	0.8250	0.2101	0.671
78	0.8500	0.2357	0.660
79	0.9000	0.2506	0.653
80	0.9500	0.2572	0.650
TE LOWER	1.0000	0.2699	0.645

STATIC PRESSURES AT CEILING AND FLOOR

	CEILING		FLOOR	
X/C	CP	M	CP	M
-4.5000	0.005	0.758	0.006	0.758
-4.2000	0.016	0.754	0.012	0.756
-3.9000	-0.001	0.761	0.010	0.756
-3.6000	0.015	0.755	0.010	0.756
-3.3000	0.015	0.755	0.004	0.758
-3.0000	0.013	0.754	0.010	0.756
-2.7000	0.018	0.755	0.007	0.758
-2.4000	0.009	0.757	0.012	0.756
-2.1000	0.006	0.759	0.011	0.755
-1.8000	-0.002	0.760	0.013	0.756
-1.5000	0.004	0.759	0.011	0.755
-1.3500	0.004	0.759	0.001	0.760
-1.2000	0.003	0.759	0.012	0.755
-1.0500	0.007	0.760	0.012	0.756
-0.9000	-0.003	0.763	0.010	0.757
-0.7500	-0.006	0.763	0.011	0.755
-0.6500	-0.010	0.764	0.012	0.756
-0.5500	-0.012	0.764	0.012	0.755
-0.4500	-0.012	0.766	0.013	0.756
-0.3500	-0.019	0.768	0.005	0.757
-0.2500	-0.016	0.768	0.001	0.759
-0.1500	-0.019	0.769	0.002	0.759
-0.0500	-0.022	0.769	0.009	0.758
0.0500	-0.021	0.768	0.007	0.757
0.1500	-0.017	0.768	0.014	0.755
0.2500	-0.022	0.769	0.012	0.756
0.3500	-0.018	0.768	0.017	0.753
0.4500	-0.019	0.769	0.008	0.758
0.5500	-0.021	0.768	0.008	0.758
0.6500	-0.018	0.767	0.006	0.756
0.7500	-0.014	0.767	-0.011	0.765
0.9000	-0.009	0.765	0.002	0.758
1.0500	-0.014	0.765	0.008	0.757
1.2000	-0.012	0.766	0.012	0.756
1.3500	-0.011	0.765	0.011	0.758
1.5000	-0.008	0.763	0.011	0.757
1.8000	-0.009	0.764	0.013	0.755
2.1000	-0.007	0.763	0.011	0.757
2.4000	-0.004	0.762	0.014	0.757
2.7000	-0.007	0.764	0.002	0.760

TABLE 7.11

SURFACE PRESSURE MEASUREMENTS

RUN NUMBER =5001
SCAN NUMBER = 1
CONFIGURATION = DHCJJK
TEST MACH NUMBER= 0.756
REYNOLDS NUMBER = 0.2515E 08
INCIDENCE(NORTH)= 1.485
PO =109.99PSIA
Q = 30.14PSI
V/U (SIDEWALL) =0.0047
CN = 0.326
CX =-.00128
CMC4 =-0.0489
CL = 0.3259
CDP = 0.0072

ORIFICE	X/C	CP	M(LOCAL)
TE UPPER	1.0000	0.2599	0.646
51	0.9500	0.1890	0.677
50	0.9250	0.1325	0.702
49	0.9000	0.0667	0.729
47	0.8600	-0.0536	0.784
46	0.8400	-0.1191	0.812
45	0.8200	-0.1938	0.843
43	0.7800	-0.3375	0.905
42	0.7600	-0.3928	0.929
41	0.7400	-0.4526	0.955
40	0.7200	-0.4834	0.969
39	0.7000	-0.5010	0.979
38	0.6800	-0.4962	0.976
37	0.6600	-0.4909	0.973
36	0.6400	-0.4830	0.969
35	0.6200	-0.4892	0.972
34	0.6000	-0.5085	0.980
33	0.5800	-0.5513	0.998
32	0.5600	-0.5922	1.019
31	0.5400	-0.6283	1.035
30	0.5200	-0.6321	1.036
29	0.5000	-0.6486	1.044
28	0.4750	-0.6564	1.047
27	0.4500	-0.6465	1.042
26	0.4250	-0.6485	1.042
25	0.4000	-0.6183	1.028
24	0.3750	-0.6163	1.026
23	0.3500	-0.6039	1.021
22	0.3250	-0.5896	1.016
21	0.3000	-0.5833	1.014
19	0.2375	-0.5850	1.013
18	0.2250	-0.6606	1.048
17	0.2000	-0.7911	1.108
16	0.1800	-0.8164	1.120
15	0.1600	-0.8187	1.122
14	0.1400	-0.8179	1.122
13	0.1200	-0.7957	1.111
12	0.1000	-0.7555	1.093
11	0.0900	-0.6844	1.062
10	0.0800	-0.6569	1.049
9	0.0700	-0.6377	1.039
8	0.0600	-0.6875	1.061
7	0.0500	-0.8095	1.119
6	0.0400	-0.8630	1.144
5	0.0300	-0.8156	1.120
3	0.0100	0.4357	0.949
2	0.0050	0.0376	0.746
1	0.0000	1.1049	0.137
53	0.0050	0.8171	0.376
54	0.0100	0.5654	0.510
55	0.0200	0.2776	0.642
56	0.0300	0.0916	0.722
57	0.0400	-0.0116	0.766
58	0.0500	-0.0659	0.789
59	0.0750	-0.1377	0.820
62	0.2000	-0.3045	0.893
63	0.2500	-0.3457	0.911
64	0.3000	-0.3995	0.934
65	0.3500	-0.4412	0.951
66	0.4000	-0.4340	0.948
67	0.4500	-0.3948	0.931
68	0.5000	-0.3650	0.917
69	0.5625	-0.3457	0.903

ORIFICE	X/C	CP	M(LOCAL)
70	0.6000	-0.3723	0.915
71	0.6500	-0.3354	0.900
72	0.7000	-0.1500	0.821
73	0.7250	-0.0283	0.771
74	0.7500	0.0533	0.740
75	0.7750	0.1349	0.706
76	0.8000	0.1818	0.685
77	0.8250	0.2165	0.670
78	0.8500	0.2390	0.660
79	0.9000	0.2544	0.653
80	0.9500	0.2570	0.651
TE LOWER	1.0000	0.2599	0.646

STATIC PRESSURES AT CEILING AND FLOOR

	CEILING		FLOOR	
X/C	CP	M	CP	M
-4.5000	0.001	0.762	-0.001	0.758
-4.2000	0.014	0.756	0.011	0.753
-3.9000	-0.002	0.763	0.006	0.759
-3.6000	0.010	0.758	0.007	0.758
-3.3000	0.011	0.758	0.002	0.761
-3.0000	0.014	0.756	0.007	0.759
-2.7000	0.012	0.756	0.005	0.760
-2.4000	0.009	0.759	0.010	0.757
-2.1000	0.001	0.760	0.010	0.757
-1.8000	0.001	0.762	0.013	0.753
-1.5000	-0.002	0.764	0.010	0.758
-1.3500	-0.002	0.764	-0.006	0.764
-1.2000	-0.004	0.765	0.010	0.757
-1.0500	-0.002	0.762	0.015	0.757
-0.9000	-0.007	0.765	0.010	0.758
-0.7500	-0.012	0.766	0.017	0.755
-0.6500	-0.016	0.769	0.012	0.758
-0.5500	-0.012	0.768	0.010	0.755
-0.4500	-0.014	0.768	0.016	0.751
-0.3500	-0.020	0.771	0.011	0.756
-0.2500	-0.027	0.774	0.004	0.760
-0.1500	-0.029	0.774	0.011	0.758
-0.0500	-0.032	0.776	0.012	0.756
0.0500	-0.033	0.775	0.016	0.756
0.1500	-0.027	0.772	0.023	0.754
0.2500	-0.031	0.775	0.021	0.754
0.3500	-0.034	0.773	0.024	0.753
0.4500	-0.030	0.771	0.014	0.755
0.5500	-0.026	0.773	0.013	0.755
0.6500	-0.029	0.770	0.017	0.756
0.7500	-0.019	0.771	-0.014	0.768
0.9000	-0.011	0.763	0.014	0.757
1.0500	-0.016	0.767	0.017	0.756
1.2000	-0.011	0.768	0.018	0.755
1.3500	-0.012	0.767	0.015	0.755
1.5000	-0.007	0.765	0.015	0.756
1.8000	-0.009	0.765	0.018	0.754
2.1000	-0.005	0.764	0.013	0.756
2.4000	-0.004	0.764	0.014	0.756
2.7000	-0.004	0.759	0.003	0.762

TABLE 7.12

SURFACE PRESSURE MEASUREMENTS

RUN NUMBER =5001
SCAN NUMBER = 2
CONFIGURATION = DHCJJK
TEST MACH NUMBER= 0.757
REYNOLDS NUMBER = 0.2529E 08
INCIDENCE(NORTH)= 1.742
PO =109.93PSIA
Q = 30.17PSI
V/U (SIDEWALL) =0.0047
CN = 0.368
CX =-.00243
CMC4 =-0.0485
CL = 0.3678
CDP = 0.0087

ORIFICE	X/C	CP	M(LOCAL)
TE UPPER	1.0000	0.2533	0.652
51	0.9500	0.1764	0.685
50	0.9250	0.1294	0.706
49	0.9000	0.0718	0.730
47	0.8600	-0.0559	0.783
46	0.8400	-0.1246	0.814
45	0.8200	-0.1947	0.845
43	0.7800	-0.3360	0.907
42	0.7600	-0.3920	0.932
41	0.7400	-0.4496	0.957
40	0.7200	-0.4819	0.970
39	0.7000	-0.4989	0.977
38	0.6800	-0.4990	0.978
37	0.6600	-0.4949	0.975
36	0.6400	-0.4900	0.973
35	0.6200	-0.4929	0.976
34	0.6000	-0.5056	0.983
33	0.5800	-0.5524	1.004
32	0.5600	-0.5940	1.018
31	0.5400	-0.6250	1.033
30	0.5200	-0.6334	1.037
29	0.5000	-0.6800	1.059
28	0.4750	-0.6689	1.052
27	0.4500	-0.6815	1.058
26	0.4250	-0.6525	1.045
25	0.4000	-0.6295	1.035
24	0.3750	-0.6162	1.029
23	0.3500	-0.5981	1.021
22	0.3250	-0.5648	1.006
21	0.3000	-0.5571	1.003
19	0.2375	-0.8224	1.121
18	0.2250	-0.8316	1.127
17	0.2000	-0.8368	1.132
16	0.1800	-0.8402	1.135
15	0.1600	-0.8206	1.127
14	0.1400	-0.8080	1.121
13	0.1200	-0.7700	1.102
12	0.1000	-0.7619	1.098
11	0.0900	-0.7836	1.107
10	0.0800	-0.7801	1.106
9	0.0700	-0.8656	1.147
8	0.0600	-0.9053	1.166
7	0.0500	-0.9233	1.177
6	0.0400	-0.9187	1.177
5	0.0300	-0.8424	1.139
3	0.0100	-0.4982	0.976
2	0.0050	-0.0232	0.773
1	0.0000	1.1056	0.136
53	0.0050	0.8587	0.350
54	0.0100	0.6045	0.491
55	0.0200	0.3184	0.625
56	0.0300	0.1396	0.703
57	0.0400	0.0327	0.748
58	0.0500	-0.0247	0.773
59	0.0750	-0.0907	0.801
62	0.2000	-0.2715	0.879
63	0.2500	-0.3204	0.901
64	0.3000	-0.3723	0.924
65	0.3500	-0.4035	0.937
66	0.4000	-0.4114	0.939
67	0.4500	-0.3729	0.921
68	0.5000	-0.3421	0.907
69	0.5625	-0.3504	0.910

ORIFICE	X/C	CP	M(LOCAL)
70	0.6000	-0.3710	0.918
71	0.6500	-0.3332	0.903
72	0.7000	-0.1373	0.818
73	0.7250	-0.0256	0.770
74	0.7500	0.0599	0.738
75	0.7750	0.1402	0.704
76	0.8000	0.1904	0.683
77	0.8250	0.2235	0.668
78	0.8500	0.2442	0.658
79	0.9000	0.2574	0.651
80	0.9500	0.2644	0.648
TE LOWER	1.0000	0.2533	0.652

STATIC PRESSURES AT CEILING AND FLOOR

	CEILING		FLOOR	
X/C	CP	M	CP	M
-4.5000	0.003	0.761	0.003	0.759
-4.2000	0.014	0.756	0.003	0.760
-3.9000	0.003	0.763	0.007	0.761
-3.6000	0.010	0.758	0.002	0.759
-3.3000	0.011	0.758	0.005	0.762
-3.0000	0.019	0.755	0.009	0.761
-2.7000	0.015	0.756	0.009	0.759
-2.4000	0.012	0.759	0.010	0.759
-2.1000	0.004	0.760	0.010	0.758
-1.8000	0.003	0.761	0.012	0.756
-1.5000	-0.004	0.766	0.010	0.758
-1.3500	-0.003	0.764	-0.009	0.768
-1.2000	-0.004	0.765	0.019	0.757
-1.0500	-0.001	0.763	0.017	0.756
-0.9000	-0.005	0.764	0.015	0.756
-0.7500	-0.010	0.767	0.014	0.755
-0.6500	-0.012	0.767	0.017	0.756
-0.5500	-0.014	0.768	0.014	0.754
-0.4500	-0.019	0.770	0.009	0.757
-0.3500	-0.022	0.772	0.013	0.757
-0.2500	-0.028	0.775	0.015	0.755
-0.1500	-0.031	0.777	0.019	0.754
-0.0500	-0.037	0.779	0.020	0.754
0.0500	-0.035	0.778	0.028	0.751
0.1500	-0.035	0.774	0.029	0.751
0.2500	-0.036	0.776	0.024	0.751
0.3500	-0.033	0.774	0.033	0.750
0.4500	-0.030	0.774	0.024	0.752
0.5500	-0.027	0.775	0.023	0.753
0.6500	-0.022	0.769	0.023	0.752
0.7500	-0.019	0.771	-0.013	0.768
0.9000	-0.021	0.769	0.024	0.752
1.0500	-0.018	0.770	0.026	0.753
1.2000	-0.013	0.768	0.026	0.752
1.3500	-0.011	0.769	0.024	0.752
1.5000	-0.008	0.767	0.022	0.753
1.8000	-0.007	0.768	0.024	0.752
2.1000	-0.009	0.768	0.023	0.753
2.4000	-0.003	0.764	0.019	0.755
2.7000	-0.014	0.767	0.008	0.760

TABLE 7.13

SURFACE PRESSURE MEASUREMENTS

RUN NUMBER =5001
SCAN NUMBER = 3
CONFIGURATION = DHCJJK
TEST MACH NUMBER= 0.757
REYNOLDS NUMBER = 0.2537E 08
INCIDENCE(NORTH)= 2.011
PO =109.93PSIA
Q = 30.17PSI
V/U (SIDEWALL) =0.0047
CN = 0.403
CX =-.00442
CMC4 =-0.0476
CL = 0.4026
CDP = 0.0097

ORIFICE	X/C	CP	M(LOCAL)
TE UPPER	1.0000	0.2492	0.655
51	0.9500	0.1758	0.686
50	0.9250	0.1272	0.707
49	0.9000	0.0676	0.733
47	0.8600	-0.0499	0.783
46	0.8400	-0.1195	0.812
45	0.8200	-0.1916	0.843
43	0.7800	-0.3315	0.904
42	0.7600	-0.3938	0.931
41	0.7400	-0.4467	0.954
40	0.7200	-0.4834	0.971
39	0.7000	-0.4938	0.977
38	0.6800	-0.4992	0.979
37	0.6600	-0.4935	0.976
36	0.6400	-0.4825	0.972
35	0.6200	-0.4869	0.975
34	0.6000	-0.5059	0.982
33	0.5800	-0.5582	1.004
32	0.5600	-0.5915	1.017
31	0.5400	-0.6354	1.037
30	0.5200	-0.6495	1.044
29	0.5000	-0.6838	1.059
28	0.4750	-0.6843	1.058
27	0.4500	-0.6838	1.059
26	0.4250	-0.6580	1.048
25	0.4000	-0.6325	1.036
24	0.3750	-0.6039	1.022
23	0.3500	-0.5774	1.011
22	0.3250	-0.5253	0.990
21	0.3000	-0.5365	0.994
19	0.2375	-0.8696	1.147
18	0.2250	-0.8754	1.150
17	0.2000	-0.8920	1.159
16	0.1900	-0.8922	1.159
15	0.1600	-0.8723	1.149
14	0.1400	-0.8864	1.157
13	0.1200	-0.8990	1.163
12	0.1000	-0.8910	1.161
11	0.0900	-0.8791	1.156
10	0.0800	-0.9038	1.168
9	0.0700	-0.9336	1.182
8	0.0600	-0.9545	1.194
7	0.0500	-0.9736	1.206
6	0.0400	-0.9737	1.204
5	0.0300	-0.8917	1.161
3	0.0100	-0.5721	1.009
2	0.0050	-0.0641	0.789
1	0.0000	1.0892	0.158
53	0.0050	0.6846	0.333
54	0.0100	0.6540	0.466
55	0.0200	0.3609	0.606
56	0.0300	0.1768	0.686
57	0.0400	0.0699	0.732
58	0.0500	0.0122	0.757
59	0.0750	-0.0563	0.787
62	0.2000	-0.2410	0.864
63	0.2500	-0.2914	0.886
64	0.3000	-0.3428	0.909
65	0.3500	-0.3645	0.927
66	0.4000	-0.3657	0.928
67	0.4500	-0.3477	0.911
68	0.5000	-0.3259	0.901
69	0.5625	-0.3295	0.902

ORIFICE	X/C	CP	M(LOCAL)
70	0.6000	-0.3615	0.915
71	0.6500	-0.3248	0.900
72	0.7000	-0.1353	0.819
73	0.7250	-0.0200	0.770
74	0.7500	0.0639	0.735
75	0.7750	0.1459	0.700
76	0.8000	0.1972	0.678
77	0.8250	0.2278	0.665
78	0.8500	0.2509	0.655
79	0.9000	0.2667	0.648
80	0.9500	0.2684	0.647
TE LOWER	1.0000	0.2492	0.655

STATIC PRESSURES AT CEILING AND FLOOR

	CEILING		FLOOR	
X/C	CP	M	CP	M
-4.5000	0.008	0.758	-0.001	0.762
-4.2000	0.021	0.754	0.006	0.759
-3.9000	-0.000	0.763	0.005	0.760
-3.6000	0.015	0.756	0.007	0.759
-3.3000	0.016	0.756	0.009	0.761
-3.0000	0.018	0.754	0.011	0.760
-2.7000	0.015	0.756	0.011	0.759
-2.4000	0.014	0.757	0.010	0.758
-2.1000	0.001	0.761	0.010	0.758
-1.8000	0.001	0.762	0.008	0.758
-1.5000	-0.001	0.763	0.018	0.756
-1.3500	0.001	0.762	-0.009	0.766
-1.2000	0.000	0.762	0.016	0.756
-1.0500	0.002	0.763	0.022	0.755
-0.9000	-0.002	0.763	0.018	0.756
-0.7500	-0.011	0.767	0.019	0.753
-0.6500	-0.009	0.766	0.019	0.756
-0.5500	-0.014	0.768	0.020	0.753
-0.4500	-0.020	0.770	0.013	0.756
-0.3500	-0.025	0.772	0.019	0.754
-0.2500	-0.030	0.777	0.024	0.752
-0.1500	-0.036	0.778	0.023	0.752
-0.0500	-0.034	0.779	0.029	0.749
0.0500	-0.040	0.779	0.032	0.749
0.1500	-0.032	0.775	0.036	0.747
0.2500	-0.036	0.777	0.030	0.748
0.3500	-0.033	0.776	0.038	0.747
0.4500	-0.038	0.778	0.026	0.750
0.5500	-0.024	0.775	0.028	0.750
0.6500	-0.028	0.774	0.030	0.749
0.7500	-0.024	0.774	-0.005	0.764
0.9000	-0.023	0.771	0.027	0.750
1.0500	-0.019	0.770	0.032	0.749
1.2000	-0.012	0.769	0.034	0.749
1.3500	-0.014	0.770	0.027	0.751
1.5000	-0.013	0.768	0.030	0.750
1.8000	-0.014	0.769	0.035	0.748
2.1000	-0.010	0.767	0.030	0.749
2.4000	-0.004	0.765	0.027	0.752
2.7000	-0.013	0.767	0.014	0.756

TABLE 7.14

SURFACE PRESSURE MEASUREMENTS

RUN NUMBER =4937
SCAN NUMBER = 3
CONFIGURATION = DHCJJK
TEST MACH NUMBER= 0.754
REYNOLDS NUMBER = 0.2537E 08
INCIDENCE(NORTH)= 2.513
PO =109.90PSIA
Q = 29.98PSI
V/U (SIDEWALL) =0.0036
CN = 0.461
CX =-.00889
CMC4 =-0.0438
CL = 0.4614
CDP = 0.0114

ORIFICE	X/C	CP	M(LOCAL)
TE UPPER	1.0000	0.2601	0.647
51	0.9500	0.1868	0.680
50	0.9250	0.1388	0.701
49	0.9000	0.0747	0.728
47	0.8600	-0.0569	0.782
46	0.8400	-0.1207	0.810
45	0.8200	-0.1886	0.839
43	0.7800	-0.3263	0.898
42	0.7600	-0.3825	0.923
41	0.7400	-0.4354	0.946
40	0.7200	-0.4736	0.961
39	0.7000	-0.4917	0.968
38	0.6800	-0.4890	0.967
37	0.6600	-0.4868	0.965
36	0.6400	-0.4829	0.963
35	0.6200	-0.4909	0.967
34	0.6000	-0.5038	0.973
33	0.5800	-0.5444	0.991
32	0.5600	-0.5886	1.009
31	0.5400	-0.6214	1.023
30	0.5200	-0.6431	1.033
29	0.5000	-0.6577	1.042
28	0.4750	-0.6630	1.045
27	0.4500	-0.6497	1.039
26	0.4250	-0.6156	1.024
25	0.4000	-0.5841	1.009
24	0.3750	-0.5334	0.988
23	0.3500	-0.5096	0.978
22	0.3250	-0.4955	0.972
21	0.3000	-0.7647	1.092
19	0.2375	-0.9723	1.191
18	0.2250	-0.9729	1.193
17	0.2000	-0.9809	1.198
16	0.1800	-0.9862	1.201
15	0.1600	-0.9889	1.203
14	0.1400	-0.9985	1.209
13	0.1200	-1.0029	1.210
12	0.1000	-1.0170	1.216
11	0.0900	-1.0042	1.208
10	0.0800	-1.0257	1.219
9	0.0700	-1.0369	1.224
8	0.0600	-1.0688	1.240
7	0.0500	-1.0663	1.239
6	0.0400	-1.0806	1.248
5	0.0300	-0.9941	1.203
3	0.0100	-0.6946	1.056
2	0.0050	-0.1984	0.841
1	0.0000	1.0614	0.189
53	0.0050	0.9264	0.303
54	0.0100	0.6971	0.442
55	0.0200	0.4133	0.579
56	0.0300	0.2365	0.658
57	0.0400	0.1401	0.700
58	0.0500	0.0931	0.721
59	0.0750	0.0043	0.758
62	0.2000	-0.1895	0.840
63	0.2500	-0.2465	0.864
64	0.3000	-0.3026	0.887
65	0.3500	-0.3415	0.904
66	0.4000	-0.3457	0.905
67	0.4500	-0.3188	0.893
68	0.5000	-0.3034	0.887
69	0.5625	-0.3096	0.889

ORIFICE	X/C	CP	M(LOCAL)
70	0.6000	-0.3323	0.900
71	0.6500	-0.2936	0.885
72	0.7000	-0.1212	0.811
73	0.7250	-0.0167	0.765
74	0.7500	0.0777	0.727
75	0.7750	0.1515	0.695
76	0.8000	0.1957	0.676
77	0.8250	0.2294	0.661
78	0.8500	0.2535	0.650
79	0.9000	0.2631	0.646
80	0.9500	0.2675	0.644
TE LOWER	1.0000	0.2601	0.647

STATIC PRESSURES AT CEILING AND FLOOR

	CEILING		FLOOR	
X/C	CP	M	CP	M
-4.5000	0.008	0.756	0.010	0.756
-4.2000	0.020	0.750	0.008	0.755
-3.9000	0.000	0.759	0.015	0.754
-3.6000	0.018	0.751	0.006	0.756
-3.3000	0.014	0.753	0.011	0.754
-3.0000	0.018	0.749	0.018	0.751
-2.7000	0.024	0.750	0.016	0.752
-2.4000	0.014	0.753	0.021	0.751
-2.1000	0.013	0.754	0.024	0.749
-1.8000	0.004	0.755	0.028	0.748
-1.5000	0.004	0.758	0.026	0.747
-1.3500	0.002	0.758	0.014	0.754
-1.2000	0.003	0.759	0.032	0.745
-1.0500	0.001	0.759	0.031	0.746
-0.9000	-0.006	0.761	0.033	0.744
-0.7500	-0.008	0.762	0.028	0.747
-0.6500	-0.013	0.764	0.031	0.745
-0.5500	-0.011	0.762	0.028	0.747
-0.4500	-0.016	0.766	0.031	0.746
-0.3500	-0.024	0.768	0.031	0.746
-0.2500	-0.024	0.769	0.032	0.745
-0.1500	-0.030	0.773	0.035	0.744
-0.0500	-0.033	0.772	0.040	0.742
0.0500	-0.031	0.773	0.039	0.741
0.1500	-0.036	0.774	0.046	0.740
0.2500	-0.036	0.774	0.043	0.741
0.3500	-0.034	0.773	0.044	0.741
0.4500	-0.023	0.770	0.043	0.741
0.5500	-0.025	0.769	0.040	0.742
0.6500	-0.021	0.769	0.042	0.740
0.7500	-0.019	0.766	-0.006	0.762
0.9000	-0.016	0.766	0.036	0.742
1.0500	-0.016	0.766	0.037	0.743
1.2000	-0.014	0.765	0.038	0.743
1.3500	-0.011	0.763	0.041	0.743
1.5000	-0.005	0.762	0.032	0.745
1.8000	-0.007	0.762	0.037	0.743
2.1000	-0.006	0.763	0.032	0.745
2.4000	-0.003	0.761	0.030	0.747
2.7000	-0.016	0.765	0.021	0.751

TABLE 7-15

SURFACE PRESSURE MEASUREMENTS

RUN NUMBER =4938
SCAN NUMBER = 1
CONFIGURATION = DHCJJK
TEST MACH NUMBER= 0.751
REYNOLDS NUMBER = 0.2514E 08
INCIDENCE(NORTH)= 3.034
PO =109.96PSIA
Q = 29.87PSI
V/U (SIDEWALL) =0.0036
CN = 0.534
CX =-.01398
CMC4 =-0.0394
CL = 0.5342
CDP = 0.0143

ORIFICE	X/C	CP	M(LOCAL)
TE UPPER	1.0000	0.2790	0.636
51	0.9500	0.1936	0.672
50	0.9250	0.1382	0.697
49	0.9000	0.0712	0.726
47	0.8600	-0.0454	0.778
46	0.8400	-0.1118	0.806
45	0.8200	-0.1855	0.835
43	0.7800	-0.3211	0.892
42	0.7600	-0.3739	0.914
41	0.7400	-0.4256	0.935
40	0.7200	-0.4648	0.951
39	0.7000	-0.4722	0.956
38	0.6800	-0.4763	0.958
37	0.6600	-0.4735	0.956
36	0.6400	-0.4716	0.955
35	0.6200	-0.4806	0.960
34	0.6000	-0.4928	0.965
33	0.5800	-0.5349	0.982
32	0.5600	-0.5642	0.995
31	0.5400	-0.5800	1.004
30	0.5200	-0.5821	1.006
29	0.5000	-0.5873	1.007
28	0.4750	-0.5877	1.006
27	0.4500	-0.5302	0.981
26	0.4250	-0.5260	0.980
25	0.4000	-0.4724	0.957
24	0.3750	-0.4949	0.966
23	0.3500	-0.6796	1.047
22	0.3250	-1.0317	1.216
21	0.3000	-1.0589	1.231
19	0.2375	-1.0787	1.248
18	0.2250	-1.0922	1.254
17	0.2000	-1.1127	1.261
16	0.1800	-1.1221	1.264
15	0.1600	-1.1296	1.269
14	0.1400	-1.1360	1.271
13	0.1200	-1.1410	1.272
12	0.1000	-1.1481	1.275
11	0.0900	-1.1235	1.264
10	0.0800	-1.1390	1.273
9	0.0700	-1.1462	1.276
8	0.0600	-1.1597	1.283
7	0.0500	-1.1665	1.288
6	0.0400	-1.1628	1.286
5	0.0300	-1.0446	1.221
3	0.0100	-0.8470	1.127
2	0.0050	-0.3354	0.899
1	0.0000	1.0236	0.225
53	0.0050	0.9791	0.262
54	0.0100	0.7648	0.403
55	0.0200	0.4951	0.540
56	0.0300	0.3123	0.623
57	0.0400	0.2225	0.661
58	0.0500	0.1529	0.691
59	0.0750	0.0746	0.724
62	0.2000	-0.1430	0.816
63	0.2500	-0.2003	0.841
64	0.3000	-0.2543	0.864
65	0.3500	-0.2992	0.883
66	0.4000	-0.3140	0.890
67	0.4500	-0.2862	0.879
68	0.5000	-0.2769	0.875
69	0.5625	-0.2743	0.869
70	0.6000	-0.3083	0.884
71	0.6500	-0.2823	0.874
72	0.7000	-0.1108	0.803
73	0.7250	-0.0033	0.759
74	0.7500	0.0854	0.720
75	0.7750	0.1597	0.689
76	0.8000	0.2074	0.669
77	0.8250	0.2371	0.656
78	0.8500	0.2583	0.647
79	0.9000	0.2706	0.642
80	0.9500	0.2724	0.641
TE LOWER	1.0000	0.2790	0.636

STATIC PRESSURES AT CEILING AND FLOOR

	CEILING		FLOOR	
X/C	CP	M	CP	M
-4.5000	0.014	0.751	0.008	0.753
-4.2000	0.019	0.750	0.020	0.746
-3.9000	-0.001	0.757	0.017	0.750
-3.6000	0.019	0.748	0.019	0.751
-3.3000	0.020	0.748	0.012	0.751
-3.0000	0.023	0.747	0.018	0.749
-2.7000	0.017	0.748	0.019	0.747
-2.4000	0.017	0.750	0.022	0.746
-2.1000	0.009	0.752	0.026	0.745
-1.8000	0.006	0.754	0.031	0.742
-1.5000	0.003	0.756	0.030	0.743
-1.3500	-0.002	0.758	0.014	0.750
-1.2000	-0.003	0.758	0.032	0.742
-1.0500	-0.002	0.757	0.042	0.738
-0.9000	-0.004	0.758	0.039	0.739
-0.7500	-0.008	0.760	0.042	0.741
-0.6500	-0.015	0.764	0.042	0.738
-0.5500	-0.018	0.763	0.039	0.741
-0.4500	-0.020	0.764	0.042	0.736
-0.3500	-0.026	0.768	0.039	0.740
-0.2500	-0.029	0.768	0.039	0.742
-0.1500	-0.035	0.770	0.042	0.739
-0.0500	-0.039	0.772	0.047	0.736
0.0500	-0.037	0.772	0.051	0.736
0.1500	-0.030	0.772	0.053	0.734
0.2500	-0.034	0.773	0.050	0.735
0.3500	-0.034	0.772	0.053	0.735
0.4500	-0.031	0.768	0.047	0.736
0.5500	-0.028	0.768	0.048	0.736
0.6500	-0.027	0.768	0.043	0.737
0.7500	-0.019	0.764	-0.004	0.758
0.9000	-0.015	0.761	0.045	0.738
1.0500	-0.017	0.764	0.047	0.737
1.2000	-0.010	0.760	0.043	0.739
1.3500	-0.013	0.762	0.040	0.738
1.5000	-0.006	0.759	0.043	0.738
1.8000	-0.012	0.760	0.041	0.741
2.1000	-0.006	0.758	0.039	0.740
2.4000	-0.003	0.756	0.031	0.743
2.7000	-0.006	0.757	0.019	0.748

TABLE 7.16

SURFACE PRESSURE MEASUREMENTS

RUN NUMBER =4938
SCAN NUMBER = 2
CONFIGURATION = DHCJJK
TEST MACH NUMBER= 0.752
REYNOLDS NUMBER = 0.2530E 08
INCIDENCE(NORTH)= 4.057
PO =109.93PSIA
Q = 29.91PSI
V/U (SIDEWALL) =0.0036
CN = 0.659
CX =-.01832
CMC4 =-0.0410
CL = 0.6582
CDP = 0.0283

ORIFICE	X/C	CP	M(LOCAL)
TE UPPER	1.0000	0.2791	0.638
51	0.9500	0.1821	0.681
50	0.9250	0.1262	0.705
49	0.9000	0.0617	0.731
47	0.8600	-0.0579	0.781
46	0.8400	-0.1248	0.809
45	0.8200	-0.1877	0.836
43	0.7800	-0.3124	0.889
42	0.7600	-0.3618	0.909
41	0.7400	-0.4023	0.927
40	0.7200	-0.4237	0.937
39	0.7000	-0.4348	0.941
38	0.6800	-0.4328	0.940
37	0.6600	-0.4199	0.934
36	0.6400	-0.4139	0.932
35	0.6200	-0.4145	0.932
34	0.6000	-0.4153	0.932
33	0.5800	-0.4339	0.940
32	0.5600	-0.4202	0.935
31	0.5400	-0.4238	0.937
30	0.5200	-0.4135	0.934
29	0.5000	-0.4199	0.937
28	0.4750	-0.4458	0.947
27	0.4500	-0.6070	1.018
26	0.4250	-1.0416	1.225
25	0.4000	-1.2044	1.313
24	0.3750	-1.2050	1.314
23	0.3500	-1.2032	1.313
22	0.3250	-1.2076	1.315
21	0.3000	-1.2154	1.318
19	0.2375	-1.2224	1.321
18	0.2250	-1.2371	1.328
17	0.2000	-1.2330	1.327
16	0.1800	-1.2464	1.335
15	0.1600	-1.2462	1.335
14	0.1400	-1.2547	1.339
13	0.1200	-1.2436	1.333
12	0.1000	-1.2462	1.336
11	0.0900	-1.2245	1.323
10	0.0800	-1.2424	1.332
9	0.0700	-1.2231	1.321
8	0.0600	-1.2312	1.326
7	0.0500	-1.2361	1.329
6	0.0400	-1.2367	1.328
5	0.0300	-1.1560	1.283
3	0.0100	-0.9520	1.179
2	0.0050	-0.4209	0.937
1	0.0000	0.9654	0.274
53	0.0050	1.0302	0.220
54	0.0100	0.8469	0.355
55	0.0200	0.5977	0.491
56	0.0300	0.4261	0.573
57	0.0400	0.3237	0.619
58	0.0500	0.2541	0.650
59	0.0750	0.1685	0.686
62	0.2000	-0.0675	0.786
63	0.2500	-0.1345	0.814
64	0.3000	-0.1855	0.836
65	0.3500	-0.2296	0.855
66	0.4000	-0.2511	0.863
67	0.4500	-0.2285	0.853
68	0.5000	-0.2323	0.854
69	0.5625	-0.2509	0.863

ORIFICE	X/C	CP	M(LOCAL)
70	0.6000	-0.2806	0.877
71	0.6500	-0.2674	0.871
72	0.7000	-0.1047	0.801
73	0.7250	0.0000	0.757
74	0.7500	0.0936	0.718
75	0.7750	0.1660	0.687
76	0.8000	0.2179	0.665
77	0.8250	0.2493	0.651
78	0.8500	0.2722	0.641
79	0.9000	0.2825	0.636
80	0.9500	0.2795	0.637
TE LOWER	1.0000	0.2791	0.638

STATIC PRESSURES AT CEILING AND FLOOR

	CEILING		FLOOR	
X/C	CP	M	CP	M
-4.5000	0.012	0.752	0.010	0.753
-4.2000	0.022	0.747	0.015	0.751
-3.9000	-0.003	0.759	0.015	0.751
-3.6000	0.020	0.749	0.013	0.752
-3.3000	0.018	0.750	0.014	0.751
-3.0000	0.021	0.749	0.015	0.750
-2.7000	0.022	0.749	0.022	0.748
-2.4000	0.018	0.750	0.025	0.746
-2.1000	0.012	0.753	0.032	0.744
-1.8000	-0.002	0.758	0.036	0.743
-1.5000	0.000	0.758	0.041	0.740
-1.3500	0.004	0.756	0.013	0.751
-1.2000	-0.003	0.759	0.038	0.740
-1.0500	-0.006	0.761	0.048	0.737
-0.9000	-0.009	0.761	0.049	0.736
-0.7500	-0.012	0.763	0.045	0.738
-0.6500	-0.017	0.763	0.048	0.736
-0.5500	-0.026	0.768	0.048	0.737
-0.4500	-0.024	0.768	0.050	0.737
-0.3500	-0.032	0.772	0.050	0.736
-0.2500	-0.036	0.772	0.055	0.733
-0.1500	-0.045	0.776	0.057	0.734
-0.0500	-0.044	0.776	0.061	0.732
0.0500	-0.047	0.777	0.060	0.733
0.1500	-0.044	0.775	0.066	0.730
0.2500	-0.047	0.777	0.064	0.731
0.3500	-0.041	0.774	0.070	0.728
0.4500	-0.037	0.773	0.063	0.732
0.5500	-0.036	0.772	0.060	0.732
0.6500	-0.030	0.770	0.053	0.735
0.7500	-0.028	0.769	-0.003	0.759
0.9000	-0.021	0.767	0.051	0.736
1.0500	-0.020	0.766	0.058	0.733
1.2000	-0.019	0.765	0.061	0.732
1.3500	-0.024	0.767	0.053	0.736
1.5000	-0.014	0.763	0.050	0.736
1.8000	-0.022	0.765	0.054	0.734
2.1000	-0.014	0.763	0.046	0.738
2.4000	-0.007	0.760	0.037	0.742
2.7000	-0.015	0.764	0.026	0.746

TABLE 7.17

SURFACE PRESSURE MEASUREMENTS

RUN NUMBER	=4999
SCAN NUMBER	= 1
CONFIGURATION	= DHCJJK
TEST MACH NUMBER	= 0.806
REYNOLDS NUMBER	= 0.2487E 08
INCIDENCE(NORTH)	= 1.465
PO	=105.03PSIA
Q	= 31.14PSI
V/U (SIDEWALL)	=0.0044
CN	= 0.338
CX	=0.00366
CMC4	=-0.0572
CL	= 0.3379
CDP	= 0.0123

ORIFICE	X/C	CP	M(LOCAL)
TE UPPER	1.0000	0.2493	0.695
51	0.9500	0.1932	0.720
50	0.9250	0.1501	0.740
49	0.9000	0.0984	0.763
47	0.8600	0.0042	0.807
46	0.8400	-0.0483	0.831
45	0.8200	-0.1143	0.861
43	0.7800	-0.2173	0.908
42	0.7600	-0.2663	0.932
41	0.7400	-0.3017	0.950
40	0.7200	-0.3320	0.965
39	0.7000	-0.4001	0.998
38	0.6800	-0.5439	1.069
37	0.6600	-0.8401	1.224
36	0.6400	-0.8668	1.238
35	0.6200	-0.8685	1.242
34	0.6000	-0.8742	1.246
33	0.5800	-0.8750	1.245
32	0.5600	-0.8466	1.231
31	0.5400	-0.8348	1.226
30	0.5200	-0.8018	1.209
29	0.5000	-0.7943	1.204
28	0.4750	-0.7916	1.201
27	0.4500	-0.8045	1.207
26	0.4250	-0.7915	1.201
25	0.4000	-0.7782	1.196
24	0.3750	-0.7683	1.192
23	0.3500	-0.7495	1.184
22	0.3250	-0.7475	1.184
21	0.3000	-0.7489	1.184
19	0.2375	-0.7627	1.178
18	0.2250	-0.7613	1.178
17	0.2000	-0.7521	1.173
16	0.1800	-0.7389	1.165
15	0.1600	-0.7157	1.153
14	0.1400	-0.6928	1.142
13	0.1200	-0.6606	1.126
12	0.1000	-0.6491	1.121
11	0.0900	-0.6360	1.116
10	0.0800	-0.6236	1.109
9	0.0700	-0.6380	1.116
8	0.0600	-0.6627	1.128
7	0.0500	-0.6948	1.146
6	0.0400	-0.6913	1.146
5	0.0300	-0.6437	1.119
3	0.0100	-0.2571	0.933
2	0.0050	0.1721	0.735
1	0.0000	1.1411	0.119
53	0.0050	0.8202	0.404
54	0.0100	0.5649	0.545
55	0.0200	0.2769	0.685
56	0.0300	0.0950	0.770
57	0.0400	-0.0042	0.817
58	0.0500	-0.0676	0.847
59	0.0750	-0.1384	0.881
62	0.2000	-0.3295	0.968
63	0.2500	-0.3880	0.995
64	0.3000	-0.4554	1.026
65	0.3500	-0.5487	1.072
66	0.4000	-0.6185	1.107
67	0.4500	-0.6223	1.110
68	0.5000	-0.3796	0.990
69	0.5625	-0.3980	0.994

ORIFICE	X/C	CP	M(LOCAL)
70	0.6000	-0.4404	1.014
71	0.6500	-0.3682	0.979
72	0.7000	-0.1419	0.873
73	0.7250	-0.0249	0.820
74	0.7500	0.0581	0.787
75	0.7750	0.1370	0.750
76	0.8000	0.1854	0.727
77	0.8250	0.2210	0.710
78	0.8500	0.2469	0.698
79	0.9000	0.2635	0.691
80	0.9500	0.2694	0.688
TE LOWER	1.0000	0.2493	0.695

STATIC PRESSURES AT CEILING AND FLOOR

	CEILING		FLOOR	
X/C	CP	M	CP	M
-4.5000	0.007	0.812	0.002	0.807
-4.2000	0.020	0.803	0.008	0.805
-3.9000	-0.001	0.812	0.006	0.806
-3.6000	0.013	0.806	0.006	0.806
-3.3000	0.018	0.808	0.007	0.808
-3.0000	0.021	0.804	0.012	0.806
-2.7000	0.020	0.807	0.008	0.807
-2.4000	0.016	0.805	0.014	0.803
-2.1000	0.010	0.810	0.016	0.801
-1.8000	0.004	0.811	0.015	0.802
-1.5000	0.005	0.811	0.016	0.803
-1.3500	0.004	0.810	-0.005	0.812
-1.2000	0.005	0.812	0.019	0.802
-1.0500	0.006	0.814	0.020	0.802
-0.9000	0.000	0.813	0.017	0.803
-0.7500	-0.004	0.816	0.018	0.801
-0.6500	-0.004	0.814	0.017	0.804
-0.5500	-0.014	0.819	0.014	0.802
-0.4500	-0.018	0.821	0.015	0.802
-0.3500	-0.023	0.824	0.013	0.803
-0.2500	-0.030	0.824	0.015	0.806
-0.1500	-0.034	0.826	0.014	0.807
-0.0500	-0.039	0.828	0.014	0.806
0.0500	-0.040	0.827	0.020	0.805
0.1500	-0.038	0.826	0.026	0.801
0.2500	-0.041	0.828	0.020	0.803
0.3500	-0.041	0.827	0.024	0.801
0.4500	-0.038	0.826	0.015	0.808
0.5500	-0.032	0.826	0.016	0.807
0.6500	-0.031	0.822	0.014	0.806
0.7500	-0.025	0.823	-0.007	0.818
0.9000	-0.018	0.817	0.016	0.806
1.0500	-0.018	0.817	0.020	0.803
1.2000	-0.015	0.818	0.020	0.802
1.3500	-0.014	0.818	0.018	0.808
1.5000	-0.012	0.814	0.020	0.807
1.8000	-0.010	0.816	0.024	0.801
2.1000	-0.007	0.813	0.020	0.803
2.4000	-0.006	0.814	0.019	0.808
2.7000	-0.010	0.813	0.009	0.810

TABLE 7.18

SURFACE PRESSURE MEASUREMENTS

RUN NUMBER =4951
SCAN NUMBER = 3
CONFIGURATION = DHCJJK
TEST MACH NUMBER= 0.841
REYNOLDS NUMBER = 0.2519E 08
INCIDENCE(NORTH)= 1.001
PO =102.99PSIA
Q = 32.09PSI
V/U (SIDEWALL) =0.0033
CN = 0.113
CX =0.02548
CMC4 =-0.0043
CL = 0.1130
CDP = 0.0275

ORIFICE	X/C	CP	M(LOCAL)
TE UPPER	1.0000	0.1296	0.783
51	0.9500	0.0849	0.806
50	0.9250	0.0526	0.821
49	0.9000	0.0438	0.824
47	0.8600	0.0013	0.846
46	0.8400	-0.0226	0.858
45	0.8200	-0.0479	0.869
43	0.7800	-0.1161	0.903
42	0.7600	-0.1574	0.923
41	0.7400	-0.2177	0.952
40	0.7200	-0.3825	1.035
39	0.7000	-0.6685	1.191
38	0.6800	-0.8137	1.278
37	0.6600	-0.7912	1.265
36	0.6400	-0.7895	1.263
35	0.6200	-0.7902	1.261
34	0.6000	-0.7777	1.254
33	0.5800	-0.7729	1.254
32	0.5600	-0.7504	1.237
31	0.5400	-0.7336	1.228
30	0.5200	-0.7062	1.212
29	0.5000	-0.7001	1.208
28	0.4750	-0.6744	1.194
27	0.4500	-0.6554	1.185
26	0.4250	-0.6669	1.192
25	0.4000	-0.6539	1.185
24	0.3750	-0.6505	1.182
23	0.3500	-0.6387	1.177
22	0.3250	-0.6322	1.174
21	0.3000	-0.6313	1.174
19	0.2375	-0.6181	1.164
18	0.2250	-0.6145	1.161
17	0.2000	-0.6025	1.154
16	0.1800	-0.5999	1.152
15	0.1600	-0.5815	1.142
14	0.1400	-0.5623	1.132
13	0.1200	-0.5301	1.113
12	0.1000	-0.4886	1.091
11	0.0900	-0.4253	1.058
10	0.0800	-0.4032	1.047
9	0.0700	-0.3813	1.036
8	0.0600	-0.4151	1.053
7	0.0500	-0.4243	1.056
6	0.0400	-0.4527	1.071
5	0.0300	-0.4159	1.054
3	0.0100	-0.0461	0.868
2	0.0050	0.3286	0.687
1	0.0000	1.1786	0.068
53	0.0050	0.7499	0.466
54	0.0100	0.4921	0.606
55	0.0200	0.1914	0.755
56	0.0300	0.0285	0.834
57	0.0400	-0.0742	0.883
58	0.0500	-0.1391	0.916
59	0.0750	-0.1981	0.945
62	0.2000	-0.3879	1.043
63	0.2500	-0.4238	1.062
64	0.3000	-0.4959	1.101
65	0.3500	-0.5811	1.148
66	0.4000	-0.6567	1.190
67	0.4500	-0.7090	1.221
68	0.5000	-0.7348	1.236
69	0.5625	-0.7658	1.249

ORIFICE	X/C	CP	M(LOCAL)
70	0.6000	-0.8194	1.283
71	0.6500	-0.3631	1.025
72	0.7000	-0.2127	0.949
73	0.7250	-0.1999	0.943
74	0.7500	-0.1863	0.941
75	0.7750	-0.1861	0.941
76	0.8000	-0.1502	0.924
77	0.8250	-0.1498	0.923
78	0.8500	-0.0926	0.895
79	0.9000	0.0213	0.840
80	0.9500	0.1164	0.793
TE LOWER	1.0000	0.1296	0.783

STATIC PRESSURES AT CEILING AND FLOOR

	CEILING		FLOOR	
X/C	CP	M	CP	M
-4.5000	0.014	0.842	0.007	0.842
-4.2000	0.028	0.836	0.017	0.838
-3.9000	0.006	0.847	0.020	0.837
-3.6000	0.028	0.834	0.015	0.840
-3.3000	0.028	0.835	0.013	0.839
-3.0000	0.024	0.829	0.019	0.836
-2.7000	0.034	0.832	0.022	0.835
-2.4000	0.031	0.835	0.026	0.833
-2.1000	0.026	0.834	0.024	0.834
-1.8000	0.021	0.836	0.019	0.837
-1.5000	0.023	0.838	0.027	0.833
-1.3500	0.029	0.836	0.007	0.843
-1.2000	0.022	0.839	0.031	0.831
-1.0500	0.025	0.836	0.024	0.835
-0.9000	0.023	0.836	0.024	0.835
-0.7500	0.020	0.838	0.018	0.838
-0.6500	0.016	0.842	0.017	0.838
-0.5500	0.007	0.842	0.011	0.841
-0.4500	0.005	0.844	0.010	0.842
-0.3500	-0.001	0.846	0.004	0.844
-0.2500	-0.002	0.848	0.002	0.849
-0.1500	-0.010	0.850	0.000	0.845
-0.0500	-0.012	0.852	0.002	0.846
0.0500	-0.021	0.856	0.005	0.843
0.1500	-0.020	0.857	0.004	0.848
0.2500	-0.026	0.859	0.002	0.845
0.3500	-0.027	0.859	0.001	0.849
0.4500	-0.028	0.859	-0.006	0.850
0.5500	-0.024	0.857	-0.002	0.848
0.6500	-0.025	0.857	-0.004	0.847
0.7500	-0.015	0.854	-0.013	0.855
0.9000	-0.013	0.853	-0.007	0.849
1.0500	-0.013	0.852	-0.009	0.854
1.2000	-0.008	0.850	-0.007	0.853
1.3500	-0.010	0.850	-0.004	0.850
1.5000	-0.002	0.847	-0.007	0.852
1.8000	0.004	0.845	-0.002	0.851
2.1000	0.004	0.844	0.004	0.846
2.4000	-0.001	0.846	0.002	0.848
2.7000	-0.005	0.848	-0.004	0.852

TABLE 7.19

SURFACE PRESSURE MEASUREMENTS

RUN NUMBER =4982
SCAN NUMBER = 1
CONFIGURATION = DHCJJK
TEST MACH NUMBER= 0.756
REYNOLDS NUMBER = 0.2969E 08
INCIDENCE(NORTH)= 2.013
PO =129.80PSIA
Q = 35.57PSI
V/U (SIDEWALL) =0.0036
CN = 0.400
CX =-.00401
CMC4 =-0.0478
CL = 0.3995
CDP = 0.0100

ORIFICE	X/C	CP	M(LOCAL)
TE UPPER	1.0000	0.2557	0.651
51	0.9500	0.1741	0.686
50	0.9250	0.1252	0.708
49	0.9000	0.0675	0.733
47	0.8600	-0.0660	0.787
46	0.8400	-0.1302	0.814
45	0.8200	-0.1983	0.844
43	0.7800	-0.3426	0.906
42	0.7600	-0.4015	0.931
41	0.7400	-0.4549	0.954
40	0.7200	-0.4864	0.968
39	0.7000	-0.5073	0.977
38	0.6800	-0.5034	0.975
37	0.6600	-0.4979	0.974
36	0.6400	-0.4858	0.969
35	0.6200	-0.4947	0.974
34	0.6000	-0.5156	0.983
33	0.5800	-0.5561	1.001
32	0.5600	-0.6017	1.020
31	0.5400	-0.6315	1.035
30	0.5200	-0.6458	1.044
29	0.5000	-0.7019	1.071
28	0.4750	-0.7020	1.071
27	0.4500	-0.6759	1.060
26	0.4250	-0.6663	1.054
25	0.4000	-0.6376	1.039
24	0.3750	-0.6117	1.028
23	0.3500	-0.5932	1.019
22	0.3250	-0.5621	1.005
21	0.3000	-0.5337	0.993
19	0.2375	-0.8553	1.136
18	0.2250	-0.8551	1.135
17	0.2000	-0.8714	1.145
16	0.1800	-0.8775	1.149
15	0.1600	-0.8623	1.141
14	0.1400	-0.8726	1.146
13	0.1200	-0.8861	1.152
12	0.1000	-0.8903	1.155
11	0.0900	-0.8830	1.151
10	0.0800	-0.9049	1.161
9	0.0700	-0.9245	1.172
8	0.0600	-0.9647	1.194
7	0.0500	-0.9770	1.201
6	0.0400	-0.9909	1.207
5	0.0300	-0.9119	1.168
3	0.0100	-0.5617	1.003
2	0.0050	-0.0655	0.791
1	0.0000	1.0840	0.166
53	0.0050	0.8802	0.338
54	0.0100	0.6464	0.471
55	0.0200	0.3547	0.609
56	0.0300	0.1714	0.689
57	0.0400	0.0757	0.731
58	0.0500	0.0140	0.757
59	0.0750	-0.0569	0.787
62	0.2000	-0.2498	0.868
63	0.2500	-0.3001	0.889
64	0.3000	-0.3497	0.911
65	0.3500	-0.3891	0.929
66	0.4000	-0.3873	0.929
67	0.4500	-0.3582	0.914
68	0.5000	-0.3401	0.905
69	0.5625	-0.3394	0.904

ORIFICE	X/C	CP	M(LOCAL)
70	0.6000	-0.3679	0.917
71	0.6500	-0.3251	0.900
72	0.7000	-0.1381	0.821
73	0.7250	-0.0265	0.772
74	0.7500	0.0577	0.738
75	0.7750	0.1400	0.702
76	0.8000	0.1875	0.682
77	0.8250	0.2296	0.664
78	0.8500	0.2506	0.655
79	0.9000	0.2605	0.650
80	0.9500	0.2606	0.648
TE LOWER	1.0000	0.2557	0.651

STATIC PRESSURES AT CEILING AND FLOOR

	CEILING		FLOOR	
X/C	CP	M	CP	M
-4.5000	0.009	0.759	0.002	0.761
-4.2000	0.014	0.755	0.002	0.760
-3.9000	0.002	0.762	0.003	0.759
-3.6000	0.013	0.759	-0.002	0.760
-3.3000	0.015	0.757	0.005	0.760
-3.0000	0.016	0.756	0.007	0.758
-2.7000	0.017	0.756	0.009	0.757
-2.4000	0.007	0.759	0.008	0.757
-2.1000	0.005	0.761	0.013	0.755
-1.8000	0.000	0.761	0.009	0.757
-1.5000	-0.008	0.765	0.018	0.754
-1.3500	-0.000	0.763	-0.004	0.762
-1.2000	-0.006	0.765	0.020	0.753
-1.0500	-0.004	0.764	0.020	0.752
-0.9000	-0.006	0.766	0.020	0.752
-0.7500	-0.009	0.766	0.016	0.752
-0.6500	-0.017	0.767	0.018	0.752
-0.5500	-0.014	0.767	0.016	0.754
-0.4500	-0.018	0.772	0.010	0.756
-0.3500	-0.025	0.775	0.019	0.752
-0.2500	-0.030	0.774	0.015	0.754
-0.1500	-0.039	0.776	0.022	0.754
-0.0500	-0.036	0.777	0.027	0.753
0.0500	-0.041	0.778	0.029	0.751
0.1500	-0.044	0.778	0.028	0.750
0.2500	-0.043	0.777	0.031	0.751
0.3500	-0.041	0.778	0.037	0.747
0.4500	-0.042	0.779	0.029	0.751
0.5500	-0.031	0.775	0.028	0.751
0.6500	-0.031	0.775	0.028	0.749
0.7500	-0.026	0.771	-0.003	0.763
0.9000	-0.028	0.772	0.025	0.751
1.0500	-0.018	0.768	0.023	0.752
1.2000	-0.016	0.767	0.030	0.750
1.3500	-0.018	0.769	0.027	0.751
1.5000	-0.013	0.766	0.025	0.752
1.8000	-0.011	0.766	0.027	0.750
2.1000	-0.014	0.766	0.025	0.753
2.4000	-0.006	0.763	0.020	0.754
2.7000	-0.016	0.767	0.009	0.758

TABLE 7.20

SURFACE PRESSURE MEASUREMENTS

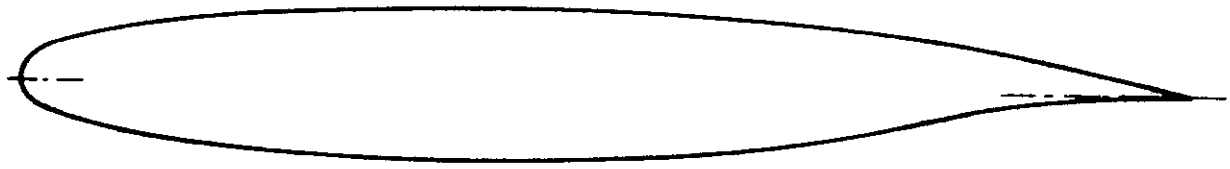
RUN NUMBER =4986
SCAN NUMBER = 1
CONFIGURATION = DHCJJK
TEST MACH NUMBER= 0.801
REYNOLDS NUMBER = 0.2996E 08
INCIDENCE(NORTH)= 2.000
PQ =127.00PSIA
Q = 37.41PSI
V/U (SIDEWALL) =0.0034
CN = 0.393
CX =0.00073
CMC4 =-0.0538
CL = 0.3931
CDP = 0.0145

ORIFI E	X/C	CP	M(LOCAL)
TE UPPER	1.0000	0.2575	0.688
51	0.9500	0.1866	0.722
50	0.9250	0.1439	0.741
49	0.9000	0.0877	0.766
47	0.8600	-0.0259	0.817
46	0.8400	-0.0740	0.839
45	0.8200	-0.1418	0.871
43	0.7800	-0.2557	0.926
42	0.7600	-0.3040	0.950
41	0.7400	-0.3301	0.963
40	0.7200	-0.3328	0.965
39	0.7000	-0.3581	0.976
38	0.6800	-0.3519	0.972
37	0.6600	-0.3729	0.981
36	0.6400	-0.7095	1.147
35	0.6200	-0.7740	1.181
34	0.6000	-0.8873	1.245
33	0.5800	-0.8978	1.250
32	0.5600	-0.8704	1.232
31	0.5400	-0.8663	1.231
30	0.5200	-0.8576	1.228
29	0.5000	-0.8474	1.221
28	0.4750	-0.8507	1.223
27	0.4500	-0.8173	1.205
26	0.4250	-0.7863	1.189
25	0.4000	-0.8045	1.198
24	0.3750	-0.8283	1.212
23	0.3500	-0.8292	1.212
22	0.3250	-0.8239	1.210
21	0.3000	-0.8241	1.210
19	0.2375	-0.8212	1.203
18	0.2250	-0.8175	1.202
17	0.2000	-0.8002	1.194
16	0.1800	-0.7927	1.191
15	0.1600	-0.7695	1.181
14	0.1400	-0.7615	1.179
13	0.1200	-0.7394	1.168
12	0.1000	-0.7466	1.172
11	0.0900	-0.7115	1.153
10	0.0800	-0.7279	1.160
9	0.0700	-0.7863	1.189
8	0.0600	-0.7961	1.193
7	0.0500	-0.8088	1.200
6	0.0400	-0.7922	1.192
5	0.0300	-0.7226	1.154
3	0.0100	-0.3595	0.972
2	0.0050	0.0919	0.766
1	0.0000	1.1272	0.137
53	0.0050	0.8440	0.386
54	0.0100	0.6195	0.514
55	0.0200	0.3248	0.659
56	0.0300	0.1564	0.736
57	0.0400	0.0532	0.783
58	0.0500	-0.0126	0.813
59	0.0750	-0.0887	0.848
62	0.2000	-0.2800	0.936
63	0.2500	-0.3390	0.964
64	0.3000	-0.4151	0.998
65	0.3500	-0.4937	1.035
66	0.4000	-0.5298	1.053
67	0.4500	-0.4319	1.007
68	0.5000	-0.3931	0.989
69	0.5625	-0.3935	0.987

ORIFICE	X/C	CP	M(LOCAL)
70	0.6000	-0.4395	1.011
71	0.6500	-0.3753	0.980
72	0.7000	-0.1451	0.872
73	0.7250	-0.0318	0.819
74	0.7500	0.0609	0.780
75	0.7750	0.1461	0.741
76	0.8000	0.1905	0.719
77	0.8250	0.2230	0.703
78	0.8500	0.2493	0.692
79	0.9000	0.2682	0.684
80	0.9500	0.2731	0.682
TE LOWER	1.0000	0.2575	0.688

STATIC PRESSURES AT CEILING AND FLOOR

	CEILING		FLOOR	
X/C	CP	M	CP	M
-4.5000	0.007	0.804	-0.000	0.806
-4.2000	0.018	0.799	0.000	0.805
-3.9000	-0.005	0.807	0.007	0.805
-3.6000	0.015	0.801	0.002	0.804
-3.3000	0.016	0.800	0.007	0.804
-3.0000	0.023	0.797	0.009	0.803
-2.7000	0.022	0.798	0.012	0.805
-2.4000	0.015	0.799	0.015	0.803
-2.1000	0.012	0.802	0.014	0.800
-1.8000	0.003	0.805	0.016	0.800
-1.5000	0.005	0.805	0.021	0.797
-1.3500	0.003	0.804	-0.002	0.811
-1.2000	0.002	0.806	0.021	0.798
-1.0500	0.005	0.806	0.022	0.800
-0.9000	-0.000	0.808	0.023	0.798
-0.7500	-0.002	0.808	0.022	0.796
-0.6500	-0.009	0.811	0.022	0.799
-0.5500	-0.016	0.813	0.017	0.797
-0.4500	-0.023	0.817	0.017	0.799
-0.3500	-0.028	0.820	0.017	0.799
-0.2500	-0.031	0.822	0.020	0.798
-0.1500	-0.039	0.828	0.018	0.799
-0.0500	-0.042	0.826	0.022	0.797
0.0500	-0.048	0.829	0.029	0.794
0.1500	-0.046	0.826	0.035	0.792
0.2500	-0.048	0.827	0.022	0.797
0.3500	-0.048	0.827	0.029	0.792
0.4500	-0.045	0.827	0.025	0.796
0.5500	-0.035	0.823	0.029	0.794
0.6500	-0.037	0.822	0.022	0.796
0.7500	-0.027	0.821	-0.007	0.811
0.9000	-0.025	0.818	0.021	0.797
1.0500	-0.025	0.817	0.026	0.794
1.2000	-0.016	0.817	0.026	0.794
1.3500	-0.019	0.816	0.025	0.796
1.5000	-0.016	0.815	0.024	0.797
1.8000	-0.014	0.814	0.027	0.794
2.1000	-0.012	0.815	0.025	0.797
2.4000	-0.009	0.814	0.022	0.798
2.7000	-0.019	0.814	0.012	0.802



FIG· 7·1 NAE 75-036-13:2 AIRFOIL

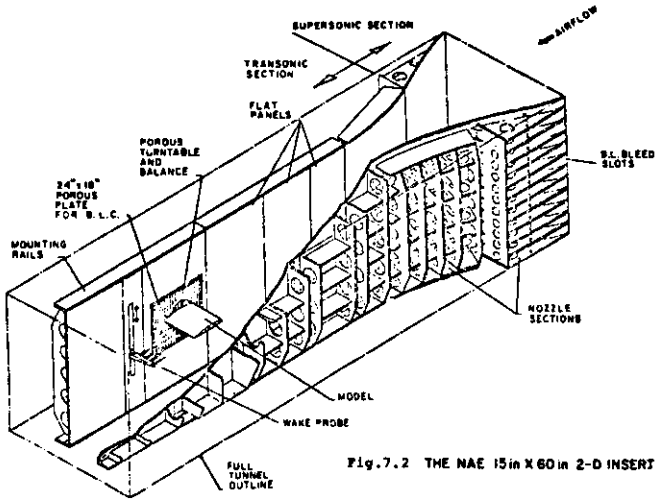


Fig.7.2 THE NAE 15in X 60in 2-D INSERT

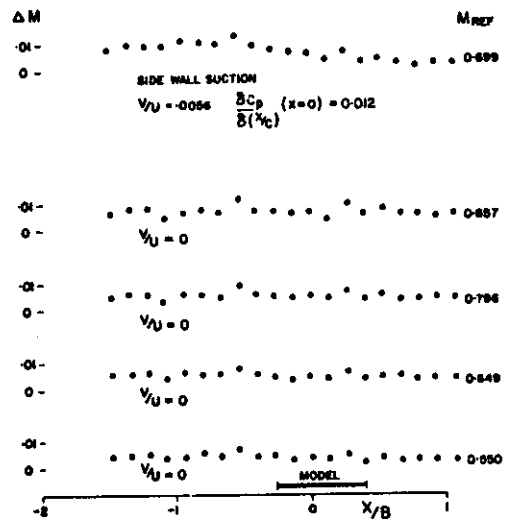


Fig.7.3 ℄ MACH NUMBER DISTRIBUTION, EMPTY TEST SECTION NAE 15in X 60in 2-D INSERT.

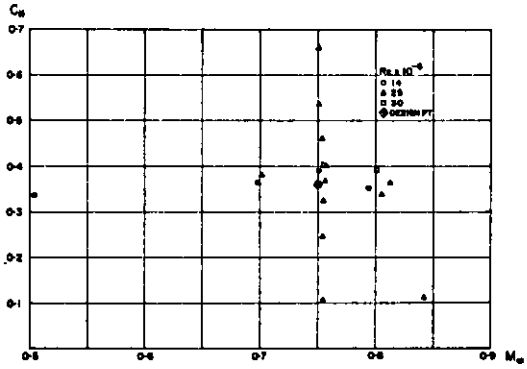
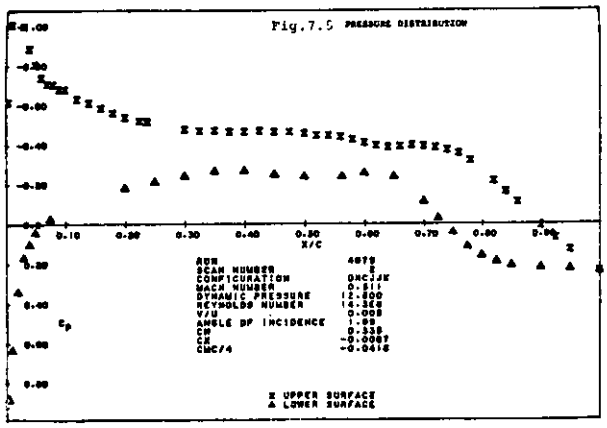
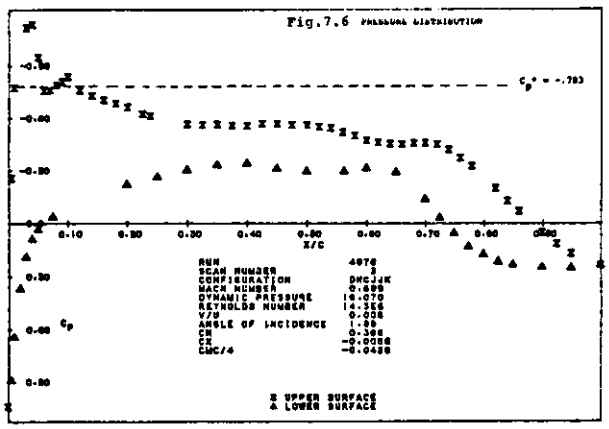
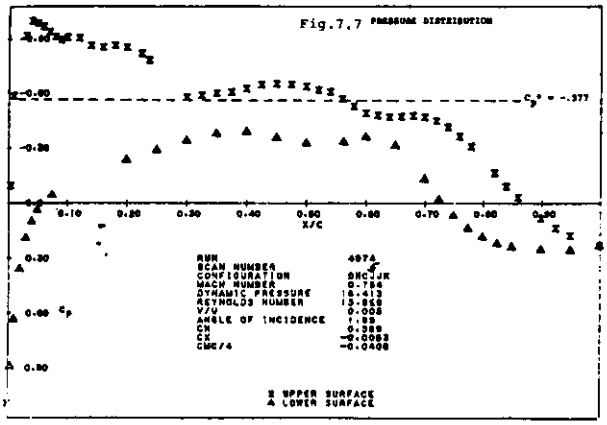


Fig.7.4 TEST CONDITIONS FOR PRESENTED DATA







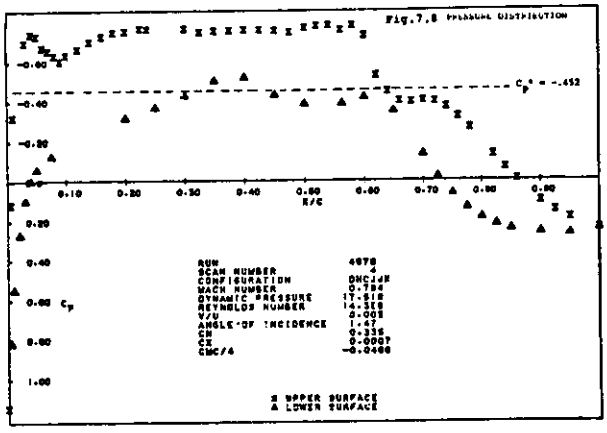


Fig.7.8 PRESSURE DISTRIBUTION
$C_p^* = -.452$
X/C
C_p
RUN 4978
SCAN NUMBER 3
CONFIGURATION DMCJJK
MACH NUMBER 0.784
DYNAMIC PRESSURE 17.516
REYNOLDS NUMBER 14.316
V/U 0.003
ANGLE OF INCIDENCE 1.47
CN 0.335
CX 0.0007
CMC/4 -0.0488
X UPPER SURFACE
A LOWER SURFACE

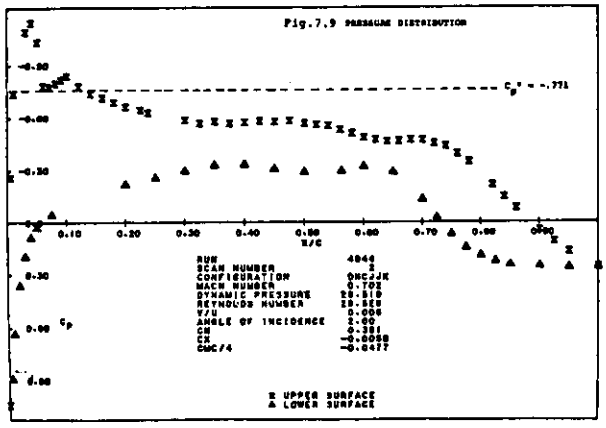


Fig.7.9 PRESSURE DISTRIBUTION
$C_p^* = -.771$
X/C
C_p
RUN 4844
SCAN NUMBER 3
CONFIGURATION DMCJJK
MACH NUMBER 0.701
DYNAMIC PRESSURE 28.519
REYNOLDS NUMBER 19.569
V/U 0.006
ANGLE OF INCIDENCE 2.00
CN 0.381
CX -0.0058
CMC/4 -0.0477
X UPPER SURFACE
A LOWER SURFACE

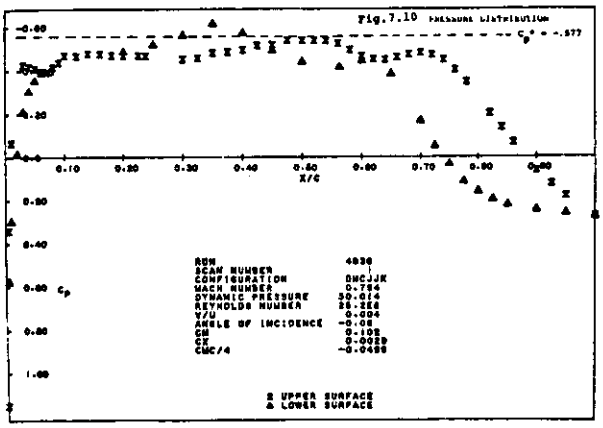


Fig.7.10 PRESSURE DISTRIBUTION
$C_p^* = -.577$
X/C
C_p
RUN 4836
SCAN NUMBER 3
CONFIGURATION DMCJJK
MACH NUMBER 0.784
DYNAMIC PRESSURE 30.014
REYNOLDS NUMBER 28.266
V/U 0.004
ANGLE OF INCIDENCE -0.08
CN 0.105
CX 0.0029
CMC/4 -0.0488
X UPPER SURFACE
A LOWER SURFACE

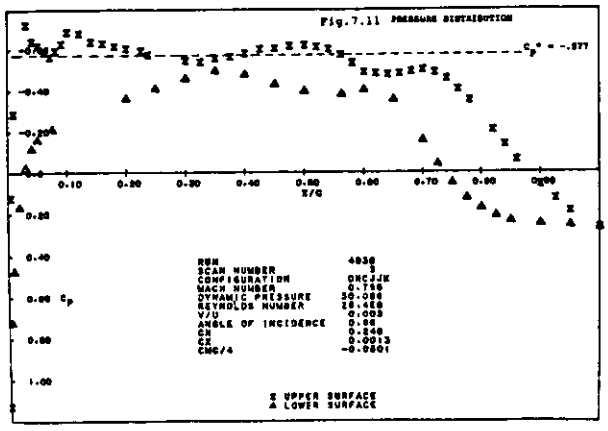


Fig.7.11 PRESSURE DISTRIBUTION
$C_p^* = -.577$
X/C
C_p
RUN 4838
SCAN NUMBER 3
CONFIGURATION DMCJJK
MACH NUMBER 0.756
DYNAMIC PRESSURE 30.088
REYNOLDS NUMBER 28.468
V/U 0.003
ANGLE OF INCIDENCE 0.86
CN 0.148
CX 0.0013
CMC/4 -0.0501
X UPPER SURFACE
A LOWER SURFACE

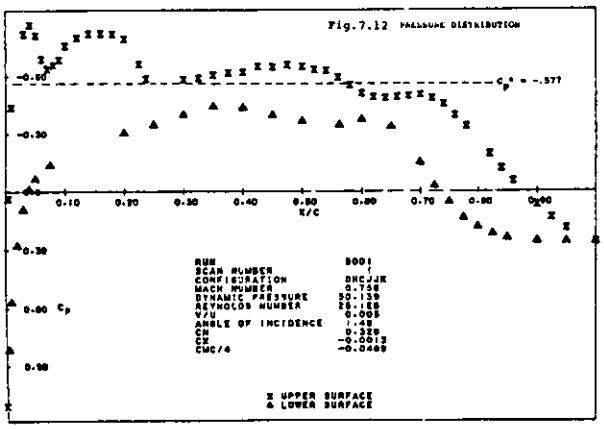


Fig.7.12 PRESSURE DISTRIBUTION
$C_p^* = -.577$
X/C
C_p
RUN 5001
SCAN NUMBER 3
CONFIGURATION DMCJJK
MACH NUMBER 0.758
DYNAMIC PRESSURE 30.139
REYNOLDS NUMBER 28.168
V/U 0.003
ANGLE OF INCIDENCE 1.48
CN 0.328
CX -0.0013
CMC/4 -0.0489
X UPPER SURFACE
A LOWER SURFACE

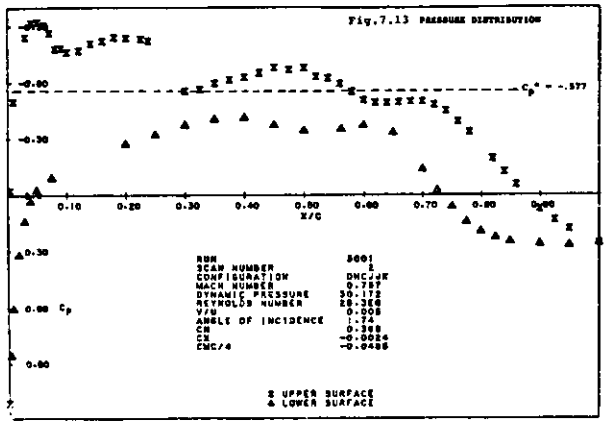


Fig.7.13 PRESSURE DISTRIBUTION
$C_p^* = -.577$
X/C
C_p
RUN 5001
SCAN NUMBER 3
CONFIGURATION DMCJJK
MACH NUMBER 0.757
DYNAMIC PRESSURE 30.172
REYNOLDS NUMBER 28.368
V/U 0.003
ANGLE OF INCIDENCE 1.74
CN 0.368
CX -0.0024
CMC/4 -0.0486
X UPPER SURFACE
A LOWER SURFACE

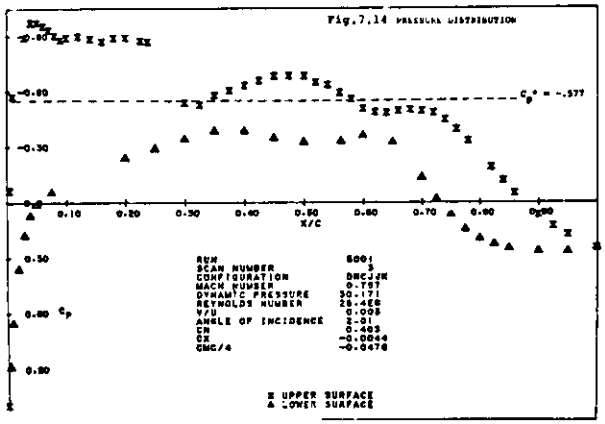


Fig.7.14 PRESSURE DISTRIBUTION
$C_p^* = -.577$
X/C
C_p
RUN 5001
SCAN NUMBER 3
CONFIGURATION DMCJJK
MACH NUMBER 0.757
DYNAMIC PRESSURE 30.171
REYNOLDS NUMBER 28.468
V/U 0.003
ANGLE OF INCIDENCE 2.01
CN 0.403
CX -0.0044
CMC/4 -0.0470
X UPPER SURFACE
A LOWER SURFACE

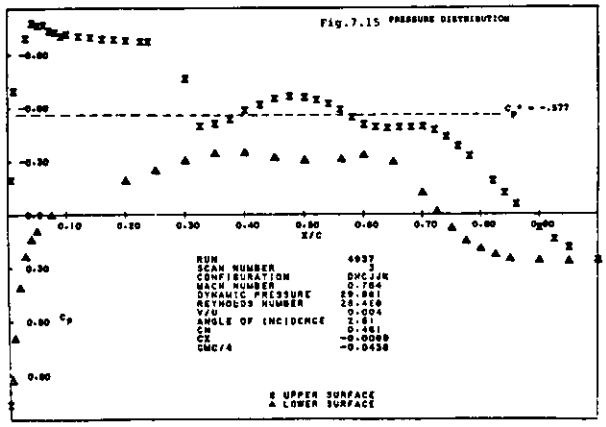


Fig.7.15 PRESSURE DISTRIBUTION
$C_p^* = -.577$
X/C
C_p
RUN 4937
SCAN NUMBER 3
CONFIGURATION DMCJJK
MACH NUMBER 0.784
DYNAMIC PRESSURE 29.861
REYNOLDS NUMBER 28.468
V/U 0.004
ANGLE OF INCIDENCE 2.81
CN 0.461
CX -0.0069
CMC/4 -0.0438
X UPPER SURFACE
A LOWER SURFACE

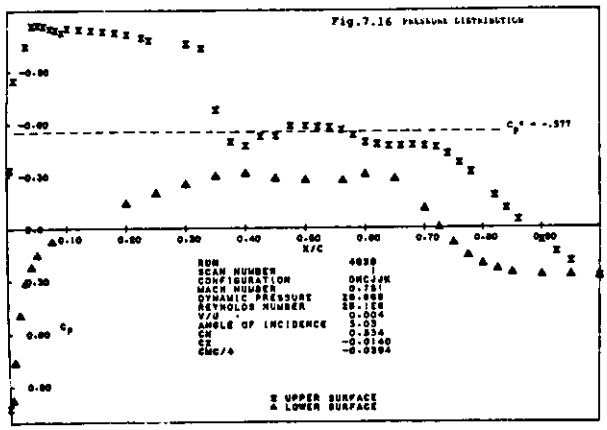


Fig.7.16 PRESSURE DISTRIBUTION
X/C
Cp
X UPPER SURFACE
A LOWER SURFACE

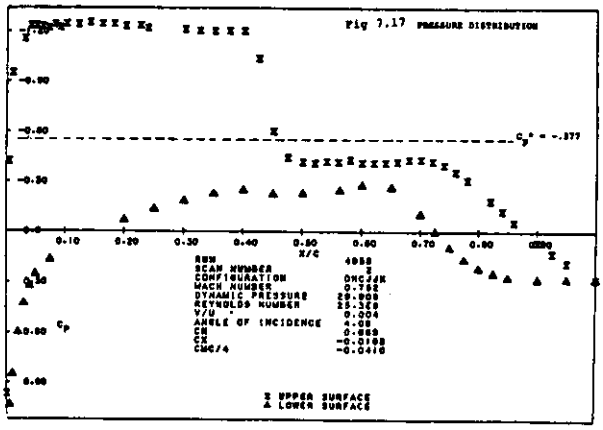


Fig 7.17 PRESSURE DISTRIBUTION
X/C
Cp
X UPPER SURFACE
A LOWER SURFACE

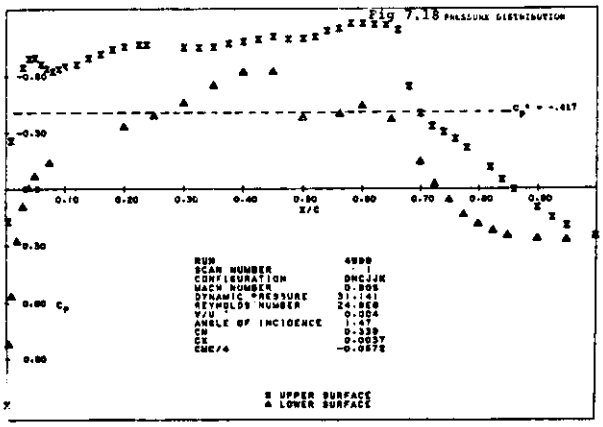


Fig 7.18 PRESSURE DISTRIBUTION
X/C
Cp
X UPPER SURFACE
A LOWER SURFACE

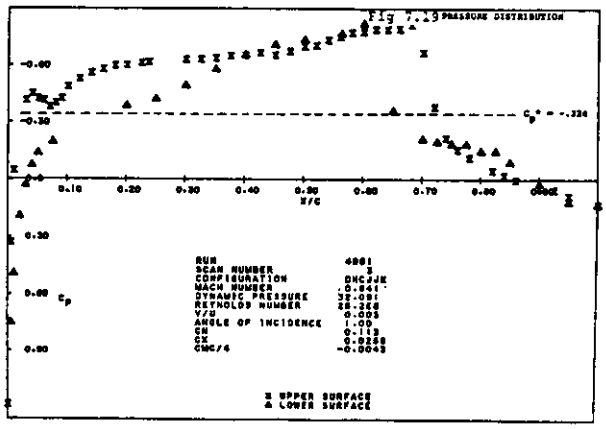


Fig 7.19 PRESSURE DISTRIBUTION
X/C
Cp
X UPPER SURFACE
A LOWER SURFACE

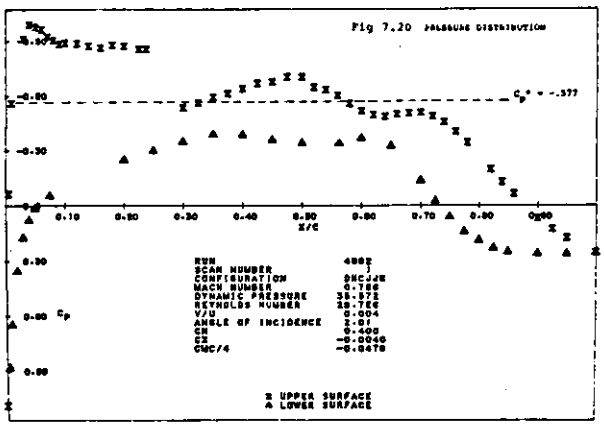


Fig 7.20 PRESSURE DISTRIBUTION
X/C
Cp
X UPPER SURFACE
A LOWER SURFACE

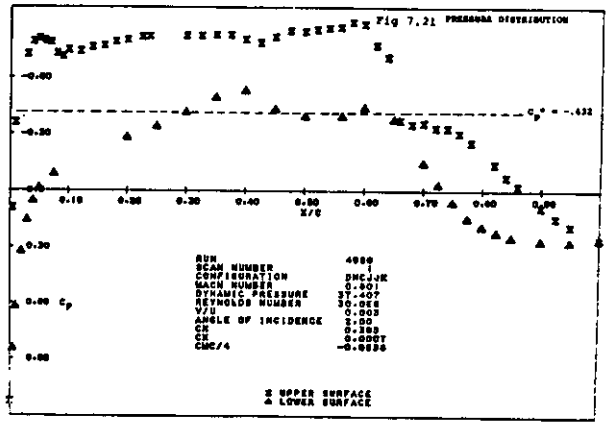


Fig 7.21 PRESSURE DISTRIBUTION
X/C
Cp
X UPPER SURFACE
A LOWER SURFACE

AR-138

8. SUPERCRITICAL AIRFOIL MBB-A3
Surface pressure distributions, wake and boundary condition measurements.

by

Bucciantini G., Oggiano M.S., Onorato M.
Aeritalia Torino, Politecnico di Torino

8.1 INTRODUCTION

The present data set, obtained testing the same model of the MBB-A3 airfoil at the A.R.A. Bedford wind tunnel and at the Turin Polytechnic wind tunnel (P.T.), covers a wide range of conditions: wholly subsonic flow, supercritical shockless or near shockless flow, supercritical flow with relatively strong shock wave producing, in some extreme cases, boundary layer separation. Moreover due to the great difference in Reynolds number between the two tunnels (the P.T. transonic facility is operated at low Reynolds number because of power limitations), different conditions of potential flow-boundary layer interaction are presented. In the cases of measurements with free transition, the Polytechnic of Turin experiments show a lambda shaped shock wave, typical of shock wave impinging on a laminar boundary layer; on the contrary for the A.R.A. results the interaction appears to be turbulent (it has to be noticed that even though the results from A.R.A. are transition free, the disturbances from the pressure holes are likely to promote transition upstream of the shock waves). Also on the lower surface the flow field shows different behaviour, due to the different growth of the boundary layer, particularly in the rear part of the section where a concavity is present.

The pressure distributions on the airfoil obtained in the two tunnels become comparable when the transition is fixed in the P.T. experiments, both on the upper and on the lower surface and when wall interference corrections are applied (see Fig.8.6 and comments to Tables 8.4).

The MBB-A3 profile, designed by the Eberle hodograph method is supercritical, shockless, sloping roof-top. Moreover the MBB-A3 airfoil is the section for the MBB-AVA-Pilot Model (one of the 3-d configurations selected for the present data collection) and is the thinnest section for which data are presented. For all the cases reported surface pressure measurements are presented; experiments from A.R.A. wind tunnel include wake total and static pressure survey (only the values of the drag coefficients are reported here); data from P.T. wind tunnel include static pressure distributions above and below the model at a distance from the chord of about 2/3 of half-heightof the test section. The last information is important in view of the aim of this data collection; if measured boundary conditions are available and are used for the assessment of computer programs, empirical corrections for tunnel wall interference are not necessary.

About the A.R.A. data the effective freestream conditions can be estimated applying the semi-empirical wall interference correction procedures given in the questionnaire (see 6.2.5).

Both A.R.A. and P.T. data presented here are not corrected for wall interference effects.

8.2 DATA SET

1. Airfoil

1.1 Airfoil designation	MBB-A3
1.2 Type of airfoil	Supercritical shockless
1.2.1 airfoil geometry	Fig.8.1; Tables 8.1 and 8.2
nose radius	0.0075 c
maximum thickness	8.9%
base thickness	0
1.2.2 design condition	$M_\infty = 0.76$, $\alpha = 1.3°$, $C_L = 0.58$
design pressure distribution	Fig.8.2 (reprinted from ref.[1])
1.3 Additional remarks	None
1.4 References on airfoil	[1], [2]

2. Model geometry

2.1 Chord length	0.127 m
2.2 Span	0.203 m; 0.4 m (see 2.6)
2.3 Actual model co-ordinates and accuracy	Table 8.2
2.4 Maximum thickness	8.9%
2.5 Base thickness	0
2.6 Additional remarks	The span of the same model, previously tested at the A.R.A. Bedford wind tunnel, has been increased for the tests in the Turin Polytechnic wind tunnel (Picture 1).
2.7 References on model	[1], [2]

3. Wind tunnels

3.1 Designation	A.R.A. Bedford 2D transonic tunnel (A.R.A.) Galleria transonica e supersonica, Politecnico di Torino (P.T.)

3.2 Type of tunnel	Blow down (A.R.A.); continuous(P.T.)
3.2.1 stagnation pressure	From 1.5 to 4 atmospheres(A.R.A.) up to 0.46 atmospheres (P.T.)
3.2.2 stagnation temperature	290°K(A.R.A.); 300°K (P.T.)
3.2.3 humidity/dew point	240°K(A.R.A.); 223°K (P.T.)
3.3 Test Section	Rectangular (A.R.A.); square (P.T.)
3.3.1 dimensions	0.457 m x 0.203 m (A.R.A.) 0.40 m x 0.40 m (P.T.)
3.3.2 type of walls	Slotted top and bottom (A.R.A.-P.T.) open-area ratio of 3.2% (A.R.A.) open-area ratio of 50%; porosity is controlled by a moving plate inside the plenum chamber (see Fig. 8.5 and Picture 1)(P.T.)
3.4 Flow field (empty test section)	
3.4.1 reference static pressure	On the top liner, 5 chords upstream of model L.E.(A.R.A.) at sidewall 2 chords upstream of model L.E. (P.T.)
3.4.2 flow angularity	$\pm$ 0.05° (A.R.A.)
3.4.3 Mach number distribution	Mach number gradient along the model: 0.001 up to M_∞ = 0.65, increasing to 0.002 at M_∞ = 0.82 and to 0.003 at M_∞ = 0.85 (A.R.A.) Fig.8.3a (P.T.)
3.4.4 pressure gradient	See 3.4.3
3.4.5 turbulence/noise level	Under investigation using Kulite transducers (A.R.A.) $(\Delta C_p)_{R.M.S}$ = 0.014 at M_∞ = 0.75, see also Fig.8.3b(P.T.)
3.4.6 side wall boundary layer	δ^* = 1.5 mm for M_∞ = 0.7 (A.R.A.) $\delta(U = 0.99\ U_e)$ = 31 mm for M_∞ = 0.6 = 29.5mm for M_∞ = 0.7 = 28 mm for M_∞ = 0.75 = 27 mm for M_∞ = 0.8 } (P.T.)
3.5 Additional remarks	None
3.6 References on wind tunnel	[1],[4] (A.R.A.); [3] (P.T.)

4. Tests

4.1 Type of measurements	Surface pressures (A.R.A.-P.T.) wake pitot and static pressures (A.R.A.) static pressures above and below the model at a distance of 132 mm from the model chord (P.T.)
4.2 Tunnel/model dimensions	
4.2.1 height/chord ratio	3.6 (A.R.A.); 3.15 (P.T.)
4.2.3 width/chord ratio	1.6 (A.R.A.); 3.15 (P.T.)
4.3 Flow conditions included in present data base	
4.3.1 angle of attack	See Table 8.4a and 8.4b
4.3.2 Mach number	See Table 8.4a and 8.4b
4.3.3 Reynolds number	See Table 8.4a and 8.4b
4.3.4 transition	No artificial trip, however pressure holes probably induce transition forward of shock wave.(A.R.A.) free and fixed (P.T.)
- position of free transition	not established
- transition fixing	ballotini (glass spheres),see Table 8.4b
4.3.5 temperature equilibrium	$\Delta t°$ during run $\simeq$ 5°K (A.R.A.); yes (P.T.)
4.4 Additional remarks	None
4.5 References on tests	[1],[2] (A.R.A.)

5. Instrumentation

5.1 Surface pressure measurements	
5.1.1 pressure holes	
- size	Φ = 0.25 mm on first 13% chord, 0.3 mm aft of 13% chord
- spanwise stations	staggered along a V line in the central part of the model
- chordwise positions	see Table 8.3
5.1.2 type of transducers and scanning devices	Scanivalve system with 25 P.S.I. differential transducer; backing pressure reservoir set at 22 P.S.I. (A.R.A.)
5.1.3 other	A manometer board is photographed; liquid: dibutyl phthalate (P.T.)

5.2 Wake measurements	
5.2.1 type/size of instrument(s)	Rake of 48 pitot and 3 static tubes;see Fig.8.4(A.R.A)
5.2.2 streamwise position(s)	250 mm downstream of T.E.(A.R.A.)
5.2.3 type of transducer and scanning devices	Scanivalve system with 7.5 P.S.I. differential transducer; backing pressure by uppermost rake pitot(A.R.A)
5.5 Flow visualization	
5.5.1 flow field	Schlieren photography (A.R.A.)
5.5.2 surface flow	Two dimensionality was checked by oil flow (P.T.)
5.6 Boundary conditions measurements	Static pressure distribution in the vicinity of the upper and lower walls (P.T.)
5.6.1 type/size of instruments	Two conical static pressure probes with four orifices see Fig.8.5 (P.T.)
5.6.2 locations	132 mm from the model chord, moving in streamwise direction, at a distance of 200 mm from the sidewalls (P.T.)
5.7 Additional remarks	None
5.8 References on instrumentation	[4] (A.R.A.)

6. Data

6.1 Accuracy (wall interference excluded)	
6.1.1 angle of attack setting	$\pm$ 0.003° (A.R.A.); $\pm$ 0.005°(P.T.)
6.1.2 free stream Mach number:	
- setting	$\pm$ 0.001 (A.R.A.); $\pm$ 0.005 (P.T.)
- variation during one pressure scan	Variation negligible, pressures all sealed simultaneously in separate reservoirs and recorded after end of run (A.R.A.); none (P.T.) for static pressure measurements on the model; $\pm$ 0.005 (P.T.) for static pressure measurements in the vicinity of the upper and lower test section walls
6.1.3 pressure coefficients	$\Delta C_p = \pm$ 0.5% (A.R.A.); model surface $\Delta C_p < \pm$ 1% of maximum value (P.T.); boundaries $\Delta C_p < \pm$ 4% of maximum value (P.T.)
6.1.4 *aerodynamic coefficients*	C_L *and* C_M *obtained from surface pressure* distributions(A.R.A.-P.T.); C_D obtained from wake total head and static pressures using an energy method [5] (A.R.A.)
6.1.5 boundary layer quantities	Model boundary layer not measured (A.R.A.-P.T.)
6.1.6 repeatability	$\Delta C_p = \Delta C_L = \Delta C_M = \pm 0.5\%$; $\Delta C_D = \pm 2\%$ (A.R.A.) $\Delta C_p < \pm$ 1% of maximum value (P.T.)
6.1.7 remarks	The two probes used for the static *pressure measurements* (P.T.) on the upper and lower boundaries have been calibrated and their behaviour for small angle of yaw, ψ, has been verified. For $M_\infty = 0.75$ $\psi = 2°$ $\Delta p/q = 0.002$ $\psi = 5°$ $\Delta p/q = 0.005$ $\psi = 7°$ $\Delta p/q = 0.009$
6.2 Wall interference corrections	
6.2.1 angle of attack	See 6.2.5 (A.R.A.); $\Delta\alpha° \simeq -1.4\ C_L$ at $M_\infty = 0.75$ (P.T.)
6.2.2 blockage (solid/wake)	Negligible (A.R.A.-P.T.)
6.2.3 streamline curvature (lift)	See 6.2.1
6.2.4 other	
6.2.5 remarks	Standard expressions used for downwash and curvature effects: $\Delta\alpha = (c/h)C_L\,\delta_0 + (c/h)^2(0.25\ C_L + C_M)\delta_1/\beta$ $\Delta C_L = -(\pi/2)(c/\beta h)^2\delta_1 C_L$ $\Delta C_M = (\pi/8)(c/\beta h)^2\delta_1 C_L$ the constants δ_0 and δ_1 for A.R.A. tunnel [4] have been derived testing at same Re three models of the NPL 3111 (RAE 2815) section having chord lenghts of 3", 5" and 7";$\delta_0 = -0.03$, $\delta_1 = 0.11$ (A.R.A.)
6.2.6 references on wall interference correction	[4],[6]
6.3 Presentation of data	
6.3.1 aerodynamic coefficients	C_L, C_M and C_D see Tables 8.4a (A.R.A.) and 8.4b(P.T.)
6.3.2 surface pressures	C_p *and* p/p_0 *vs.* x/c *see Tables* 8.5 (A.R.A.), 8.6 (P.T.) and Figs. 8.6 (A.R.A.-P.T.); 8.7(A.R.A.), 8.8 (P.T.)

6.3.3 pressures on boundaries	See Table 8.7 and Fig. 8.8 (P.T.)
6.3.4 wall interference corrections included ?	No (A.R.A.-P.T.)
6.3.5 corrections for model deflection	No (A.R.A.-P.T.)
6.3.6 empty test section calibration taken into account ?	No (A.R.A.-P.T.)
6.3.7 other corrections included ?	No (A.R.A.-P.T.)
6.3.8 additional remarks	a) Wall interference corrections for A.R.A. data can be calculated by expressions given in 6.2.5; b) wall interference corrections for P.T. data are not necessary for the assessment of computer programs if the actual boundary conditions, wich are given, are used.
6.4 Were tests carried out in different facilities on the current airfoil ? If so, what facilities. Are data included in the present data base ?	Yes, A.R.A. and P.T. wind tunnels; yes
6.5 To be contacted for further information on tests	Mr.B.F.L. HAMMOND - A.R.A. Manton Lane, Bedford, MK41 7PF (England) Mr.M.ONORATO - Istituto di Meccanica Applicata Politecnico di Torino - C.so Duca degli Abruzzi,24 -10129 TORINO (Italy)

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8. List of Symbols

M_∞ free stream Mach number
U flow velocity
p local static pressure
p_∞ free stream static pressure
p_0 free stream total pressure
$\Delta p = p_{true} - p_{measured}$
q dynamic pressure
q_∞ free stream dynamic pressure
Re Reynolds number based on model chord
$C_p = (p - p_\infty)/q_\infty$ pressure coefficient
C_L lift coefficient
C_N normal force coefficient
C_M pitching moment coefficient (0.25 c)
C_D drag coefficient
c airfoil chord
h tunnel height
x/c nondimensional streamwise coordinate; origin L.E.
z/c nondimensional ordinate of the airfoil contour
α angle of attack, deg
$\beta = \sqrt{1 - M_\infty^2}$
δ boundary layer thickness
δ^* boundary layer displacement thickness

Subscripts

u upper contour
ℓ lower contour
t thickness
c chamber
e external flow

Table 8.1

MBB-A3 - THEORETICAL CONTOUR

x/c	z_u/c	z_ℓ/c	z_t/c	z_c/c
0.002500	0.009472	-0.003676	0.006574	0.002898
0.007500	0.015110	-0.005750	0.010430	0.004680
0.012500	0.018602	-0.007000	0.012801	0.005801
0.017500	0.021271	-0.008040	0.0146555	0.0066155
0.022500	0.023441	-0.008880	0.0161605	0.0072805
0.027500	0.025271	-0.009590	0.0174305	0.0078405
0.032500	0.026860	-0.010215	0.0185375	0.0083225
0.037500	0.028280	-0.010776	0.019528	0.008752
0.042500	0.029574	-0.011290	0.020432	0.009142
0.048000	0.030889	-0.011819	0.021354	0.009535
0.054050	0.032229	-0.012380	0.0223045	0.0099245
0.060700	0.033593	-0.012992	0.0232925	0.0103005
0.068050	0.034991	-0.013666	0.0253285	0.0106625
0.076100	0.036412	-0.014401	0.0254065	0.0110055
0.084950	0.037847	-0.015203	0.026525	0.011322
0.094700	0.039313	-0.016077	0.027695	0.011618
0.105400	0.040803	-0.017024	0.0289135	0.0118895
0.117200	0.042312	-0.018051	0.0301815	0.0121305
0.130150	0.043834	-0.019151	0.0314925	0.0123415
0.144400	0.045361	-0.020327	0.032844	0.012517
0.160100	0.046890	-0.021576	0.035233	0.012657
0.177350	0.048399	-0.022886	0 0356425	0.0127565
0.196350	0.049878	-0.024248	0.037063	0.012815
0.217200	0.051306	-0.025636	0.038471	0.012835
0.240000	0.052654	-0.027015	0.0398345	0.0128195
0.265450	0.053916	-0.028370	0.041143	0.012773
0.290750	0.054934	-0.029509	0.0422215	0.0127125
0.316000	0.055728	-0.030421	0.0430745	0.0126535
0.341300	0.056308	-0.031096	0.043702	0.0126060
0.366550	0.056676	-0.031516	0.044096	0.012580
0.391850	0.056833	-0.031669	0.044251	0.012582
0.417100	0.056780	-0.031541	0.0441605	0.0126195
0.442400	0.056509	-0.031119	0.043814	0.012695
0.467650	0.056016	-0.030393	0.0432045	0.0128115
0.492900	0.055295	-0.029353	0.042324	0.012971
0.518200	0.054328	-0.027998	0.041163	0.013165
0.540950	0.053243	-0.026550	0.0398965	0.0133465
0.561400	0.052091	-0.025107	0.038599	0.013492
0.579850	0.050905	-0.023725	0.037315	0.013590
0.596400	0.049722	-0.022444	0.036083	0.013639
0.611350	0.048555	-0.021269	0.034912	0.013643
0.625000	0.047410	-0.020188	0.033799	0.013611
0.636850	0.046353	-0.019247	0.032800	0.013553
0.647750	0.045329	-0.018381	0.031855	0.013474
0.657550	0.044366	-0.017604	0.030985	0.013381
0.667300	0.043370	-0.016835	0.0301025	0.0132675
0.678100	0.042221	-0.015989	0.029105	0.013116
0.689950	0.040906	-0.015073	0.0279895	0.0129165
0.702950	0.039401	-0.014089	0.026745	0.012656
0.717300	0.037664	-0.013033	0.0253485	0.0123155
0.733050	0.035672	-0.011914	0.023793	0.011879
0.750400	0.033385	-0.010734	0.0220595	0.0113255
0.769500	0.030772	-0.009503	0.0201375	0.0106345
0.790500	0.027816	-0.008234	0.018025	0.009791
0.813550	0.024526	-0.006941	0.0157335	0.0087925
0.838950	0.020920	-0.005632	0.013276	0.007644
0.864350	0.017419	-0.004440	0.0109295	0.0064895
0.887200	0.014355	-0.003471	0.008913	0.005442
0.907800	0.011642	-0.002689	0.0071705	0.0044815
0.926300	0.009265	-0.002060	0.0056625	0.0036025
0.942050	0.007258	-0.001572	0.004415	0.002843
0.955400	0.005573	-0.001186	0.0033795	0.0021935
0.966750	0.004149	-0.000873	0.002511	0.001638
0.978100	0.002730	-0.000569	0.0016495	0.0010805
0.989450	0.001314	-0.000273	0.0007935	0.0005205
1.000000	0.000000	0.000000	0.000000	0.000000

Table 8.2

ACTUAL MODEL CO-ORDINATES AND ACCURACY

x/c	z_u/c	$\Delta z_u/c$	z_ℓ/c	$\Delta z_\ell/c$
0.08477	0.03784	0.00008	0.01517	±0.00000
0.10518	0.04081	0.00010	0.01690	-0.00008
0.12988	0.04371	-0.00002	0.01898	-0.00012
0.15976	0.04686	0.00008	0.02136	-0.00016
0.19594	0.04978	0.00002	0.02391	-0.00028
0.23950	0.05253	±0.00000	0.02662	-0.00032
0.29014	0.05473	-0.00008	0.02900	-0.00044
0.34058	0.05616	-0.00002	0.03048	-0.00054
0.39103	0.05670	±0.00000	0.03099	-0.00060
0.44147	0.05640	0.00002	0.03038	-0.00068
0.49187	0.05520	0.00004	0.02868	-0.00060
0.53982	0.05323	0.00010	0.02589	-0.00050
0.57863	0.05085	0.00006	0.02315	-0.00052
0.61007	0.04858	0.00014	0.02070	-0.00052
0.63552	0.04626	0.00002	0.01880	-0.00040
0.65617	0.04431	0.00004	0.01710	-0.00046
0.67668	0.04217	0.00004	0.01549	-0.00046
0.70148	0.03932	±0.00000	0.01359	-0.00046
0.73151	0.03561	0.00002	0.01132	-0.00056
0.76789	0.03070	±0.00000	0.00898	-0.00050
0.81185	0.02451	0.00004	0.00643	-0.00050
0.86254	0.01744	0.00008	0.00391	-0.00052
0.90590	0.01158	-0 00004	0.00220	-0.00048
0.94008	0.00726	0.00004	0.00106	-0.00050
0.96472	0.00417	0.00004	0.00040	-0.00046
0.98738	0.00136	0.00006	0.00012	-0.00014

Table 8.3

MBB-A3 - PRESSURE POINT POSITIONS

Upper Surface		Lower Surface	
n.	x/c	n.	x/c
1	0.0004	1	0.0000 (Leading Edge)
2	0.0037	2	0.0009
3	0.0065	3	0.0031
4	0.0109	4	0.0053
5	0.0154	5	0.0114
6	0.0200	6	0.0190
7	0.0305	7	0.0495
8	0.0506	8	0.0997
9	0.0753	9	0.1471
10	0.1005	10	0.1988
11	0.1495	11	0.2989
12	0.2003	12	0.3998
13	0.2498	13	0.4990
14	0.2992	14	0.5986
15	0.3498	15	0.7286
16	0.4002	16	0.8680
17	0.4499	17	0.9484
18	0.4983		
19	0.5493		
20	0.5994		
21	0.6487		
22	0.7196		
23	0.8001		
24	0.8483		
25	0.9283		
26	1.0000 (Trailing Edge)		

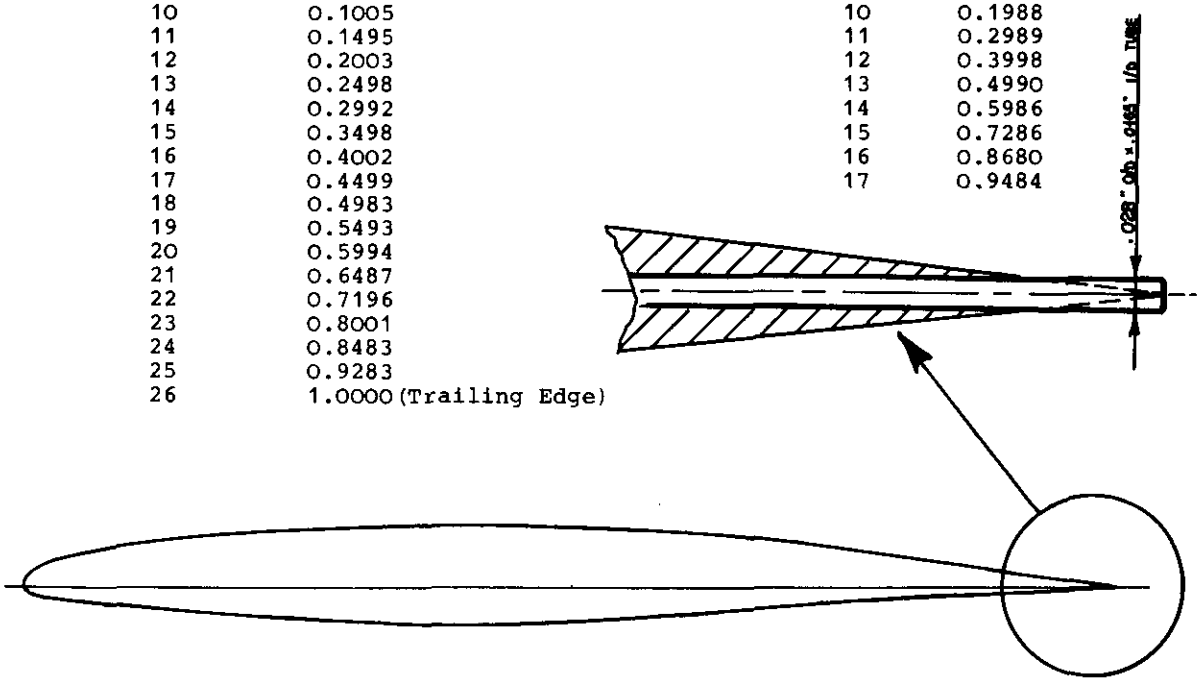


Table 8.4a

FLOW CONDITIONS INCLUDED

MBB-A3 Airfoil A.R.A. Bedford Tunnel

Run	M_∞	$\alpha°$	Re × 10^{-6} based on chord	C_L	C_M (0.25c)	C_D
84	0.700	2.01	6.08	0.501	-0.0494	0.00785
86	0.700	3.02	6.26	0.649	-0.0455	0.00877
88	0.699	4.01	6.21	0.841	-0.0393	0.01561
93	0.698	5.00	6.17	1.003	-0.0414	0.03085
94	0.698	5.49	6.17	1.024	-0.0405	0.03720
4	0.750	1.71	6.18	0.512	-0.0566	0.00831
13	0.755	1.89	6.01	0.553	-0.0562	0.00818
17	0.759	1.50	6.00	0.487	-0.0578	0.00780
18	0.760	1.89	6.01	0.564	-0.0577	0.00803
22	0.760	2.21	6.01	0.626	-0.0583	0.00870
23	0.760	2.75	6.00	0.734	-0.0643	0.01518
24	0.758	3.73	5.98	0.880	-0.0851	0.04110
25	0.761	4.74	6.00	0.920	-0.1039	0.06458
16	0.765	1.89	6.00	0.574	-0.0597	0.00832
44	0.771	1.90	6.09	0.594	-0.0648	0.00952
100	0.798	2.01	6.20	0.641	-0.0992	0.02744
106	0.801	5.01	6.13	0.837	-0.1174	0.07859
113	0.850	2.01	6.08	0.515	-0.1165	0.03236
118	0.851	4.47	6.12	0.716	-0.1227	0.05897

Table 8.4b

FLOW CONDITIONS INCLUDED

MBB-A3 Airfoil - Polytechnic of Turin Tunnel

Run	M_∞	$\alpha°$	Re × 10^{-6} based on chord	C_N	C_M (0.25c)	Transition trip (°)	Boundary conditions
P33	0.751	1.12	0.400	0.368	-0.0484	no	yes
P36	0.768	2.25	0.406	0.483	-0.0413	no	yes
P96	0.759	2.83	0.403	0.566	-0.0380	yes	yes
P97	0.759	3.48	0.403	0.618	-0.0369	yes	yes
P37	0.754	4.61	0.401	0.712	-0.0343	no	yes
P78	0.765	4.61	0.405	0.783	-0.0497	yes	no
P39	0.802	1.30	0.419	0.399	-0.0614	no	yes
P99	0.795	2.00	0.414	0.511	-0.0593	yes	yes
P40	0.793	2.90	0.414	0.562	-0.0568	no	yes
P108	0.797	3.90	0.416	0.685	-0.0656	yes	yes
P41	0.799	5.43	0.419	0.704	-0.0617	no	yes
P81	0.800	5.43	0.419	0.754	-0.0720	yes	no
P100	0.849	0.80	0.434	0.375	-0.0871	yes	yes
P13	0.848	1.77	0.433	0.355	-0.0791	no	no
P82	0.851	1.77	0.436	0.419	-0.0772	yes	no
P109	0.842	2.00	0.432	0.521	-0.0910	yes	yes
P102	0.841	3.20	0.432	0.592	-0.0841	yes	yes
P85	0.855	4.18	0.438	0.619	-0.0831	yes	no

(°) Transition trip device: ballotini, average diameter 0.2mm, position $x/c = 0.28 \div 0.30$ on upper surface, $x/c = 0.39 \div 0.41$ on lower surface.
The location of transition has not been verified. Transition likely occurs close to the leading edge for the A.R.A. tests and at the position of the tripping device (may be in some cases near downstream) for the P.T. tests.
The different location of transition between A.R.A. and P.T. experiments may explain the adverse Reynolds number effect on separation shown in Fig.8.6.

Table 8.5

SURFACE PRESSURE DISTRIBUTION - A.R.A. BEDFORD

Run	84		86		88		93		94	
M_∞	0.700		0.700		0.699		0.698		0.698	
$\alpha°$	2.01		3.02		4.01		5.00		5.49	
x/c Upper	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o
1.000	0.103	.7462	0.102	.7460	0.099	.7461	0.083	.7427	0.068	.7391
0.928	0.060	.7355	0.056	.7345	0.052	.7345	0.042	.7324	0.028	.7292
0.848	-0.044	.7099	-0.052	.7080	-0.057	.7075	-0.064	.7062	-0.078	.7031
0.800	-0.116	.6921	-0.125	.6897	-0.131	.6895	-0.130	.6902	-0.142	.6876
0.720	-0.272	.6533	-0.288	.6495	-0.294	.6491	-0.275	.6545	-0.280	.6534
0.649	-0.397	.6225	-0.421	.6166	-0.425	.6168	-0.382	.6280	-0.383	.6281
0.599	-0.468	.6049	-0.501	.5969	-0.501	.5980	-0.437	.6145	-0.437	.6147
0.549	-0.538	.5900	-0.569	.5799	-0.564	.5826	-0.448	.6117	-0.445	.6128
0.498	-0.564	.5811	-0.614	.5689	-0.589	.5764	-0.482	.6033	-0.518	.5949
0.450	-0.587	.5755	-0.646	.5609	-0.584	.5777	-0.712	.5467	-0.776	.5314
0.400	-0.595	.5734	-0.661	.5573	-0.552	.5855	-0.902	.4999	-0.939	.4911
0.350	-0.612	.5693	-0.681	.5522	-0.564	.5824	-1.606	.3265	-1.366	.3861
0.299	-0.622	.5669	-0.686	.5509	-1.149	.4382	-1.631	.3202	-1.682	.3083
0.250	-0.658	.5580	-0.698	.5480	-1.462	.3610	-1.637	.3188	-1.694	.3053
0.200	-0.670	.5549	-0.558	.5828	-1.511	.3489	-1.672	.3102	-1.723	.2984
0.150	-0.722	.5419	-1.191	.4261	-1.512	.3487	-1.673	.3100	-1.726	.2975
0.101	-0.805	.5215	-1.324	.3933	-1.566	.3353	-1.719	.2985	-1.772	.2862
0.075	-0.838	.5132	-1.346	.3876	-1.568	.3349	-1.731	.2957	-1.786	.2829
0.051	-1.058	.4589	-1.393	.3761	-1.635	.3182	-1.792	.2805	-1.845	.2683
0.031	-1.062	.4578	-1.363	.3834	-1.600	.3268	-1.744	.2923	-1.797	.2801
0.020	-0.856	.5089	-1.286	.4025	-1.519	.3469	-1.669	.3108	-1.720	.2991
0.015	-0.817	.5184	-1.218	.4195	-1.441	.3661	-1.595	.3292	-1.650	.3162
0.011	-0.566	.5806	-0.871	.5052	-1.117	.4460	-1.289	.4045	-1.351	.3897
0.007	-0.182	.6757	-0.465	.6058	-0.694	.5505	-0.888	.5034	-0.959	.4864
0.004	0.221	.7754	-0.029	.7136	-0.247	.6607	-0.421	.6183	-0.485	.6029
0.0004	0.958	.9578	0.801	.9188	0.616	.8736	0.466	.8370	0.410	.8234
Lower										
0.000	1.125	.9990	1.121	.9981	1.060	.9832	0.957	.9580	0.910	.9463
0.001	0.877	.9376	1.044	.9790	1.116	.9969	1.127	.9997	1.126	.9996
0.003	0.421	.8248	0.726	.9004	0.921	.9489	1.022	.9739	1.049	.9806
0.005	0.444	.8306	0.708	.8960	0.864	.9348	0.958	.9581	0.986	.9650
0.011	0.307	.7966	0.520	.8494	0.682	.8900	0.789	.9164	0.822	.9247
0.019	0.246	.7816	0.434	.8281	0.584	.8659	0.688	.8916	0.716	.8988
0.050	0.236	.7790	0.361	.8100	0.472	.8381	0.550	.8575	0.574	.8637
0.100	0.172	.7633	0.269	.7873	0.360	.8105	0.425	.8269	0.445	.8319
0.147	0.098	.7450	0.184	.7664	0.269	.7879	0.328	.8030	0.346	.8077
0.199	0.035	.7294	0.114	.7489	0.191	.7688	0.246	.7828	0.262	.7869
0.299	-0.067	.7040	0.001	.7210	0.071	.7391	0.120	.7517	0.132	.7548
0.400	-0.111	.6932	-0.053	.7077	0.007	.7233	0.048	.7340	0.056	.7363
0.499	-0.120	.6910	-0.074	.7025	-0.025	.7156	0.008	.7241	0.013	.7255
0.599	0.002	.7211	0.034	.7293	0.071	.7392	0.094	.7453	0.094	.7456
0.729	0.106	.7470	0.128	.7524	0.152	.7593	0.166	.7630	0.163	.7624
0.868	0.155	.7591	0.168	.7622	0.183	.7668	0.189	.7686	0.182	.7671
0.948	0.178	.7647	0.185	.7664	0.195	.7697	0.195	.7702	0.185	.7680

Run	4		13		17		18		22	
M_∞	0.750		0.755		0.759		0.760		0.760	
$\alpha°$	1.71		1.89		1.50		1.89		2.21	
x/c Upper	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o
1.000	0.119	.7208	0.120	.7180	0.120	.7156	0.121	.7153	0.122	.7154
0.928	0.067	.7067	0.069	.7041	0.071	.7020	0.072	.7016	0.072	.7018
0.848	-0.032	.6800	-0.029	.6770	-0.027	.6752	-0.027	.6743	-0.026	.6746
0.800	-0.112	.6583	-0.111	.6547	-0.107	.6529	-0.109	.6518	-0.108	.6522
0.720	-0.278	.6133	-0.278	.6090	-0.274	.6070	-0.277	.6056	-0.271	.6071
0.649	-0.420	.5747	-0.418	.5707	-0.413	.5687	-0.417	.5668	-0.400	.5714
0.599	-0.517	.5485	-0.521	.5426	-0.515	.5405	-0.519	.5387	-0.479	.5497
0.549	-0.611	.5231	-0.618	.5159	-0.609	.5148	-0.609	.5139	-0.502	.5435
0.498	-0.633	.5172	-0.646	.5082	-0.650	.5034	-0.593	.5184	-0.601	.5162
0.450	-0.685	.5028	-0.688	.4968	-0.701	.4894	-0.698	.4894	-0.972	.4137
0.400	-0.687	.5023	-0.627	.5136	-0.657	.5016	-0.826	.4541	-0.972	.4138
0.350	-0.659	.5099	-0.786	.4700	-0.682	.4946	-0.865	.4433	-0.985	.4100
0.299	-0.663	.5090	-0.876	.4454	-0.729	.4816	-0.888	.4369	-0.968	.4147
0.250	-0.805	.4704	-0.860	.4497	-0.798	.4628	-0.877	.4400	-0.949	.4202
0.200	-0.802	.4712	-0.887	.4423	-0.786	.4659	-0.894	.4351	-0.974	.4131
0.150	-0.792	.4741	-0.857	.4506	-0.748	.4764	-0.856	.4457	-0.940	.4224
0.101	-0.817	.4673	-0.889	.4418	-0.730	.4815	-0.882	.4386	-0.958	.4175

Table 8.5 (contd.)

x/c Upper	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o
0.075	-0.866	.4540	-0.905	.4374	-0.764	.4721	-0.892	.4357	-0.962	.4164
0.051	-0.933	.4358	-0.948	.4257	-0.845	.4493	-0.930	.4252	-0.985	.4100
0.031	-0.773	.4791	-0.788	.4695	-0.688	.4930	-0.770	.4693	-0.835	.4514
0.020	-0.626	.5188	-0.651	.5068	-0.535	.5351	-0.633	.5074	-0.712	.4854
0.015	-0.595	.5273	-0.626	.5137	-0.496	.5459	-0.606	.5146	-0.698	.4893
0.011	-0.351	.5936	-0.373	.5829	-0.260	.6108	-0.356	.5835	-0.431	.5630
0.007	0.038	.6990	0.017	.6898	0.113	.7135	0.033	.6910	-0.035	.6722
0.004	0.414	.8010	0.395	.7932	0.487	.8166	0.408	.7945	0.341	.7761
0.0004	1.061	.9764	1.054	.9734	1.089	.9824	1.059	.9741	1.033	.9668
Lower										
0.000	1.144	.9987	1.148	.9992	1.142	.9971	1.151	.9993	1.151	.9993
0.001	0.762	.8953	0.804	.9051	0.695	.8738	0.799	.9023	0.885	.9260
0.003	0.257	.7584	0.318	.7722	0.159	.7262	0.312	.7678	0.420	.7977
0.005	0.319	.7750	0.369	.7859	0.243	.7495	0.362	.7819	0.449	.8058
0.011	0.214	.7466	0.257	.7554	0.156	.7254	0.254	.7520	0.324	.7713
0.019	0.163	.7328	0.198	.7391	0.111	.7130	0.197	.7362	0.262	.7543
0.050	0.188	.7396	0.215	.7440	0.159	.7263	0.215	.7413	0.256	.7526
0.100	0.134	.7251	0.158	.7282	0.115	.7141	0.158	.7254	0.190	.7343
0.147	0.060	.7049	0.080	.7069	0.042	.6940	0.080	.7040	0.109	.7121
0.199	0.010	.6915	0.028	.6927	-0.008	.6804	0.028	.6896	0.055	.6970
0.299	-0.097	.6623	-0.073	.6651	-0.113	.6515	-0.082	.6594	-0.057	.6660
0.400	-0.142	.6502	-0.131	.6492	-0.160	.6385	-0.132	.6454	-0.110	.6514
0.499	-0.141	.6504	-0.131	.6493	-0.153	.6403	-0.131	.6456	-0.114	.6504
0.599	-0.011	.6857	-0.004	.6840	-0.018	.6775	-0.003	.6810	0.009	.6844
0.729	0.100	.7158	0.106	.7140	0.097	.7093	0.107	.7115	0.115	.7137
0.868	0.165	.7334	0.162	.7295	0.159	.7262	0.165	.7273	0.171	.7291
0.948	0.189	.7398	0.190	.7372	0.190	.7348	0.194	.7353	0.198	.7366

Run	23		24		25		16		44	
M_∞	0.760		0.758		0.761		0.765		0.771	
$\alpha°$	2.75		3.73		4.74		1.89		1.90	
x/c Upper	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o
1.000	0.115	.7140	0.050	.6973	-0.137	.6437	0.123	.7131	0.123	.7095
0.928	0.073	.7040	0.004	.6846	-0.248	.6130	0.074	.6995	0.079	.6969
0.848	-0.019	.6769	-0.115	.6521	-0.381	.5765	-0.025	.6721	-0.019	.6696
0.800	-0.092	.6568	-0.195	.6301	-0.445	.5586	-0.106	.6495	-0.096	.6480
0.720	-0.231	.6185	-0.352	.5869	-0.537	.5333	-0.271	.6037	-0.250	.6046
0.649	-0.329	.5915	-0.505	.5449	-0.607	.5140	-0.406	.5662	-0.357	.5745
0.599	-0.386	.5757	-0.552	.5319	-0.629	.5080	-0.495	.5416	-0.398	.5632
0.549	-0.710	.4866	-0.713	.4876	-0.662	.4989	-0.540	.5291	-0.807	.4482
0.498	-1.135	.3694	-1.260	.3373	-0.694	.4901	-0.707	.4827	-0.949	.4083
0.450	-1.143	.3672	-1.282	.3313	-0.776	.4673	-0.859	.4404	-0.934	.4125
0.400	-1.116	.3746	-1.247	.3410	-1.027	.3982	-0.877	.4352	-0.905	.4208
0.350	-1.090	.3816	-1.224	.3474	-1.251	.3361	-0.901	.4287	-0.912	.4186
0.299	-1.077	.3854	-1.209	.3514	-1.283	.3275	-0.894	.4306	-0.901	.4217
0.250	-1.068	.3877	-1.202	.3535	-1.277	.3291	-0.879	.4348	-0.878	.4283
0.200	-1.084	.3833	-1.215	.3498	-1.291	.3252	-0.893	.4309	-0.889	.4252
0.150	-1.051	.3925	-1.184	.3582	-1.264	.3325	-0.851	.4424	-0.844	.4378
0.101	-1.057	.3910	-1.197	.3547	-1.278	.3288	-0.872	.4368	-0.857	.4341
0.075	-1.059	.3904	-1.191	.3563	-1.270	.3309	-0.879	.4348	-0.861	.4330
0.051	-1.068	.3878	-1.212	.3505	-1.303	.3218	-0.914	.4249	-0.892	.4244
0.031	-0.941	.4228	-1.124	.3748	-1.220	.3449	-0.754	.4696	-0.733	.4691
0.020	-0.879	.4399	-1.083	.3860	-1.174	.3574	-0.616	.5080	-0.596	.5073
0.015	-0.850	.4480	-1.029	.4007	-1.117	.3731	-0.588	.5156	-0.566	.5159
0.011	-0.550	.5307	-0.702	.4907	-0.789	.4639	-0.339	.5847	-0.295	.5920
0.007	-0.146	.6420	-0.298	.6018	-0.390	.5740	0.048	.6924	0.059	.6916
0.004	0.243	.7491	0.095	.7098	0.003	.6824	0.420	.7958	0.434	.7967
0.0004	0.982	.9530	0.899	.9304	0.831	.9112	1.064	.9748	1.071	.9756
Lower										
0.000	1.150	.9993	1.141	.9971	1.117	.9899	1.152	.9991	1.154	.9990
0.001	0.967	.9487	1.066	.9764	1.111	.9884	0.794	.8998	0.788	.8961
0.003	0.575	.8407	0.760	.8925	0.869	.9215	0.340	.7636	0.298	.7586
0.005	0.574	.8405	0.743	.8876	0.825	.9093	0.358	.7785	0.352	.7738
0.011	0.434	.8018	0.569	.8398	0.649	.8609	0.251	.7488	0.248	.7444
0.019	0.358	.7810	0.481	.8156	0.555	.8348	0.194	.7329	0.193	.7291
0.050	0.322	.7710	0.408	.7956	0.462	.8091	0.214	.7386	0.214	.7349
0.100	0.241	.7487	0.309	.7685	0.351	.7785	0.158	.7229	0.158	.7192
0.147	0.156	.7253	0.219	.7436	0.255	.7521	0.080	.7014	0.080	.6973
0.199	0.098	.7093	0.154	.7259	0.186	.7331	0.028	.6867	0.028	.6828
0.299	-0.019	.6769	0.028	.6913	0.051	.6957	-0.082	.6562	-0.086	.6507
0.400	-0.076	.6612	-0.038	.6732	-0.025	.6748	-0.133	.6420	-0.132	.6378
0.499	-0.087	.6583	-0.060	.6671	-0.059	.6654	-0.133	.6422	-0.132	.6378

Table 8.5 (contd.)

x/c Upper	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o
0.599	0.028	.6899	0.042	.6952	0.034	.6911	-0.003	.6783	0.000	.6747
0.729	0.127	.7172	0.129	.7191	0.109	.7118	0.108	.7092	0.112	.7064
0.868	0.178	.7313	0.166	.7293	0.127	.7166	0.166	.7252	0.171	.7230
0.948	0.202	.7379	0.173	.7311	0.098	.7088	0.196	.7335	0.203	.7317

Run	100		106		113		118	
M_∞	0.798		0.801		0.850		0.851	
$\alpha°$	2.01		5.01		2.01		4.47	
x/c Upper	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o
1.000	0.095	.6854	-0.341	.5554	-0.167	.5707	-0.387	.5009
0.928	0.030	.6665	-0.474	.5161	-0.274	.5367	-0.474	.4736
0.848	-0.122	.6220	-0.550	.4937	-0.326	.5203	-0.496	.4666
0.800	-0.214	.5950	-0.568	.4886	-0.347	.5138	-0.506	.4635
0.720	-0.369	.5497	-0.580	.4851	-0.388	.5008	-0.516	.4604
0.649	-0.533	.5016	-0.596	.4803	-0.784	.3760	-0.534	.4548
0.599	-1.055	.3485	-0.592	.4814	-0.910	.3360	-0.702	.4017
0.549	-1.011	.3615	-0.611	.4760	-0.861	.3517	-0.990	.3107
0.498	-0.972	.3730	-0.644	.4662	-0.822	.3639	-1.011	.3042
0.450	-0.924	.3869	-0.767	.4300	-0.780	.3771	-0.973	.3161
0.400	-0.906	.3922	-1.102	.3314	-0.738	.3902	-0.932	.3290
0.350	-0.887	.3979	-1.129	.3234	-0.716	.3972	-0.903	.3383
0.299	-0.848	.4092	-1.105	.3306	-0.682	.4079	-0.874	.3472
0.250	-0.826	.4158	-1.101	.3317	-0.651	.4177	-0.859	.3521
0.200	-0.829	.4148	-1.105	.3304	-0.634	.4232	-0.854	.3535
0.150	-0.772	.4315	-1.069	.3412	-0.562	.4459	-0.808	.3681
0.101	-0.781	.4289	-1.077	.3388	-0.530	.4559	-0.799	.3709
0.075	-0.763	.4340	-1.053	.3459	-0.508	.4628	-0.775	.3787
0.051	-0.790	.4262	-1.070	.3409	-0.537	.4539	-0.773	.3793
0.031	-0.697	.4535	-1.015	.3570	-0.452	.4805	-0.689	.4057
0.020	-0.477	.5178	-0.928	.3828	-0.212	.5565	-0.560	.4463
0.015	-0.418	.5351	-0.853	.4047	-0.137	.5800	-0.508	.4627
0.011	-0.194	.6008	-0.558	.4914	0.061	.6425	-0.242	.5467
0.007	0.144	.6998	-0.193	.5987	0.376	.7420	0.090	.6516
0.004	0.507	.8060	0.186	.7102	0.704	.8454	0.433	.7598
0.0004	1.090	.9768	0.903	.9212	1.169	.9920	1.054	.9558
Lower								
0.000	1.164	.9984	1.166	.9987	1.156	.9881	1.192	.9993
0.001	0.747	.8763	1.074	.9716	0.575	.8046	0.966	.9279
0.003	0.240	.7279	0.766	.8810	-0.051	.6072	0.547	.7957
0.005	0.309	.7479	0.749	.8760	0.090	.6516	0.565	.8013
0.011	0.213	.7199	0.580	.8263	0.048	.6383	0.433	.7597
0.019	0.173	.7082	0.499	.8024	0.031	.6329	0.372	.7405
0.050	0.205	.7176	0.427	.7811	0.125	.6628	0.347	.7326
0.100	0.157	.7036	0.328	.7521	0.100	.6549	0.269	.7081
0.147	0.084	.6821	0.235	.7247	0.028	.6320	0.180	.6800
0.199	0.018	.6629	0.152	.7002	-0.040	.6105	0.098	.6541
0.299	-0.097	.6291	0.010	.6587	-0.180	.5664	-0.053	.6064
0.400	-0.152	.6131	-0.079	.6324	-0.267	.5389	-0.159	.5729
0.499	-0.154	.6124	-0.126	.6185	-0.258	.5417	-0.210	.5569
0.599	-0.007	.6555	-0.016	.6509	-0.065	.6028	-0.062	.6037
0.729	0.114	.6910	0.067	.6754	0.070	.6452	0.041	.6361
0.868	0.167	.7066	0.057	.6725	0.104	.6560	0.037	.6347
0.948	0.186	.7120	-0.009	.6530	0.069	.6451	-0.025	.6153

Table 8.6

SURFACE PRESSURE DISTRIBUTION - POLYTECHNIC OF TURIN (P.T.)

Run	P33		P36		P96		P97		P37	
M_∞	0.751		0.768		0.759		0.759		0.754	
$\alpha°$	1.12		2.25		2.83		3.48		4.61	
x/c Upper	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o
1.000	0.143	.7268	0.136	.7149	0.107	.7120	0.107	.7120	0.090	.7103
0.928	0.083	.7105	0.077	.6984	0.051	.6966	0.049	.6961	0.043	.6976
0.848	0.000	.6880	-0.013	.6731	-0.035	.6729	-0.035	.6729	-0.036	.6760
0.800	-0.060	.6717	-0.082	.6538	-0.103	.6541	-0.102	.6545	-0.093	.6605
0.720	-0.334	.5974	-0.215	.6167	-0.247	.6145	-0.237	.6174	-0.205	.6299
0.649	-0.476	.5587	-0.366	.5744	-0.359	.5835	-0.345	.5874	-0.296	.6050
0.599	-0.507	.5503	-0.529	.5289	-0.428	.5647	-0.402	.5720	-0.357	.5885
0.549	-0.537	.5423	-0.558	.5209	-0.461	.5555	-0.430	.5642	-0.462	.5598
0.498	-0.568	.5339	-0.696	.4824	-0.487	.5483	-0.480	.5502	-0.744	.4827
0.450	-0.593	.5269	-0.734	.4716	-0.608	.5150	-0.696	.4908	-1.026	.4056
0.400	-0.612	.5218	-0.761	.4641	-0.833	.4532	-0.952	.4203	-1.083	.3901
0.350	-0.623	.5190	-0.802	.4528	-0.931	.4261	-1.026	.4000	-1.100	.3854
0.299	-0.633	.5162	-0.852	.4387	-	-	-	-	-1.133	.3764
0.250	-0.650	.5115	-0.879	.4312	-	-	-	-	-1.200	.3581
0.200	-0.659	.5092	-0.877	.4317	-0.963	.4174	-1.052	.3928	-1.240	.3473
0.150	-0.657	.5096	-0.852	.4387	-1.005	.4058	-1.078	.3855	-1.235	.3487
0.101	-0.645	.5129	-0.849	.4396	-1.020	.4015	-1.091	.3822	-1.240	.3473
0.075	-0.633	.5162	-0.849	.4396	-1.022	.4010	-1.091	.3822	-1.235	.3487
0.051	-0.652	.5110	-0.857	.4373	-1.024	.4005	-1.084	.3841	-1.228	.3506
0.031	-0.550	.5386	-0.723	.4749	-0.903	.4338	-0.957	.4189	-1.130	.3774
0.020	-0.430	.5713	-0.600	.5092	-0.800	.4623	-0.871	.4425	-1.056	.3976
0.015	-0.337	.5965	-0.509	.5345	-0.717	.4850	-0.780	.4676	-0.963	.4230
0.011	-0.143	.6493	-0.307	.5909	-0.505	.5435	-0.572	.5251	-0.730	.4865
0.007	0.193	.7403	0.042	.6886	-0.149	.6415	-0.217	.6227	-0.362	.5871
0.004	0.568	.8422	0.439	.7994	0.249	.7511	0.188	.7342	0.086	.7094
0.0004	1.097	.9860	1.064	.9741	0.959	.9467	0.933	.9395	0.878	.9257
Lower										
0.000	1.080	.9813	1.112	.9878	1.071	.9776	1.080	.9800	1.095	.9850
0.001	0.521	.8295	0.739	.8835	0.861	.9197	0.926	.9375	1.033	.9680
0.003	0.017	.6927	0.313	.7642	0.505	.8216	0.600	.8477	0.760	.8933
0.005	0.045	.7002	0.292	.7586	0.466	.8110	0.545	.8327	0.673	.8698
0.011	0.026	.6950	0.224	.7393	0.354	.7801	0.417	.7975	0.558	.8382
0.019	0.007	.6899	0.176	.7261	0.288	.7618	0.351	.7791	0.462	.8119
0.050	0.064	.7053	0.156	.7205	0.233	.7468	0.274	.7579	0.358	.7837
0.100	0.028	.6955	0.097	.7041	0.160	.7265	0.196	.7366	0.260	.7569
0.147	-0.036	.6782	0.030	.6853	0.080	.7048	0.110	.7130	0.167	.7315
0.199	-0.091	.6633	-0.035	.6670	0.014	.6864	0.040	.6937	0.088	.7099
0.299	-0.188	.6371	-0.145	.6364	-0.088	.6584	-0.065	.6647	-0.038	.6755
0.400	-0.227	.6264	-0.198	.6214	-	-	-	-	-0.115	.6544
0.499	-0.184	.6381	-0.168	.6299	-0.116	.6507	-0.105	.6536	-0.115	.6544
0.599	-0.120	.6554	-0.097	.6496	-0.037	.6724	-0.030	.6743	-0.041	.6746
0.729	0.028	.6955	-0.005	.6754	0.075	.7033	0.079	.7043	0.021	.6915
0.868	0.153	.7296	0.158	.7210	0.119	.7154	0.123	.7164	0.152	.7273
0.948	0.157	.7305	0.158	.7210	0.124	.7168	0.126	.7173	0.133	.7221

Run	P78		P39		P99		P40		P108	
M_∞	0.765		0.802		0.795		0.793		0.797	
$\alpha°$	4.61		1.30		2.00		2.90		3.90	
x/c Upper	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o
1.000	0.065	.6968	0.151	.6992	0.126	.6961	0.103	.6907	0.046	.6715
0.928	0.016	.6829	0.103	.6851	0.074	.6808	0.061	.6785	-0.007	.6562
0.848	-0.056	.6630	0.024	.6616	-0.010	.6565	-0.021	.6546	-0.098	.6295
0.800	-0.109	.6482	-0.035	.6443	-0.070	.6388	-0.078	.6381	-0.162	.6109
0.720	-0.220	.6175	-0.337	.5552	-0.201	.6006	-0.229	.5940	-0.292	.5727
0.649	-0.330	.5867	-0.625	.4703	-0.352	.5567	-0.542	.5030	-0.437	.5302
0.599	-0.422	.5612	-0.640	.4660	-0.571	.4927	-0.793	.4302	-0.573	.4906
0.549	-0.554	.5243	-0.654	.4618	-0.835	.4159	-0.825	.4208	-0.780	.4299
0.498	-0.849	.4424	-0.673	.4562	-0.922	.3906	-0.828	.4199	-0.969	.3746
0.450	-1.141	.3610	-0.710	.4454	-0.918	.3915	-0.844	.4152	-1.010	.3626
0.400	-1.213	.3410	-0.754	.4323	-0.900	.3968	-0.877	.4058	-1.051	.3507
0.350	-1.255	.3293	-0.767	.4285	-0.886	.4011	-0.933	.3894	-1.087	.3402
0.299	-	-	-0.757	.4313	-	-	-0.945	.3861	-	-
0.250	-	-	-0.732	.4388	-	-	-0.925	.3917	-	-
0.200	-1.219	.3393	-0.698	.4487	-0.769	.4350	-0.909	.3964	-1.020	.3598
0.150	-1.212	.3415	-0.641	.4656	-0.756	.4388	-0.875	.4063	-1.007	.3636

Table 8.6 (contd.)

x/c Upper	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o
0.101	-1.210	.3419	-0.600	.4778	-0.733	.4455	-0.861	.4105	-0.992	.3679
0.075	-1.204	.3436	-0.565	.4881	-0.725	.4479	-0.849	.4138	-0.979	.3717
0.051	-1.198	.3454	-0.562	.4890	-0.725	.4479	-0.838	.4171	-0.960	.3774
0.031	-1.095	.3740	-0.431	.5275	-0.576	.4913	-0.707	.4551	-0.811	.4209
0.020	-1.025	.3935	-0.299	.5664	-0.453	.5271	-0.583	.4912	-0.723	.4466
0.015	-0.927	.4208	-0.204	.5946	-0.367	.5524	-0.496	.5166	-0.640	.4710
0.011	-0.701	.4836	-0.013	.6509	-0.170	.6097	-0.295	.5748	-0.429	.5326
0.007	-0.330	.5867	0.307	.7451	0.157	.7052	0.045	.6738	-0.095	.6304
0.004	0.089	.7033	0.655	.8479	0.517	.8102	0.439	.7883	0.291	.7431
0.0004	0.889	.9260	1.130	.9877	1.085	.9758	1.066	.9705	0.983	.9455
Lower										
0.000	1.112	.9880	1.088	.9755	1.108	.9825	1.124	.9874	1.100	.9798
0.001	1.051	.9711	0.471	.7935	0.674	.8560	0.793	.8911	0.919	.9269
0.003	0.776	.8944	-0.059	.6372	0.214	.7219	0.389	.7738	0.583	.8285
0.005	0.702	.8740	-0.016	.6499	0.229	.7262	0.357	.7644	0.542	.8166
0.011	0.578	.8393	-0.019	.6490	0.164	.7071	0.283	.7428	0.421	.7813
0.019	0.489	.8146	-0.029	.6462	0.126	.6961	0.229	.7273	0.354	.7617
0.050	0.382	.7847	0.029	.6630	0.129	.6971	0.197	.7179	0.286	.7416
0.100	0.282	.7570	0.016	.6593	0.088	.6851	0.142	.7020	0.206	.7183
0.147	0.188	.7310	-0.049	.6401	0.013	.6632	0.060	.6780	0.122	.6939
0.199	0.109	.7089	-0.110	.6222	-0.044	.6465	-0.016	.6560	0.049	.6724
0.299	-0.014	.6747	-0.217	.5903	-0.147	.6164	-0.136	.6212	-0.075	.6362
0.400	-	-	-0.262	.5772	-	-	-0.202	.6020	-	-
0.499	-0.072	.6586	-0.210	.5927	-0.156	.6140	-0.178	.6090	-0.127	.6209
0.599	-0.014	.6747	-0.153	.6096	-0.061	.6417	-0.102	.6311	-0.051	.6433
0.729	0.090	.7037	0.073	.6762	0.069	.6794	-0.024	.6536	0.065	.6772
0.868	0.121	.7124	0.161	.7020	0.128	.6966	0.152	.7048	0.104	.6887
0.948	0.111	.7093	0.169	.7043	0.141	.7004	0.139	.7010	0.093	.6853

Run	P41		P81		P100		P82		P13	
M_∞	0.799		0.800		0.849		0.851		0.848	
$\alpha°$	5.43		5.43		0.80		1.77		1.77	
x/c Upper	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o
1.000	-0.129	.6192	-0.169	.6063	0.098	.6552	0.000	.6229	-0.022	.6178
0.928	-0.183	.6031	-0.238	.5860	0.030	.6338	-0.082	.5971	-0.093	.5954
0.848	-0.244	.5852	-0.298	.5683	-0.085	.5977	-0.165	.5708	-0.190	.5649
0.800	-0.276	.5758	-0.328	.5597	-0.159	.5744	-0.206	.5579	-0.264	.5416
0.720	-0.345	.5556	-0.382	.5437	-0.316	.5249	-0.263	.5398	-0.444	.4849
0.649	-0.424	.5325	-0.441	.5264	-0.773	.3808	-0.406	.4946	-0.622	.4290
0.599	-0.498	.5108	-0.485	.5135	-0.903	.3399	-0.826	.3620	-0.637	.4243
0.549	-0.601	.4806	-0.567	.4893	-0.858	.3542	-0.904	.3374	-0.634	.4252
0.498	-0.781	.4279	-0.696	.4513	-0.802	.3718	-0.863	.3504	-0.638	.4239
0.450	-0.957	.3760	-0.915	.3870	-0.760	.3851	-0.816	.3654	-0.661	.4167
0.400	-1.001	.3633	-1.067	.3425	-0.716	.3989	-0.786	.3749	-0.715	.3997
0.350	-1.004	.3624	-1.071	.3412	-0.683	.4094	-0.765	.3814	-0.727	.3959
0.299	-1.023	.3567	-	-	-	-	-	-	-0.844	.3591
0.250	-1.079	.3402	-	-	-	-	-	-	-0.662	.4163
0.200	-1.134	.3242	-1.143	.3200	-0.530	.4574	-0.629	.4244	-0.627	.4273
0.150	-1.118	.3289	-1.125	.3252	-0.498	.4674	-0.580	.4399	-0.561	.4480
0.101	-1.105	.3327	-1.117	.3278	-0.443	.4850	-0.529	.4559	-0.510	.4641
0.075	-1.092	.3365	-1.102	.3321	-0.399	.4988	-0.499	.4653	-0.476	.4747
0.051	-1.071	.3426	-1.087	.3364	-0.370	.5078	-0.483	.4705	-0.458	.4806
0.031	-0.964	.3742	-0.981	.3675	-0.239	.5492	-0.348	.5131	0.323	.7262
0.020	-0.883	.3977	-0.908	.3891	-0.105	.5910	-0.210	.5566	0.187	.6835
0.015	-0.793	.4241	-0.817	.4159	-0.014	.6200	-0.115	.5867	0.092	.6534
0.011	-0.573	.4887	-0.598	.4802	0.168	.6771	0.070	.6449	0.094	.6543
0.007	-0.222	.5918	-0.247	.5834	0.453	.7670	0.380	.7430	0.404	.7516
0.004	0.194	.7139	0.154	.7013	0.755	.8621	0.709	.8468	0.738	.8567
0.0004	0.941	.9330	0.914	.9246	1.140	.9834	1.166	.9911	1.174	.9939
Lower										
0.000	1.128	.9876	1.118	.9846	1.054	.9563	1.118	.9760	1.122	.9778
0.001	1.036	.9608	1.046	.9634	0.341	.7318	0.514	.7852	0.509	.7847
0.003	0.758	.8792	0.771	.8827	-0.258	.5430	-0.031	.6130	-0.078	.6000
0.005	0.679	.8562	0.702	.8624	-0.174	.5696	0.023	.6302	-0.023	.6174
0.011	0.559	.8208	0.577	.8257	-0.148	.5777	0.022	.6298	-0.013	.6204
0.019	0.474	.7959	0.488	.7993	-0.134	.5820	0.016	.6281	-0.020	.6183
0.050	0.373	.7662	0.383	.7687	-0.033	.6139	0.063	.6427	0.040	.6373
0.100	0.275	.7374	0.286	.7402	-0.017	.6191	0.053	.6397	0.032	.6348
0.147	0.180	.7096	0.191	.7121	-0.076	.6005	-0.023	.6156	-0.035	.6136
0.199	0.093	.6842	0.106	.6871	-0.137	.5810	-0.089	.5949	-0.113	.5890
0.299	-0.056	.6404	-0.028	.6478	-0.234	.5506	-0.194	.5618	-0.250	.5458

Table 8.6 (contd.)

x/c Upper	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o
0.400	-0.154	.6116	-	-	-	-	-	-	-0.347	.5154
0.499	-0.167	.6079	-0.110	.6236	-0.396	.4997	-0.466	.4757	-0.318	.5246
0.599	-0.090	.6305	-0.056	.6396	-0.082	.5986	-0.097	.5923	-0.269	.5399
0.729	-0.024	.6498	0.038	.6672	0.056	.6419	0.049	.6384	0.036	.6360
0.868	0.074	.6785	0.038	.6672	0.115	.6605	0.089	.6509	0.106	.6581
0.948	0.016	.6616	-0.028	.6478	0.121	.6624	0.068	.6444	0.067	.6458

Run	P109		P102		P85	
M_∞	0.842		0.841		0.855	
$\alpha°$	2.00		3.20		4.18	
x/c Upper	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o
1.000	0.054	.6460	-0.019	.6229	-0.167	.5671
0.928	-0.017	.6239	-0.079	.6043	-0.233	.5461
0.848	-0.136	.5867	-0.176	.5739	-0.287	.5290
0.800	-0.219	.5608	-0.246	.5524	-0.318	.5192
0.720	-0.392	.5067	-0.398	.5051	-0.375	.5012
0.649	-0.656	.4244	-0.576	.4499	-0.438	.4811
0.599	-0.863	.3599	-0.745	.3971	-0.505	.4597
0.549	-0.935	.3374	-0.866	.3595	-0.825	.3583
0.498	-0.922	.3416	-0.907	.3469	-0.955	.3168
0.450	-0.890	.3515	-0.944	.3354	-0.965	.3138
0.400	-0.851	.3637	-0.939	.3368	-0.961	.3151
0.350	-0.822	.3726	-0.917	.3437	-0.942	.3211
0.299	-	-	-	-	-	-
0.250	-	-	-	-	-	-
0.200	-0.714	.4065	-0.814	.3760	-0.846	.3514
0.150	-0.658	.4239	-0.788	.3841	-0.813	.3621
0.101	-0.620	.4357	-0.761	.3925	-0.786	.3707
0.075	-0.597	.4427	-0.742	.3984	-0.764	.3775
0.051	-0.581	.4479	-0.715	.4070	-0.736	.3865
0.031	-0.422	.4973	-0.573	.4510	-0.620	.4233
0.020	-0.294	.5373	-0.461	.4859	-0.512	.4576
0.015	-0.207	.5646	-0.375	.5129	-0.426	.4849
0.011	-0.023	.6220	-0.188	.5709	-0.232	.5465
0.007	0.282	.7170	0.129	.6698	0.094	.6501
0.004	0.613	.8200	0.481	.7795	0.458	.7656
0.0004	1.112	.9757	1.068	.9621	1.071	.9603
Lower						
0.000	1.101	.9724	1.115	.9766	1.148	.9847
0.001	0.611	.8196	0.784	.8735	0.884	.9008
0.003	0.136	.6714	0.382	.7481	0.504	.7802
0.005	0.161	.6794	0.366	.7433	0.473	.7703
0.011	0.116	.6653	0.280	.7165	0.389	.7438
0.019	0.094	.6582	0.236	.7029	0.332	.7254
0.050	0.115	.6649	0.208	.6940	0.280	.7091
0.100	0.083	.6549	0.153	.6768	0.209	.6865
0.147	0.014	.6333	0.070	.6510	0.120	.6582
0.199	-0.053	.6126	-0.002	.6286	0.039	.6325
0.299	-0.166	.5773	-0.123	.5908	-0.090	.5915
0.400	-	-	-	-	-	-
0.499	-0.284	.5406	-0.231	.5568	-0.302	.5243
0.599	-0.077	.6050	-0.082	.6037	-0.093	.5906
0.729	0.059	.6474	0.045	.6431	0.024	.6278
0.868	0.107	.6624	0.077	.6532	0.034	.6308
0.948	0.100	.6601	0.054	.6460	-0.031	.6103

Table 8.7

PRESSURE DISTRIBUTION ABOVE AND BELOW THE MODEL AT A DISTANCE OF 132 mm FROM THE CHORD
Polytechnic of Turin

Run	P33		P36		P96		P97		P37	
M_∞	0.751		0.768		0.759		0.759		0.754	
$\alpha°$	1.12		2.25		2.83		3.48		4.61	
x/c Upper Side	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o
-0.63	-0.029	.6801	-0.041	.6655	-0.041	.6712	-0.043	.6707	-0.050	.6723
-0.47	-0.031	.6797	-0.047	.6636	-0.052	.6683	-0.050	.6687	-0.056	.6706
-0.32	-0.035	.6786	-0.064	.6589	-0.069	.6634	-0.064	.6649	-0.070	.6668
-0.16	-0.048	.6749	-0.079	.6546	-0.094	.6567	-0.090	.6576	-0.104	.6574
0.00	-0.073	.6683	-0.111	.6457	-0.133	.6460	-0.134	.6456	-0.147	.6456
0.16	-0.093	.6627	-0.150	.6349	-0.169	.6359	-0.182	.6325	-0.192	.6334
0.32	-0.111	.6578	-0.174	.6283	-0.182	.6325	-0.208	.6253	-0.230	.6231
0.47	-0.114	.6571	-0.170	.6293	-0.168	.6364	-0.203	.6267	-0.225	.6245
0.63	-0.110	.6582	-0.139	.6380	-0.138	.6446	-0.164	.6374	-0.190	.6339
0.79	-0.096	.6620	-0.110	.6462	-0.107	.6530	-0.131	.6465	-0.158	.6428
0.94	-0.076	.6675	-0.083	.6537	-0.083	.6596	-0.096	.6562	-0.118	.6536
1.26	-0.046	.6756	-0.048	.6633	-0.040	.6716	-0.062	.6654	-0.085	.6626
1.57	-0.030	.6799	-0.037	.6664	-0.039	.6719	-0.047	.6697	-0.065	.6682
Lower Side										
-0.63	-0.004	.6871	0.004	.6780	0.017	.6872	0.017	.6872	0.012	.6890
-0.47	-0.001	.6876	0.008	.6791	0.022	.6885	0.031	.6911	0.015	.6899
-0.32	0.005	.6893	0.011	.6798	0.027	.6899	0.025	.6894	0.022	.6919
-0.16	0.008	.6901	0.012	.6801	0.029	.6904	0.032	.6913	0.031	.6944
0.00	0.008	.6902	0.018	.6820	0.029	.6904	0.036	.6923	0.038	.6963
0.16	0.006	.6896	0.015	.6810	0.025	.6894	0.037	.6928	0.041	.6970
0.32	0.002	.6886	0.016	.6813	0.025	.6894	0.034	.6918	0.038	.6963
0.47	0.001	.6884	0.017	.6815	0.027	.6899	0.034	.6918	0.034	.6951
0.63	0.006	.6898	0.019	.6822	0.029	.6904	0.032	.6913	0.033	.6949
0.79	0.009	.6905	0.028	.6845	0.032	.6913	0.032	.6913	0.034	.6951
0.94	0.022	.6940	0.029	.6850	0.032	.6913	0.034	.6918	0.035	.6954
1.26	0.025	.6949	0.031	.6855	0.030	.6909	0.037	.6928	0.036	.6956
1.57	0.027	.6954	0.029	.6850	0.029	.6904	0.036	.6923	0.034	.6951

Run	P39		P99		P40		P108		P41	
M_∞	0.802		0.795		0.793		0.797		0.799	
$\alpha°$	1.30		2.00		2.90		3.90		5.43	
x/c Upper Side	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o
-0.63	-0.025	.6471	-0.037	.6486	-0.033	.6510	-0.035	.6478	-0.039	.6453
-0.47	-0.026	.6469	-0.040	.6476	-0.038	.6496	-0.039	.6466	-0.040	.6451
-0.32	-0.029	.6459	-0.055	.6433	-0.056	.6445	-0.052	.6430	-0.051	.6420
-0.16	-0.047	.6408	-0.083	.6352	-0.078	.6379	-0.081	.6345	-0.076	.6345
0.00	-0.077	.6319	-0.106	.6285	-0.119	.6262	-0.133	.6192	-0.125	.6203
0.16	-0.106	.6234	-0.147	.6166	-0.178	.6088	-0.197	.6006	-0.195	.5996
0.32	-0.133	.6154	-0.181	.6066	-0.216	.5980	-0.262	.5815	-0.269	.5779
0.47	-0.139	.6136	-0.197	.6018	-0.217	.5975	-0.293	.5724	-0.312	.5652
0.63	-0.136	.6145	-0.176	.6080	-0.175	.6097	-0.233	.5901	-0.258	.5812
0.79	-0.107	.6229	-0.122	.6237	-0.132	.6224	-0.153	.6135	-0.171	.6067
0.94	-0.079	.6314	-0.081	.6357	-0.088	.6351	-0.106	.6271	-0.136	.6170
1.26	-0.039	.6431	-0.044	.6467	-0.051	.6459	-0.065	.6392	-0.089	.6307
1.57	-0.030	.6457	-0.030	.6505	-0.044	.6480	-0.048	.6440	-0.070	.6364
Lower Side										
-0.63	0.001	.6548	0.013	.6631	0.022	.6672	0.020	.6638	0.038	.6679
-0.47	0.004	.6557	0.015	.6636	0.026	.6681	0.021	.6643	0.039	.6683
-0.32	0.006	.6564	0.018	.6646	0.026	.6681	0.029	.6667	0.045	.6700
-0.16	0.013	.6583	0.025	.6665	0.019	.6663	0.036	.6686	0.043	.6695
0.00	0.008	.6569	0.025	.6665	0.016	.6653	0.042	.6705	0.037	.6676
0.16	0.005	.6562	0.020	.6650	0.021	.6667	0.037	.6691	0.032	.6662
0.32	0.001	.6550	0.017	.6643	0.022	.6672	0.033	.6676	0.026	.6646
0.47	0.001	.6550	0.016	.6638	0.031	.6695	0.029	.6667	0.022	.6634
0.63	0.003	.6555	0.016	.6638	0.033	.6702	0.028	.6662	0.022	.6634
0.79	0.011	.6578	0.020	.6650	0.034	.6705	0.029	.6667	0.024	.6639
0.94	0.016	.6592	0.025	.6665	0.035	.6710	0.029	.6667	0.029	.6653
1.26	0.025	.6620	0.030	.6681	0.035	.6710	0.034	.6681	0.030	.6658
1.57	0.029	.6632	0.031	.6684	0.034	.6705	0.034	.6681	0.034	.6667

Table 8.7 (contd.)

Run	P100		P109		P102	
M_∞	0.849		0.842		0.841	
$\alpha°$	0.80		2.00		3.20	
x/c Upper Side	C_p	p/p_o	C_p	p/p_o	C_p	p/p_o
-0.63	-0.008	.6218	-0.018	.6235	-0.026	.6212
-0.47	-0.008	.6218	-0.018	.6235	-0.026	.6212
-0.32	-0.014	.6199	-0.027	.6207	-0.042	.6162
-0.16	-0.031	.6146	-0.049	.6136	-0.055	.6121
0.00	-0.066	.6037	-0.092	.6005	-0.099	.5983
0.16	-0.118	.5870	-0.152	.5817	-0.170	.5763
0.32	-0.170	.5709	-0.220	.5605	-0.251	.5510
0.47	-0.208	.5590	-0.259	.5483	-0.326	.5276
0.63	-0.212	.5576	-0.242	.5534	-0.340	.5233
0.79	-0.129	.5837	-0.163	.5784	-0.197	.5677
0.94	-0.050	.6084	-0.069	.6075	-0.082	.6035
1.26	-0.016	.6194	-0.029	.6200	-0.035	.6183
1.57	-0.008	.6218	-0.020	.6228	-0.028	.6205
Lower Side						
-0.63	0.018	.6300	0.018	.6347	0.023	.6364
-0.47	0.020	.6305	0.025	.6370	0.025	.6369
-0.32	0.018	.6300	0.030	.6384	0.041	.6419
-0.16	0.012	.6281	0.024	.6366	0.035	.6402
0.00	0.003	.6253	0.018	.6347	0.028	.6378
0.16	-0.011	.6210	0.008	.6314	0.015	.6340
0.32	-0.015	.6196	0.003	.6300	0.002	.6300
0.47	-0.011	.6210	0.006	.6309	0.000	.6292
0.63	0.002	.6248	0.017	.6342	0.012	.6331
0.79	0.020	.6305	0.027	.6375	0.020	.6355
0.94	0.027	.6329	0.032	.6389	0.032	.6393
1.26	0.030	.6338	0.035	.6399	0.037	.6407
1.57	0.030	.6338	0.035	.6399	0.038	.6412

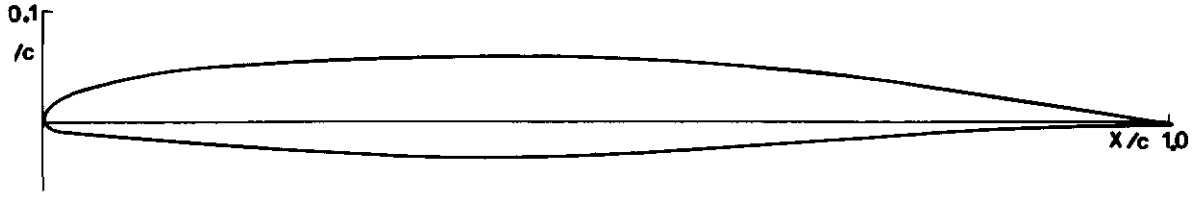


Fig.8.1. MBB-A3 Airfoil

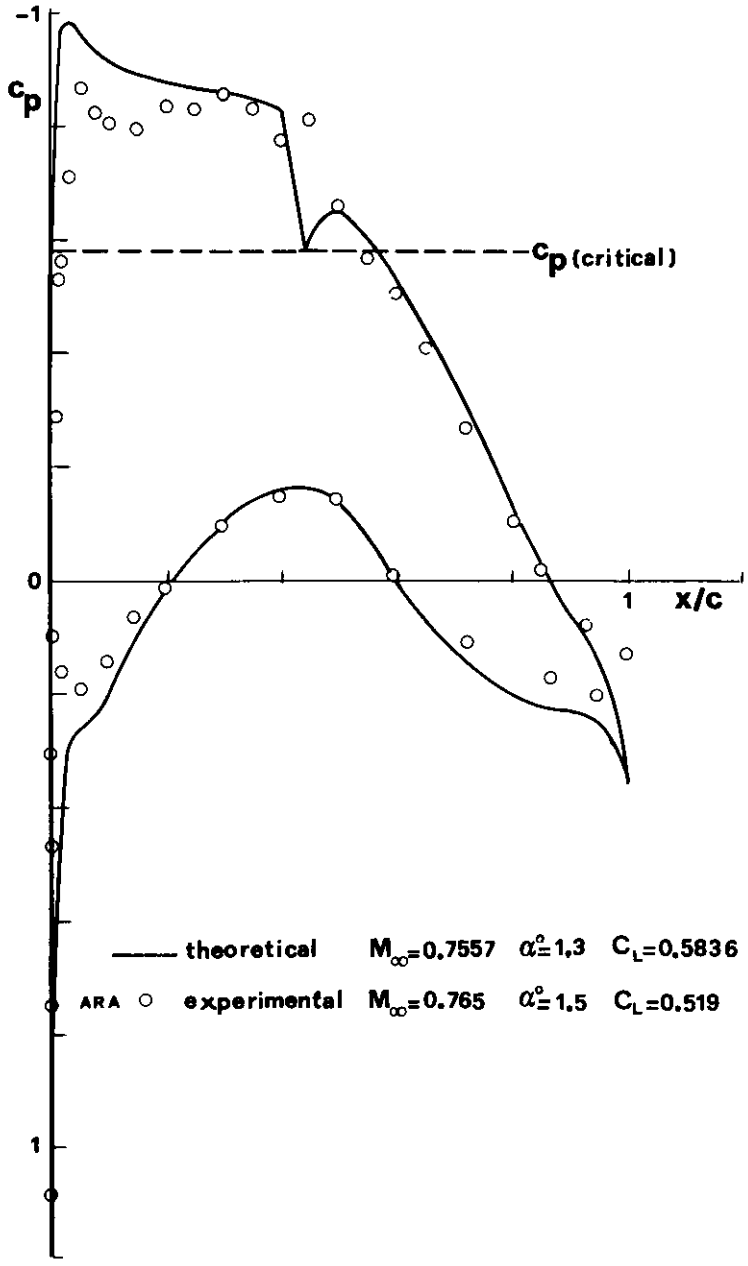


Fig.8.2. MBB-A3 Airfoil - Pressure distribution at design point (reprinted from ref.[1])

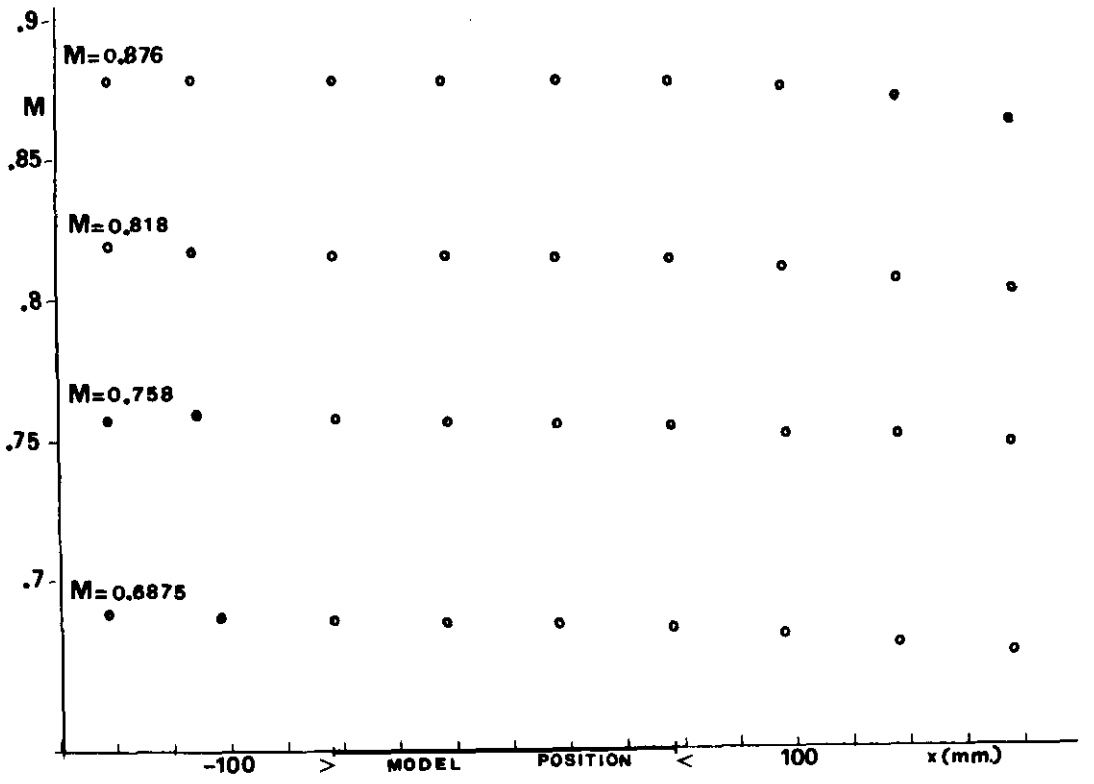


Fig.8.3a. Turin Polytechnic Wind Tunnel - Longitudinal Mach number distributions in empty test section.

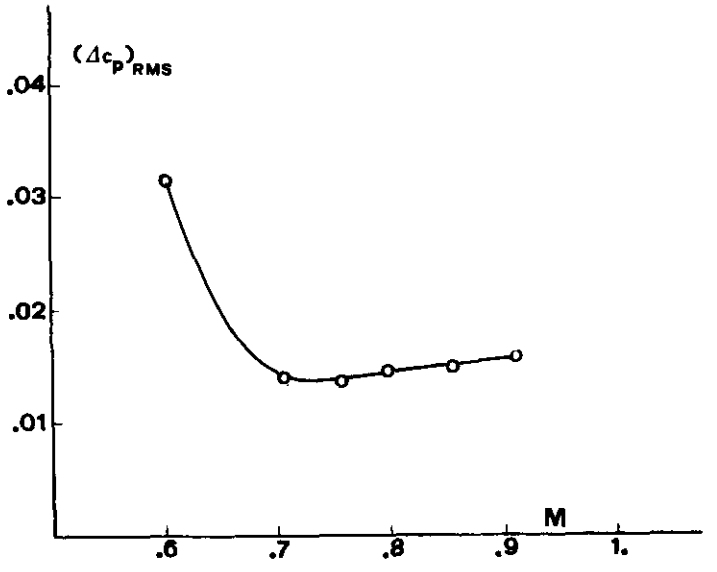


Fig.8.3b. Turin Polytechnic Wind Tunnel - Variation of tunnel pressure fluctuations with Mach number.

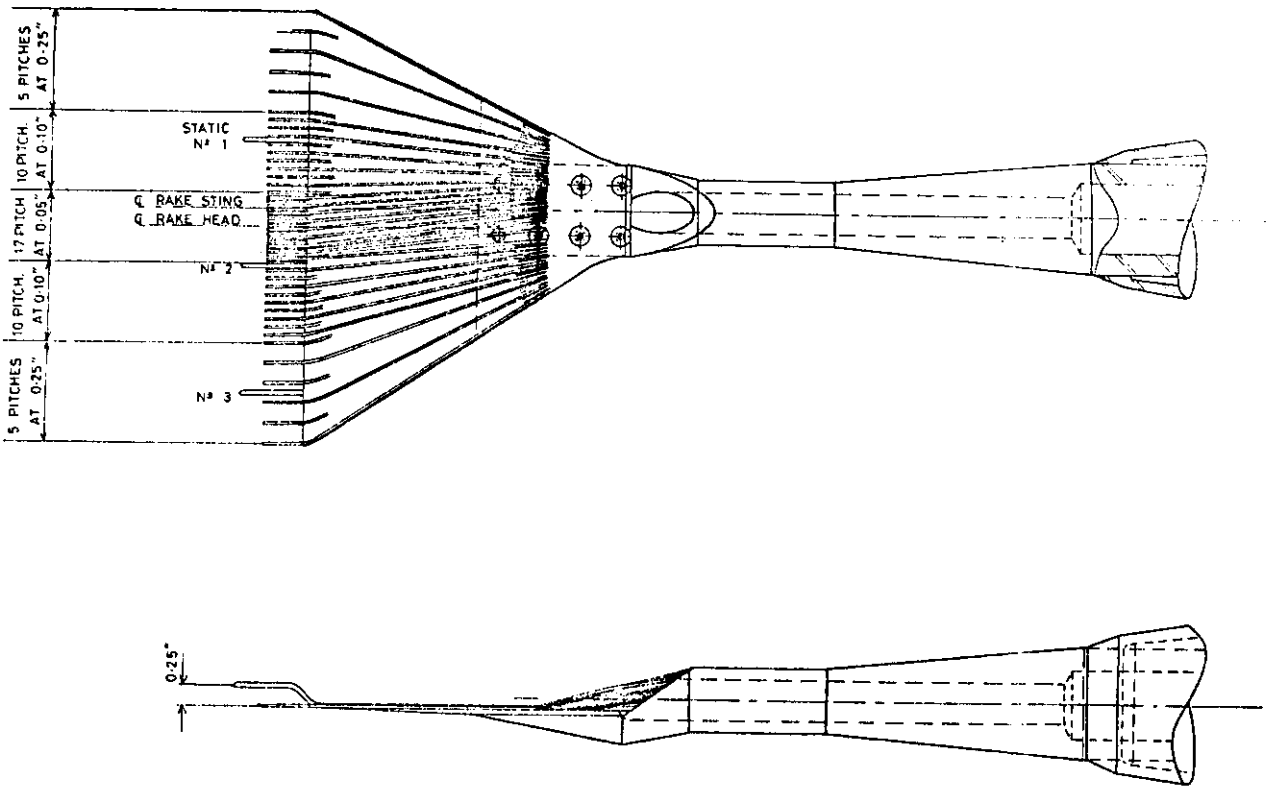


Fig.8.4. ARA Bedford Wind Tunnel - Wake Rake

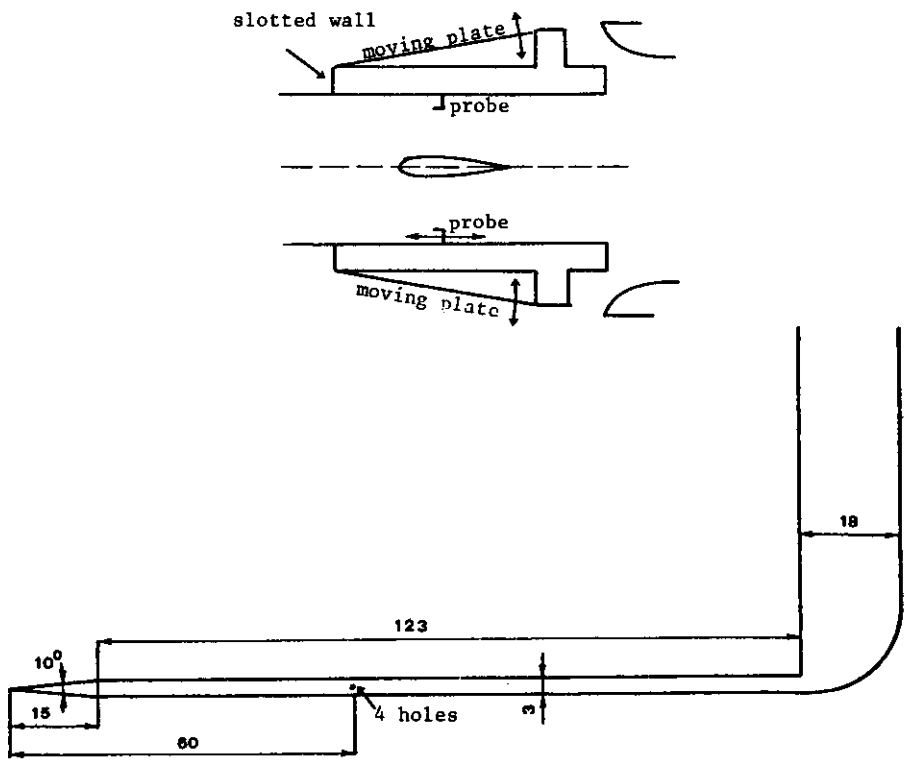


Fig.8.5. Turin Polytechnic Wind Tunnel - Static pressure probe for boundary conditions measurements and sketch of installation (all dimensions in mm).

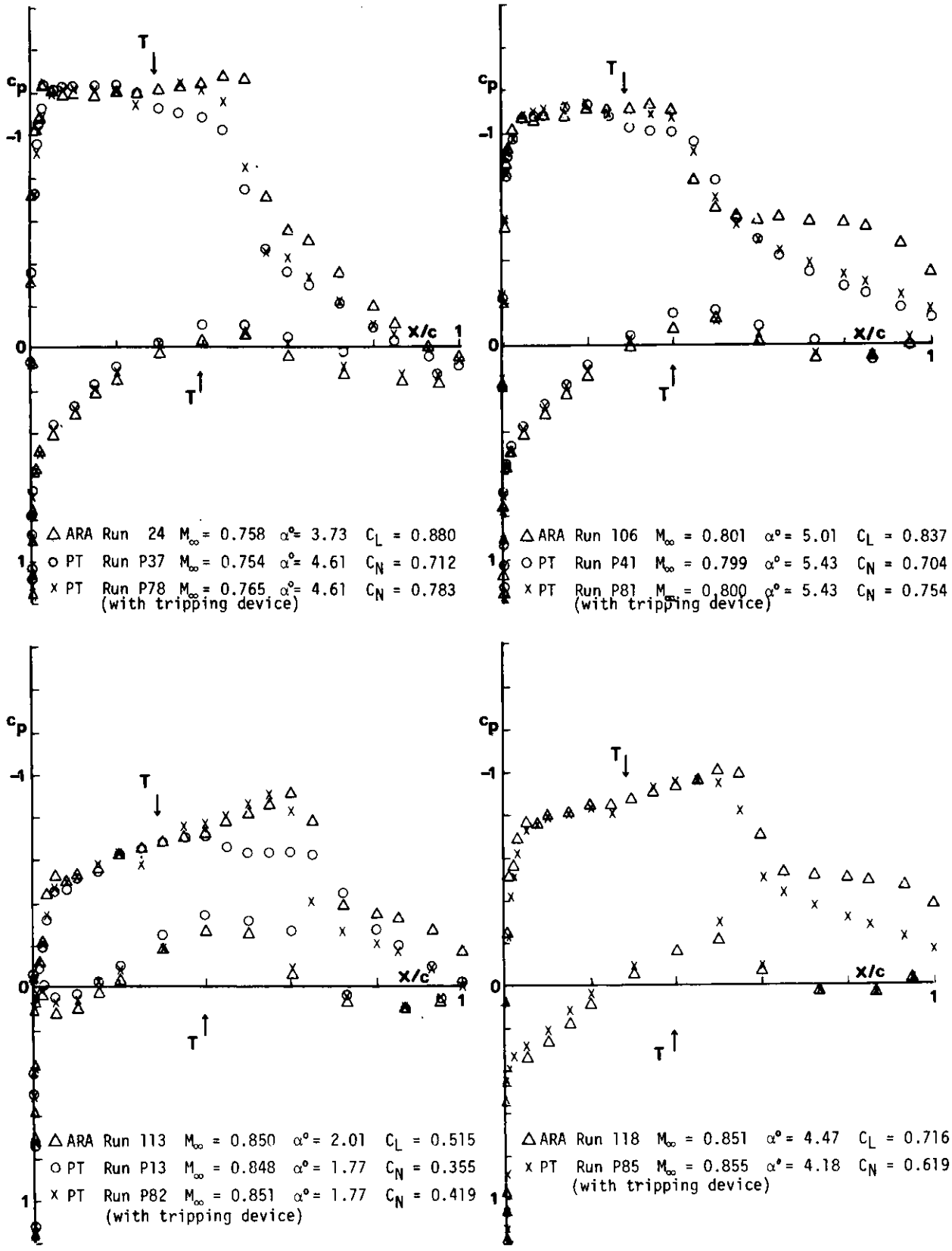
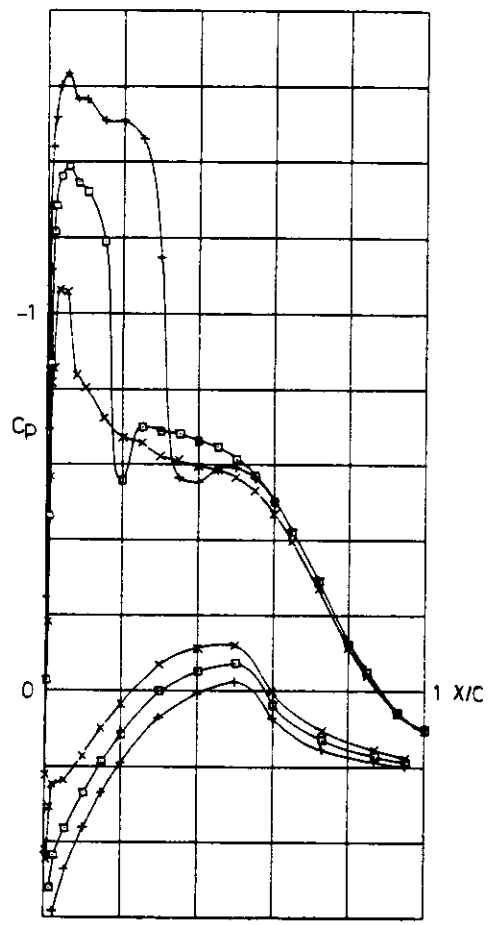
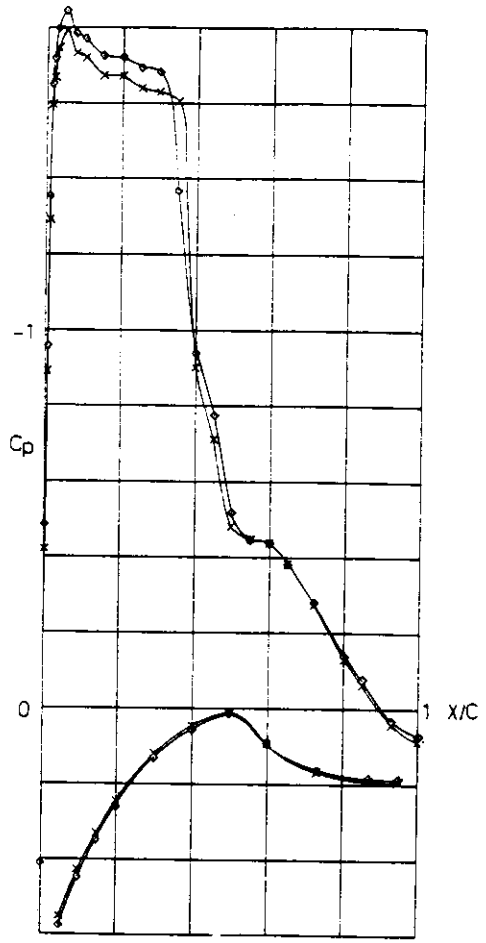


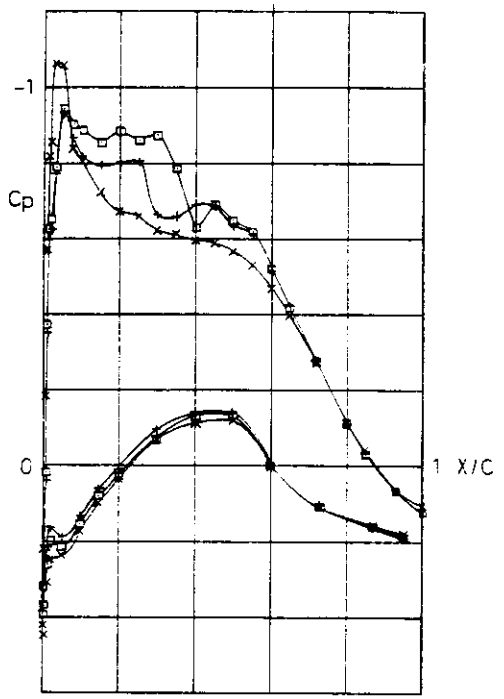
Fig.8.6. MBB-A3 Airfoil - Comparison between results obtained at the A.R.A Bedford wind tunnel and at the Turin Polytechnic wind tunnel. T tripping device.



Run	M_∞	$\alpha°$	C_L
×84	0.700	2.01	0.501
□86	0.700	3.02	0.649
+88	0.699	4.01	0.841

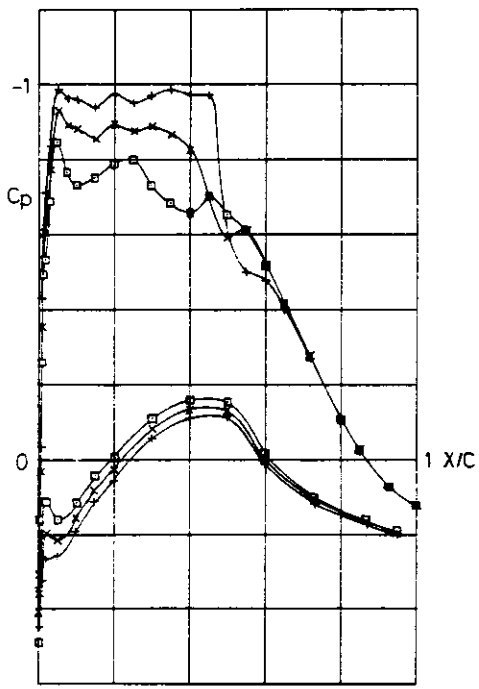


Run	M_∞	$\alpha°$	C_L
×93	0.698	5.00	1.003
◇94	0.698	5.49	1.024

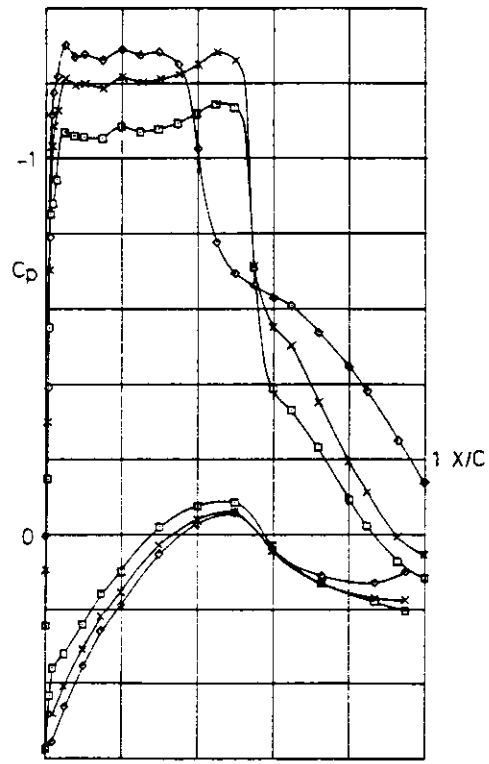


Run	M_∞	$\alpha°$	C_L
×84	0.700	2.01	0.501
+4	0.750	1.71	0.512
□13	0.755	1.89	0.553

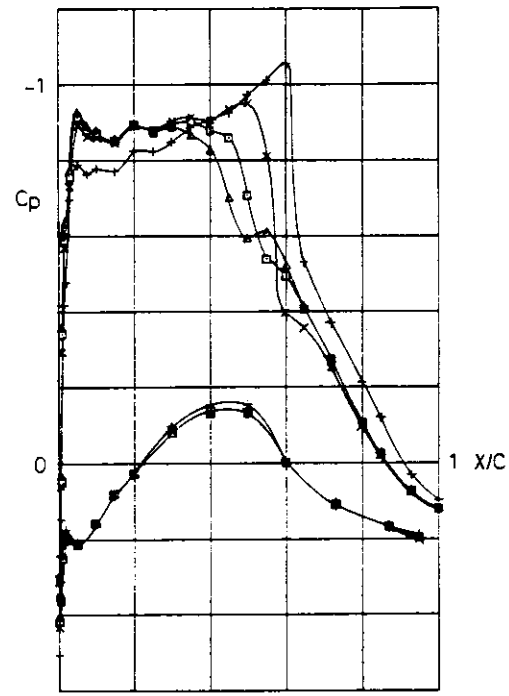
Fig.8.7. MBB-A3 Airfoil - Results obtained at the A.R.A. Bedford wind tunnel



Run	M_∞	$\alpha°$	C_L
□ 17	0.759	1.50	0.487
× 18	0.760	1.89	0.564
+ 22	0.760	2.21	0.626



Run	M_∞	$\alpha°$	C_L
□ 23	0.760	2.75	0.734
× 24	0.758	3.73	0.880
◇25	0.761	4.74	0.920



Run	M_∞	$\alpha°$	C_L
△18	0.760	1.89	0.564
□16	0.765	1.89	0.574
× 44	0.771	1.90	0.594
+100	0.798	2.01	0.641

Fig. 8.7. (contd.)

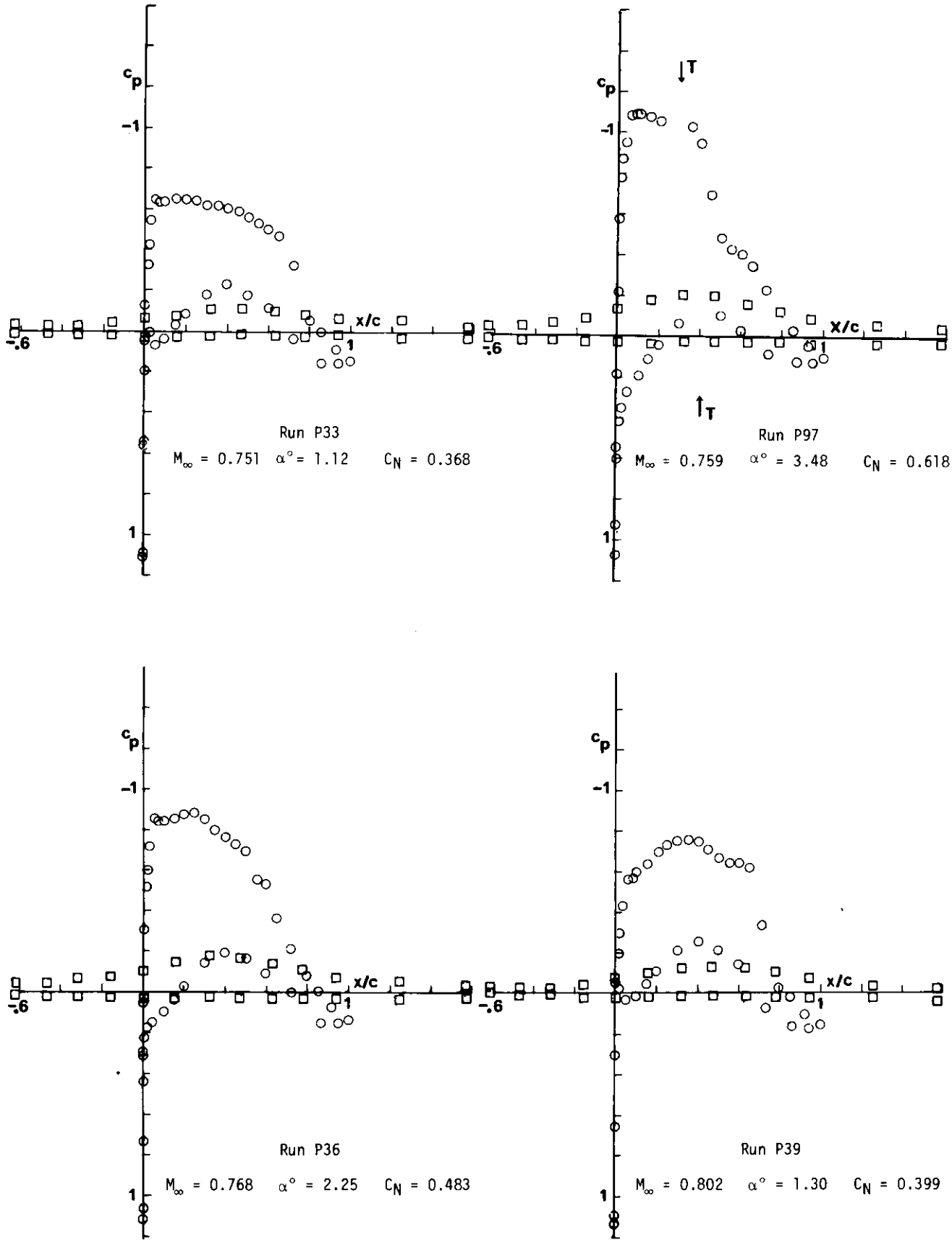


Fig.8.8. MBB-A3 Airfoil - Results obtained at the Turin Polytechnic wind tunnel

o pressure coefficients on the model surface

□ pressure coefficients at a distance of 132 mm from the model chord above and below the model

T tripping device

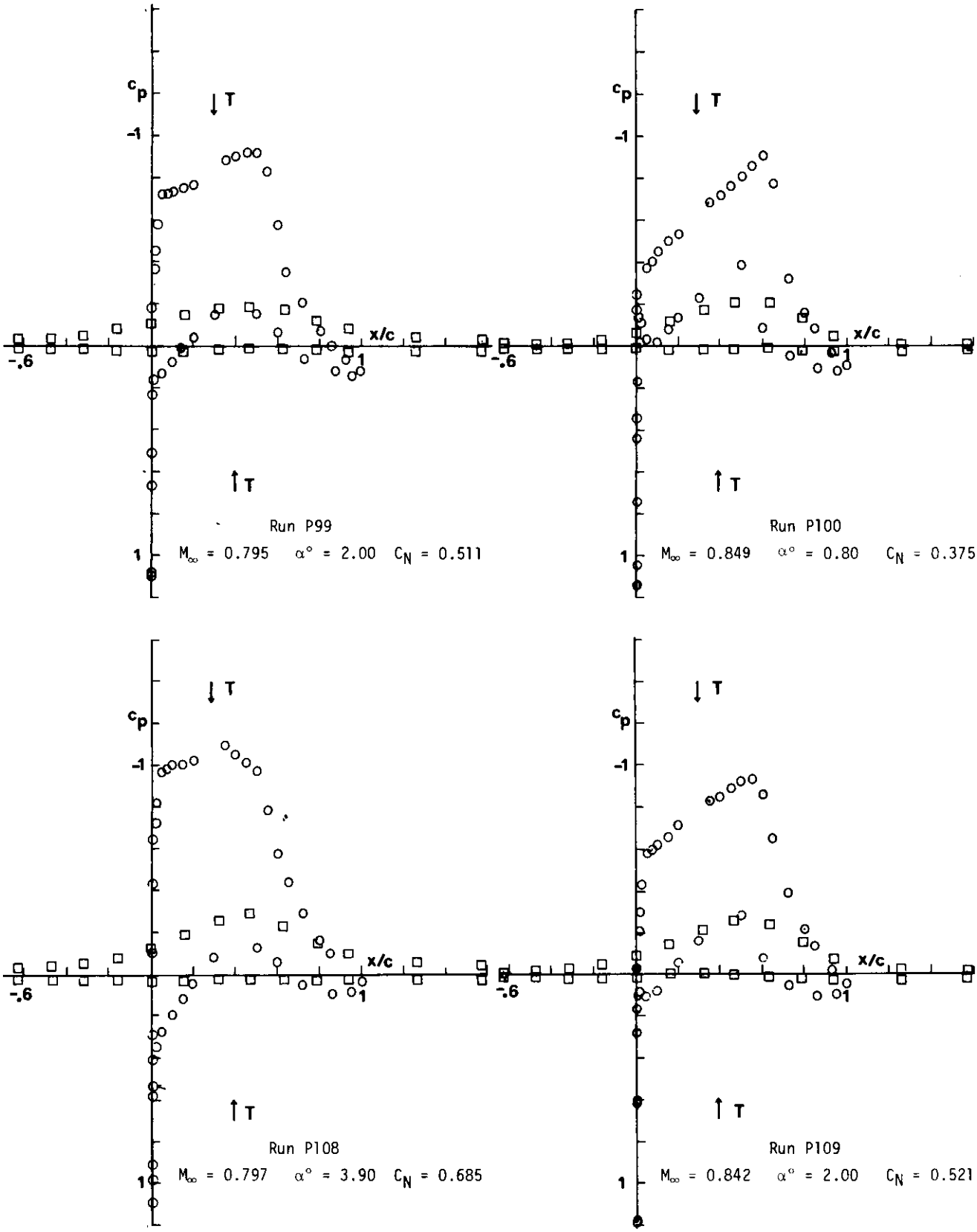
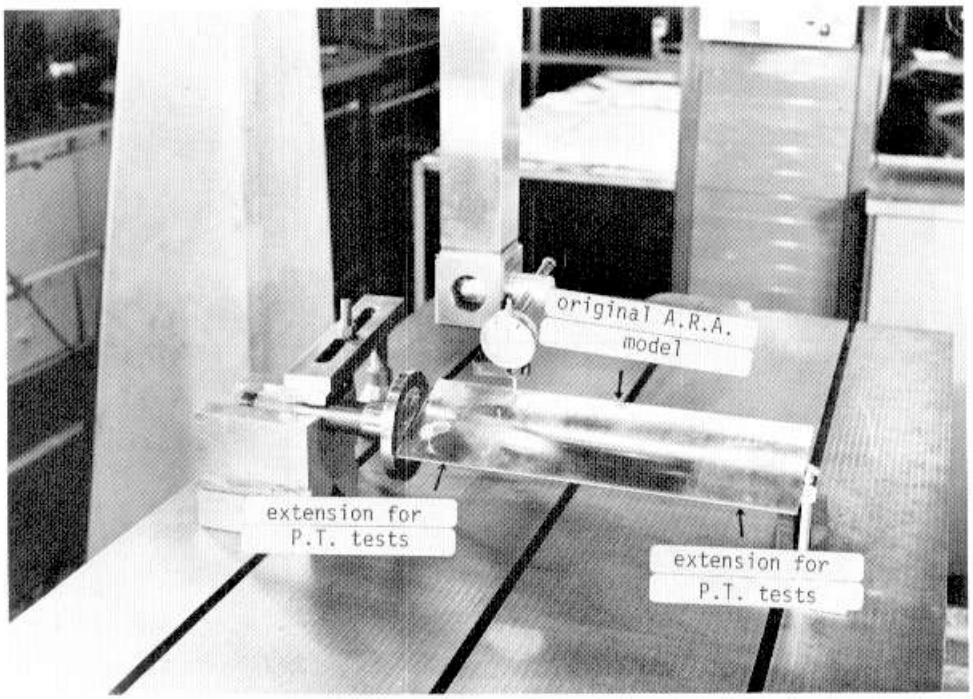
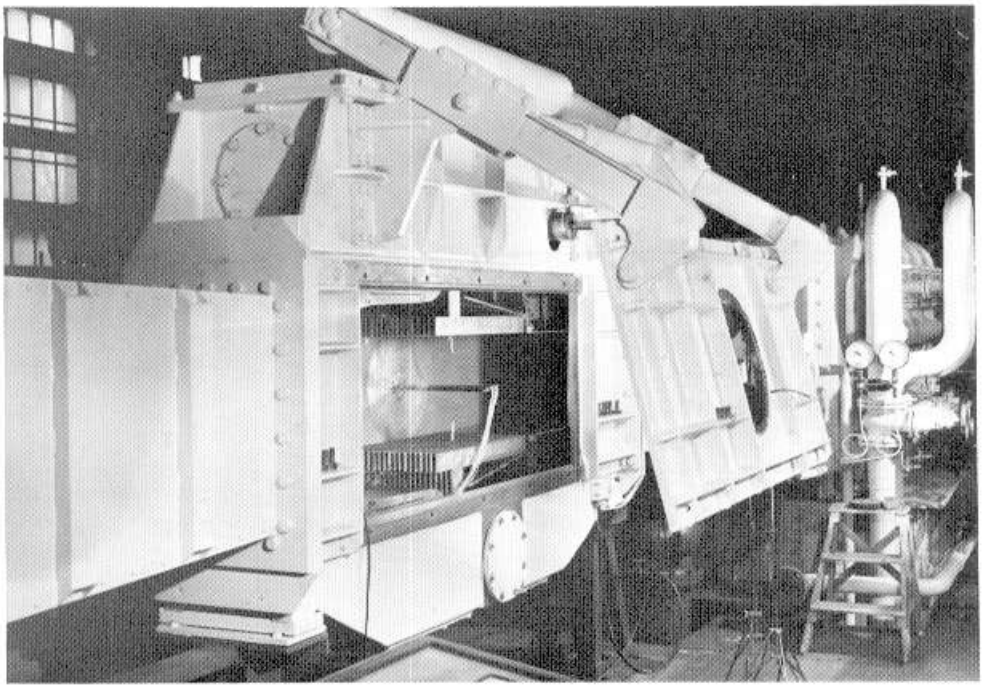
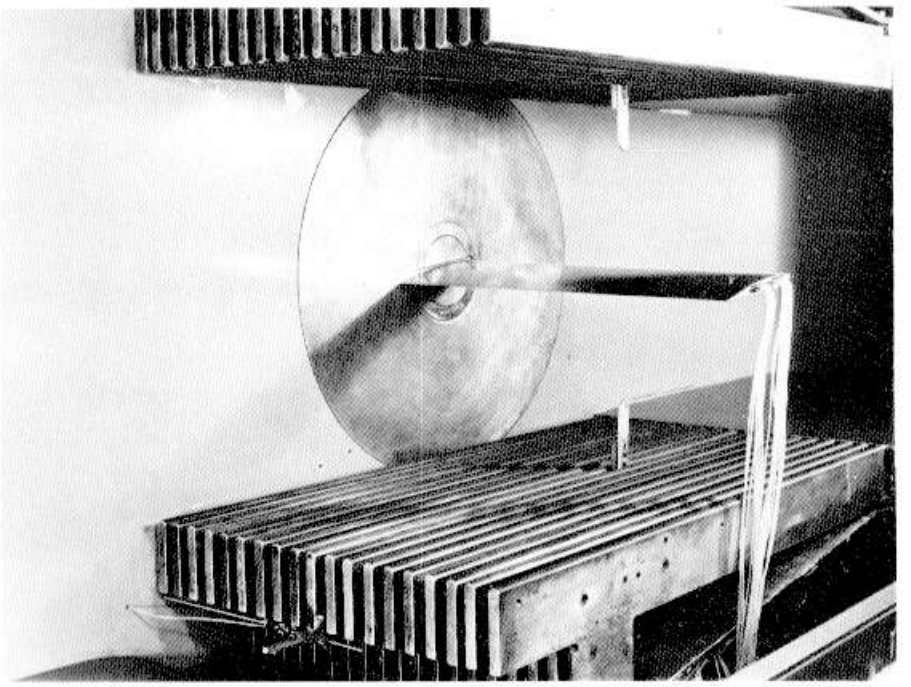

Run P99
M_∞ = 0.795 α° = 2.00 C_N = 0.511
Run P100
M_∞ = 0.849 α° = 0.80 C_N = 0.375
Run P108
M_∞ = 0.797 α° = 3.90 C_N = 0.685
Run P109
M_∞ = 0.842 α° = 2.00 C_N = 0.521
c_p
x/c
T
-1
1
-.6

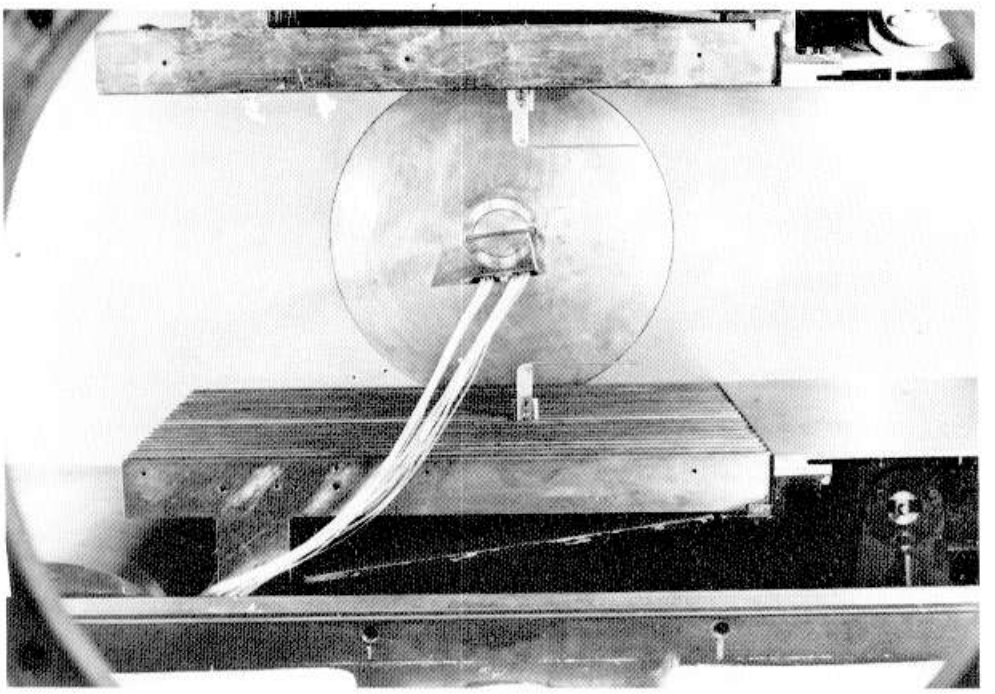
Fig.8.8. (contd.)





Picture 1 - Model and test section





Picture 1 (contd.)

9. EXPERIMENTAL INVESTIGATION OF A 10 PERCENT THICK NASA SUPERCRITICAL AIRFOIL SECTION

by

Charles D. Harris
NASA Langley Research Center, Hampton, Va. 23665

9.1 INTRODUCTION

This contribution contains representative samples of data obtained for a supercritical airfoil section tested in the Langley 8-foot transonic pressure tunnel. Airfoils with various trailing edge geometries and two maximum thicknesses were tested in the investigation, but only data for a 10 percent maximum thickness airfoil with a 1.0 percent thick trailing edge with cavity are presented in this compilation. Drag, normal-force, pitching-moment and pressure-distribution data are included for small angles of attack and Mach numbers from 0.60 to 0.81.

9.2 DATA SET

1. General Description

1.1	Airfoil designation	Supercritical airfoil 9a.
1.2	Type of airfoil	Supercritical.
1.2.1	Airfoil geometry	
	Nose radius	0.0212 c
	Base thickness	0.01 c
	Maximum thickness	0.10 c
1.2.2	Design condition	$C_n = 0.7$ $M = 0.79$
	Design pressure distribution	Flat top. Rear loaded.
1.3	Additional remarks	Airfoil tested with various trailing edge cavities.
1.4	References on airfoil	NASA TM X-2336 "Wind-Tunnel Investigation of Effects of Trailing-Edge Geometry on NASA Supercritical Airfoil Section," by Charles D. Harris

2. Model geometry

2.1	Chord length	0.635 m (25.0 in.)
2.2	Span	2.18 m (85.8 in.)
2.3	Actual model co-ordinates and accuracy	See Table I and figure 9.1.
2.4	Maximum thickness	.0635 m
2.5	Base thickness	.635 cm
2.6	Additional remarks	
2.7	References on model	NASA TM X-2336 "Wind-Tunnel Investigation of Effects of Trailing-Edge Geometry on NASA Supercritical Airfoil Section," by Charles D. Harris

3. Wind tunnel

3.1	Designation	8-Foot Transonic Pressure Tunnel
3.2	Type of tunnel	Continuous flow, pressure tunnel
3.2.1	Stagnation pressure	Can be varied from approx. 15 to 68 k N/m^2
3.2.2	Stagnation temperature	322 K (120 F)
3.2.3	Humidity/dew point	Air dried sufficiently to avoid condensation.
3.3	Test section	
3.3.1	Dimensions	2.2 m x 2.2 m x 4.3 m
3.3.2	Type of walls	Slotted top and bottom, solid sides (3% overall open area ratio)
3.4	Flow field (empty test section)	
3.4.1	Reference static pressure	Measured in plenum. Values in Table II.
3.4.2	Flow angularity	Maximum lateral velocity components are about 0.005 of free stream at all Mach numbers.
3.4.3	Mach number distribution	Streamwise variations of approximately ± 0.002 over Mach number range.
3.4.4	Pressure gradient	
3.4.5	Turbulence/noise level	Lateral fluctuating velocity components $\tilde{v}/U_\infty$ and $\tilde{w}/U_\infty$ have not been measured. $\tilde{u}/U_\infty$ varies from 0.002 at M = 0.2 to about 0.02 at high Mach numbers.
3.4.6	Sidewall boundary layer	Thickness varies but is on the order of 7 to 8 cm.
3.5	Additional remarks	
3.6	References on wind tunnel	

4. Tests

4.1	Type of measurements	Surface pressure; wake profiles.
4.2	Tunnel/model dimensions	
4.2.1	Height/chord ratio	3.46
4.2.2	Width/chord ratio	3.46
4.3	Flow conditions included in present data base	
4.3.1	Angle of attack	0.5° to 2.5°
4.3.2	Mach number	From 0.60 to 0.80
4.3.3	Reynolds number	See figure 9.2. Reynolds number simulations based on refs. 2 and 3.
4.3.4	Transition	
	- position of free transition	
	- transition fixing	No. 90 carborundum grains; 0.25 cm wide (0.10 in.) bands along x/c = 0.28 on upper and lower surfaces.
4.3.5	Temperature equilibrium	
4.4	Additional remarks	
4.5	References on tests	

5. Instrumentation

5.1 Surface pressure measurements

5.1.1 Pressure holes	
- size	0.51 mm (0.020 inch) inside dia.
- *spanwise station(s)*	0.32 chord from tunnel center line
- chordwise positions	Concentrated near the leading and trailing edges as illustrated in figure 9.3. See Table III.
5.1.2 Type of transducers and scanning devices	Electronically actuated differential-pressure scanning valves with transducer ranges of $\pm 69 kN/m^2$ (10 $lb/inch^2$) for the upper surface and $\pm 52 kN/m^2$ (7.5 $lb/inch^2$) for the lower surface. Accuracy within 0.5 percent of full scale.
5.1.3 Other	

5.2 Wake measurements

5.2.1 Type/size of instrument(s)	See figure 9.4. 52 pitot probes spaced 0.0036c in region of boundary-layer losses, 0.072c in region of shock losses. 6 static pressure probes spaced about 0.06c in region of boundary layer losses, about 0.2c in region of shock losses.
5.2.2 Streamwise position(s)	Approximately 1 chord length downstream of trailing edge
5.2.3 Type of transducers and scanning devices	Electronically actuated differential-pressure scanning valves with transducer ranges of $\pm 17 kN/m^2$ (2.5 $lb/inch^2$) in boundary-layer wake and $\pm 7 kN/m^2$ (1 $lb/inch^2$) for shock and static losses. Accuracy within 0.5 percent of full-scale.

5.3 Boundary layer measurements

5.3.1 Type/size of instruments

5.3.2 Locations

5.3.3 Type of transducers and scanning devices

5.4 Skin friction measurements

5.4.1 Type/size of instruments

5.4.2 Locations

5.4.3 Type of transducer

5.5 Flow visualization

5.5.1 Flow field	
5.5.2 Surface flow	Two dimensionality of flow was determined by fluorescent oil flow.

5.6 Other

5.7 Additional remarks

5.8 References on instrumentation

6. Data

6.1	Accuracy (wall interference excluded)	
6.1.1	Angle of attack setting	±0.05°
6.1.2	Free stream Mach number:	
	- setting	±0.003
	- variation during one pressure scan	None
6.1.3	Pressure coefficients	Less than 2% of maximum value.
6.1.4	Aerodynamic coefficients	Less than 2% of maximum value.
6.1.5	Boundary layer quantities	
6.1.6	Repeatability	Repeatability checked but not plotted.
6.1.7	Remarks	
6.2	Wall interference corrections (indicate estimated accuracy)	
6.2.1	Angle of attack	No corrections applied.
6.2.2	Blockage (solid/wake)	
6.2.3	Streamline curvature (lift)	
6.2.4	Other	
6.2.5	Remarks	
6.2.6	References on wall interference correction	
6.3	Presentation of data	
6.3.1	Aerodynamic coefficients	See figure 9.5.
6.3.2	Surface pressures	See figure 9.6 and Table IV.
6.3.3	Boundary layer quantities	None
6.3.4	Wall interference corrections included?	No
6.3.5	Corrections for model deflection	None
6.3.6	Empty test section calibration taken into account?	
6.3.7	Other corrections included?	
6.3.8	Additional remarks	
6.4	Were tests carried out in different facilities on the current airfoil? If so, what facilities. Are data included in the present data base?	No
6.5	To be contacted for further information on tests	Charles D. Harris NASA Langley Research Center Mail Stop 359 Hampton, VA 23665

7. References

1. NASA TM X-2336 entitled "Wind-Tunnel Investigation of Effects of Trailing-Edge Geometry on NASA Supercritical Airfoil Section," by Charles D. Harris.

2. NASA TN D-5003 entitled "Preliminary Study of Effects of Reynolds Number and Boundary-Layer Transition on Shock-Induced Separation,: by James A. Blackwell, Jr.

3. NACA TN 4363 entitled "Simplied Method for Determination of Critical Height of Distributed Roughness Particles for Boundary-Layer Transition at Mach Numbers From 0 to 5," by Albert L. Braslow and Eugene C. Knox.

8. List of symbols

Values are given in both SI and U. S. Customary Units. The measurements and calculations were made in the U. S. Customary Units.

C_p	pressure coefficient, $\frac{p_L - p_\infty}{q_\infty}$
$C_{p,sonic}$	pressure coefficient corresponding to local Mach number of 1.0
c	chord of airfoil, cm (inches)
c_d	section drag coefficient, $\sum c'_d \frac{\Delta z}{c}$
c_m	section pitching-moment coefficient, $\sum_l C_p \frac{\Delta x}{c}\left(0.25 - \frac{x}{c}\right) - \sum_u C_p \frac{\Delta x}{c}\left(0.25 - \frac{x}{c}\right)$
c_n	section normal-force coefficient, $\sum_l C_p \frac{\Delta x}{c} - \sum_u C_p \frac{\Delta x}{c}$
M	Mach number
p	static pressure, N/m^2 (lb/ft^2)
q	dynamic pressure, N/m^2 (lb/ft^2)
R	Reynolds number based on airfoil chord
t	airfoil thickness, cm (inches)
$\tilde{u}$, $\tilde{v}$, $\tilde{w}$	free stream fluctuating velocity components
U_∞	free stream velocity
x	ordinate along airfoil reference line measured from airfoil leading edge, cm (inches)
y	ordinate vertical to airfoil reference line, cm (inches)
z	vertical distance in wake profile, cm (inches)
α	angle of attack of airfoil reference line, degrees

Subscripts:

L	local point on airfoil
l	lower surface
te	trailing edge
∞	free stream value

TABLE I. AIRFOIL COORDINATES

x/c	Experimental (airfoil 9a) y/c	
	Upper	Lower
0.0075	0.0160	-0.0165
.0125	.0196	-.0201
.0250	.0250	-.0259
.0375	.0286	-.0299
.050	.0314	-.0329
.075	.0358	-.0374
.100	.0389	-.0407
.125	.0415	-.0432
.150	.0433	-.0451
.175	.0448	-.0465
.200	.0461	-.0476
.250	.0479	-.0491
.300	.0491	-.0498
.350	.0498	-.0500
.400	.0500	-.0494
.450	.0499	-.0485
.500	.0494	-.0468
.550	.0485	-.0440
.575	.0480	-.0420
.600	.0474	-.0393
.625	.0465	-.0357
.650	.0456	-.0310
.675	.0445	-.0255
.700	.0433	-.0200
.725	.0419	-.0152
.750	.0401	-.0109
.775	.0382	-.0072
.800	.0359	-.0041
.825	.0332	-.0014
.850	.0300	.0005
.875	.0264	.0015
.900	.0220	.0016
.925	.0167	.0004
.950	.0103	-.0025
.975	.0035	-.0073
.990	-.0016	-.0120
1.000	-----	-.0157

TABLE II. TUNNEL STATIC PRESSURES

Mach Number	Static Pressure (MN/m^2)
0.80	0.0664
0.79	0.0671
0.76	0.0691
0.70	0.0730
0.60	0.0794

TABLE III

CHORDWISE LOCATION OF PRESSURE TAPS

UPPER SURFACE X/C	LOWER SURFACE X/C
0.0000	.0040
.0020	.0100
.0200	.0200
.0300	.0300
.0500	.0500
.0700	.0700
.1000	.1000
.1500	.1500
.2000	.2000
.2500	.2500
.3000	.3000
.3500	.3500
.4000	.4000
.4500	.4500
.5000	.5000
.5500	.5500
.6000	.6000
.6500	.6500
.7000	.7000
.7500	.7500
.8000	.8000
.8500	.8500
.9000	.9000
.9300	.9300
.9500	.9500
.9700	.9700
.9800	.9800
1.0000	

TABLE IV. TABULATED PRESSURE DISTRIBUTION FOR RANGE OF MACH NUMBERS AND ANGLES OF ATTACK

MACH = 0.60 α = 1°				MACH = 0.60 α = 2°				MACH = 0.70 α = 1°			
STATION		STATION		STATION		STATION		STATION		STATION	
X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
UPPER SURFACE		LOWER SURFACE		UPPER SURFACE		LOWER SURFACE		UPPER SURFACE		LOWER SURFACE	
0.0000	1.0498	.0040	.6720	0.0000	.9588	.0040	.8463	0.0000	1.1132	.0040	.6574
.0020	-.0428	.0100	.4172	.0020	-.3468	.0100	.6150	.0020	.2141	.0100	.3913
.0200	-1.4012	.0200	.1752	.0200	-2.1421	.0200	.3933	.0200	-1.2942	.0200	.1638
.0300	-1.2324	.0300	.0866	.0300	-1.9079	.0300	.2611	.0300	-1.2371	.0300	.0221
.0500	-.9981	.0500	-.0013	.0500	-.9844	.0500	.1668	.0500	-1.1600	.0500	-.0622
.0700	-.8742	.0700	-.0575	.0700	-1.0976	.0700	.0899	.0700	-1.1205	.0700	-.1064
.1000	-.7242	.1000	-.0936	.1000	-.8771	.1000	.0198	.1000	-.8338	.1000	-.1454
.1500	-.6483	.1500	-.1215	.1500	-.7687	.1500	-.0213	.1500	-.6774	.1500	-.1475
.2000	-.5816	.2000	-.0942	.2000	-.6750	.2000	-.0181	.2000	-.6274	.2000	-.1255
.2500	-.5341	.2500	-.0822	.2500	-.6200	.2500	-.0187	.2500	-.5859	.2500	-.1154
.3000	-.5160	.3000	-.0804	.3000	-.5798	.3000	-.0173	.3000	-.5611	.3000	-.1090
.3500	-.4755	.3500	-.0744	.3500	-.5393	.3500	-.0173	.3500	-.5170	.3500	-.1035
.4000	-.4571	.4000	-.0842	.4000	-.5234	.4000	-.0334	.4000	-.5099	.4000	-.1062
.4500	-.4530	.4500	-.0804	.4500	-.4980	.4500	-.0394	.4500	-.4955	.4500	-.1142
.5000	-.4548	.5000	-.1100	.5000	-.4994	.5000	-.0621	.5000	-.4970	.5000	-.1317
.5500	-.4556	.5500	-.1304	.5500	-.4891	.5500	-.0902	.5500	-.5046	.5500	-.1512
.6000	-.4615	.6000	-.1129	.6000	-.4957	.6000	-.0776	.6000	-.5158	.6000	-.1252
.6500	-.4781	.6500	.0209	.6500	-.5068	.6500	.0397	.6500	-.5373	.6500	.0231
.7000	-.4969	.7000	.2492	.7000	-.5223	.7000	.2642	.7000	-.5632	.7000	.2612
.7500	-.5120	.7500	.3423	.7500	-.5411	.7500	.3437	.7500	-.5918	.7500	.3570
.8000	-.5190	.8000	.4067	.8000	-.5363	.8000	.4121	.8000	-.5912	.8000	.4220
.8500	-.5042	.8500	.4514	.8500	-.5061	.8500	.4623	.8500	-.5544	.8500	.4718
.9000	-.4497	.9000	.4796	.9000	-.4386	.9000	.4905	.9000	-.4478	.9000	.4984
.9300	-.3391	.9300	.4770	.9300	-.3327	.9300	.4816	.9300	-.3162	.9300	.4968
.9500	-.2230	.9500	.4562	.9500	-.2118	.9500	.4640	.9500	-.1996	.9500	.4775
.9700	-.1490	.9700	.4158	.9700	-.1424	.9700	.4249	.9700	-.1119	.9700	.4331
.9800	-.1025	.9800	.3847	.9800	-.1030	.9800	.3813	.9800	-.0810	.9800	.4081
1.0000	-.0414			1.0000	-.0447			1.0000	-.0386		

TABLE IV. TABULATED PRESSURE DISTRIBUTION FOR RANGE OF MACH NUMBERS AND ANGLES OF ATTACK (CONTINUED)

MACH = 0.70 $\alpha = 2^{o}$

STATION X/C	CP	STATION X/C	CP
UPPER SURFACE		LOWER SURFACE	
0.0000	1.0702	.0040	.7966
.0020	.0392	.0100	.5551
.0200	-1.5572	.0200	.3456
.0300	-1.5575	.0300	.2167
.0500	-1.5053	.0500	.1087
.0700	-1.5079	.0700	.0527
.1000	-1.4661	.1000	-.0017
.1500	-1.3508	.1500	-.0480
.2000	-.4735	.2000	-.0409
.2500	-.5699	.2500	-.0367
.3000	-.5870	.3000	-.0443
.3500	-.5507	.3500	-.0420
.4000	-.5424	.4000	-.0459
.4500	-.5427	.4500	-.0570
.5000	-.5348	.5000	-.0889
.5500	-.5368	.5500	-.1089
.6000	-.5439	.6000	-.0898
.6500	-.5663	.6500	.0436
.7000	-.5825	.7000	.2795
.7500	-.6008	.7500	.3716
.8000	-.5920	.8000	.4394
.8500	-.5566	.8500	.4907
.9000	-.4519	.9000	.5196
.9300	-.3169	.9300	.5114
.9500	-.1887	.9500	.4895
.9700	-.1250	.9700	.4536
.9800	-.0840	.9800	.4103
1.0000	-.0439		

MACH = 0.76 $\alpha = .5^{o}$

STATION X/C	CP	STATION X/C	CP
UPPER SURFACE		LOWER SURFACE	
0.0000	1.1564	.0040	.5077
.0020	.4621	.0100	.2389
.0200	-.8400	.0200	-.0103
.0300	-.8693	.0300	-.1290
.0500	-.8627	.0500	-.1858
.0700	-.9193	.0700	-.2430
.1000	-.8987	.1000	-.2702
.1500	-.8611	.1500	-.2759
.2000	-.7848	.2000	-.2341
.2500	-.4263	.2500	-.2006
.3000	-.5153	.3000	-.1605
.3500	-.5024	.3500	-.1627
.4000	-.5024	.4000	-.1703
.4500	-.4937	.4500	-.1710
.5000	-.5092	.5000	-.1782
.5500	-.5193	.5500	-.2029
.6000	-.5425	.6000	-.1668
.6500	-.5866	.6500	.0169
.7000	-.6421	.7000	.2546
.7500	-.6921	.7500	.3477
.8000	-.7327	.8000	.4145
.8500	-.5819	.8500	.4659
.9000	-.4205	.9000	.4961
.9300	-.2649	.9300	.5083
.9800	-.0702	.9500	.4912
1.0000	-.0416	.9700	.4504
		.9800	.4094

MACH = 0.76 $\alpha = 1^{o}$

STATION X/C	CP	STATION X/C	CP
UPPER SURFACE		LOWER SURFACE	
0.0000	1.1516	.0040	.5964
.0020	.3584	.0100	.3706
.0200	-.9955	.0200	.1088
.0300	-.9989	.0300	-.0172
.0500	-.9638	.0500	-.0875
.0700	-1.0253	.0700	-.1486
.1000	-1.0383	.1000	-.1829
.1500	-.9921	.1500	-.1872
.2000	-.9723	.2000	-.1613
.2500	-.9546	.2500	-.1506
.3000	-.8834	.3000	-.1399
.3500	-.3952	.3500	-.1284
.4000	-.4363	.4000	-.1296
.4500	-.4646	.4500	-.1414
.5000	-.4960	.5000	-.1560
.5500	-.5282	.5500	-.1769
.6000	-.5569	.6000	-.1428
.6500	-.6039	.6500	.0323
.7000	-.6533	.7000	.2641
.7500	-.7100	.7500	.3600
.8000	-.7393	.8000	.4319
.8500	-.5873	.8500	.4853
.9000	-.4337	.9000	.5153
.9300	-.2772	.9300	.5124
.9500	-.1640	.9500	.4986
.9700	-.1039	.9700	.4539
.9800	-.0698	.9800	.4146
1.0000	-.0395		

TABLE IV. TABULATED PRESSURE DISTRIBUTION FOR RANGE OF MACH NUMBERS AND ANGLES OF ATTACK (CONTINUED)

MACH = 0.76 $\alpha = 2^{o}$

STATION X/C	CP	STATION X/C	CP
UPPER SURFACE		LOWER SURFACE	
0.0000	1.1213	.0040	.7727
.0020	.2473	.0100	.5089
.0200	-1.2136	.0200	.2970
.0300	-1.2176	.0300	.1675
.0500	-1.2041	.0500	.0898
.0700	-1.2163	.0700	.0275
.1000	-1.2057	.1000	-.0304
.1500	-1.1920	.1500	-.0639
.2000	-1.1592	.2000	-.0604
.2500	-1.1452	.2500	-.0512
.3000	-1.1375	.3000	-.0520
.3500	-1.0609	.3500	-.0508
.4000	-1.0450	.4000	-.0598
.4500	-1.0427	.4500	-.0678
.5000	-1.0080	.5000	-.0810
.5500	-.9560	.5500	-.1109
.6000	-.4174	.6000	-.0909
.6500	-.4423	.6500	.0708
.7000	-.5099	.7000	.2990
.7500	-.5828	.7500	.3952
.8000	-.6434	.8000	.4587
.8500	-.5768	.8500	.5032
.9000	-.4481	.9000	.5383
.9300	-.2985	.9300	.5363
.9500	-.1730	.9500	.5226
.9700	-.0945	.9700	.4787
.9800	-.0559	.9800	.4415
1.0000	-.0147		

MACH = 0.76 $\alpha = 2.5^{o}$

STATION X/C	CP	STATION X/C	CP
UPPER SURFACE		LOWER SURFACE	
0.0000	1.1003	.0040	.8438
.0020	.1577	.0100	.6172
.0200	-1.3014	.0200	.3967
.0300	-1.3114	.0300	.2712
.0500	-1.2810	.0500	.1716
.0700	-1.3067	.0700	.1010
.1000	-1.2818	.1000	.0465
.1500	-1.2538	..500	-.0074
.2000	-1.2393	.2000	.0040
.2500	-1.2023	.2500	.0079
.3000	-1.2213	.3000	-.0074
.3500	-1.1524	.3500	-.0013
.4000	-1.1362	.4000	-.0180
.4500	-1.1111	.4500	-.0386
.5000	-1.0829	.5000	-.0578
.5500	-1.0890	.5500	-.0746
.6000	-1.0903	.6000	-.0658
.6500	-1.1085	.6500	.0842
.7000	-.7878	.7000	.3129
.7500	-.4599	.7500	.4098
.8000	-.4628	.8000	.4737
.8500	-.4498	.8500	.5235
.9000	-.3790	.9000	.5533
.9300	-.2665	.9300	.5478
.9500	-.1515	.9500	.5247
.9700	-.0873	.9700	.4874
.9800	-.0466	.9800	.4427
1.0000	-.0060		

MACH = 0.79 $\alpha = .5^{o}$

STATION X/C	CP	STATION X/C	CP
UPPER SURFACE		LOWER SURFACE	
0.0000	1.1760	.0040	.5027
.0020	.5420	.0100	.2303
.0200	-.6972	.0200	-.0292
.0300	-.7559	.0300	-.1517
.0500	-.7561	.0500	-.2056
.0700	-.8336	.0700	-.2731
.1000	-.8125	.1000	-.2886
.1500	-.8173	.1500	-.3121
.2000	-.7934	.2000	-.2523
.2500	-.7934	.2500	-.2242
.3000	-.7992	.3000	-.1876
.3500	-.7295	.3500	-.1833
.4000	-.6608	.4000	-.1894
.4500	-.3683	.4500	-.1835
.5000	-.4375	.5000	-.2013
.5500	-.4642	.5500	-.2284
.6000	-.5057	.6000	-.1797
.6500	-.5619	.6500	.0208
.7000	-.6341	.7000	.2655
.7500	-.7076	.7500	.3538
.8000	-.7949	.8000	.4222
.8500	-.9064	.8500	.4813
.9000	-.3321	.9000	.5136
.9300	-.2068	.9300	.5117
.9800	-.0835	.9500	.4963
1.0000	-.0784	.9700	.4563
		.9800	.4127

TABLE IV. TABULATED PRESSURE DISTRIBUTION FOR RANGE OF MACH NUMBERS AND ANGLES OF ATTACK (CONTINUED)

MACH = 0.79 $\alpha = 1^{o}$				MACH = 0.79 $\alpha = 2^{o}$				MACH = 0.80 $\alpha = .5^{o}$			
STATION		STATION		STATION		STATION		STATION		STATION	
X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
UPPER SURFACE		LOWER SURFACE		UPPER SURFACE		LOWER SURFACE		UPPER SURFACE		LOWER SURFACE	
0.0000	1.1727	.0040	.5835	0.0000	1.1586	.0040	.7159	0.0000	1.1728	.0040	.4683
.0020	.4744	.0100	.3201	.0020	.3466	.0100	.4867	.0020	.5692	.0100	.2176
.0200	-.8352	.0200	.0890	.0200	-1.0004	.0200	.2427	.0200	-.6453	.0200	-.0546
.0300	-.8389	.0300	-.0398	.0300	-1.0203	.0300	.1063	.0300	-.7043	.0300	-.1737
.0500	-.8520	.0500	-.1110	.0500	-1.0223	.0500	.0342	.0500	-.7088	.0500	-.2288
.0700	-.9175	.0700	-.1510	.0700	-1.0404	.0700	-.0186	.0700	-.7631	.0700	-.3070
.1000	-.9127	.1000	-.2024	.1000	-1.0377	.1000	-.0818	.1000	-.7799	.1000	-.3273
.1500	-.8964	.1500	-.2197	.1500	-1.0598	.1500	-.0984	.1500	-.7772	.1500	-.3342
.2000	-.8936	.2000	-.1959	.2000	-1.0387	.2000	-.0857	.2000	-.7742	.2000	-.2844
.2500	-.8870	.2500	-.1793	.2500	-1.0208	.2500	-.0723	.2500	-.7653	.2500	-.2516
.3000	-.8593	.3000	-.1355	.3000	-1.0178	.3000	-.0788	.3000	-.7826	.3000	-.2156
.3500	-.8269	.3500	-.1375	.3500	-.9525	.3500	-.0784	.3500	-.7135	.3500	-.2027
.4000	-.8226	.4000	-.1467	.4000	-.9561	.4000	-.0798	.4000	-.7068	.4000	-.2079
.4500	-.8062	.4500	-.1381	.4500	-.9364	.4500	-.0945	.4500	-.6768	.4500	-.2008
.5000	-.7906	.5000	-.1630	.5000	-.9331	.5000	-.1200	.5000	-.6580	.5000	-.2278
.5500	-.7898	.5500	-.1855	.5500	-.9407	.5500	-.1432	.5500	-.3774	.5500	-.2442
.6000	-.7614	.6000	-.1512	.6000	-.9359	.6000	-.1126	.6000	-.4290	.6000	-.1965
.6500	-.6179	.6500	.0421	.6500	-.9535	.6500	.0513	.6500	-.4822	.6500	.0108
.7000	-.4982	.7000	.2738	.7000	-.9845	.7000	.2853	.7000	-.5735	.7000	.2573
.7500	-.5688	.7500	.3715	.7500	-1.0387	.7500	.3838	.7500	-.6719	.7500	.3471
.8000	-.6748	.8000	.4402	.8000	-.5370	.8000	.4517	.8000	-.7767	.8000	.4133
.8500	-.7682	.8500	.4976	.8500	-.3640	.8500	.4935	.8500	-.8999	.8300	.4650
.9000	-.3585	.9000	.5223	.9000	-.2490	.9000	.5295	.9000	-.3313	.9000	.5022
.9300	-.2265	.9300	.5349	.9300	-.1998	.9300	.5246	.9300	-.2071	.9300	.5053
.9500	-.1298	.9500	.5079	.9500	-.1583	.9500	.5007	.9800	-.1080	.9500	.4909
.9700	-.0855	.9700	.4732	.9700	-.1175	.9700	.4606	1.0000	-.0762	.9700	.4463
.9800	-.0546	.9800	.4269	.9800	-.1321	.9800	.4266			.9800	.4122
1.0000	-.0291			1.0000	-.1014						

TABLE IV. TABULATED PRESSURE DISTRIBUTION FOR RANGE OF MACH NUMBERS AND ANGLES OF ATTACK (CONCLUDED)

MACH = 0.80 $\alpha = 1^{o}$

STATION X/C	CP	STATION X/C	CP
UPPER SURFACE		LOWER SURFACE	
0.0000	1.1789	.0040	.5638
.0020	.5003	.0100	.3113
.0200	-.7830	.0200	.0554
.0300	-.8073	.0300	-.0586
.0500	-.7758	.0500	-.1211
.0700	-.8694	.0700	-.1957
.1000	-.8637	.1000	-.2214
.1500	-.8345	.1500	-.2384
.2000	-.8481	.2000	-.2197
.2500	-.8642	.2500	-.1909
.3000	-.8357	.3000	-.1570
.3500	-.7964	.3500	-.1633
.4000	-.8031	.4000	-.1631
.4500	-.7830	.4500	-.1556
.5000	-.7833	.5000	-.1680
.5500	-.7778	.5500	-.1853
.6000	-.7887	.6000	-.1604
.6500	-.8073	.6500	.0382
.7000	-.8395	.7000	.2740
.7500	-.8902	.7500	.3664
.8000	-.9330	.8000	.4347
.8500	-.4040	.8500	.4904
.9000	-.2626	.9000	.5194
.9300	-.1814	.9300	.5265
.9500	-.1192	.9500	.5108
.9700	-.0843	.9700	.4682
.9800	-.0717	.9800	.4332
1.0000	-.0673		

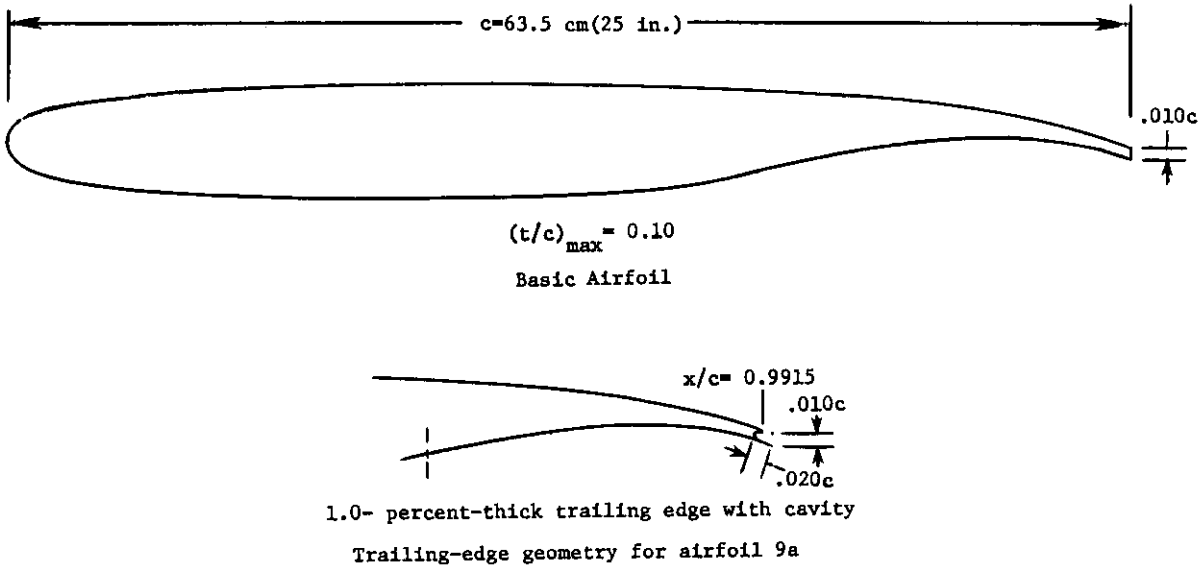


Figure 9.1.- Airfoil Geometry

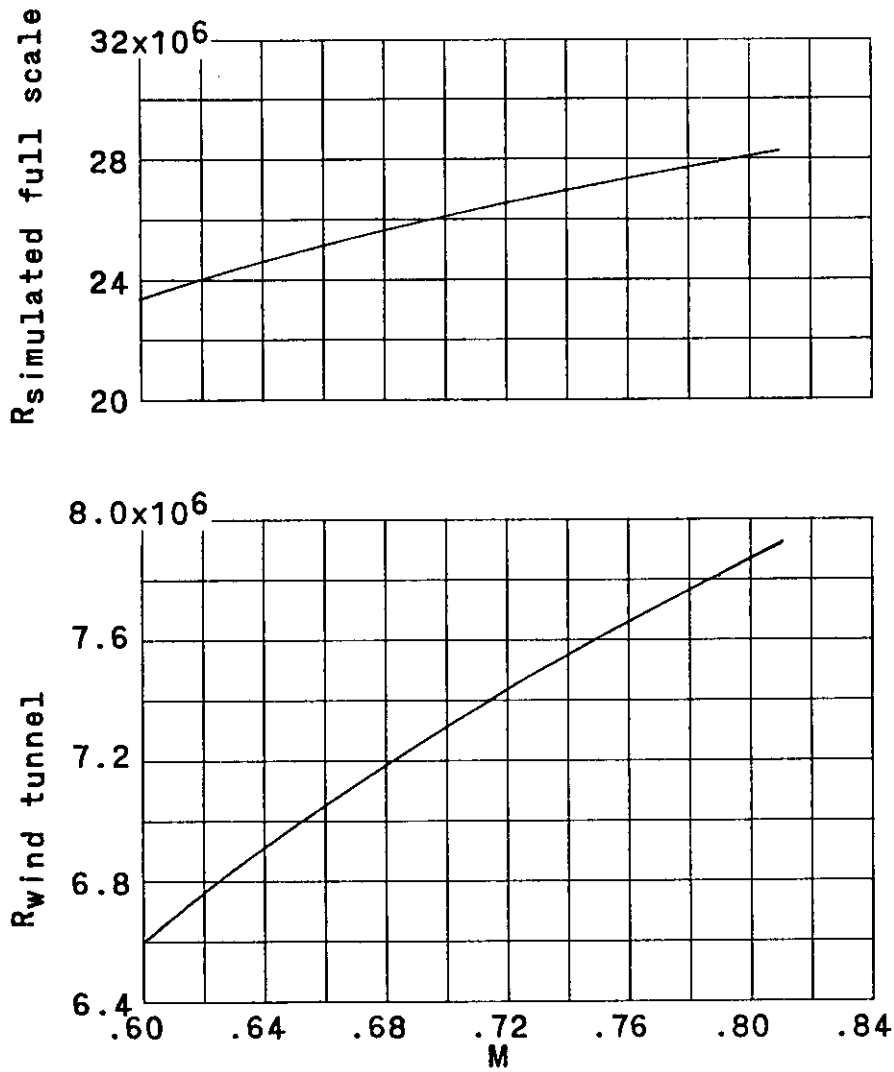


Figure 9.2.- Variation with Mach number of test wind-tunnel Reynolds number and simulated full-scale Reynolds number.

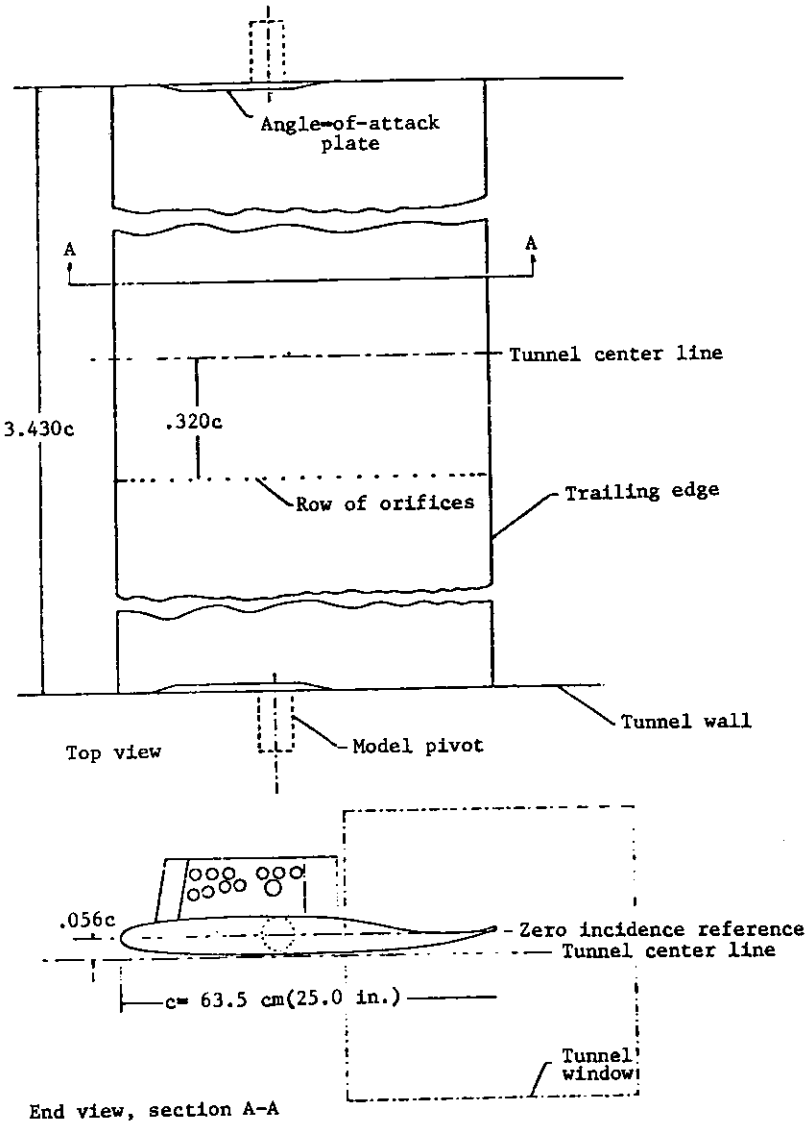


Figure 9.3.- Airfoil mounted in tunnel.

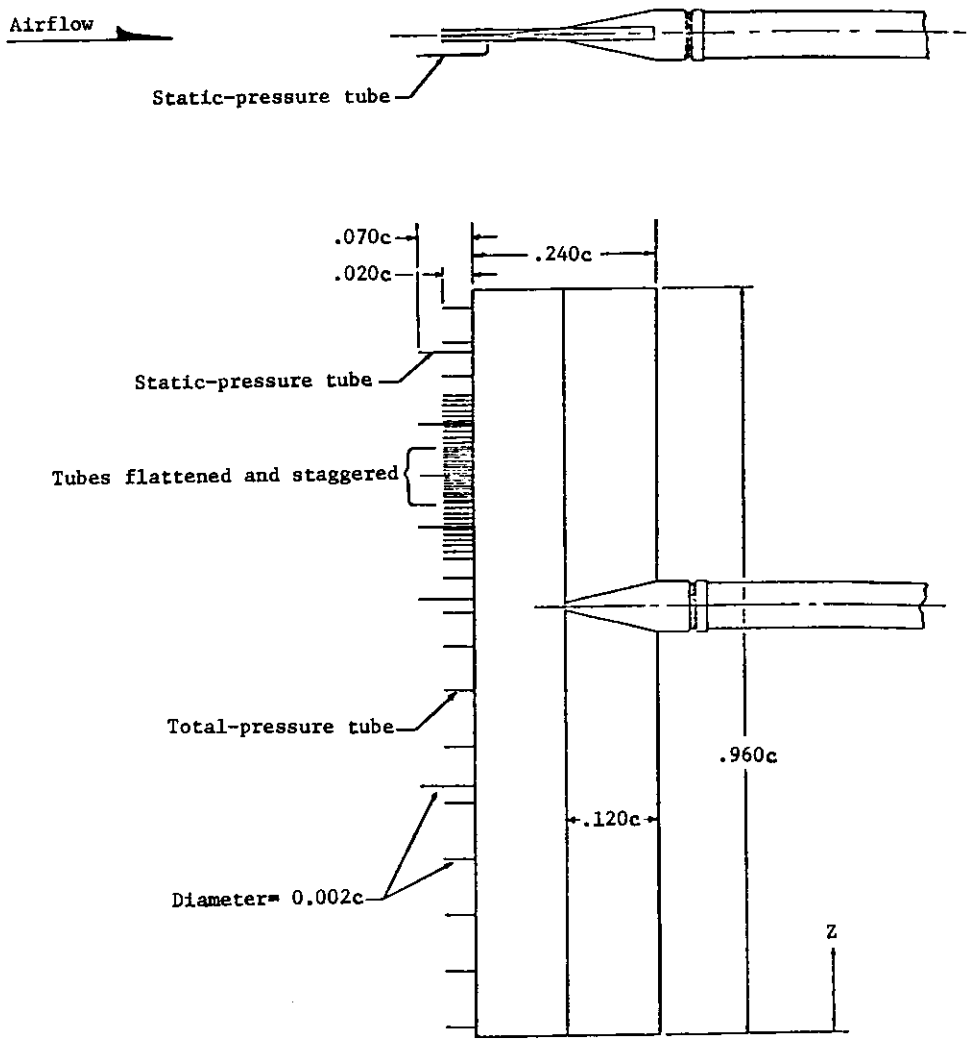


Figure 9.4.- Profile-drag rake.

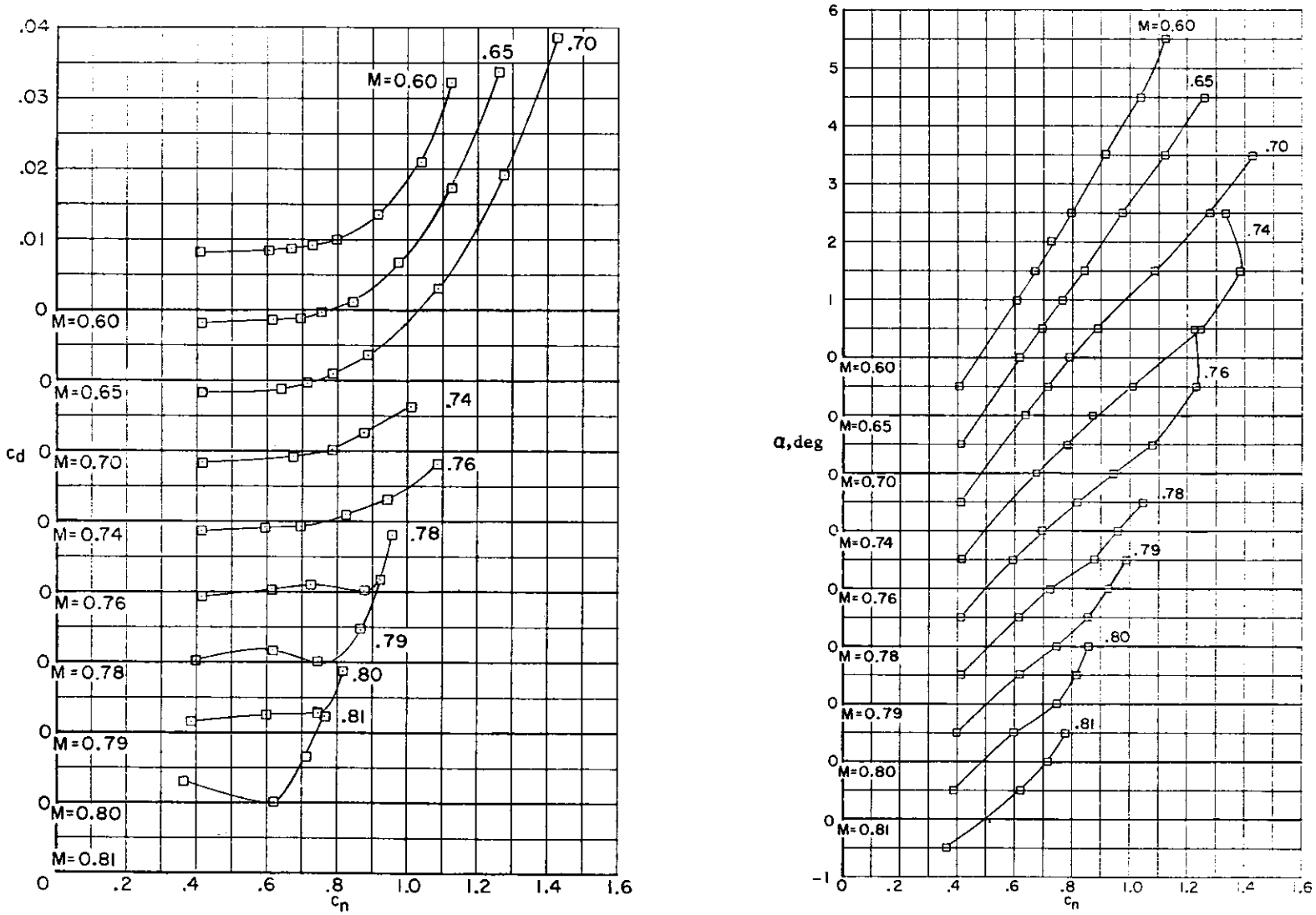


Figure 9.5.- Variation of section drag coefficient, angle of attack, and section pitching-moment coefficient at various Mach numbers.

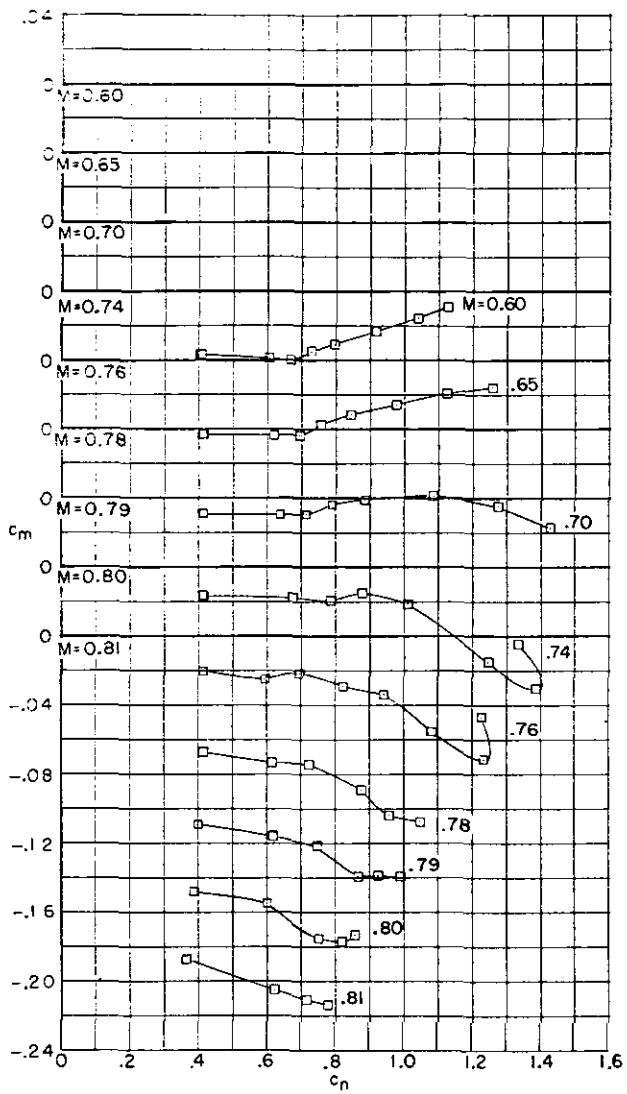


Figure 9.5.- Concluded.

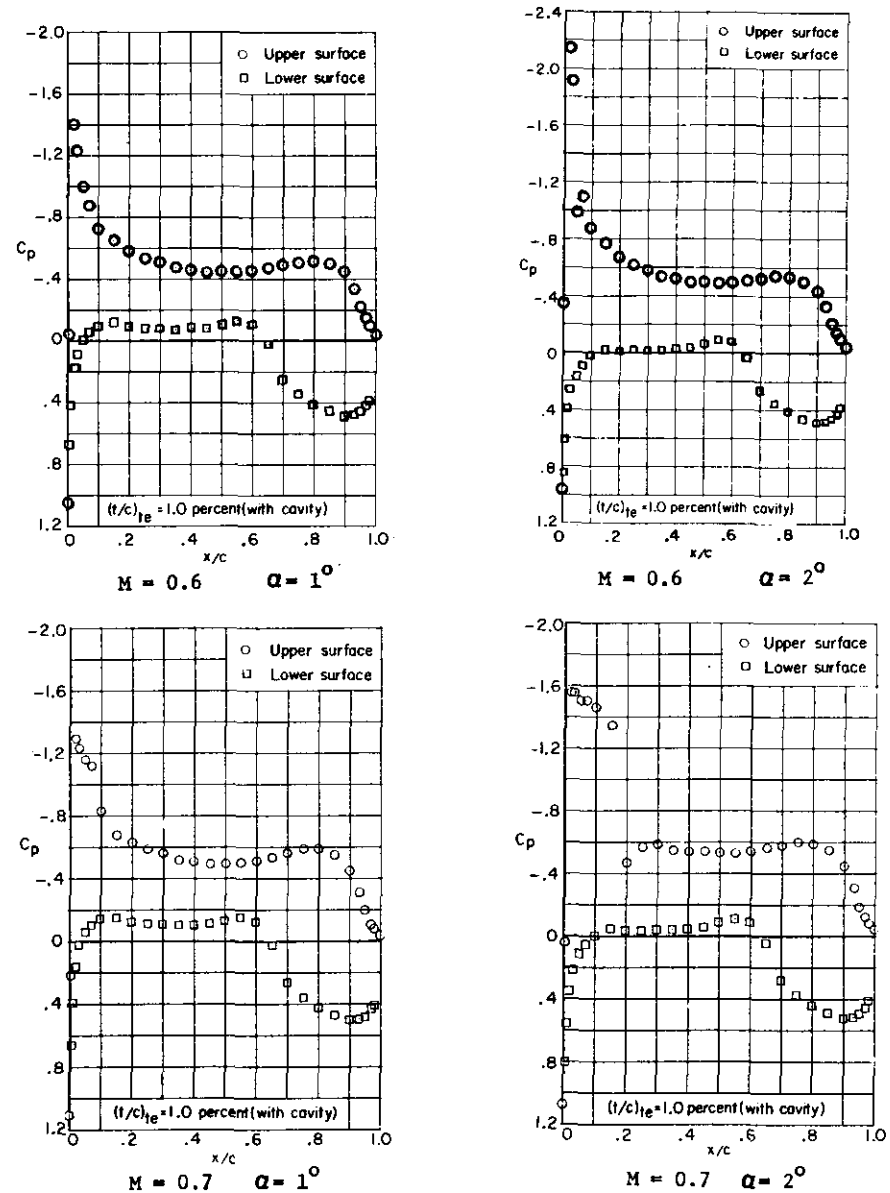


Figure 9.6.- Chordwise pressure distributions for various Mach numbers and angles of attack.

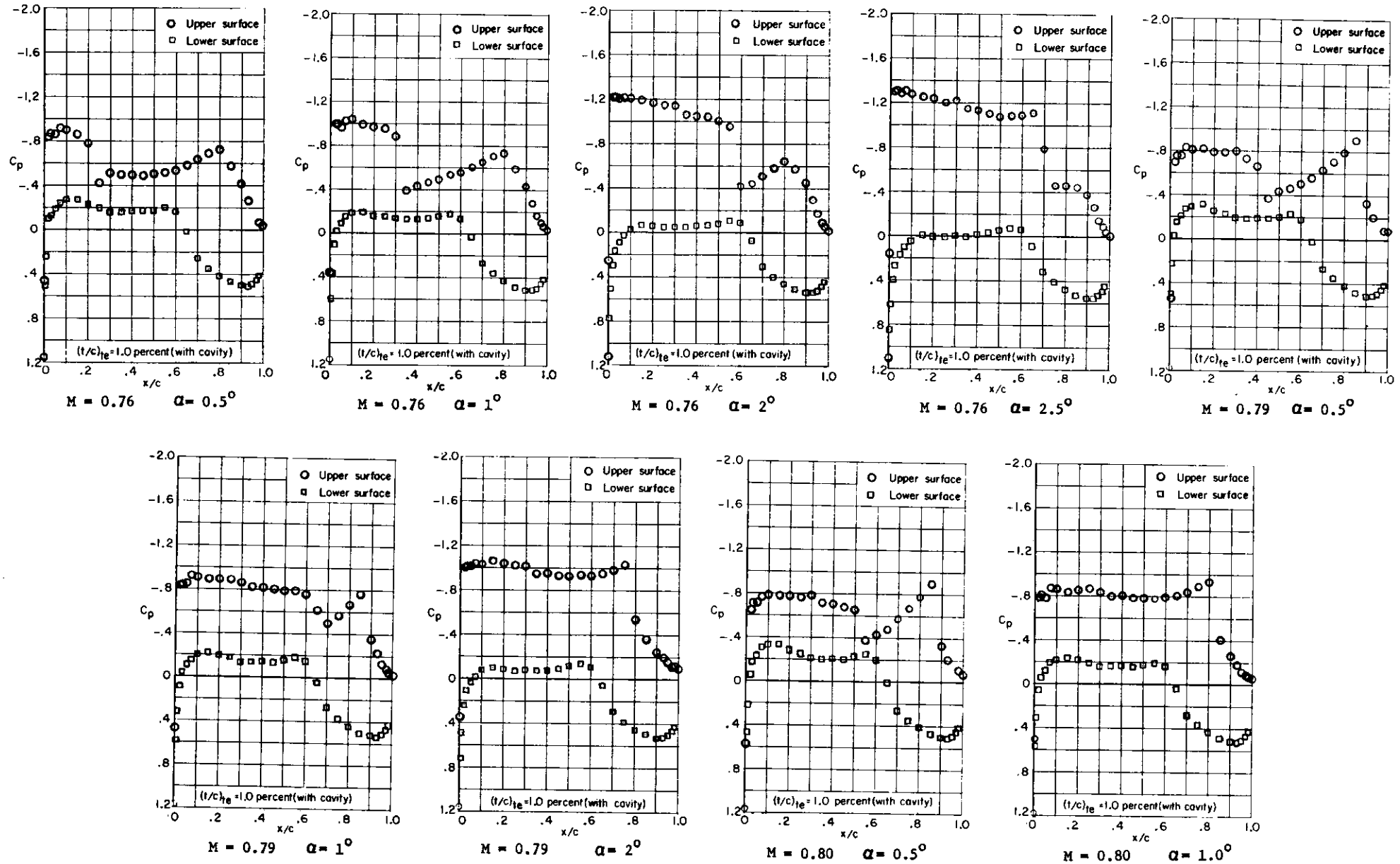


Figure 9.6.- Concluded.

APPENDIX B

3D Configurations

0. Guide to the data.- The purpose of this compilation is to make readily available data of high quality for a variety of wing and wing/body configurations for use in validating theoretical methods. The accuracy of the latest numerical methods in solving various forms of the transonic flow equations is a particular concern, therefore, special emphasis has been placed on the inclusion of high-subsonic-speed data. A further desire has been to include configurations ranging from simple to the most complex. Configuration B-2 (ONERA AFVD), for example, is an untapered wing with constant airfoil section from root to tip and no body while configuration B-5 is a complete aircraft configuration with as complicated a wing geometry as one is likely to encounter.

To facilitate the utilization of this data base a single format has been used to present the information for all the configurations, paralleling very closely that used for the 2D configuration. Sections are included giving a general description of the model, the geometric characteristics of the model, the characteristics of the wind tunnel used, details of how the tests were conducted, the types and accuracies of the instrumetation and, finally, a listing of the data tables and plots appended. References are given for most of the configurations from which the reader may obtain additional details on the model, the test procedures, the data obtained and the wind tunnel used.

A brief summary of the geometric characteristics and test conditions for the five wing and wing/body data sets are given below. It can be seen that the Reynolds numbers range from 1 to approximately 11.7 million (B-4 and B-1 respectively) and Mach numbers from 0.4 (B-4) to 0.99 (B-5). With the exception of B-4 aeroelastic corrections have not been applied to the data. Measured angles of attack have been corrected for induced wall effects in both B-4 and B-5; sufficient data is given in B-1, B-2 and B-3 to enable the reader to apply corrections if he desires.

Finally, it should be noted that if additional information is desired on the tests or wind tunnel facilities, addresses of the organizations which carried out the tests are given in item 3.10 of each data set.

MODEL GEOMETRY AND TEST CONDITIONS FOR WING AND WING/BODY DATA

Data Set	Wing Wing/Body	Leading Edge Sweep	Aspect Ratio	Taper Ratio	Data Presented For -		
					Mach Range	Angle of Attack Range	RN Range Based on m.a.c.
B-1	Semi-span Wing	30° 30°	3.8	0.562	0.7 to 0.92	0° to 6°	~11.7 x 10^6
B-2	Semi-span Wing	Variable, data given for 0°, 30° and 50°	8.0 for 0° sweep and 2.7 for 60° sweep	1.0	0.7 to 0.92	0° to 6°	2.5 x 10^6 based on chord normal to L.E.
B-3	Wing/body	35°	4.5	0.33	0.65 to 0.92	-2 to 8°	1.12 x 10^6 to 1.34 x 10^6
B-4	Wing/body	36.65°	6.0	0.33	0.4 to 0.9	0° to 2°	1 x 10^6
B-5	Wing/body	44.34°	6.8	0.36	0.5 to 0.99	-4° to 11°	2.37 x 10^6 to 2.68 x 10^6

1. PRESSURE DISTRIBUTIONS ON THE ONERA-M6-WING AT TRANSONIC MACH NUMBERS

by

V. SCHMITT and F. CHARPIN

OFFICE NATIONAL D'ETUDES ET DE RECHERCHES AEROSPATIALES

92320 - CHATILLON - FRANCE

1.1 - INTRODUCTION -

In 1972, the ONERA Aerodynamics Department designed a swept back wing very well instrumented to be used as an experimental support for basic studies of three-dimensional flows at high Reynolds numbers from low to transonic speeds.

Wind tunnel data from this model called M6-wing have been constituting a good base both for computer program assessment and for understanding various flow phenomena like shock wave-boundary layer interaction or flow separation.

The selected data set was obtained in the ONERA S2MA wind tunnel at Mach numbers of 0.7, 0.84, 0.88 and 0.92 for angles of attack up to 6 degrees and a Reynolds number of about 12 million .

1.2 - DATA SET -

1. General description

1.1 Model designation or name	ONERA Wing M6
1.2 Model type (e.g., full span wing-body; semi-span wing)	semi-span wing (see also figures B1-1 and B1-2)
1.3 Design requirements/conditions	this model was designed to be used for studies of three-dimensional flows from low to transonic speeds at high Reynolds numbers.
1.4 Additional remarks	it is derived from the ONERA calibration model series M and represents the external third of the wing.

2. Model geometry

2.1 Wing data

2.1.1 Wing planform	swept back (see figure B1-1)
2.1.2 Aspect ratio	3.8
2.1.3 Leading-edge sweep	30°
2.1.4 Trailing-edge sweep	15.8°
2.1.5 Taper ratio	0.562
2.1.6 Twist	without twist
2.1.7 Mean aerodynamic chord	c = 0.64607 m
2.1.8 Span or semispan	b = 1.1963 m
2.1.9 Number of airfoil sections used to define wing	1
2.1.10 Spanwise location of reference section and section coordinates (note if ordinates are design or actual measured values)	y/b = 0 section coordinates of the symmetrical profile (design values) : see table B1-1. The section is ONERA D normal to the generator at 40.18 % chord
2.1.11 Lofting procedure between reference sections	conical generation
2.1.12 Form of wing-body fillet, strakes	no body, no strake, no fillets

2.1.13 Form of wing tip	truncation parallel to wing root and addition of a half body of revolution
2.2 Body data (detail description of body geometry)	no body
2.3 Fabrication tolerances/waviness	0.15 mm
2.4 Additional remarks	see also figure B1-1

3. Wind tunnel

3.1 Designation	S2MA (ONERA - Modane Center)
3.2 Type of tunnel	
3.2.1 Continuous or blowdown. Indicate minimum run time if applicable	continuous
3.2.2 Stagnation pressure	from 0.3 bar to a limit stagnation pressure depending slightly on the Mach number : $Po_{max} \leqslant 2.5$ bar
3.2.3 Stagnation temperature	from 287°K to 320°K
3.3 Test section	
3.3.1 Shape of test section	square
3.3.2 Size of test section (width, height, length)	height : 1.770 m width : 1.750 m perforated length : 5.4 m
3.3.3 Type of test section walls: *closed, open, slotted, perforated*	vertical solid walls - horizontal perforated walls
Open area ratio (give range if variable)	maximum geometric porosity : 6 % - possibility of changing the porosity with sliding plates
Slot/hole geometry (e.g., 30-degree slanted holes)	sixty degree inclined holes (diameter : 18 mm)
Treatment of side wall boundary layer:	
Full span models	no treatment
Half-model testing	B.L. diverter
3.4 Flow field (empty test section)	
3.4.1 Reference static pressure	on the vertical wall, 2.685 m upstream of the balance axis
3.4.2 Flow angularity	unknown
3.4.3 Mach Number distribution	ΔM/meter, in x-direction= $\pm 3 \times 10^{-3}$/m for $0.7 < M \leqslant 0.92$
3.4.4 Pressure gradient	according to 3.4.3
3.4.5 Turbulence/noise level	velocity turbulence : 0.2 % - ref. 1
3.4.6 Side wall boundary layer	displacement thickness : δ_1 = 12 to 18 mm boundary layer thickness : δ = 90 to 170 mm
3.5 Freestream Mach number (or velocity)	
3.5.1 Range	from Mo = 0.1 to 1.35
3.5.2 Pressures used to determine Mach number (e.g. settling chamber total pressure and plenum chamber pressure)	settling chamber total pressure and static pressure on the vertical wall
3.5.3 Accuracy of Mach number determination (ΔM)	$\Delta M = \pm 0.001$
3.5.4 Maximum Mach number variation in x, y, z-direction (empty tunnel ; specify at what Mach number)	see 3.4.3
Maximum variation of flow direction	upwash ~ 0.3 degree (function of the model size)

Maximum Mach number variation during a run	the Mach number is adjustable at $\pm$ 0.001; during a continuous angle of attack variation the Mach number is not kept strictly constant and depends on model size and Mo.
3.6 Reynolds number range	
3.6.1 Unit Reynolds number range (give range at representative Mach numbers ; 1/m)	Mo : 0.25 0.50 0.72 1. 1.35 $(Re/m)_{max}$ 10^{-6} : 14 21 33 27 27
3.6.2 Means of varying Reynolds number (e.g., by pressurization)	stagnation pressure Po = 0.3 to 2.5 bar for M $\leq$ 0.7 0.3 to 1.75bar for M $\geq$ 1 0.3 to 2.1bar for M = 0.8 0.3 to 1.9 bar for M = 0.9
3.7 Temperature range and dewpoint. Can temperature be controlled ?	stagnation temperature To = 292 K $\pm$ 5 to 315 K $\pm$ 5 cannot be controlled humidity $<$ 0.2g H_2O/ Kg air
3.8 Model attitudes	
3.8.1 Angle of attack, yaw, roll	motorization for the 3 angles up to 35° (for complete model)
3.8.2 Accuracy in determining angles	0.03 degree
3.9 Organization operating the tunnel and location of tunnel	ONERA - Centre de Modane-Avrieux
3.10 Who is to be contacted for additional information	ONERA - Direction GME - Châtillon - FRANCE
3.11 Literature concerning this facility	ref. 2, 3
3.12 Additional remarks	on line data return

4. Tests

4.1 Type of tests	pressure distributions, aerodynamic forces and moments, flow studies by visualization (wall streamlines and boundary layer transition), unsteady measurements
4.2 Wing span or semispan to tunnel width	0.7
4.3 Test conditions	
4.3.1 Angle of attack	during pressure measurements : α max $\leq$ 14° for all Mach numbers and $R_{e_c} < 18 \times 10^6$ (for force measurements, because of the limited capacity of the balance, there is a large variation of α max with M and Re)
4.3.2 Mach number	0.27 $<$ Mo $<$ 1.33
4.3.3 Dynamic pressure	1600 $<$ qo $<$ 60700 N/m^2
4.3.4 Reynolds number	$1.5 \times 10^6 < R_{e_c} < 15 \times 10^6$
4.3.5 Stagnation temperature	~300 K
4.6 Transition	
4.4.1 Free or fixed	free
4.4.2 Position of free transition	variable
4.4.3 Position of fixed transition, width of strips, size and type of roughness elements	not relevant
4.4.4 Were checks made to determine if transition occured at trip locations ?	not relevant
4.5 Bending or torsion under load	
4.5.1 Describe any aeroelastic measurements made during tests	unsteady bending measured by strain-gauge on the wing root

4.5.2 Describe results of any bench calibrations	not relevant
4.6 Were different sized models used in wind-tunnel investigation ? If so, indicate sizes	no
4.7 Areas and lengths used to form coefficients	$S = 0.7532\ m^2$ $c = 0.64607$ m
4.8 References on tests	ref. 4, 5
4.9 Related reports	ref. 6, 7

5. Instrumentation

5.1 Surface pressure measurements	
5.1.1 Pressure orifices in wing. Location and number on upper and lower surfaces	271 pressure orifices divided in 7 sections (y/b = 0.20/0.44/0.65/0.80/0.90/0.96 and 0.99) see also figure B1-1 and table B1-2
5.1.2 Pressure orifices on fuselage. Location and number	not relevant
5.1.3 Pressure orifices on components, give components and orifice location	not relevant
5.1.4 Geometry of orifices	∅ 0.8 mm
5.1.5 Type of pressure transducer and scanning devices used. Indicate range and accuracy	6 transducers CEC 4312 (± 12.5 PSID - Accuracy : ± 0.012 PSI) 6 scanivalves (type D)
5.2 Force measurements	
5.2.1 Type and location of balance	wall dynamometric 5 components balance "∅ 120 mm"
5.2.2 Forces and moments that can be measured. Maximum loads and accuracy	axial force : 12000 ± 12 N normal force : 65000 ± 65 N rolling moment : 8000 ± 8 mN pitching moment : 2500 ± 2.5 mN yawing moment : 1400 ± 1.4 mN
5.2.3 Forces and moments on components	not relevant
5.3 Boundary layer and flow-field measurements	none
5.4 Surface flow visualization	
5.4.1 Indicate method used to determine	
- streamline pattern	by means of fluid paints
- boundary-layer transition	by sublimation
5.4.2 Accuracy of method	qualitative methods
5.5 Skin friction measurements	none
5.6 Simulation of exhaust jet	not relevant
5.7 Additional remarks	there is strain gauge, kulite and accelerometer instrumentation for buffeting analysis

6. Data

6.1 Accuracy	
6.1.1 Pressure coefficients	at Mo = 0.84 ; $\Delta Cp = \pm 0.02$
6.1.2 Aerodynamic coefficients	at Mo = 0.84 : $\Delta C_X = \pm 0.002$, $\Delta C_l = \pm 0.002$ $\Delta C_Z = \pm 0.009$ $\Delta C_m = \pm 0.0006$ $\Delta C_n = \pm 0.0003$

6.1.3 Boundary layer and wake quantities — not relevant

6.1.4 Repeatability — see tables B1-2 and B1-3 or B1-10 and B1-11

6.2 Wall interference corrections — no corrections

6.3 Data presentation

6.3.1 Aerodynamic coefficients — none

6.3.2 Surface pressure coefficients — Cp (x/l) for all sections defined 5.1.1

6.3.3 Flow conditions for

- aerodynamic coefficient data — not relevant
- pressure data — Mo = 0.70/0.84/0.88/0.92 at Re ~ 11.7 10^6 and angles of attack α = 0° to 6°

detail : T2 means table B1-2
F3 means figure B1-3

α \ Mo	0.70	0.84	0.88	0.92
0°	T2/3	T10/11 F3	T18	T25
1°	T4	T12 F4	T19	T26
2°	T5	T13 F5	T20	T27
3°	T6 F10	T14 F6/11	T21 F12	T28 F13
4°	T7	T15 F7	T22	T29
5°	T8	T16 F8	T23	T30
6°	T9	T17 F9	T24	T31

6.3.4 Boundary layer and/or wake data — none

6.3.5 Flow conditions for boundary layer and/or wake data — not relevant

6.3.6 Wall interference corrections included ? — no

6.3.7 Aeroelastic corrections included ? — no

6.3.8 Other corrections ? — no

6.4 Were tests carried out in different facilities on the current model ? If so, what facilities. Are data included in present data base ? — not at transonic Mach numbers

7. References

1. X. VAUCHERET — Fluctuations acoustiques engendrées par les parois perméables d'une soufflerie transsonique AGARD CP 174 (Octobre 1975)

2. M. PIERRE, G. FASSO — The aerodynamic test center of Modane-Avrieux ONERA Technical Note n° 166E (1972)

3 M. PIERRE, G. FASSO — Exploitation du centre d'essais aérothermodynamiques de Modane-Avrieux
Note technique ONERA n° 181 (1971)

4. M. GOUSSE — Etude de l'écoulement autour de l'aile M6 en transsonique à S2MA
P.V. n° 2/0065 GY (1973) - not published

5. F. CHARPIN — Etude de l'écoulement autour de l'aile M6 en transsonique à S2MA
P.V. n° 5/1713 ANG (1974) - not published

6. B. MONNERIE, F. CHARPIN — Essais de tremblement (buffeting) d'une aile en flèche en transsonique
L'Aéronautique et l'Astronautique n° 50 (1975-1), p. 3-16

7. C. ARMAND — Etude de la couche limite par détecteurs à film chaud en écoulement subsonique et transsonique
La Recherche Aérospatiale n° 1976-3, p. 127-133

8. List of symbols

b	: semi-span
l	: local chord
c	: mean aerodynamic chord
S	: wing area
x	: distance measured along the local chord from the leading-edge of the wing section
y	: distance measured spanwise
z	: distance from the plane of the wing
X	: distance measured chordwise from wing apex
α	: angle of attack
Mo	: free stream Mach number
M	: local Mach number
Po	: stagnation pressure
po	: free stream static pressure
qo	: free stream dynamic pressure
p	: local static pressure
Cp	: pressure coefficient $Cp = \frac{p - po}{qo}$
To	: stagnation temperature
R_{e_c}	: Reynolds number based on c
CX	: axial force coefficient
CZ	: normal force coefficient
C_l	: rolling moment coefficient
C_m	: pitching moment coefficient
C_n	: yawing moment coefficient

M6 WING STREAMWISE SECTION COORDINATES (DESIGN VALUES)

x/l	z/l		x/l	z/l
0.0	0.0		0.3761446	0.0489296
0.0000165	0.0006914		0.4018567	0.0488292
0.0000696	0.0014416		0.4274223	0.0484833
0.0001675	0.0022554		0.4528441	0.0479351
0.0003232	0.0031382		0.4781197	0.0471641
0.0005509	0.0040959		0.5032514	0.0461903
0.0008657	0.0051343		0.5282426	0.0450209
0.0012868	0.0062598		0.5530937	0.0436741
0.0018364	0.0074784		0.5778043	0.0421684
0.0025441	0.0087958		0.6023757	0.0405241
0.0034428	0.0102163		0.6268104	0.0387613
0.0045704	0.0117419		0.6511093	0.0368990
0.0059751	0.0133708		0.6752726	0.0349542
0.0077112	0.0150951		0.6993027	0.0329402
0.0098413	0.0168984		0.7231995	0.0308662
0.0124479	0.0187537		0.7469658	0.0287365
0.0156171	0.0206220		0.7705998	0.0265505
0.0194609	0.0224545		0.7941055	0.0243027
0.0241067	0.0242004		0.8174828	0.0219842
0.0297008	0.0258245		0.8407324	0.0195838
0.0364261	0.0273317		0.8638564	0.0170915
0.0444852	0.0287912		0.8868235	0.0145051
0.0541248	0.0303278		0.9061905	0.0122389
0.0656303	0.0320138		0.9225336	0.0102727
0.0793366	0.0338372		0.9363346	0.0085827
0.0956354	0.0357742		0.9479946	0.0071423
0.1149796	0.0377923		0.9578511	0.0059224
0.1378963	0.0398522		0.9661860	0.0048907
0.1649976	0.0419089		0.9732361	0.0040190
0.1919327	0.0436214		0.9792020	0.0032796
0.2187096	0.0450507		0.9842508	0.0026547
0.2453310	0.0462358		0.9885252	0.0021257
0.2717978	0.0471987		0.9921438	0.0016778
0.2981113	0.0479494		0.9952080	0.0012985
0.3242776	0.0484902		0.9978030	0.0009773
0.3502830	0.0488183		1.0000000	0.0007052

TABLE B1-1

M6 WING - SURFACE PRESSURE DISTRIBUTIONS TEST 2309

MO = .6998
ALPHA = .04
REC = 11.74*10**6

	SECTION 1			SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.100	.94937	-.00735	.127	.94999	-.00737	.133	.94937	-.00731	.159
11	.81597	-.02193	-.070	.81705	-.02182	-.045	.81986	-.02152	-.029	.82223	-.02125	-.016
10	.66593	-.03597	-.169	.66698	-.03579	-.156	.67008	-.03553	-.145	.67216	-.03537	-.131
9	.56588	-.04301	-.240	.56705	-.04294	-.229	.57033	-.04272	-.211	.57230	-.04261	-.196
8	.46599	-.04773	-.291	.46706	-.04769	-.282	.47037	-.04760	-.279	.47220	-.04755	-.265
7	.36590	-.04889	-.296	.36705	-.04889	-.289	.37069	-.04890	-.310	.37235	-.04891	-.280
6	.26579	-.04702	-.281	.26705	-.04706	-.294	.27010	-.04716	-.286	.27230	-.04723	-.286
5	.16594	-.04194	-.261	.16699	-.04202	-.292	.17010	-.04224	-.275	.17242	-.04235	-.273
4	.06993	-.02971	-.332	.04909	-.02958	-.362	.05016	-.02975	-.319	.05017	-.02974	-.340
3	.02002	-.02268	-.517	.01922	-.02242	-.522	.02010	-.02275	-.485	.01999	-.02268	-.481
2	.00593	-.01333	.201	.00520	-.01261	.194	.00591	-.01326	.245	.00611	-.01355	.237
1	.00034	.00292	.802	.00031	.00277	.802	.00042	.00317	.796	.00000	.00000	.790
34	.00216	.00802	.603	.00108	.00553	.573	.00222	.00806	.532	.00210	.00787	.517
33	.00866	.01592	.085	.00789	.01531	.004	.00914	.01640	-.066	.00893	.01619	-.062
32	.02037	.02285	-.398	.01906	.02232	-.481	.02036	.02273	-.570	.02012	.02276	-.613
31	.03525	.02701	-.388	.03402	.02674	-.442	.03508	.02698	-.481	.03550	.02701	-.483
30	.06036	.03130	-.266	.05911	.03113	-.296	.06022	.03128	-.333	.06011	.03127	-.335
29	.09959	.03617	-.238	.09913	.03613	-.277	.10029	.03626	-.313	.10019	.03623	-.310
28	.15037	.04080	-.235	.14927	.04071	-.268	.15032	.04078	-.295	.15024	.04078	-.303
27	.20044	.04413	-.249	.19909	.04405	-.294	.20029	.04411	-.301	.20016	.04410	-.303
26	.25039	.04647	-.261	.25080	.04649	-.291	.25024	.04647	-.301	.25021	.04647	-.298
25	.30050	.04800	-.269	.29925	.04798	-.297	.30008	.04800	-.312	.30021	.04799	-.298
24	.35050	.04879	-.284	.34927	.04878	-.290	.35024	.04879	-.315	.35015	.04879	-.298
23	.40047	.04886	-.298	.39931	.04886	-.308	.40037	.04886	-.308	.39977	.04885	-.283
22	.45030	.04812	-.297	.44897	.04815	-.287	.45010	.04813	-.293	.45009	.04813	-.274
21	.50039	.04648	-.277	.49927	.04652	-.276	.50024	.04649	-.285	.50020	.04648	-.252
20	.55025	.04394	-.255	.54927	.04398	-.243	.55042	.04392	-.240	.55033	.04393	-.221
19	.60029	.04075	-.228	.59931	.04083	-.210	.60071	.04073	-.203	.60018	.04078	-.182
18	.65032	.03711	-.200	.64917	.03719	-.180	.65026	.03711	-.165	.65015	.03711	-.144
17	.71026	.03219	-.159	.70897	.03229	-.129	.71034	.03218	-.128	.70977	.03222	-.107
16	.78026	.02561	-.113	.77912	.02572	-.078	.78008	.02563	-.069	.78012	.02562	-.049
15	.85021	.01814	-.039	.84933	.01826	-.007	.85001	.01815	.006	.85010	.01815	.016
14	.92027	.01021	.052	.91929	.01032	.080	.92012	.01023	.089	.92005	.01023	.101
13	.98518	.00265	.164	.98387	.00283	.186	.98611	.00251	.198	.98498	.00267	.195

	SECTION 5			SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	.142	.94953	-.00734	.134	.94946	-.00735	.114
14	.84954	-.01822	.027	.84934	-.01823	.035	.84958	-.01821	.034
13	.75003	-.02851	-.057	.74963	-.02854	-.038	.75002	-.02850	-.030
12	.64988	-.03713	-.121	.64980	-.03714	-.101	.64957	-.03715	-.080
11	.54983	-.04397	-.241	.54955	-.04396	-.149	.54967	-.04398	-.127
10	.44990	-.04816	-.242	.44998	-.04814	-.210	.44970	-.04816	-.177
9	.35016	-.04880	-.258	.34990	-.04880	-.219	.34973	-.04879	-.192
8	.25012	-.04646	-.275	.24997	-.04645	-.247	.24976	-.04645	-.206
7	.15054	-.04081	-.280	.15016	-.04078	-.271	.14996	-.04076	-.231
6	.10029	-.03625	-.290	.10019	-.03624	-.301	.10039	-.03627	-.274
5	.06550	-.03253	-.411	.06521	-.03198	-.335	.06536	-.03230	-.321
4	.04030	-.02788	-.412	.03999	-.02803	-.431	.04025	-.02813	-.484
3	.02030	-.02282	-.512	.01985	-.02268	-.527	.01985	-.02266	-.631
2	.00587	-.01316	.244	.00567	-.01305	.197	.00578	-.01313	.062
1	.00057	.00379	.781	.00068	.00449	.753	.00050	.00361	.690
45	.00184	.00727	.085	.00193	.00749	.454	.00193	.00757	.417
44	.00526	.01361	.092	.00623	.01365	.092	.00630	.01368	-.017
43	.01228	.01873	-.309	.01209	.01851	-.310	.01265	.01889	-.406
42	.02006	.02272	-.591	.01983	.02268	-.660	.02012	.02277	-.688
41	.02988	.02521	-.579	.02991	.02584	-.569	.02999	.02583	-.645
40	.04966	.02966	-.397	.04972	.02967	-.443	.04995	.02970	-.435
39	.07448	.03322	-.331	.07488	.03329	-.376	.07482	.03327	-.314
38	.09994	.03621	-.318	.09991	.03620	-.327	.09990	.03621	-.290
37	.13986	.03995	-.317	.13983	.03994	-.296	.13976	.03995	-.250
36	.17979	.04286	-.298	.17999	.04272	-.269	.17991	.04288	-.232
35	.22001	.04515	-.290	.22010	.04514	-.258	.21990	.04516	-.218
34	.25964	.04681	-.278	.25996	.04681	-.245	.25976	.04682	-.216
33	.29988	.04800	-.271	.29994	.04799	-.240	.29986	.04800	-.202
32	.33985	.04869	-.261	.34008	.04869	-.227	.33979	.04868	-.195
31	.37986	.04892	-.258	.37994	.04891	-.224	.37976	.04892	-.190
30	.41959	.04867	-.249	.41988	.04867	-.217	.41988	.04868	-.201
29	.45975	.04789	-.245	.45976	.04790	-.208	.45970	.04789	-.172
28	.49960	.04650	-.215	.49994	.04649	-.182	.49987	.04649	-.157
27	.53959	.04452	-.187	.53988	.04450	-.169	.53975	.04452	-.131
26	.57961	.04214	-.156	.57991	.04210	-.131	.57985	.04214	-.103
25	.61987	.03938	-.133	.61970	.03939	-.107	.61976	.03940	-.085
24	.65968	.03637	-.107	.65979	.03635	-.090	.65966	.03636	-.068
23	.69970	.03309	-.087	.69976	.03308	-.060	.69979	.03308	-.050
22	.73940	.02949	-.064	.73970	.02946	-.045	.73980	.02946	-.031
21	.77960	.02567	-.031	.77952	.02567	-.017	.77942	.02570	-.010
20	.81937	.02157	.007	.81965	.02154	.015	.81985	.02150	.018
19	.85955	.01709	.044	.85980	.01707	.049	.85943	.01712	.046
18	.89940	.01246	.082	.89977	.01241	.031	.89961	.01243	.073
17	.94727	.00755	.141	.94861	.00742	.135	.94959	.00733	.115
16	.98506	.00266	.201	.98462	.00272	.186	.98455	.00274	.158

TABLE B1-2

M6 WING - SURFACE PRESSURE DISTRIBUTIONS TEST 2551

MO = .6977
ALPHA = .06
REC = 11.67*10**6

	SECTION 1			SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.097	.94937	-.00735	.125	.94999	-.00737	.135	.94987	-.00731	.140
11	.81597	-.02193	-.066	.81705	-.02182	-.044	.81986	-.02152	-.029	.82223	-.02125	-.016
10	.66593	-.03587	-.165	.66693	-.03579	-.152	.67008	-.03553	-.145	.67216	-.03537	-.130
9	.56588	-.04301	-.237	.56705	-.04294	-.228	.57033	-.04272	-.208	.57230	-.04261	-.195
8	.46599	-.04773	-.287	.46706	-.04769	-.279	.47037	-.04760	-.274	.47220	-.04753	-.265
7	.36580	-.04889	-.291	.36735	-.04889	-.286	.37009	-.04890	-.306	.37235	-.04891	-.279
6	.26579	-.04702	-.279	.26705	-.04706	-.281	.27010	-.04716	-.281	.27230	-.04723	-.283
5	.16594	-.04194	-.258	.16699	-.04202	-.286	.17010	-.04224	-.268	.17242	-.04238	-.271
4	.04993	-.02971	-.321	.04909	-.02958	-.348	.05016	-.02975	-.313	.05017	-.02974	-.325
3	.02002	-.02268	-.500	.01922	-.02242	-.519	.02010	-.02275	-.466	.01999	-.02268	-.466
2	.00593	-.01333	.207	.00520	-.01261	.207	.00591	-.01326	.256	.00611	-.01355	.253
1	.00034	.00292	.807	.00031	.00277	.803	.00042	.00317	.795	.00000	.00000	.790
34	.00216	.00802	.598	.00108	.00553	.572	.00222	.00806	.522	.00215	.00787	.513
33	.00866	.01592	.073	.00789	.01531	.003	.00914	.01640	-.067	.00893	.01619	-.102
32	.02077	.02285	-.396	.01904	.02232	-.492	.02036	.02273	-.568	.02012	.02276	-.609
31	.03525	.02701	-.396	.03402	.02674	-.443	.03508	.02698	-.490	.03550	.02701	-.497
30	.06016	.02330	-.280	.05911	.03113	-.309	.06022	.03128	-.338	.06011	.03127	-.341
29	.09959	.03617	-.231	.09913	.03613	-.289	.10029	.03626	-.312	.10019	.03623	-.314
28	.15037	.04080	-.241	.14927	.04071	-.266	.15032	.04078	-.294	.15024	.04078	-.303
27	.20044	.04413	-.251	.19909	.04405	-.289	.20029	.04411	-.302	.20016	.04410	-.304
26	.25039	.04647	-.262	.25040	.04649	-.288	.25024	.04647	-.299	.25021	.04647	-.301
25	.30050	.04800	-.268	.29925	.04798	-.298	.30008	.04800	-.303	.30021	.04799	-.296
24	.35050	.04879	-.281	.34927	.04878	-.298	.35024	.04879	-.305	.35015	.04879	-.298
23	.40047	.04886	-.293	.39931	.04886	-.305	.40037	.04886	-.305	.39977	.04885	-.284
22	.45030	.04812	-.292	.44897	.04815	-.282	.45010	.04813	-.293	.45009	.04813	-.273
21	.50039	.04648	-.276	.49927	.04652	-.273	.50024	.04649	-.272	.50020	.04648	-.256
20	.55025	.04394	-.251	.54927	.04398	-.240	.55042	.04392	-.233	.55033	.04393	-.221
19	.60029	.04075	-.228	.59931	.04083	-.206	.60071	.04073	-.199	.60018	.04078	-.180
18	.65032	.03711	-.192	.64917	.03719	-.175	.65026	.03711	-.160	.65015	.03711	-.142
17	.71026	.03219	-.153	.70497	.03229	-.127	.71034	.03218	-.129	.70977	.03222	-.105
16	.78026	.02561	-.110	.77912	.02572	-.075	.78008	.02563	-.065	.78012	.02562	-.048
15	.85021	.01814	-.034	.84903	.01826	-.005	.85001	.01815	.007	.85010	.01815	.016
14	.92127	.01021	.054	.91929	.01032	.082	.92012	.01023	.091	.92035	.01023	.102
13	.98513	.00265	.164	.98387	.00283	.188	.98511	.00251	.198	.98498	.00267	.195

	SECTION 5			SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	.140	.94953	-.00734	.133	.94946	-.00735	.114
14	.84954	-.01822	.027	.84934	-.01823	.033	.84958	-.01821	.034
13	.75005	-.02851	-.056	.74963	-.02854	-.041	.75002	-.02850	-.031
12	.64988	-.03713	-.119	.64980	-.03714	-.100	.64957	-.03715	-.079
11	.54983	-.04397	-.239	.54955	-.04396	-.149	.54967	-.04398	-.125
10	.44990	-.04814	-.239	.44998	-.04814	-.209	.44970	-.04816	-.177
9	.35016	-.04880	-.256	.34990	-.04880	-.219	.34973	-.04879	-.191
8	.25012	-.04646	-.269	.24997	-.04645	-.243	.24976	-.04645	-.202
7	.15054	-.04083	-.275	.15016	-.04078	-.272	.14996	-.04076	-.227
6	.10029	-.03625	-.284	.10019	-.03624	-.298	.10039	-.03627	-.272
5	.06550	-.03203	-.414	.06521	-.03198	-.329	.06536	-.03200	-.315
4	.04030	-.02788	-.414	.03999	-.02803	-.437	.04025	-.02813	-.483
3	.02030	-.02782	-.510	.01985	-.02268	-.523	.01985	-.02266	-.524
2	.00587	-.01314	.249	.00567	-.01305	.156	.00578	-.01313	.124
1	.00057	.00329	.785	.00063	.00449	.755	.00050	.00361	.693
45	.00184	.00727	.071	.00193	.00749	.469	.00193	.00757	.413
44	.00626	.01361	.071	.00623	.01365	.071	.00630	.01368	.005
43	.01228	.01873	-.309	.01209	.01851	-.315	.01265	.01889	-.404
42	.02006	.02272	-.605	.01983	.02268	-.650	.02012	.02277	-.695
41	.02988	.02581	-.571	.02991	.02584	-.585	.02999	.02583	-.652
40	.04966	.02966	-.400	.04972	.02967	-.443	.04995	.02970	-.432
39	.07449	.03322	-.335	.07488	.03329	-.373	.07482	.03327	-.315
38	.09994	.03621	-.316	.09991	.03620	-.324	.09990	.03621	-.286
37	.13986	.03995	-.314	.13983	.03994	-.296	.13976	.03995	-.247
36	.17979	.04286	-.296	.17999	.04272	-.271	.17991	.04288	-.225
35	.22001	.04515	-.289	.22010	.04514	-.256	.21990	.04514	-.217
34	.25964	.04681	-.277	.25996	.04681	-.243	.25976	.04682	-.212
33	.29988	.04800	-.270	.29994	.04799	-.237	.29986	.04800	-.201
32	.33985	.04869	-.262	.34008	.04869	-.227	.33979	.04868	-.194
31	.37986	.04892	-.258	.37994	.04891	-.222	.37976	.04892	-.190
30	.41959	.04867	-.251	.41988	.04867	-.216	.41988	.04868	-.201
29	.45975	.04789	-.244	.45976	.04790	-.205	.45970	.04789	-.171
28	.49960	.04650	-.211	.49994	.04649	-.178	.49987	.04649	-.156
27	.53959	.04452	-.190	.53985	.04450	-.168	.53975	.04452	-.131
26	.57961	.04214	-.154	.57991	.04210	-.129	.57985	.04214	-.104
25	.61987	.03938	-.133	.61970	.03939	-.108	.61976	.03940	-.086
24	.65964	.03637	-.106	.65979	.03635	-.088	.65966	.03636	-.068
23	.69970	.03308	-.086	.69976	.03308	-.058	.69979	.03308	-.047
22	.73940	.02949	-.061	.73970	.02946	-.046	.73980	.02946	-.030
21	.77960	.02567	-.031	.77962	.02567	-.018	.77942	.02570	-.009
20	.81937	.02157	.009	.81965	.02154	.017	.81985	.02150	.019
19	.85955	.01709	.045	.85980	.01707	.049	.85943	.01712	.048
18	.89940	.01246	.092	.89977	.01241	.080	.89961	.01243	.078
17	.94227	.00755	.140	.94861	.00742	.134	.94959	.00733	.115
16	.98506	.00266	.201	.98462	.00272	.182	.98455	.00274	.153

TABLE B1-3

M6 WING - SURFACE PRESSURE DISTRIBUTIONS TEST 2310

MO = .7003
ALPHA = 1.08
REC = 11.74*10**6

	SECTION 1			SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.106	.94937	-.00735	.128	.94999	-.00737	.137	.94987	-.00731	.141
11	.81597	-.02193	-.058	.81705	-.02182	-.033	.81986	-.02152	-.021	.82223	-.02125	-.012
10	.66595	-.03587	-.150	.66698	-.03579	-.134	.67008	-.03553	-.128	.67216	-.03537	-.119
9	.56588	-.04301	-.211	.56705	-.04294	-.203	.57033	-.04272	-.188	.57250	-.04261	-.179
8	.46599	-.04773	-.261	.46705	-.04769	-.249	.47037	-.04760	-.245	.47230	-.04753	-.240
7	.36590	-.04889	-.250	.36705	-.04889	-.250	.37009	-.04890	-.264	.37235	-.04891	-.246
6	.26579	-.04702	-.235	.26705	-.04706	-.233	.27010	-.04716	-.230	.27230	-.04723	-.238
5	.16594	-.04194	-.196	.16699	-.04202	-.224	.17010	-.04224	-.202	.17242	-.04238	-.207
4	.04993	-.02971	-.232	.04909	-.02958	-.235	.05016	-.02975	-.187	.05017	-.02974	-.205
3	.02002	-.02268	-.326	.01922	-.02242	-.304	.02010	-.02275	-.259	.01999	-.02268	-.257
2	.00593	-.01333	.334	.00520	-.01261	.353	.00591	-.01326	.396	.00611	-.01355	.392
1	.00034	.00292	.794	.00031	.00277	.787	.00042	.00317	.776	.00000	.00000	.770
34	.00216	.00902	.517	.00108	.00553	.467	.00222	.00806	.404	.00210	.00787	.333
33	.00866	.01592	-.064	.00789	.01531	-.175	.00914	.01640	-.276	.00893	.01619	-.270
32	.02037	.02285	-.573	.01906	.02232	-.719	.02036	.02273	-.339	.02012	.02276	-.918
31	.03525	.02701	-.538	.03402	.02674	-.619	.03508	.02698	-.691	.03530	.02701	-.724
30	.06036	.03130	-.358	.05911	.03113	-.409	.06022	.03128	-.456	.06011	.03127	-.460
29	.09959	.03617	-.302	.09913	.03613	-.361	.10029	.03626	-.404	.10019	.03623	-.405
28	.15037	.04080	-.287	.14927	.04071	-.333	.15032	.04078	-.366	.15024	.04078	-.374
27	.20044	.04413	-.301	.19909	.04405	-.351	.20029	.04411	-.357	.20016	.04410	-.360
26	.25039	.04647	-.305	.25080	.04649	-.342	.25024	.04647	-.352	.25021	.04647	-.344
25	.30050	.04800	-.311	.29925	.04798	-.339	.30008	.04800	-.354	.30021	.04799	-.336
24	.35050	.04879	-.313	.34927	.04878	-.328	.35024	.04879	-.350	.35015	.04879	-.331
23	.40047	.04886	-.329	.39931	.04886	-.337	.40037	.04886	-.338	.39977	.04885	-.306
22	.45030	.04912	-.321	.44897	.04815	-.314	.45010	.04813	-.324	.45039	.04813	-.293
21	.50039	.04648	-.305	.49927	.04652	-.298	.50024	.04649	-.304	.50020	.04649	-.266
20	.55025	.04394	-.272	.54927	.04398	-.260	.55042	.04392	-.255	.55033	.04393	-.233
19	.60029	.04075	-.247	.59931	.04083	-.224	.60071	.04073	-.214	.60018	.04073	-.189
18	.65032	.03711	-.211	.64917	.03719	-.190	.65026	.03711	-.172	.65015	.03711	-.149
17	.71026	.03219	-.169	.70897	.03229	-.137	.71034	.03218	-.132	.70977	.03222	-.107
16	.78026	.02561	-.116	.77912	.02572	-.081	.78008	.02563	-.069	.78012	.02562	-.048
15	.85021	.01814	-.038	.84903	.01826	-.007	.85001	.01815	.007	.85010	.01815	.018
14	.92027	.01021	.056	.91929	.01032	.083	.92012	.01023	.093	.92035	.01023	.103
13	.98518	.00265	.169	.98387	.00283	.189	.98611	.00251	.203	.98498	.00267	.199

	SECTION 5			SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	.140	.94953	-.00734	.127	.94946	-.00735	.101
14	.84954	-.01822	.029	.84934	-.01823	.031	.84958	-.01821	.027
13	.75003	-.02851	-.052	.74963	-.02854	-.038	.75002	-.02850	-.034
12	.64988	-.03713	-.111	.64930	-.03714	-.097	.64957	-.03715	-.079
11	.54983	-.04397	-.221	.54955	-.04396	-.140	.54967	-.04398	-.123
10	.44990	-.04814	-.221	.44998	-.04814	-.196	.44970	-.04815	-.167
9	.35016	-.04880	-.228	.34970	-.04880	-.199	.34973	-.04879	-.175
8	.25012	-.04646	-.231	.24997	-.04645	-.218	.24976	-.04645	-.185
7	.15054	-.04081	-.211	.15016	-.04078	-.224	.14996	-.04076	-.202
6	.10029	-.03625	-.201	.10019	-.03624	-.230	.10039	-.03627	-.232
5	.06550	-.03203	-.256	.06521	-.03198	-.245	.06536	-.03200	-.263
4	.04030	-.02788	-.256	.03999	-.02803	-.285	.04025	-.02813	-.376
3	.02050	-.02287	-.280	.01985	-.02268	-.314	.01985	-.02266	-.438
2	.00587	-.01314	.391	.00567	-.01305	.342	.00578	-.01313	.127
1	.00057	.00379	.757	.00068	.00449	.730	.00050	.00361	.671
45	.00184	.00727	-.106	.00190	.00749	.323	.00193	.00757	.307
44	.00626	.01361	-.110	.00623	.01365	-.082	.00630	.01368	-.185
43	.01229	.01873	-.547	.01209	.01851	-.535	.01265	.01889	-.615
42	.02006	.02272	-.886	.01983	.02268	-.949	.02012	.02277	-.935
41	.02988	.02581	-.816	.02991	.02584	-.805	.02999	.02583	-.832
40	.04766	.02966	-.532	.04972	.02967	-.562	.04995	.02970	-.504
39	.07448	.03322	-.434	.07488	.03329	-.460	.07482	.03327	-.361
38	.09994	.03621	-.400	.09991	.03620	-.358	.09990	.03621	-.326
37	.13986	.03995	-.380	.13985	.03994	-.338	.13976	.03995	-.276
36	.17979	.04286	-.346	.17999	.04272	-.301	.17991	.04288	-.256
35	.22001	.04515	-.325	.22010	.04514	-.280	.21990	.04514	-.236
34	.25964	.04681	-.308	.25996	.04681	-.264	.25976	.04682	-.229
33	.29988	.04800	-.296	.29994	.04799	-.256	.29986	.04800	-.215
32	.33985	.04869	-.283	.34009	.04869	-.244	.33979	.04868	-.207
31	.37986	.04892	-.276	.37994	.04891	-.234	.37976	.04892	-.201
30	.41959	.04867	-.263	.41988	.04867	-.226	.41988	.04868	-.208
29	.45975	.04789	-.254	.45978	.04790	-.213	.45970	.04789	-.176
28	.49960	.04650	-.221	.49994	.04649	-.185	.49987	.04649	-.161
27	.53959	.04452	-.195	.53988	.04450	-.170	.53975	.04452	-.134
26	.57961	.04214	-.159	.57991	.04210	-.130	.57985	.04214	-.106
25	.61987	.03938	-.135	.61970	.03939	-.107	.61976	.03940	-.087
24	.65969	.03637	-.106	.65979	.03635	-.087	.65966	.03636	-.068
23	.69970	.03308	-.084	.69976	.03308	-.057	.69979	.03308	-.050
22	.73940	.02949	-.059	.73970	.02946	-.040	.73980	.02946	-.030
21	.77960	.02567	-.027	.77962	.02567	-.012	.77942	.02570	-.010
20	.81937	.02157	.013	.81965	.02154	.021	.81985	.02150	.016
19	.85955	.01709	.049	.85980	.01707	.054	.85943	.01712	.040
18	.89940	.01246	.088	.89977	.01241	.086	.39961	.01243	.066
17	.94727	.00755	.146	.94861	.00742	.139	.94959	.00733	.094
16	.98506	.00266	.204	.98462	.00272	.188	.98455	.00274	.124

TABLE B1-4

M6 WING - SURFACE PRESSURE DISTRIBUTIONS TEST 2311

MO = .7001
ALPHA = 2.06
REC = 11.74*10**6

	SECTION 1			SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.112	.94937	-.00735	.130	.94999	-.00737	.140	.94937	-.00731	.143
11	.81597	-.02193	-.045	.81705	-.02182	-.019	.81986	-.02152	-.012	.82223	-.02125	-.007
10	.66593	-.03587	-.124	.66698	-.03579	-.114	.67008	-.03553	-.111	.67216	-.03537	-.106
9	.56598	-.04301	-.182	.56705	-.04294	-.176	.57033	-.04272	-.163	.57230	-.04261	-.161
8	.46599	-.04773	-.224	.46706	-.04769	-.212	.47037	-.04760	-.213	.47220	-.04753	-.213
7	.36580	-.04889	-.212	.36705	-.04889	-.202	.37009	-.04890	-.223	.37235	-.04891	-.210
6	.26579	-.04702	-.186	.26705	-.04706	-.175	.27010	-.04716	-.182	.27230	-.04723	-.191
5	.16594	-.04194	-.139	.16699	-.04202	-.154	.17010	-.04224	-.136	.17262	-.04238	-.141
4	.04993	-.02971	-.130	.04909	-.02958	-.118	.05016	-.02975	-.070	.05017	-.02974	-.083
3	.02002	-.02268	-.172	.01922	-.02242	-.120	.02030	-.02275	-.072	.01999	-.02268	-.061
2	.00593	-.01333	.444	.00520	-.01261	.481	.00591	-.01326	.521	.00611	-.01355	.514
1	.00034	.00292	.776	.00031	.00277	.758	.00042	.00317	.727	.00000	.00000	.728
34	.00216	.00802	.418	.00108	.00553	.339	.00222	.00806	.257	.00210	.00787	.227
33	.00866	.01592	-.222	.00789	.01531	-.378	.00914	.01640	-.490	.00893	.01619	-.484
32	.02037	.02285	-.770	.01906	.02232	-.998	.02036	.02273	-1.132	.02012	.02276	-1.261
31	.03525	.02701	-.679	.03402	.02674	-.843	.03508	.02698	-.886	.03530	.02731	-1.082
30	.04036	.03130	-.451	.05911	.03113	-.527	.06022	.03128	-.579	.06011	.03127	-.583
29	.09959	.03617	-.374	.09913	.03613	-.448	.10029	.03626	-.494	.10019	.03623	-.495
28	.15037	.04080	-.342	.14927	.04071	-.401	.15032	.04078	-.435	.15024	.04078	-.442
27	.20044	.04413	-.347	.19909	.04405	-.405	.20029	.04411	-.416	.20016	.04410	-.413
26	.25039	.04647	-.342	.25080	.04649	-.389	.25024	.04647	-.396	.25021	.04647	-.387
25	.30050	.04800	-.344	.29925	.04798	-.380	.30008	.04800	-.391	.30021	.04799	-.369
24	.35050	.04879	-.346	.34927	.04878	-.362	.35024	.04879	-.380	.35015	.04879	-.357
23	.40047	.04886	-.357	.39931	.04886	-.366	.40037	.04886	-.362	.39977	.04885	-.327
22	.45030	.04812	-.346	.44397	.04815	-.339	.45010	.04813	-.347	.45009	.04813	-.310
21	.50039	.04648	-.323	.49927	.04652	-.319	.50024	.04649	-.323	.50020	.04648	-.277
20	.55025	.04394	-.289	.54927	.04398	-.276	.55042	.04392	-.269	.55033	.04393	-.240
19	.60029	.04075	-.259	.59931	.04083	-.238	.60071	.04073	-.224	.60018	.04078	-.194
18	.65032	.03711	-.219	.64917	.03719	-.199	.65026	.03711	-.180	.65015	.03711	-.151
17	.71026	.03219	-.174	.70897	.03229	-.143	.71034	.03218	-.137	.70977	.03222	-.109
16	.78026	.02561	-.118	.77912	.02572	-.085	.78068	.02563	-.070	.78012	.02562	-.047
15	.85021	.01814	-.039	.84903	.01826	-.005	.85001	.01815	.009	.85010	.01815	.019
14	.92327	.01021	.061	.91929	.01032	.086	.92012	.01023	.098	.92065	.01023	.107
13	.98513	.00265	.173	.98387	.00283	.193	.98611	.00251	.205	.98498	.00267	.203

	SECTION 5			SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00733	.139	.94953	-.00734	.122	.94946	-.00735	.085
14	.84954	-.01822	.031	.84934	-.01823	.027	.84958	-.01821	.014
13	.75003	-.02851	-.047	.74963	-.02854	-.039	.75002	-.02850	-.042
12	.64988	-.03713	-.102	.64980	-.03714	-.096	.64957	-.03715	-.082
11	.54995	-.04397	-.198	.54955	-.04396	-.133	.54967	-.04398	-.119
10	.44990	-.04814	-.197	.44998	-.04814	-.181	.44970	-.04816	-.158
9	.35016	-.04880	-.198	.34990	-.04880	-.181	.34973	-.04879	-.163
8	.25032	-.04646	-.137	.24997	-.04645	-.190	.24976	-.04645	-.165
7	.15054	-.04081	-.143	.15016	-.04078	-.179	.14996	-.04076	-.169
6	.10029	-.03625	-.123	.10019	-.03624	-.168	.10039	-.03627	-.194
5	.06550	-.03203	-.120	.06521	-.03198	-.155	.06536	-.03200	-.209
4	.04030	-.02788	-.119	.03999	-.02803	-.166	.04025	-.02813	-.272
3	.02030	-.02282	-.095	.01985	-.02268	-.140	.01985	-.02266	-.270
2	.00587	-.01334	.517	.00567	-.01305	.460	.00578	-.01313	.247
1	.00057	.00379	.709	.00063	.00449	.683	.00050	.00361	.633
45	.00184	.00727	-.303	.00193	.00749	.174	.00193	.00757	.173
44	.00626	.01361	-.311	.00623	.01365	-.265	.00630	.01368	-.362
43	.01228	.01873	-.781	.01209	.01851	-.757	.01265	.01889	-.826
42	.02006	.02272	-1.254	.01983	.02268	-1.279	.02012	.02277	-1.247
41	.02988	.02581	-1.159	.02991	.02584	-1.162	.02999	.02585	-1.124
40	.04966	.02966	-.656	.04972	.02967	-.678	.04995	.02970	-.566
39	.07448	.03322	-.536	.07488	.03329	-.537	.07482	.03327	-.406
38	.09994	.03621	-.483	.09991	.03620	-.445	.09990	.03621	-.362
37	.13996	.03995	-.439	.13983	.03994	-.377	.13976	.03995	-.304
36	.17979	.04286	-.392	.17999	.04272	-.331	.17991	.04288	-.279
35	.22001	.04515	-.360	.22010	.04514	-.303	.21990	.04514	-.255
34	.25964	.04681	-.335	.25996	.04681	-.284	.25976	.04682	-.246
33	.29998	.04800	-.318	.29994	.04799	-.272	.29986	.04800	-.231
32	.33995	.04869	-.301	.34008	.04869	-.257	.33979	.04868	-.221
31	.37986	.04892	-.289	.37994	.04891	-.247	.37976	.04892	-.211
30	.41959	.04867	-.274	.41988	.04867	-.235	.41988	.04868	-.218
29	.45975	.04789	-.264	.45976	.04790	-.221	.45970	.04789	-.187
28	.49960	.04650	-.229	.49994	.04649	-.191	.49987	.04649	-.169
27	.53959	.04452	-.200	.53988	.04450	-.175	.53975	.04452	-.143
26	.57961	.04214	-.162	.57991	.04210	-.133	.57985	.04214	-.114
25	.61987	.03939	-.136	.61970	.03939	-.108	.61976	.03940	-.094
24	.65968	.03637	-.105	.65979	.03635	-.088	.65966	.03636	-.077
23	.69970	.03308	-.084	.69976	.03308	-.058	.69979	.03308	-.063
22	.73940	.02949	-.053	.73970	.02946	-.042	.73980	.02946	-.049
21	.77960	.02567	-.022	.77962	.02567	-.015	.77942	.02570	-.034
20	.81937	.02157	.016	.81965	.02154	.020	.81985	.02150	-.019
19	.85955	.01709	.051	.85980	.01707	.050	.85943	.01712	-.008
18	.89940	.01246	.092	.89977	.01241	.084	.89961	.01245	.001
17	.94227	.00755	.149	.94861	.00742	.136	.94959	.00733	-.007
16	.98506	.00266	.205	.98462	.00272	.185	.98455	.00274	.009

TABLE B1-5

M6 WING - SURFACE PRESSURE DISTRIBUTIONS TEST 2312

MO = .6990
ALPHA = 3.06
REC = 11.74*10**6

	SECTION 1			SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.114	.94937	-.00735	.134	.94999	-.00737	.139	.94937	-.00731	.138
11	.81597	-.02193	-.031	.81705	-.02182	-.011	.81986	-.02152	-.003	.82223	-.02125	-.002
10	.66593	-.03587	-.108	.66698	-.03579	-.095	.67008	-.03553	-.094	.67216	-.03537	-.094
9	.56598	-.04301	-.155	.56705	-.04294	-.150	.57033	-.04272	-.140	.57230	-.04261	-.141
8	.46599	-.04773	-.190	.46706	-.04769	-.175	.47037	-.04760	-.182	.47220	-.04753	-.184
7	.36590	-.04889	-.170	.36705	-.04889	-.159	.37009	-.04890	-.183	.37235	-.04891	-.173
6	.26579	-.04702	-.141	.26705	-.04706	-.126	.27010	-.04716	-.130	.27230	-.04723	-.141
5	.16594	-.04194	-.080	.16699	-.04202	-.093	.17010	-.04224	-.075	.17242	-.04238	-.078
4	.04993	-.02971	-.038	.04909	-.02958	-.011	.05016	-.02975	.039	.05017	-.02974	.019
3	.02002	-.02268	-.021	.01922	-.02242	.037	.02010	-.02275	.097	.01999	-.02268	.103
2	.00593	-.01333	.546	.00520	-.01261	.580	.00591	-.01326	.620	.00611	-.01355	.618
1	.00034	.00292	.737	.00031	.00277	.703	.00042	.00317	.660	.00000	.00000	.666
34	.00216	.00802	.304	.00103	.00553	.202	.00222	.00806	.097	.00210	.00787	.075
33	.00866	.01592	-.398	.00789	.01531	-.560	.00914	.01640	-.687	.00893	.01619	-.685
32	.02037	.02285	-.985	.01906	.02232	-1.270	.02036	.02273	-1.401	.02012	.02276	-1.491
31	.03525	.02701	-.855	.03402	.02674	-1.334	.03508	.02698	-1.568	.03530	.02701	-1.556
30	.06036	.03130	-.552	.05911	.03113	-.633	.06022	.03128	-.661	.06011	.03127	-.634
29	.09959	.03617	-.450	.09913	.03613	-.535	.10029	.03626	-.579	.10019	.03623	-.570
28	.15037	.04080	-.403	.14927	.04071	-.468	.15032	.04078	-.499	.15024	.04078	-.500
27	.20044	.04413	-.400	.19939	.04405	-.460	.20029	.04411	-.473	.20016	.04410	-.456
26	.25039	.04647	-.357	.25080	.04649	-.434	.25024	.04647	-.443	.25021	.04647	-.422
25	.30050	.04800	-.384	.29925	.04798	-.420	.30008	.04800	-.430	.30021	.04799	-.397
24	.35050	.04879	-.381	.34927	.04878	-.398	.35024	.04879	-.413	.35015	.04879	-.377
23	.40047	.04886	-.356	.39931	.04886	-.397	.40037	.04886	-.389	.39977	.04885	-.344
22	.45040	.04812	-.370	.44897	.04815	-.362	.45010	.04813	-.365	.45039	.04813	-.321
21	.50039	.04649	-.343	.49927	.04652	-.338	.50024	.04649	-.336	.50020	.04648	-.285
20	.55025	.04394	-.304	.54927	.04398	-.292	.55042	.04392	-.277	.55033	.04393	-.243
19	.60029	.04075	-.272	.59931	.04083	-.248	.60071	.04073	-.231	.60018	.04078	-.196
18	.65037	.03711	-.231	.64917	.03719	-.208	.65026	.03711	-.182	.65015	.03711	-.153
17	.71036	.03219	-.176	.70897	.03229	-.150	.71034	.03218	-.136	.70977	.03222	-.108
16	.78026	.02561	-.119	.77912	.02572	-.087	.78008	.02563	-.068	.78012	.02562	-.043
15	.85021	.01814	-.038	.84903	.01826	-.006	.85001	.01815	.014	.85010	.01815	.022
14	.92027	.01021	.063	.91929	.01032	.088	.92012	.01023	.102	.92005	.01023	.113
13	.98518	.00265	.178	.98387	.00283	.194	.98611	.00251	.205	.98498	.00267	.201

	SECTION 5			SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94927	-.00731	.130	.94953	-.00734	.114	.94946	-.00735	.065
14	.84954	-.01822	.029	.84934	-.01823	.023	.84958	-.01821	-.003
13	.75003	-.02851	-.044	.74965	-.02854	-.041	.75002	-.02850	-.054
12	.64998	-.03713	-.095	.64980	-.03714	-.094	.64957	-.03715	-.090
11	.54995	-.04397	-.180	.54955	-.04396	-.127	.54967	-.04398	-.122
10	.44990	-.04814	-.178	.44998	-.04814	-.171	.44970	-.04816	-.154
9	.35016	-.04880	-.172	.34993	-.04880	-.165	.34973	-.04879	-.156
8	.25012	-.04646	-.149	.24997	-.04645	-.165	.24976	-.04645	-.150
7	.15054	-.04081	-.092	.15016	-.04078	-.138	.14996	-.04076	-.145
6	.10029	-.03625	-.050	.10019	-.03624	-.108	.10039	-.03627	-.160
5	.06550	-.03205	.001	.06521	-.03198	-.075	.06536	-.03200	-.160
4	.04030	-.02788	-.002	.03999	-.02803	-.066	.04025	-.02813	-.183
3	.02030	-.02282	.067	.01985	-.02268	.015	.01985	-.02266	-.124
2	.00597	-.01314	.602	.00567	-.01305	.556	.00578	-.01313	.374
1	.00057	.00379	.641	.00068	.00449	.614	.00050	.00361	.574
45	.00184	.00727	-.501	.00195	.00749	.016	.00193	.00757	.028
44	.00626	.01361	-.500	.00623	.01365	-.434	.00630	.01368	-.534
43	.01229	.01873	-.983	.01209	.01851	-.965	.01265	.01889	-1.027
42	.02006	.02272	-1.486	.01983	.02268	-1.465	.02012	.02277	-1.457
41	.02988	.02581	-1.669	.02991	.02584	-1.562	.02999	.02583	-1.492
40	.04946	.02966	-.673	.04972	.02967	-.728	.04995	.02970	-.606
39	.07448	.03322	-.599	.07488	.03329	-.584	.07482	.03327	-.436
38	.09994	.03621	-.546	.09991	.03620	-.485	.09990	.03621	-.394
37	.13996	.03995	-.490	.13983	.03994	-.409	.13976	.03995	-.333
36	.17979	.04286	-.429	.17999	.04272	-.357	.17991	.04288	-.305
35	.22001	.04515	-.392	.22010	.04514	-.327	.21990	.04514	-.279
34	.25964	.04681	-.359	.25996	.04681	-.301	.25976	.04682	-.266
33	.29988	.04800	-.339	.29994	.04799	-.288	.29986	.04800	-.250
32	.33985	.04869	-.317	.34038	.04869	-.269	.33979	.04868	-.237
31	.37996	.04892	-.302	.37934	.04891	-.258	.37976	.04892	-.227
30	.41959	.04867	-.287	.41986	.04867	-.245	.41988	.04868	-.232
29	.45975	.04789	-.274	.45976	.04790	-.230	.45970	.04789	-.205
28	.49960	.04650	-.236	.49994	.04649	-.197	.49987	.04649	-.184
27	.53959	.04452	-.204	.53988	.04450	-.178	.53975	.04452	-.161
26	.57961	.04214	-.167	.57991	.04210	-.138	.57985	.04214	-.135
25	.61987	.03938	-.140	.61970	.03939	-.114	.61976	.03940	-.121
24	.65963	.03637	-.104	.65979	.03635	-.093	.65966	.03636	-.112
23	.69970	.03308	-.085	.69976	.03303	-.064	.69979	.03308	-.102
22	.73940	.02949	-.059	.73970	.02946	-.045	.73980	.02946	-.099
21	.77960	.02567	-.022	.77962	.02567	-.018	.77942	.02570	-.100
20	.81937	.02157	.017	.81965	.02154	.016	.81985	.02150	-.109
19	.85955	.01709	.053	.85980	.01707	.046	.85943	.01712	-.128
18	.89940	.01246	.093	.89977	.01241	.077	.89961	.01243	-.156
17	.94727	.00755	.148	.94861	.00742	.127	.94959	.00733	-.204
16	.98506	.00266	.201	.98462	.00272	.178	.98455	.00274	-.168

TABLE B1-6

M6 WING - SURFACE PRESSURE DISTRIBUTIONS TEST 2313

MO = .7009
ALPHA = 4.08
REC = 11.77*10**6

	SECTION 1			SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.112	.94937	-.00735	.131	.94999	-.00737	.133	.94937	-.00731	.133
11	.81597	-.02193	-.025	.81765	-.02182	-.004	.81986	-.02152	-.002	.82223	-.02125	-.002
10	.66593	-.03587	-.091	.66698	-.03579	-.075	.67008	-.03553	-.080	.67216	-.03537	-.085
9	.56588	-.04301	-.131	.56705	-.04294	-.126	.57033	-.04272	-.118	.57230	-.04261	-.124
8	.46599	-.04773	-.165	.46706	-.04769	-.146	.47037	-.04760	-.153	.47220	-.04753	-.161
7	.36550	-.04889	-.136	.36705	-.04889	-.124	.37009	-.04890	-.145	.37255	-.04891	-.139
6	.26579	-.04702	-.102	.26705	-.04706	-.083	.27010	-.04716	-.085	.27250	-.04723	-.096
5	.16594	-.04194	-.029	.16699	-.04202	-.039	.17010	-.04224	-.016	.17242	-.04238	-.021
4	.04995	-.02971	.049	.04939	-.02958	.081	.05016	-.02975	.136	.05017	-.02974	.116
3	.02002	-.02268	.116	.01922	-.02242	.179	.02010	-.02275	.235	.01999	-.02268	.243
2	.00593	-.01333	.628	.00520	-.01261	.661	.00591	-.01326	.695	.00611	-.01355	.689
1	.00054	.00292	.675	.00031	.00277	.630	.00042	.00317	.572	.00000	.00000	.587
34	.00216	.00862	.178	.00103	.00553	.053	.00222	.00806	-.057	.00210	.00787	-.077
33	.00966	.01592	-.567	.00789	.01531	-.741	.00914	.01640	-.866	.00893	.01619	-.355
32	.02037	.02285	-1.177	.01906	.02232	-1.440	.02036	.02273	-1.574	.02012	.02276	-1.654
31	.03525	.02701	-1.338	.03402	.02674	-1.730	.03508	.02698	-1.864	.03550	.02701	-1.498
30	.06036	.03130	-.664	.05911	.03113	-.698	.06022	.03128	-1.103	.06011	.03127	-1.354
29	.09959	.03617	-.538	.09913	.03613	-.613	.10029	.03626	-.636	.10019	.03623	-.600
28	.15037	.04086	-.471	.14927	.04071	-.555	.15032	.04078	-.564	.15024	.04073	-.548
27	.20044	.04413	-.455	.19909	.04405	-.524	.20029	.04411	-.524	.20016	.04410	-.501
26	.25039	.04647	-.439	.25080	.04649	-.487	.25024	.04647	-.489	.25021	.04647	-.455
25	.30050	.04800	-.432	.29925	.04798	-.465	.30008	.04800	-.466	.30021	.04799	-.422
24	.35050	.04879	-.426	.34927	.04878	-.434	.35024	.04879	-.443	.35015	.04879	-.400
23	.40047	.04886	-.423	.39931	.04886	-.427	.40037	.04886	-.414	.39977	.04885	-.362
22	.45030	.04812	-.406	.44897	.04815	-.388	.45010	.04813	-.382	.45009	.04813	-.334
21	.50039	.04648	-.371	.49927	.04652	-.359	.50024	.04649	-.348	.50020	.04648	-.294
20	.55025	.04394	-.327	.54927	.04398	-.308	.55042	.04392	-.286	.55033	.04393	-.251
19	.60029	.04075	-.289	.59931	.04083	-.260	.60071	.04073	-.235	.60018	.04078	-.199
18	.65032	.03711	-.244	.64917	.03719	-.215	.65026	.03711	-.185	.65015	.03711	-.153
17	.71026	.03219	-.193	.70897	.03229	-.153	.71034	.03218	-.135	.70977	.03222	-.106
16	.78026	.02561	-.130	.77912	.02572	-.084	.78008	.02563	-.063	.78012	.02562	-.039
15	.85021	.01814	-.042	.84903	.01826	-.002	.85001	.01815	.020	.85010	.01815	.030
14	.92327	.01021	.059	.91929	.01032	.094	.92012	.01023	.106	.92005	.01023	.113
13	.98518	.00265	.176	.98387	.00283	.191	.98611	.00251	.198	.98498	.00267	.192

	SECTION 5			SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	.122	.94957	-.00734	.101	.94946	-.00735	.042
14	.84954	-.01822	.024	.84934	-.01823	.011	.84958	-.01821	-.025
13	.75003	-.02851	-.044	.74963	-.02854	-.048	.75002	-.02850	-.072
12	.64983	-.03713	-.092	.64980	-.03714	-.098	.64957	-.03715	-.105
11	.54983	-.04397	-.165	.54955	-.04396	-.126	.54967	-.04398	-.132
10	.44990	-.04814	-.162	.44998	-.04814	-.164	.44970	-.04816	-.157
9	.35016	-.04880	-.147	.34990	-.04880	-.151	.34973	-.04879	-.155
8	.25012	-.04646	-.116	.24997	-.04645	-.145	.24976	-.04645	-.143
7	.15054	-.04681	-.038	.15016	-.04678	-.103	.14996	-.04676	-.142
6	.10029	-.03625	.018	.10019	-.03624	-.056	.10039	-.03627	-.136
5	.06550	-.03203	.102	.06521	-.03198	-.002	.06536	-.03200	-.121
4	.04030	-.02788	.101	.03999	-.02803	.036	.04025	-.02813	-.107
3	.02030	-.02282	.206	.01985	-.02268	.151	.01985	-.02266	.005
2	.00597	-.01314	.672	.00567	-.01305	.626	.00578	-.01313	.463
1	.00057	.00279	.554	.00068	.00449	.528	.00050	.00361	.497
65	.00184	.00727	-.673	.00193	.00749	-.136	.00193	.00757	-.120
64	.00624	.01761	-.673	.00623	.01365	-.598	.00630	.01368	-.694
63	.01228	.01873	-1.142	.01209	.01851	-1.148	.01265	.01889	-1.184
62	.02006	.02272	-1.644	.01983	.02268	-1.608	.02012	.02277	-1.620
61	.02988	.02581	-1.874	.02991	.02584	-1.816	.02999	.02583	-1.612
60	.04945	.02966	-1.740	.04972	.02967	-1.422	.04995	.02970	-.917
59	.07443	.03322	-.652	.07488	.03329	-.652	.07482	.03327	-.539
58	.09994	.03621	-.569	.09991	.03620	-.517	.09990	.03621	-.426
57	.13986	.03995	-.523	.13983	.03994	-.430	.13976	.03995	-.363
56	.17979	.04286	-.461	.17999	.04272	-.378	.17991	.04288	-.336
55	.22001	.04515	-.421	.22010	.04514	-.350	.21990	.04514	-.308
54	.25944	.04681	-.385	.25996	.04681	-.324	.25976	.04682	-.295
53	.29988	.04800	-.361	.29994	.04799	-.308	.29986	.04800	-.278
52	.33985	.04869	-.335	.34009	.04869	-.288	.33979	.04868	-.265
51	.37986	.04892	-.315	.37994	.04891	-.273	.37976	.04892	-.252
50	.41959	.04867	-.296	.41983	.04867	-.258	.41988	.04868	-.259
49	.45975	.04789	-.283	.45976	.04790	-.243	.45970	.04789	-.233
48	.49960	.04650	-.241	.49994	.04649	-.207	.49987	.04649	-.217
47	.53959	.04452	-.210	.53988	.04450	-.189	.53975	.04452	-.199
46	.57961	.04214	-.169	.57991	.04210	-.147	.57985	.04214	-.182
45	.61987	.03938	-.143	.61970	.03939	-.124	.61976	.03940	-.180
44	.65968	.03637	-.110	.65979	.03635	-.102	.65966	.03636	-.183
43	.69970	.03308	-.085	.69976	.03308	-.072	.69979	.03308	-.193
42	.73940	.02949	-.057	.73970	.02946	-.054	.73980	.02946	-.215
41	.77960	.02567	-.024	.77962	.02567	-.027	.77942	.02570	-.252
40	.81937	.02157	.016	.81965	.02154	.004	.81985	.02150	-.305
39	.85955	.01709	.052	.85980	.01707	.033	.85943	.01712	-.341
38	.89940	.01246	.089	.89977	.01241	.060	.89961	.01243	-.365
37	.94727	.00755	.140	.94861	.00742	.103	.94959	.00733	-.370
36	.98506	.00266	.190	.98462	.00272	.156	.98455	.00274	-.276

TABLE B1-7

M6 WING - SURFACE PRESSURE DISTRIBUTIONS TEST 2541

MO = .7019
ALPHA = 5.06
REC = 11.66*10**6

	SECTION 1			SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.108	.94937	-.00735	.127	.94999	-.00737	.130	.94937	-.00731	.130
11	.81597	-.02193	-.015	.81705	-.02182	-.001	.81986	-.02152	.004	.82223	-.02125	.000
10	.66593	-.03597	-.074	.66698	-.03579	-.061	.67008	-.03553	-.069	.67216	-.03537	-.076
9	.56588	-.04301	-.107	.56705	-.04294	-.108	.57033	-.04272	-.099	.57230	-.04261	-.111
8	.46599	-.04773	-.133	.46706	-.04769	-.118	.47037	-.04760	-.124	.47220	-.04753	-.142
7	.36540	-.04889	-.102	.36705	-.04889	-.091	.37009	-.04890	-.109	.37255	-.04891	-.112
6	.26579	-.04702	-.059	.26705	-.04706	-.038	.27010	-.04716	-.041	.27230	-.04723	-.059
5	.16594	-.04194	.018	.16699	-.04202	.012	.17010	-.04224	.041	.17242	-.04238	.030
4	.04993	-.02971	.146	.04909	-.02958	.176	.05016	-.02975	.216	.05017	-.02974	.203
3	.02002	-.02268	.237	.01922	-.02242	.295	.02010	-.02275	.350	.01999	-.02268	.356
2	.00593	-.01333	.693	.00520	-.01261	.725	.00591	-.01326	.746	.00611	-.01355	.741
1	.00034	.00292	.613	.00031	.00277	.554	.00042	.00317	.480	.00000	.00000	.495
34	.00216	.00802	.037	.00163	.00553	-.076	.00222	.00806	-.196	.00210	.00787	-.207
33	.00366	.01592	-.726	.00789	.01531	-.893	.00914	.01640	-.996	.00893	.01619	-1.059
32	.02037	.02285	-1.343	.01906	.02232	-1.597	.02036	.02273	-1.696	.02012	.02276	-1.780
31	.03525	.02701	-1.755	.03402	.02674	-1.877	.03508	.02698	-2.002	.03530	.02701	-2.036
30	.06036	.03130	-.725	.05911	.03113	-1.450	.06022	.03128	-1.890	.06011	.03127	-1.987
29	.09959	.03617	-.605	.09913	.03613	-.644	.10029	.03626	-.663	.10019	.03623	-.727
28	.15037	.04080	-.546	.14927	.04071	-.588	.15032	.04078	-.586	.15024	.04078	-.546
27	.20144	.04413	-.507	.19909	.04405	-.572	.20029	.04411	-.560	.20016	.04410	-.523
26	.25039	.04647	-.486	.25080	.04649	-.524	.25024	.04647	-.517	.25021	.04647	-.484
25	.30050	.04800	-.464	.29925	.04798	-.500	.30008	.04800	-.491	.30021	.04799	-.445
24	.35050	.04879	-.456	.34927	.04878	-.470	.35024	.04879	-.462	.35015	.04879	-.416
23	.40047	.04886	-.442	.39931	.04886	-.447	.40037	.04886	-.429	.39977	.04885	-.376
22	.45030	.04812	-.427	.44997	.04815	-.404	.45010	.04813	-.395	.45009	.04813	-.341
21	.50039	.04648	-.386	.49927	.04652	-.371	.50024	.04649	-.350	.50020	.04648	-.307
20	.55025	.04394	-.362	.54927	.04398	-.317	.55042	.04392	-.289	.55035	.04393	-.255
19	.60029	.04075	-.298	.59931	.04083	-.265	.60071	.04073	-.241	.60018	.04078	-.204
18	.65032	.03711	-.247	.64917	.03719	-.217	.65026	.03711	-.184	.65015	.03711	-.156
17	.71026	.03239	-.192	.70897	.03229	-.155	.71034	.03218	-.137	.70977	.03222	-.108
16	.78026	.02561	-.130	.77912	.02572	-.084	.78008	.02563	-.061	.78012	.02562	-.041
15	.85021	.01814	-.041	.84903	.01826	-.000	.85001	.01815	.021	.85010	.01815	.027
14	.92027	.01021	.060	.91929	.01032	.093	.92032	.01023	.105	.92025	.01023	.108
13	.98518	.00265	.171	.98387	.00283	.186	.98611	.00251	.194	.98498	.00257	.186

	SECTION 5			SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00771	.113	.94953	-.00734	.083	.94946	-.00735	.017
14	.84954	-.01822	.019	.84934	-.01823	.002	.84958	-.01821	-.048
13	.75003	-.02853	-.045	.74963	-.02854	-.057	.75002	-.02850	-.095
12	.64989	-.03713	-.086	.64980	-.03714	-.097	.64957	-.03715	-.118
11	.54983	-.04397	-.148	.54955	-.04396	-.124	.54967	-.04398	-.141
10	.44990	-.04814	-.147	.44998	-.04814	-.157	.44970	-.04816	-.162
9	.35016	-.04880	-.123	.34990	-.04880	-.140	.34973	-.04879	-.156
8	.25012	-.04646	-.083	.24997	-.04645	-.129	.24976	-.04645	-.142
7	.15054	-.04081	.011	.15015	-.04078	-.070	.14996	-.04076	-.120
6	.10029	-.03625	.076	.10019	-.03624	-.007	.10039	-.03627	-.114
5	.06550	-.03203	.184	.06521	-.03198	.059	.06536	-.03200	-.083
4	.04030	-.02788	.185	.03999	-.02803	.108	.04025	-.02813	-.040
3	.02030	-.02282	.311	.01985	-.02268	.252	.01985	-.02266	.098
2	.00597	-.01314	.718	.00567	-.01305	.639	.00578	-.01313	.557
1	.00057	.00379	.465	.00063	.00449	.444	.00050	.00361	.413
45	.00184	.00727	-.842	.00190	.00749	-.251	.00193	.00757	-.259
44	.00626	.01361	-.841	.00623	.01365	-.784	.00630	.01368	-.825
43	.01228	.01873	-1.289	.01209	.01851	-1.267	.01265	.01889	-1.313
42	.02006	.02272	-1.766	.01983	.02268	-1.725	.02012	.02277	-1.703
41	.02988	.02581	-1.999	.02991	.02584	-1.892	.02999	.02583	-1.530
40	.04966	.02966	-1.891	.04972	.02967	-1.643	.04995	.02970	-1.154
39	.07448	.03322	-1.267	.07488	.03329	-1.017	.07482	.03327	-.805
38	.09994	.03621	-.762	.09991	.03620	-.720	.09990	.03621	-.557
37	.13996	.03995	-.556	.13983	.03994	-.478	.13976	.03995	-.409
36	.17979	.04286	-.484	.17999	.04272	-.394	.17991	.04288	-.359
35	.22001	.04515	-.436	.22010	.04514	-.362	.21990	.04514	-.337
34	.25964	.04681	-.396	.25996	.04681	-.335	.25976	.04682	-.320
33	.29988	.04800	-.369	.29994	.04799	-.320	.29986	.04800	-.305
32	.33995	.04869	-.344	.34005	.04869	-.298	.33979	.04868	-.290
31	.37996	.04892	-.324	.37994	.04891	-.286	.37976	.04892	-.284
30	.41959	.04867	-.303	.41988	.04867	-.269	.41988	.04868	-.301
29	.45975	.04789	-.287	.45976	.04790	-.248	.45970	.04789	-.272
28	.49960	.04650	-.245	.49994	.04649	-.217	.49987	.04649	-.270
27	.53959	.04452	-.213	.53988	.04450	-.199	.53975	.04452	-.263
26	.57961	.04214	-.176	.57991	.04210	-.159	.57985	.04214	-.269
25	.61987	.03938	-.146	.61970	.03939	-.136	.61976	.03940	-.282
24	.65969	.03637	-.115	.65973	.03635	-.112	.65966	.03636	-.310
23	.69970	.03308	-.090	.69976	.03308	-.082	.69979	.03308	-.344
22	.73940	.02949	-.063	.73970	.02946	-.070	.73980	.02946	-.388
21	.77960	.02567	-.032	.77962	.02567	-.047	.77942	.02570	-.436
20	.81937	.02157	.004	.81965	.02154	-.019	.81985	.02153	-.479
19	.85955	.01709	.040	.85980	.01707	.006	.85943	.01712	-.498
18	.89940	.01246	.077	.89972	.01241	.030	.89961	.01243	-.488
17	.94727	.00755	.125	.94861	.00742	.073	.94959	.00733	-.448
16	.98506	.00266	.173	.98462	.00272	.123	.98455	.00274	-.301

TABLE B1-8

M6 WING - SURFACE PRESSURE DISTRIBUTIONS TEST 2542

MO = .6971
ALPHA = 6.00
REC = 11.63*10**6

	SECTION 1			SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.113	.94937	-.00735	.129	.94999	-.00737	.130	.94937	-.00731	.124
11	.81597	-.02193	-.003	.81705	-.02182	.011	.81986	-.02152	.011	.82223	-.02125	.005
10	.66593	-.03587	-.046	.66698	-.03579	-.044	.67008	-.03553	-.050	.67216	-.03537	-.062
9	.56588	-.04301	-.078	.56705	-.04294	-.080	.57033	-.04272	-.077	.57230	-.04261	-.092
8	.46599	-.04773	-.094	.46706	-.04769	-.084	.47037	-.04760	-.091	.47220	-.04753	-.110
7	.36580	-.04889	-.055	.36705	-.04889	-.048	.37009	-.04890	-.069	.37235	-.04891	-.074
6	.26579	-.04702	-.007	.26705	-.04706	.008	.27010	-.04716	.008	.27230	-.04723	-.013
5	.16594	-.04194	.080	.16699	-.04202	.071	.17010	-.04224	.097	.17242	-.04238	.082
4	.04993	-.02971	.224	.04909	-.02958	.262	.05016	-.02975	.297	.05017	-.02974	.284
3	.02002	-.02268	.347	.01922	-.02242	.414	.02010	-.02275	.456	.01999	-.02268	.456
2	.00593	-.01333	.747	.00520	-.01261	.773	.00591	-.01326	.783	.00611	-.01355	.774
1	.00034	.00292	.530	.00031	.00277	.465	.00042	.00317	.370	.00000	.00000	.393
34	.00216	.00802	-.101	.00108	.00553	-.221	.00222	.00806	-.348	.00210	.00787	-.363
33	.00866	.01592	-.889	.00789	.01531	-1.069	.00914	.01640	-1.159	.00893	.01619	-1.235
32	.02037	.02285	-1.551	.01906	.02232	-1.758	.02036	.02273	-1.848	.02012	.02276	-1.922
31	.03525	.02701	-1.898	.03402	.02674	-2.033	.03508	.02698	-2.139	.03530	.02701	-2.175
30	.06036	.03130	-1.022	.05911	.03113	-1.967	.06022	.03128	-2.073	.06011	.03127	-2.067
29	.09959	.03617	-.669	.09913	.03613	-.839	.10029	.03626	-1.223	.10019	.03623	-1.335
28	.15037	.04080	-.606	.14927	.04071	-.605	.15032	.04078	-.572	.15024	.04078	-.584
27	.20044	.04413	-.557	.19909	.04405	-.601	.20029	.04411	-.563	.20016	.04410	-.519
26	.25039	.04647	-.527	.25080	.04649	-.556	.25024	.04647	-.528	.25021	.04647	-.495
25	.30050	.04800	-.497	.29925	.04798	-.525	.30008	.04800	-.505	.30021	.04799	-.453
24	.35050	.04879	-.484	.34927	.04878	-.491	.35024	.04879	-.475	.35015	.04879	-.424
23	.40047	.04886	-.466	.39931	.04886	-.467	.40037	.04886	-.438	.39977	.04885	-.381
22	.45030	.04812	-.441	.44897	.04815	-.415	.45010	.04813	-.406	.45009	.04813	-.345
21	.50039	.04648	-.401	.49927	.04652	-.380	.50024	.04649	-.361	.50020	.04648	-.306
20	.55025	.04394	-.348	.54927	.04398	-.322	.55042	.04392	-.297	.55035	.04393	-.258
19	.60029	.04075	-.306	.59931	.04083	-.267	.60071	.04073	-.244	.60018	.04073	-.201
18	.65032	.03711	-.252	.64917	.03719	-.218	.65026	.03711	-.189	.65015	.03711	-.154
17	.71026	.03219	-.195	.70897	.03229	-.153	.71034	.03218	-.141	.70977	.03222	-.105
16	.78026	.02561	-.126	.77912	.02572	-.078	.78008	.02563	-.063	.78012	.02562	-.041
15	.85021	.01834	-.037	.84903	.01826	.004	.85001	.01815	.020	.85010	.01815	.026
14	.92327	.01021	.066	.91929	.01032	.094	.92012	.01023	.105	.92005	.01023	.103
13	.98518	.00265	.174	.98387	.00283	.183	.98611	.00251	.192	.98498	.00267	.178

	SECTION 5			SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	.099	.94953	-.00734	.062	.94946	-.00735	-.003
14	.84954	-.01822	.017	.84934	-.01823	-.009	.84958	-.01821	-.069
13	.75003	-.02851	-.040	.74963	-.02854	-.060	.75002	-.02850	-.113
12	.64988	-.03713	-.077	.64980	-.03714	-.100	.64957	-.03715	-.135
11	.54993	-.04397	-.126	.54955	-.04396	-.119	.54967	-.04398	-.151
10	.44990	-.04814	-.126	.44998	-.04814	-.148	.44970	-.04816	-.168
9	.35016	-.04880	-.095	.34990	-.04880	-.125	.34973	-.04879	-.155
8	.25012	-.04646	-.043	.24997	-.04645	-.105	.24976	-.04645	-.134
7	.15054	-.04081	.063	.15016	-.04078	-.033	.14996	-.04076	-.106
6	.10029	-.03625	.137	.10019	-.03624	.044	.10039	-.03627	-.089
5	.06550	-.03203	.273	.06521	-.03198	.124	.06536	-.03200	-.038
4	.04030	-.02788	.272	.03999	-.02803	.189	.04025	-.02813	.027
3	.02030	-.02282	.413	.01985	-.02268	.351	.01985	-.02266	.191
2	.00587	-.01314	.750	.00567	-.01305	.663	.00578	-.01313	.567
1	.00057	.00379	.358	.00068	.00449	.335	.00050	.00361	.314
45	.00184	.00727	-1.014	.00193	.00749	-.407	.00193	.00757	-.412
44	.00626	.01361	-1.015	.00625	.01365	-.945	.00630	.01368	-.992
43	.01228	.01873	-1.464	.01209	.01851	-1.443	.01265	.01889	-1.461
42	.02006	.02272	-1.903	.01983	.02268	-1.866	.02012	.02277	-1.666
41	.02988	.02581	-2.033	.02991	.02584	-1.929	.02999	.02583	-1.441
40	.04966	.02966	-1.961	.04972	.02967	-1.534	.04995	.02970	-1.258
39	.07449	.03322	-1.491	.07488	.03329	-1.208	.07482	.03327	-1.038
38	.09994	.03621	-1.218	.09991	.03620	-.916	.09990	.03621	-.732
37	.13986	.03995	-.876	.13983	.03994	-.622	.13976	.03995	-.488
36	.17979	.04286	-.624	.17999	.04272	-.478	.17991	.04288	-.409
35	.22001	.04515	-.479	.22010	.04514	-.406	.21990	.04514	-.379
34	.25964	.04681	-.408	.25996	.04681	-.365	.25976	.04682	-.360
33	.29988	.04800	-.362	.29994	.04799	-.335	.29986	.04800	-.335
32	.33985	.04869	-.336	.34008	.04869	-.312	.33979	.04868	-.318
31	.37986	.04892	-.312	.37994	.04891	-.292	.37976	.04892	-.306
30	.41959	.04867	-.290	.41988	.04867	-.277	.41988	.04868	-.333
29	.45975	.04789	-.276	.45975	.04790	-.256	.45970	.04789	-.303
28	.49940	.04650	-.238	.49994	.04649	-.225	.49987	.04649	-.309
27	.53959	.04452	-.209	.53988	.04450	-.206	.53975	.04452	-.321
26	.57961	.04214	-.174	.57991	.04210	-.168	.57985	.04214	-.356
25	.61987	.03938	-.146	.61970	.03939	-.145	.61976	.03940	-.385
24	.65968	.03637	-.117	.65979	.03635	-.127	.65966	.03636	-.434
23	.69970	.03308	-.092	.69976	.03308	-.097	.69979	.03308	-.465
22	.73940	.02949	-.063	.73970	.02946	-.087	.73980	.02946	-.515
21	.77960	.02567	-.035	.77962	.02567	-.067	.77942	.02570	-.563
20	.81937	.02157	-.001	.81965	.02154	-.041	.81985	.02150	-.599
19	.85955	.01709	.031	.85980	.01707	-.021	.85943	.01712	-.589
18	.89940	.01246	.064	.89977	.01241	-.001	.89961	.01243	-.546
17	.94727	.00755	.106	.94861	.00742	.038	.94959	.00733	-.459
16	.98506	.00266	.147	.98462	.00272	.090	.98455	.00274	-.278

TABLE B1-9

M6 WING - SURFACE PRESSURE DISTRIBUTIONS TEST 2305

MO = .8399
ALPHA = .04
REC = 11.72*10**6

	SECTION 1			SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95050	-.00726	.103	.94937	-.00735	.143	.94999	-.00737	.157	.94937	-.00731	.163
11	.81597	-.02193	-.097	.81705	-.02182	-.050	.81986	-.02152	-.026	.82223	-.02125	-.008
10	.66595	-.03587	-.233	.66698	-.03579	-.200	.67008	-.03553	-.174	.67216	-.03537	-.149
9	.56598	-.04301	-.328	.56705	-.04294	-.308	.57333	-.04272	-.271	.57230	-.04261	-.238
8	.46599	-.04773	-.399	.46706	-.04769	-.409	.47037	-.04760	-.397	.47220	-.04753	-.347
7	.36580	-.04889	-.356	.36705	-.04889	-.397	.37009	-.04890	-.444	.37235	-.04891	-.407
6	.26579	-.04702	-.315	.26705	-.04706	-.358	.27010	-.04716	-.391	.27230	-.04723	-.426
5	.16594	-.04194	-.276	.16699	-.04202	-.336	.17010	-.04224	-.352	.17242	-.04238	-.370
4	.04993	-.02971	-.327	.04909	-.02958	-.377	.05016	-.02975	-.357	.05017	-.02974	-.424
3	.02002	-.02268	-.512	.01922	-.02242	-.520	.02010	-.02275	-.512	.01999	-.02268	-.537
2	.00593	-.01333	.278	.00520	-.01261	.265	.00591	-.01326	.295	.00611	-.01355	.275
1	.00034	.00292	.840	.00031	.00277	.831	.00042	.00317	.822	.00000	.00000	.313
34	.00216	.00802	.649	.00105	.00553	.622	.00222	.00806	.580	.00210	.00787	.562
33	.00546	.01592	.158	.00789	.01531	.084	.00914	.01640	.019	.00893	.01619	.016
32	.02737	.02285	-.355	.01905	.02232	-.459	.02036	.02273	-.535	.02012	.02276	-.410
31	.03525	.02701	-.391	.03402	.02674	-.470	.03508	.02698	-.567	.03530	.02701	-.505
30	.04036	.03130	-.257	.05911	.03113	-.309	.06022	.03128	-.361	.06011	.03127	-.403
29	.09959	.03617	-.230	.09913	.03613	-.304	.10029	.03626	-.363	.10019	.03623	-.392
28	.15037	.04080	-.239	.14927	.04071	-.304	.15032	.04078	-.360	.15024	.04078	-.389
27	.20064	.04413	-.265	.19909	.04405	-.347	.20029	.04411	-.383	.20016	.04410	-.419
26	.25039	.04647	-.289	.25080	.04649	-.363	.25024	.04647	-.402	.25021	.04647	-.433
25	.30050	.04800	-.306	.29925	.04798	-.383	.30008	.04800	-.436	.30021	.04799	-.450
24	.35050	.04879	-.335	.34927	.04878	-.401	.35024	.04879	-.451	.35015	.04879	-.461
23	.40047	.04886	-.369	.39931	.04886	-.428	.40037	.04886	-.444	.39977	.04885	-.368
22	.45330	.04812	-.402	.44897	.04815	-.423	.45010	.04813	-.424	.45009	.04813	-.358
21	.50339	.04649	-.386	.49927	.04652	-.395	.50024	.04649	-.376	.50020	.04648	-.317
20	.55025	.04394	-.357	.54927	.04398	-.333	.55042	.04392	-.306	.55013	.04393	-.266
19	.60029	.04075	-.314	.59951	.04083	-.280	.60071	.04073	-.247	.60013	.04078	-.211
18	.65032	.03711	-.271	.64917	.03719	-.230	.65026	.03711	-.192	.65015	.03711	-.159
17	.71026	.03219	-.217	.70897	.03229	-.166	.71034	.03213	-.145	.70977	.03222	-.113
16	.78026	.02561	-.152	.77912	.02572	-.094	.78008	.02563	-.070	.78012	.02562	-.046
15	.85021	.01814	-.057	.84903	.01826	-.006	.85001	.01815	.017	.85010	.01815	.031
14	.92027	.01021	.053	.91929	.01032	.094	.92012	.01023	.110	.92035	.01023	.123
13	.98518	.00265	.175	.98387	.00283	.203	.98511	.00251	.221	.98499	.00267	.220

	SECTION 5			SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00751	.163	.94953	-.00734	.152	.94946	-.00735	.133
14	.84954	-.01822	.039	.84934	-.01823	.045	.84958	-.01821	.045
13	.75033	-.02951	-.057	.74963	-.02854	-.039	.75002	-.02850	-.031
12	.64988	-.03713	-.135	.64980	-.03714	-.113	.64957	-.03715	-.092
11	.54993	-.04397	-.310	.54955	-.04396	-.180	.54967	-.04398	-.152
10	.44990	-.04814	-.310	.44998	-.04814	-.268	.44970	-.04816	-.229
9	.35016	-.04880	-.345	.34990	-.04880	-.291	.34973	-.04879	-.251
8	.25012	-.04646	-.471	.24997	-.04645	-.328	.24976	-.04645	-.283
7	.15054	-.04081	-.409	.15015	-.04078	-.577	.14996	-.04076	-.291
6	.10029	-.03625	-.391	.10019	-.03624	-.507	.10039	-.03627	-.522
5	.06559	-.03203	-.521	.06521	-.03198	-.453	.06536	-.03200	-.648
4	.04030	-.02789	-.520	.03999	-.02803	-.601	.04025	-.02813	-.790
3	.02030	-.02282	-.563	.01985	-.02268	-.573	.01985	-.02266	-.672
2	.00587	-.01314	.276	.00567	-.01305	.228	.00578	-.01313	.100
1	.00057	.00379	.803	.00058	.00449	.772	.00050	.00361	.710
45	.00184	.00727	.155	.00190	.00749	.495	.00193	.00757	.460
44	.00526	.01361	.155	.00623	.01365	.158	.00630	.01368	.051
43	.01229	.01873	-.236	.01209	.01851	-.243	.01265	.01889	-.337
42	.02006	.02272	-.613	.01983	.02268	-.686	.02012	.02277	-.718
41	.02998	.02581	-.753	.02991	.02584	-.792	.02999	.02593	-.913
40	.04966	.02966	-.468	.04972	.02967	-.590	.04995	.02970	-.746
39	.07448	.03322	-.418	.07488	.03329	-.516	.07482	.03327	-.693
38	.09934	.03621	-.415	.09991	.03620	-.555	.09990	.03621	-.553
37	.13986	.03905	-.448	.13933	.03994	-.602	.13976	.03995	-.283
36	.17979	.04286	-.461	.17999	.04272	-.300	.17991	.04238	-.296
35	.22001	.04515	-.499	.22010	.04514	-.319	.21990	.04514	-.290
34	.25964	.04681	-.403	.25996	.04681	-.318	.25976	.04682	-.285
33	.29988	.04800	-.339	.29994	.04799	-.313	.29986	.04800	-.270
32	.33985	.04869	-.341	.34008	.04869	-.303	.33979	.04868	-.258
31	.37986	.04892	-.337	.37994	.04891	-.289	.37976	.04892	-.248
30	.41959	.04867	-.322	.41985	.04867	-.277	.41988	.04865	-.253
29	.45975	.04789	-.305	.45976	.04790	-.260	.45970	.04789	-.217
28	.49960	.04650	-.264	.49994	.04649	-.225	.49987	.04649	-.194
27	.53959	.04452	-.227	.53988	.04450	-.200	.53975	.04452	-.159
26	.57961	.04214	-.184	.57991	.04210	-.153	.57985	.04214	-.124
25	.61997	.03938	-.151	.61970	.03939	-.122	.61976	.03940	-.101
24	.65968	.03637	-.118	.65979	.03635	-.100	.65966	.03636	-.079
23	.69970	.03308	-.093	.69976	.03308	-.067	.69979	.03308	-.055
22	.73940	.02949	-.065	.73973	.02946	-.049	.73980	.02946	-.034
21	.77960	.02567	-.027	.77962	.02567	-.015	.77942	.02570	-.007
20	.81937	.02157	.017	.81965	.02154	.024	.81985	.02150	.025
19	.85955	.01709	.058	.85990	.01707	.060	.85943	.01712	.057
18	.89940	.01246	.101	.89977	.01241	.098	.89961	.01243	.092
17	.94977	.00755	.163	.94861	.00742	.154	.94959	.00733	.135
16	.98506	.00264	.222	.98462	.00272	.203	.98455	.00274	.175

TABLE B1-10

M6 WING - SURFACE PRESSURE DISTRIBUTIONS TEST 2396

MO = .8371
ALPHA = .03
REC = 11.69*10**6

	SECTION 1			SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.102	.94937	-.00735	.138	.94999	-.00737	.152	.94987	-.00731	.159
11	.81597	-.02193	-.093	.81705	-.02182	-.049	.81986	-.02152	-.027	.82223	-.02125	-.009
10	.66593	-.03587	-.234	.66698	-.03579	-.198	.67008	-.03553	-.173	.67216	-.03537	-.149
9	.56589	-.04301	-.320	.56705	-.04294	-.308	.57033	-.04272	-.270	.57230	-.04261	-.236
8	.46599	-.04773	-.419	.46706	-.04769	-.405	.47037	-.04760	-.392	.47220	-.04753	-.366
7	.36590	-.04889	-.351	.36705	-.04889	-.397	.37009	-.04890	-.436	.37235	-.04891	-.392
6	.26579	-.04702	-.329	.26705	-.04706	-.357	.27010	-.04716	-.389	.27230	-.04723	-.422
5	.16594	-.04194	-.284	.16699	-.04202	-.339	.17010	-.04224	-.352	.17242	-.04236	-.371
4	.04995	-.02971	-.330	.04909	-.02958	-.387	.05016	-.02975	-.405	.05017	-.02974	-.394
3	.02002	-.02268	-.482	.01927	-.02242	-.512	.02010	-.02275	-.498	.01999	-.02268	-.517
2	.00593	-.01533	.282	.00520	-.01261	.263	.00591	-.01326	.294	.00611	-.01355	.275
1	.00034	.00292	.840	.00031	.00277	.831	.00042	.00317	.822	.00060	.00600	.815
34	.00216	.00802	.654	.00108	.00553	.623	.00222	.00806	.582	.00210	.00797	.564
33	.00966	.01592	.165	.00789	.01531	.091	.00914	.01640	.022	.00893	.01619	.026
32	.02077	.02285	-.318	.01906	.02232	-.416	.02036	.02273	-.521	.02012	.02276	-.567
31	.03525	.02701	-.473	.03402	.02674	-.495	.03508	.02698	-.616	.03550	.02701	-.735
30	.06336	.03130	-.240	.05911	.03113	-.314	.06022	.03128	-.373	.06011	.03127	-.394
29	.09959	.03617	-.228	.09913	.03613	-.302	.10029	.03626	-.359	.10019	.03623	-.385
28	.15037	.04080	-.237	.14927	.04071	-.304	.15032	.04078	-.359	.15024	.04078	-.392
27	.20044	.04413	-.263	.19909	.04405	-.347	.20029	.04411	-.380	.20016	.04410	-.419
26	.25039	.04647	-.287	.25080	.04649	-.360	.25024	.04647	-.399	.25021	.04647	-.429
25	.30050	.04800	-.303	.29925	.04798	-.379	.30008	.04800	-.429	.30021	.04799	-.446
24	.35050	.04879	-.334	.34927	.04878	-.396	.35024	.04879	-.441	.35015	.04879	-.430
23	.40047	.04886	-.365	.39931	.04886	-.420	.40037	.04886	-.434	.39977	.04885	-.374
22	.45070	.04812	-.392	.44897	.04815	-.413	.45010	.04813	-.419	.45059	.04313	-.354
21	.50039	.04649	-.378	.49927	.04652	-.387	.50024	.04649	-.376	.50020	.04648	-.314
20	.55025	.04394	-.351	.54927	.04398	-.331	.55042	.04392	-.308	.55033	.04393	-.264
19	.60029	.04075	-.309	.59931	.04083	-.277	.60071	.04073	-.247	.60018	.04078	-.208
18	.65032	.03711	-.268	.64917	.03719	-.227	.65026	.03711	-.195	.65015	.03711	-.160
17	.71026	.03219	-.213	.70897	.03229	-.164	.71034	.03218	-.144	.70977	.03222	-.114
16	.78026	.02561	-.151	.77912	.02572	-.095	.78008	.02563	-.071	.78012	.02562	-.045
15	.85021	.01814	-.053	.84903	.01826	-.006	.85001	.01815	.015	.85010	.01815	.031
14	.92027	.01021	.050	.91929	.01032	.094	.92012	.01023	.108	.92005	.01023	.120
13	.98518	.00265	.173	.98387	.00283	.199	.98611	.00251	.214	.98498	.00267	.214

	SECTION 5			SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	.159	.94953	-.00734	.149	.94946	-.00735	.131
14	.84954	-.01822	.038	.84934	-.01823	.044	.84958	-.01821	.043
13	.75003	-.02851	-.058	.74963	-.02854	-.039	.75002	-.02850	-.033
12	.64988	-.03713	-.136	.64980	-.03714	-.112	.64957	-.03715	-.093
11	.54993	-.04397	-.308	.54955	-.04396	-.178	.54967	-.04398	-.153
10	.44990	-.04814	-.310	.44998	-.04814	-.266	.44970	-.04816	-.228
9	.35016	-.04880	-.344	.34990	-.04880	-.289	.34973	-.04879	-.251
8	.25012	-.04646	-.375	.24997	-.04645	-.329	.24976	-.04645	-.283
7	.15054	-.04081	-.414	.15015	-.04078	-.482	.14996	-.04076	-.297
6	.10039	-.03625	-.394	.10019	-.03624	-.513	.10039	-.03627	-.379
5	.06550	-.03203	-.676	.06521	-.03198	-.469	.06536	-.03200	-.666
4	.04030	-.02788	-.681	.03999	-.02803	-.728	.04025	-.02813	-.959
3	.02050	-.02282	-.544	.01985	-.02268	-.567	.01985	-.02266	-.675
2	.00587	-.01314	.277	.00567	-.01305	.227	.00578	-.01313	.098
1	.00057	.00379	.803	.00068	.00449	.773	.00050	.00361	.709
45	.00184	.00727	.164	.00190	.00749	.496	.00193	.00757	.460
44	.00626	.01361	.166	.00623	.01365	.165	.00630	.01368	.053
43	.01229	.01873	-.229	.01209	.01851	-.236	.01265	.01889	-.327
42	.02006	.02272	-.571	.01983	.02268	-.653	.02012	.02272	-.710
41	.02988	.02581	-.332	.02991	.02584	-.489	.02999	.02583	-.521
40	.04966	.02966	-.471	.04972	.02967	-.599	.04995	.02970	-.838
39	.07449	.03322	-.410	.07488	.03329	-.526	.07482	.03327	-.702
38	.09994	.03621	-.425	.09991	.03620	-.542	.09990	.03621	-.426
37	.13986	.03995	-.447	.13983	.03994	-.601	.13976	.03995	-.289
36	.17979	.04296	-.463	.17999	.04272	-.311	.17991	.04288	-.299
35	.22001	.04515	-.489	.22010	.04514	-.325	.21990	.04514	-.290
34	.25964	.04681	-.353	.25996	.04681	-.319	.25976	.04682	-.284
33	.29988	.04800	-.351	.29994	.04799	-.311	.29986	.04800	-.269
32	.33985	.04869	-.342	.34008	.04869	-.299	.33979	.04868	-.256
31	.37936	.04892	-.334	.37994	.04891	-.287	.37976	.04892	-.247
30	.41959	.04867	-.319	.41988	.04867	-.273	.41988	.04868	-.251
29	.45975	.04789	-.303	.45976	.04790	-.257	.45970	.04789	-.217
28	.49960	.04650	-.263	.49994	.04649	-.222	.49987	.04649	-.194
27	.53959	.04452	-.225	.53988	.04450	-.197	.53975	.04452	-.160
26	.57961	.04214	-.183	.57991	.04210	-.152	.57985	.04214	-.124
25	.61987	.03938	-.150	.61970	.03939	-.122	.61976	.03940	-.102
24	.65964	.03637	-.118	.65979	.03635	-.100	.65966	.03636	-.080
23	.69970	.03308	-.093	.69976	.03308	-.066	.69979	.03308	-.056
22	.73940	.02949	-.064	.73970	.02946	-.046	.73980	.02945	-.034
21	.77960	.02567	-.027	.77962	.02567	-.014	.77942	.02570	-.007
20	.81937	.02157	.017	.81965	.02154	.024	.81985	.02150	.024
19	.85955	.01709	.057	.85980	.01707	.060	.85943	.01712	.057
18	.89940	.01246	.100	.89977	.01241	.098	.89961	.01243	.091
17	.94727	.00755	.160	.94361	.00742	.151	.94959	.00733	.132
16	.98506	.00266	.216	.98462	.00272	.198	.98455	.00274	.172

TABLE B1-11

M6 WING - SURFACE PRESSURE DISTRIBUTIONS TEST 2306

MO = .8398
ALPHA = 1.07
REC = 11.71*10**6

	SECTION 1			SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.103	.94937	-.00735	.140	.94999	-.00737	.154	.94987	-.00731	.160
11	.81597	-.02193	-.094	.81735	-.02182	-.053	.81986	-.02152	-.026	.82223	-.02125	-.010
10	.66593	-.03587	-.217	.66698	-.03579	-.193	.67008	-.03553	-.168	.67216	-.03537	-.147
9	.56588	-.04301	-.298	.56705	-.04294	-.288	.57033	-.04272	-.258	.57230	-.04261	-.231
8	.46599	-.04773	-.353	.46706	-.04769	-.366	.47037	-.04760	-.365	.47220	-.04755	-.334
7	.36580	-.04889	-.310	.36705	-.04889	-.343	.37009	-.04890	-.382	.37235	-.04891	-.371
6	.26579	-.04702	-.264	.26705	-.04706	-.298	.27010	-.04716	-.321	.27230	-.04723	-.355
5	.16594	-.04194	-.215	.16699	-.04202	-.266	.17010	-.04224	-.269	.17242	-.04238	-.288
4	.04993	-.02971	-.231	.04909	-.02958	-.265	.05016	-.02975	-.237	.05017	-.02974	-.266
3	.02002	-.02268	-.328	.01922	-.02242	-.327	.02010	-.02275	-.293	.01999	-.02268	-.308
2	.00593	-.01333	.378	.00520	-.01261	.376	.00591	-.01326	.409	.00611	-.01355	.395
1	.00034	.00292	.835	.00031	.00277	.824	.00042	.00317	.810	.00000	.00000	.805
34	.00216	.00802	.582	.00108	.00553	.544	.00222	.00906	.494	.00210	.00787	.472
33	.00846	.01592	.041	.00739	.01531	-.044	.00914	.01640	-.115	.00893	.01619	-.118
32	.02037	.02285	-.505	.01706	.02232	-.659	.02036	.02275	-.695	.02012	.02276	-.779
31	.03525	.02701	-.555	.03402	.02674	-.854	.03508	.02698	-.975	.03530	.02701	-1.009
30	.06036	.03130	-.356	.05911	.03113	-.417	.06022	.03128	-.380	.06011	.03127	-.324
29	.09959	.03617	-.314	.09915	.03613	-.398	.10029	.03626	-.461	.10019	.03623	-.467
28	.15037	.04080	-.309	.14927	.04071	-.376	.15032	.04078	-.445	.15024	.04078	-.492
27	.20044	.04413	-.327	.19909	.04405	-.418	.20029	.04411	-.469	.20016	.04410	-.512
26	.25039	.04647	-.347	.25080	.04649	-.429	.25024	.04647	-.486	.25021	.04647	-.526
25	.30050	.04800	-.358	.29925	.04798	-.441	.30008	.04800	-.509	.30021	.04799	-.546
24	.35050	.04879	-.389	.34927	.04878	-.467	.35024	.04879	-.541	.35015	.04879	-.572
23	.40047	.04886	-.421	.39931	.04886	-.504	.40037	.04886	-.540	.39977	.04885	-.336
22	.45050	.04812	-.459	.44897	.04815	-.515	.45010	.04813	-.440	.45009	.04813	-.347
21	.50039	.04648	-.449	.49927	.04652	-.423	.50024	.04649	-.379	.50020	.04648	-.319
20	.55025	.04394	-.398	.54927	.04398	-.349	.55042	.04392	-.308	.55033	.04393	-.269
19	.60029	.04075	-.344	.59931	.04083	-.289	.60071	.04073	-.249	.60018	.04078	-.211
18	.65032	.03711	-.290	.64917	.03719	-.236	.65026	.03711	-.194	.65015	.03711	-.160
17	.71026	.03219	-.230	.70897	.03229	-.167	.71034	.03218	-.144	.70977	.03222	-.112
16	.78026	.02561	-.160	.77912	.02572	-.093	.78008	.02563	-.068	.78012	.02562	-.043
15	.85021	.01814	-.061	.84903	.01826	-.003	.85001	.01815	.021	.85010	.01815	.035
14	.92027	.01021	.051	.91929	.01032	.099	.92012	.01023	.113	.92005	.01023	.126
13	.98518	.00265	.175	.98587	.00283	.206	.98611	.00251	.222	.98498	.00267	.221

	SECTION 5			SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	.157	.94953	-.00734	.143	.94946	-.00735	.115
14	.84954	-.01822	.034	.84934	-.01823	.037	.84958	-.01821	.031
13	.75003	-.02851	-.060	.74963	-.02854	-.044	.75002	-.02850	-.040
12	.64988	-.03713	-.135	.64980	-.03714	-.116	.64957	-.03715	-.098
11	.54993	-.04397	-.299	.54955	-.04396	-.178	.54967	-.04398	-.154
10	.44990	-.04814	-.299	.44998	-.04814	-.260	.44970	-.04815	-.225
9	.35016	-.04880	-.328	.34970	-.04880	-.277	.34973	-.04879	-.243
8	.25012	-.04646	-.357	.24997	-.04645	-.315	.24976	-.04645	-.271
7	.15054	-.04081	-.329	.15016	-.04078	-.394	.14996	-.04076	-.290
6	.10029	-.03625	-.287	.10019	-.03624	-.408	.10039	-.03627	-.385
5	.06550	-.03203	-.335	.06521	-.03198	-.354	.06536	-.03200	-.555
4	.04030	-.02789	-.336	.03999	-.02803	-.392	.04025	-.02813	-.576
3	.02010	-.02292	-.338	.01985	-.02268	-.374	.01985	-.02266	-.524
2	.00597	-.01314	.393	.00567	-.01305	.341	.00578	-.01313	.148
1	.00057	.00379	.788	.00068	.00449	.758	.00050	.00361	.699
45	.00184	.00727	.028	.00190	.00749	.410	.00193	.00757	.379
44	.00626	.01361	.029	.00623	.01365	.045	.00630	.01368	-.060
43	.01229	.01873	-.377	.01209	.01851	-.372	.01265	.01889	-.460
42	.02006	.02272	-.790	.01983	.02268	-.819	.02012	.02277	-.844
41	.02988	.02581	-.982	.02991	.02584	-1.009	.02999	.02583	-1.070
40	.04966	.02966	-.943	.04972	.02967	-.990	.04995	.02970	-1.077
39	.07448	.03322	-.433	.07488	.03329	-.816	.07482	.03327	-1.017
38	.09994	.03621	-.478	.09991	.03620	-.568	.09990	.03621	-.564
37	.13986	.03995	-.548	.13983	.03994	-.681	.13976	.03995	-.279
36	.17979	.04286	-.558	.17999	.04272	-.363	.17991	.04238	-.294
35	.22001	.04515	-.584	.22010	.04514	-.299	.21990	.04514	-.293
34	.25946	.04681	-.603	.25996	.04681	-.309	.25976	.04682	-.293
33	.29988	.04800	-.295	.29994	.04799	-.315	.29986	.04800	-.282
32	.33985	.04869	-.318	.34003	.04869	-.308	.33979	.04868	-.269
31	.37986	.04892	-.334	.37994	.04891	-.298	.37976	.04892	-.260
30	.41959	.04867	-.327	.41985	.04867	-.285	.41988	.04868	-.263
29	.45975	.04789	-.310	.45976	.04790	-.266	.45970	.04789	-.227
28	.49960	.04650	-.268	.49994	.04649	-.228	.49987	.04649	-.202
27	.53959	.04452	-.229	.53988	.04450	-.201	.53975	.04452	-.167
26	.57961	.04214	-.184	.57991	.04210	-.152	.57985	.04214	-.129
25	.61987	.03939	-.149	.61970	.03939	-.121	.61976	.03940	-.106
24	.65988	.03637	-.116	.65979	.03635	-.098	.65966	.03636	-.084
23	.69970	.03308	-.090	.69976	.03308	-.065	.69979	.03308	-.060
22	.73960	.02949	-.060	.73970	.02946	-.045	.73980	.02946	-.038
21	.77960	.02567	-.022	.77962	.02567	-.011	.77942	.02570	-.013
20	.81957	.02157	.021	.81965	.02154	.028	.81985	.02150	.016
19	.85955	.01709	.064	.85980	.01707	.064	.85943	.01712	.042
18	.89940	.01246	.106	.89977	.01241	.102	.89961	.01243	.071
17	.94727	.00755	.167	.94861	.00742	.155	.94959	.00733	.097
16	.98506	.00266	.223	.98462	.00272	.204	.98455	.00274	.129

TABLE B1-12

M6 WING - SURFACE PRESSURE DISTRIBUTIONS TEST 2307

MO = .8386
ALPHA = 2.06
REC = 11.72*10**6

	SECTION 1			SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.105	.94937	-.00735	.139	.94999	-.00737	.155	.94937	-.00731	.160
11	.81597	-.02193	-.084	.81705	-.02182	-.044	.81986	-.02152	-.023	.82225	-.02125	-.009
10	.66593	-.03587	-.194	.66698	-.03579	-.170	.67008	-.03553	-.158	.67216	-.03537	-.141
9	.56598	-.04301	-.260	.56705	-.04294	-.258	.57033	-.04272	-.238	.57230	-.04261	-.220
8	.46599	-.04773	-.305	.46706	-.04769	-.310	.47037	-.04760	-.323	.47220	-.04753	-.312
7	.36580	-.04889	-.259	.36705	-.04889	-.284	.37009	-.04890	-.325	.37235	-.04891	-.328
6	.26579	-.04702	-.213	.26705	-.04706	-.233	.27010	-.04716	-.257	.27230	-.04723	-.290
5	.16594	-.04194	-.146	.16699	-.04202	-.193	.17010	-.04224	-.192	.17242	-.04239	-.213
4	.04993	-.02971	-.129	.04909	-.02958	-.142	.05316	-.02975	-.116	.05017	-.02974	-.142
3	.02002	-.02268	-.176	.01922	-.02242	-.152	.02010	-.02275	-.122	.01999	-.02268	-.128
2	.00503	-.01333	.472	.00520	-.01261	.430	.00591	-.01326	.507	.00611	-.01355	.494
1	.00074	.00292	.822	.00031	.00277	.807	.00042	.00317	.785	.00000	.00000	.783
34	.00216	.00802	.516	.00108	.00553	.467	.00222	.00806	.405	.00210	.00787	.382
33	.00866	.01592	-.067	.00789	.01531	-.158	.00914	.01640	-.230	.00893	.01619	-.226
32	.02037	.02285	-.611	.01906	.02232	-.758	.02336	.02273	-.823	.02012	.02276	-.892
31	.03525	.02701	-.941	.03402	.02674	-1.039	.03508	.02698	-1.095	.03550	.02701	-1.124
30	.06036	.03330	-.423	.05911	.03313	-.906	.06022	.03128	-1.023	.06011	.03127	-1.051
29	.09959	.03617	-.387	.09913	.03613	-.450	.10029	.03626	-.508	.10019	.03623	-.916
28	.15037	.04080	-.372	.14927	.04071	-.453	.15032	.04078	-.505	.15024	.04078	-.439
27	.20044	.04413	-.387	.19909	.04405	-.487	.20029	.04411	-.544	.20016	.04410	-.563
26	.25039	.04647	-.400	.25080	.04649	-.499	.25024	.04647	-.555	.25021	.04647	-.585
25	.30050	.04800	-.403	.29925	.04798	-.505	.30008	.04800	-.573	.30021	.04799	-.603
24	.35050	.04879	-.432	.34927	.04878	-.521	.35024	.04879	-.608	.35015	.04879	-.637
23	.40047	.04886	-.464	.39931	.04886	-.561	.40037	.04886	-.625	.39977	.04885	-.298
22	.45030	.04812	-.502	.44897	.04815	-.597	.45010	.04813	-.538	.45009	.04813	-.314
21	.50039	.04648	-.520	.49927	.04652	-.505	.50024	.04649	-.341	.50020	.04648	-.303
20	.55025	.04394	-.454	.54927	.04398	-.343	.55042	.04392	-.290	.55033	.04393	-.260
19	.60029	.04075	-.362	.59931	.04083	-.285	.60071	.04073	-.238	.60018	.04078	-.206
18	.65032	.03711	-.296	.64917	.03719	-.231	.65026	.03711	-.187	.65015	.03711	-.156
17	.71026	.03219	-.234	.70897	.03229	-.164	.71334	.03218	-.138	.70977	.03222	-.108
16	.78026	.02561	-.156	.77912	.02572	-.090	.78008	.02563	-.063	.78012	.02562	-.039
15	.85021	.01814	-.059	.84903	.01826	.002	.85001	.01815	.025	.85010	.01815	.037
14	.92027	.01021	.058	.91929	.01032	.103	.92012	.01023	.118	.92035	.01023	.128
13	.98518	.00265	.179	.98387	.00283	.207	.98611	.00251	.223	.98498	.00267	.222

	SECTION 5			SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	.153	.94953	-.00734	.136	.94946	-.00735	.093
14	.84954	-.01822	.032	.84934	-.01823	.028	.84958	-.01821	.013
13	.75003	-.02851	-.062	.74963	-.02854	-.051	.75002	-.02850	-.054
12	.64988	-.03713	-.134	.64980	-.03714	-.118	.64957	-.03715	-.105
11	.54983	-.04397	-.283	.54955	-.04396	-.176	.54967	-.04398	-.157
10	.44990	-.04814	-.284	.44998	-.04814	-.251	.44970	-.04816	-.220
9	.35316	-.04880	-.303	.34990	-.04880	-.262	.34973	-.04879	-.233
8	.25012	-.04666	-.319	.24997	-.04645	-.294	.24976	-.04645	-.251
7	.15054	-.04081	-.250	.15016	-.04078	-.331	.14996	-.04076	-.308
6	.10029	-.03625	-.199	.10019	-.03624	-.317	.10039	-.03627	-.347
5	.06550	-.03203	-.195	.06521	-.03198	-.257	.06536	-.03200	-.456
4	.04030	-.02788	-.194	.03999	-.02803	-.256	.04025	-.02813	-.448
3	.02030	-.02282	-.169	.01785	-.02268	-.217	.01985	-.02266	-.363
2	.00587	-.01314	.486	.00567	-.01305	.434	.00578	-.01313	.234
1	.00057	.00379	.760	.00068	.00449	.229	.00050	.00361	.671
45	.00184	.00727	-.079	.00190	.00749	.313	.00193	.00757	.297
44	.00626	.01361	-.079	.00625	.01365	-.059	.00630	.01368	-.158
43	.01228	.01873	-.484	.01209	.01851	-.490	.01265	.01889	-.564
42	.02006	.02277	-.900	.01983	.02268	-.909	.02012	.02277	-.937
41	.02998	.02581	-1.103	.02991	.02584	-1.121	.02999	.02583	-1.169
40	.04966	.02966	-1.092	.04972	.02967	-1.130	.04995	.02970	-1.206
39	.07448	.03322	-1.017	.07488	.03329	-1.071	.07482	.03327	-1.183
38	.09994	.03621	-.953	.09991	.03620	-1.009	.09990	.03621	-1.104
37	.13986	.03995	-.878	.13983	.03994	-.997	.13976	.03995	-.367
36	.17979	.04286	-.542	.17999	.04272	-.361	.17991	.04288	-.172
35	.22001	.04515	-.609	.22010	.04514	-.192	.21990	.04514	-.235
34	.25944	.04681	-.619	.25996	.04681	-.239	.25976	.04682	-.270
33	.29988	.04800	-.268	.29994	.04799	-.283	.29986	.04800	-.275
32	.33985	.04869	-.286	.34008	.04869	-.292	.33979	.04868	-.272
31	.37986	.04892	-.310	.37994	.04891	-.293	.37976	.04892	-.267
30	.41959	.04867	-.315	.41988	.04867	-.283	.41988	.04868	-.273
29	.45975	.04789	-.306	.45976	.04790	-.267	.45970	.04789	-.238
28	.49960	.04650	-.266	.49994	.04649	-.229	.49987	.04649	-.212
27	.53959	.04452	-.228	.53988	.04450	-.204	.53975	.04452	-.180
26	.57961	.04214	-.182	.57991	.04210	-.154	.57985	.04214	-.144
25	.61987	.03938	-.149	.61970	.03939	-.124	.61976	.03940	-.124
24	.65968	.03637	-.115	.65979	.03635	-.101	.65966	.03635	-.106
23	.69970	.03308	-.090	.69976	.03308	-.069	.69979	.03308	-.088
22	.73940	.02949	-.060	.73973	.02946	-.049	.73980	.02946	-.074
21	.77960	.02567	-.021	.77962	.02567	-.018	.77942	.02570	-.060
20	.81937	.02157	.022	.81965	.02154	.020	.81985	.02150	-.049
19	.85955	.01709	.062	.85980	.01707	.054	.85943	.01712	-.040
18	.89940	.01246	.104	.89977	.01241	.089	.89961	.01243	-.037
17	.94727	.00755	.164	.94861	.00742	.143	.94959	.00733	-.044
16	.98506	.00266	.220	.98467	.00272	.196	.98455	.00274	-.026

TABLE B1-13

M6 WING - SURFACE PRESSURE DISTRIBUTIONS TEST 2308

MO = .8395
ALPHA = 3.06
REC = 11.72*10**6

	SECTION 1			SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.101	.94937	-.00735	.143	.94999	-.00737	.157	.94987	-.00731	.162
11	.81597	-.02193	-.079	.81705	-.02182	-.036	.81986	-.02152	-.016	.82223	-.02125	-.005
10	.66593	-.03587	-.171	.66695	-.03579	-.151	.67008	-.03553	-.143	.67216	-.03537	-.131
9	.56589	-.04301	-.229	.56705	-.04294	-.228	.57033	-.04272	-.213	.57230	-.04261	-.205
8	.46599	-.04773	-.263	.46706	-.04769	-.269	.47037	-.04763	-.279	.47220	-.04753	-.285
7	.36590	-.04889	-.215	.36705	-.04889	-.233	.37009	-.04890	-.270	.37235	-.04891	-.283
6	.26579	-.04702	-.164	.26735	-.04706	-.181	.27010	-.04716	-.196	.27230	-.04723	-.230
5	.16594	-.04194	-.092	.16699	-.04202	-.130	.17010	-.04224	-.121	.17242	-.04238	-.143
4	.04993	-.02971	-.046	.04909	-.02958	-.045	.05016	-.02975	-.009	.05017	-.02974	-.027
3	.02002	-.02268	-.034	.01922	-.02242	-.007	.02010	-.02275	.026	.01999	-.02268	.025
2	.00593	-.01333	.549	.00520	-.01261	.565	.00591	-.01326	.590	.00611	-.01355	.580
1	.00034	.00292	.801	.00031	.00277	.781	.00042	.00317	.752	.00000	.00000	.752
34	.00216	.00802	.444	.00103	.00553	.388	.00222	.00806	.325	.00213	.00757	.304
33	.00866	.01592	-.168	.00789	.01531	-.256	.00914	.01640	-.324	.00893	.01619	-.324
32	.02037	.02285	-.707	.01905	.02232	-.842	.02036	.02273	-.918	.02012	.02276	-.976
31	.03525	.02701	-1.069	.03402	.02674	-1.127	.03508	.02698	-1.181	.03530	.02701	-1.206
30	.06036	.03130	-.629	.05911	.03113	-1.092	.06022	.03128	-1.140	.06011	.03127	-1.161
29	.09959	.03617	-.465	.09913	.03613	-.889	.10029	.03626	-1.031	.10019	.03623	-1.058
28	.15037	.04080	-.442	.14927	.04071	-.488	.15032	.04078	-.941	.15024	.04078	-.996
27	.20044	.04413	-.455	.19909	.04405	-.538	.20029	.04411	-.544	.20016	.04410	-.954
26	.25039	.04647	-.459	.25080	.04649	-.561	.25024	.04647	-.594	.25021	.04647	-.618
25	.30050	.04800	-.462	.29925	.04798	-.559	.30008	.04800	-.632	.30021	.04799	-.628
24	.35050	.04879	-.480	.34927	.04878	-.580	.35024	.04879	-.664	.35015	.04879	-.677
23	.40047	.04886	-.505	.39931	.04886	-.614	.40037	.04886	-.692	.39977	.04885	-.303
22	.45030	.04812	-.547	.44897	.04815	-.647	.45010	.04813	-.725	.45039	.04813	-.245
21	.50039	.04648	-.576	.49927	.04652	-.701	.50024	.04649	-.301	.50020	.04648	-.244
20	.55025	.04394	-.580	.54927	.04398	-.374	.55042	.04392	-.236	.55033	.04393	-.222
19	.60029	.04075	-.397	.59931	.04083	-.263	.60071	.04073	-.205	.60018	.04078	-.181
18	.65032	.03711	-.307	.64917	.03719	-.213	.65026	.03711	-.164	.65015	.03711	-.139
17	.71026	.03219	-.238	.70997	.03229	-.151	.71034	.03218	-.121	.70977	.03222	-.097
16	.78026	.02561	-.160	.77912	.02572	-.081	.78008	.02563	-.052	.78012	.02562	-.031
15	.85021	.01814	-.058	.84903	.01826	.010	.85001	.01815	.032	.85010	.01815	.043
14	.92027	.01021	.059	.91929	.01032	.109	.92012	.01023	.123	.92005	.01023	.132
13	.98518	.00265	.176	.98387	.00283	.211	.98611	.00251	.227	.98498	.00267	.225

	SECTION 5			SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	.150	.94953	-.00734	.126	.94946	-.00735	.070
14	.84954	-.01822	.030	.84934	-.01823	.021	.84958	-.01821	-.009
13	.75003	-.02851	-.062	.74963	-.02854	-.056	.75002	-.02850	-.072
12	.64988	-.03713	-.130	.64980	-.03714	-.121	.64957	-.03715	-.118
11	.54983	-.04397	-.270	.54955	-.04396	-.173	.54967	-.04398	-.165
10	.44990	-.04814	-.268	.44998	-.04814	-.240	.44970	-.04816	-.217
9	.35016	-.04880	-.288	.34990	-.04880	-.254	.34973	-.04879	-.230
8	.25012	-.04646	-.277	.24997	-.04645	-.301	.24976	-.04645	-.276
7	.15054	-.04081	-.182	.15016	-.04078	-.293	.14996	-.04076	-.318
6	.10029	-.03625	-.121	.10019	-.03624	-.241	.10039	-.03627	-.342
5	.06550	-.03203	-.078	.06521	-.03198	-.170	.06536	-.03200	-.376
4	.04030	-.02788	-.079	.03999	-.02803	-.158	.04025	-.02813	-.336
3	.02030	-.02282	-.018	.01985	-.02268	-.074	.01985	-.02266	-.227
2	.00587	-.01314	.562	.00567	-.01305	.510	.00578	-.01313	.315
1	.00057	.00379	.726	.00068	.00449	.690	.00050	.00361	.636
45	.00184	.00727	-.182	.00190	.00749	.229	.00193	.00757	.210
44	.00626	.01361	-.181	.00623	.01365	-.152	.00630	.01368	-.254
43	.01229	.01873	-.576	.01209	.01851	-.598	.01265	.01889	-.651
42	.02006	.02272	-.985	.01983	.02268	-.983	.02012	.02277	-1.018
41	.02988	.02581	-1.187	.02991	.02584	-1.196	.02999	.02583	-1.244
40	.04966	.02966	-1.194	.04972	.02967	-1.227	.04995	.02970	-1.291
39	.07448	.03322	-1.140	.07488	.03329	-1.177	.07482	.03327	-1.275
38	.09994	.03621	-1.093	.09991	.03620	-1.134	.09990	.03621	-1.209
37	.13936	.03995	-1.048	.13983	.03994	-1.127	.13976	.03995	-.918
36	.17929	.04296	-1.002	.17999	.04272	-1.136	.17991	.04288	-.785
35	.22001	.04515	-.999	.22010	.04514	-.559	.21990	.04516	-.245
34	.25964	.04681	-.981	.25996	.04681	-.282	.25976	.04682	-.207
33	.29993	.04800	-.341	.29994	.04799	-.159	.29986	.04800	-.219
32	.33995	.04869	-.195	.34008	.04869	-.179	.33979	.04868	-.234
31	.37996	.04892	-.180	.37994	.04891	-.218	.37976	.04892	-.246
30	.41959	.04867	-.208	.41988	.04867	-.238	.41988	.04868	-.272
29	.45975	.04789	-.238	.45976	.04790	-.242	.45970	.04789	-.245
28	.49960	.04650	-.220	.49994	.04649	-.216	.49987	.04649	-.233
27	.53959	.04452	-.200	.53988	.04450	-.197	.53975	.04452	-.213
26	.57961	.04214	-.162	.57991	.04210	-.152	.57985	.04214	-.192
25	.61987	.03938	-.138	.61970	.03939	-.126	.61976	.03940	-.182
24	.65968	.03637	-.107	.65979	.03635	-.104	.65966	.03636	-.176
23	.69970	.03308	-.085	.69976	.03308	-.074	.69979	.03308	-.175
22	.73940	.02949	-.057	.73973	.02946	-.056	.73980	.02946	-.182
21	.77960	.02567	-.021	.77962	.02567	-.027	.77942	.02570	-.195
20	.81937	.02157	.021	.81965	.02154	.009	.81985	.02150	-.218
19	.85955	.01769	.059	.85980	.01707	.040	.85943	.01712	-.238
18	.89940	.01246	.099	.89977	.01241	.072	.89961	.01243	-.256
17	.94727	.00755	.156	.94861	.00742	.122	.94959	.00733	-.280
16	.98506	.00266	.211	.98462	.00272	.178	.98455	.00274	-.218

TABLE B1- 14

M6 WING - SURFACE PRESSURE DISTRIBUTIONS TEST 2563

MO = .8359
ALPHA = 4.08
REC = 11.81*10**6

	SECTION 1			SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.097	.94937	-.00735	.146	.94999	-.00737	.159	.94987	-.00731	.160
11	.81597	-.02193	-.069	.81705	-.02182	-.027	.81986	-.02152	-.009	.82223	-.02125	-.006
10	.66593	-.03587	-.147	.66698	-.03579	-.131	.67008	-.03553	-.128	.67216	-.03537	-.124
9	.56588	-.04301	-.196	.56705	-.04294	-.192	.57033	-.04272	-.186	.57230	-.04261	-.192
8	.46599	-.04773	-.219	.46706	-.04769	-.222	.47037	-.04760	-.236	.47220	-.04753	-.261
7	.36580	-.04889	-.170	.36705	-.04889	-.182	.37009	-.04890	-.218	.37235	-.04891	-.242
6	.26579	-.04702	-.113	.26705	-.04706	-.123	.27010	-.04716	-.140	.27230	-.04723	-.178
5	.16594	-.04194	-.036	.16699	-.04202	-.065	.17010	-.04224	-.060	.17242	-.04238	-.082
4	.04993	-.02971	.058	.04909	-.02958	.053	.05016	-.02975	.086	.05017	-.02974	.154
3	.02002	-.02268	.088	.01922	-.02242	.118	.02010	-.02275	.151	.01999	-.02268	.151
2	.00593	-.01333	.622	.00520	-.01261	.638	.00591	-.01326	.657	.00611	-.01355	.549
1	.00034	.00292	.772	.00031	.00277	.747	.00042	.00317	.709	.00000	.00000	.710
34	.00216	.00802	.362	.00138	.00553	.306	.00222	.00806	.228	.00210	.00787	.220
33	.00866	.01592	-.268	.00789	.01331	-.354	.00914	.01640	-.407	.00893	.01619	-.466
32	.02037	.02285	-.795	.01906	.02232	-.943	.02036	.02273	-1.009	.02012	.02276	-1.066
31	.03525	.02701	-1.161	.03402	.02674	-1.212	.03508	.02698	-1.275	.03530	.02701	-1.298
30	.06038	.03330	-1.112	.05911	.03113	-1.192	.06022	.03128	-1.239	.06011	.03127	-1.262
29	.09959	.03617	-.540	.09913	.03613	-1.091	.10029	.03626	-1.149	.10019	.03623	-1.172
28	.15037	.04080	-.504	.14927	.04071	-.902	.15032	.04078	-1.080	.15024	.04078	-1.124
27	.20044	.04413	-.514	.19909	.04405	-.542	.20029	.04411	-1.034	.20016	.04410	-1.089
26	.25039	.04647	-.506	.25080	.04649	-.594	.25024	.04647	-.823	.25021	.04647	-1.071
25	.30050	.04800	-.505	.29925	.04798	-.603	.30008	.04800	-.634	.30021	.04799	-1.054
24	.35050	.04879	-.530	.34927	.04878	-.630	.35024	.04879	-.673	.35015	.04879	-.588
23	.40047	.04886	-.538	.39931	.04886	-.658	.40037	.04886	-.717	.39977	.04885	-.357
22	.45030	.04812	-.574	.44897	.04815	-.680	.45010	.04813	-.712	.45009	.04813	-.201
21	.50039	.04648	-.599	.49927	.04652	-.740	.50024	.04649	-.264	.50020	.04648	-.167
20	.55025	.04394	-.614	.54927	.04398	-.376	.55042	.04392	-.217	.55033	.04393	-.159
19	.60029	.04075	-.408	.59931	.04083	-.245	.60071	.04073	-.185	.60018	.04078	-.137
18	.65032	.03711	-.307	.64917	.03719	-.198	.65026	.03711	-.144	.65015	.03711	-.108
17	.71026	.03219	-.231	.70897	.03229	-.140	.71034	.03218	-.107	.70977	.03222	-.077
16	.78026	.02561	-.152	.77912	.02572	-.069	.78008	.02563	-.037	.78012	.02562	-.021
15	.85021	.01814	-.050	.84903	.01826	.016	.85001	.01815	.042	.85010	.01815	.044
14	.92027	.01021	.065	.91929	.01032	.114	.92012	.01023	.130	.92005	.01023	.128
13	.98518	.00265	.178	.98387	.00283	.215	.98611	.00251	.229	.98498	.00267	.218

	SECTION 5			SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	.137	.94953	-.00734	.111	.94946	-.00735	.043
14	.84954	-.01922	.025	.84934	-.01823	.009	.84958	-.01821	-.333
13	.75003	-.02851	-.061	.74963	-.02854	-.064	.75002	-.02850	-.092
12	.64988	-.03713	-.125	.64980	-.03714	-.124	.64957	-.03715	-.134
11	.54993	-.04397	-.258	.54955	-.04396	-.174	.54967	-.04398	-.175
10	.44990	-.04814	-.256	.44998	-.04814	-.237	.44970	-.04816	-.223
9	.35016	-.04880	-.262	.34993	-.04880	-.260	.34973	-.04879	-.243
8	.25012	-.04646	-.226	.24997	-.04645	-.282	.24976	-.04645	-.294
7	.15054	-.04081	-.116	.15015	-.04078	-.243	.14996	-.04076	-.302
6	.10029	-.03625	-.047	.10019	-.03624	-.165	.10039	-.03627	-.303
5	.06550	-.03203	.020	.06521	-.03198	-.085	.06536	-.03200	-.298
4	.04030	-.02788	.021	.03999	-.02803	-.061	.04025	-.02813	-.237
3	.02030	-.02282	.109	.01985	-.02268	.049	.01985	-.02266	-.105
2	.00587	-.01314	.628	.00567	-.01305	.530	.00578	-.01313	.419
1	.00057	.00379	.682	.00068	.00449	.644	.00050	.00361	.597
45	.00184	.00727	-.287	.00193	.00749	.162	.00193	.00757	.123
44	.00626	.01361	-.287	.00623	.01365	-.275	.00630	.01368	-.338
43	.01229	.01873	-.667	.01209	.01851	-.686	.01265	.01889	-.740
42	.02006	.02277	-1.075	.01983	.02268	-1.050	.02012	.02277	-1.104
41	.02998	.02581	-1.269	.02991	.02584	-1.277	.02999	.02583	-1.325
40	.04965	.02966	-1.295	.04972	.02967	-1.319	.04995	.02970	-1.378
39	.07448	.03322	-1.244	.07488	.03329	-1.279	.07482	.03327	-1.362
38	.09994	.03621	-1.204	.09991	.03620	-1.237	.09990	.03621	-1.298
37	.13986	.03995	-1.165	.13983	.03994	-1.229	.13976	.03995	-.995
36	.17979	.04286	-1.142	.17999	.04272	-1.241	.17991	.04288	-.907
35	.22001	.04515	-1.113	.22010	.04514	-.698	.21990	.04514	-.669
34	.25964	.04681	-1.107	.25996	.04681	-.599	.25976	.04682	-.308
33	.29989	.04800	-.526	.29994	.04799	-.337	.29986	.04800	-.233
32	.33985	.04869	-.428	.34008	.04869	-.209	.33979	.04868	-.230
31	.37986	.04892	-.295	.37994	.04891	-.181	.37976	.04892	-.232
30	.41959	.04867	-.182	.41988	.04867	-.187	.41988	.04868	-.263
29	.45975	.04789	-.144	.45976	.04790	-.198	.45970	.04789	-.242
28	.49960	.04650	-.139	.49994	.04649	-.183	.49987	.04649	-.255
27	.53959	.04452	-.137	.53988	.04450	-.176	.53975	.04452	-.268
26	.57961	.04214	-.121	.57991	.04210	-.141	.57985	.04214	-.291
25	.61987	.03938	-.108	.61970	.03939	-.120	.61976	.03940	-.299
24	.65965	.03637	-.088	.65979	.03635	-.106	.65966	.03636	-.317
23	.69970	.03308	-.069	.69976	.03308	-.074	.69979	.03308	-.324
22	.73940	.02949	-.046	.73970	.02946	-.067	.73980	.02946	-.350
21	.77960	.02567	-.016	.77962	.02567	-.041	.77942	.02570	-.375
20	.81937	.02157	.021	.81965	.02154	-.010	.81985	.02150	-.400
19	.85955	.01709	.054	.85980	.01707	.016	.85943	.01712	-.411
18	.89940	.01246	.093	.89977	.01241	.042	.89961	.01243	-.404
17	.94727	.00755	.144	.94861	.00742	.091	.94959	.00733	-.383
16	.98506	.00266	.198	.98462	.00272	.147	.98455	.00274	-.259

TABLE B1- 15

M6 WING - SURFACE PRESSURE DISTRIBUTIONS TEST 2564

MO = .8447
ALPHA = 5.06
REC = 11.78*10**6

	SECTION 1			SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.097	.94937	-.00735	.144	.94999	-.00737	.158	.94987	-.00731	.133
11	.81597	-.02193	-.062	.81705	-.02182	-.023	.81986	-.02152	-.010	.82223	-.02125	-.012
10	.66593	-.03587	-.129	.66698	-.03579	-.119	.67008	-.03553	-.122	.67216	-.03537	-.126
9	.56588	-.04301	-.169	.56705	-.04294	-.173	.57033	-.04272	-.172	.57230	-.04261	-.191
8	.46599	-.04773	-.184	.46706	-.04769	-.195	.47037	-.04760	-.212	.47220	-.04753	-.247
7	.36580	-.04889	-.130	.36705	-.04889	-.146	.37009	-.04890	-.181	.37235	-.04891	-.210
6	.26579	-.04702	-.068	.26705	-.04706	-.081	.27010	-.04716	-.096	.27230	-.04723	-.133
5	.16594	-.04194	.015	.16699	-.04202	-.014	.17010	-.04224	-.004	.17242	-.04238	-.029
4	.04993	-.02971	.129	.04909	-.02958	.132	.05016	-.02975	.162	.05017	-.02974	.137
3	.02002	-.02268	.199	.01922	-.02242	.223	.02010	-.02275	.256	.01999	-.02268	.253
2	.00593	-.01333	.686	.00520	-.01261	.697	.00591	-.01326	.710	.00611	-.01355	.698
1	.00034	.00292	.746	.00031	.00277	.717	.00042	.00317	.672	.00000	.00000	.675
34	.00216	.00802	.305	.00108	.00553	.246	.00222	.00806	.166	.00210	.00787	.161
33	.00866	.01592	-.328	.00789	.01531	-.414	.00914	.01640	-.466	.00893	.01619	-.520
32	.02037	.02285	-.858	.01906	.02232	-.987	.02036	.02273	-1.045	.02012	.02276	-1.107
31	.03525	.02701	-1.205	.03402	.02674	-1.235	.03508	.02698	-1.304	.03530	.02701	-1.327
30	.06036	.03130	-1.175	.05911	.03113	-1.230	.06022	.03128	-1.276	.06011	.03127	-1.298
29	.09959	.03617	-.651	.09913	.03613	-1.147	.10029	.03626	-1.202	.10019	.03623	-1.224
28	.15037	.04080	-.650	.14927	.04071	-1.072	.15032	.04078	-1.140	.15024	.04078	-1.179
27	.20044	.04413	-.587	.19909	.04405	-1.029	.20029	.04411	-1.112	.20016	.04410	-1.153
26	.25039	.04647	-.608	.25080	.04649	-.657	.25024	.04647	-1.091	.25021	.04647	-1.140
25	.30050	.04800	-.530	.29925	.04798	-.621	.30008	.04800	-1.080	.30021	.04799	-1.131
24	.35050	.04879	-.572	.34927	.04878	-.644	.35024	.04879	-1.068	.35015	.04879	-.742
23	.40047	.04886	-.577	.39951	.04886	-.688	.40037	.04886	-.769	.39977	.04885	-.570
22	.45030	.04812	-.610	.44897	.04815	-.702	.45010	.04813	-.756	.45009	.04813	-.520
21	.50039	.04648	-.618	.49927	.04652	-.760	.50024	.04649	-.385	.50020	.04648	-.447
20	.55025	.04394	-.642	.54927	.04398	-.772	.55042	.04392	-.222	.55033	.04393	-.368
19	.60029	.04075	-.645	.59931	.04083	-.284	.60071	.04073	-.151	.60018	.04078	-.247
18	.65032	.03711	-.349	.64917	.03719	-.173	.65026	.03711	-.106	.65015	.03711	-.144
17	.71026	.03219	-.238	.70897	.03229	-.111	.71034	.03218	-.074	.70977	.03222	-.061
16	.78026	.02561	-.149	.77912	.02572	-.046	.78008	.02563	-.014	.78012	.02562	.018
15	.85021	.01814	-.051	.84933	.01826	.034	.85001	.01815	.053	.85010	.01815	.065
14	.92027	.01021	.066	.91929	.01032	.123	.92012	.01023	.138	.92005	.01023	.121
13	.98519	.00265	.173	.98387	.00283	.215	.95611	.00251	.228	.98498	.00267	.172

	SECTION 5			SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	.100	.94953	-.00734	.085	.94946	-.00735	.021
14	.84954	-.01822	.005	.84934	-.01823	-.008	.84958	-.01821	-.058
13	.75003	-.02851	-.070	.74963	-.02854	-.078	.75002	-.02850	-.118
12	.64988	-.03713	-.132	.64980	-.03714	-.135	.64957	-.03715	-.160
11	.54983	-.04397	-.262	.54955	-.04396	-.184	.54967	-.04398	-.201
10	.44990	-.04814	-.262	.44998	-.04814	-.261	.44970	-.04816	-.249
9	.35016	-.04880	-.250	.34990	-.04880	-.285	.34973	-.04879	-.312
8	.25012	-.04646	-.192	.24997	-.04645	-.277	.24976	-.04645	-.313
7	.15054	-.04081	-.064	.15016	-.04078	-.201	.14996	-.04076	-.290
6	.10029	-.03625	.012	.10019	-.03624	-.109	.10039	-.03627	-.272
5	.06550	-.03203	.100	.06521	-.03198	-.021	.06536	-.03200	-.240
4	.04030	-.02788	.100	.03999	-.02803	.016	.04025	-.02813	-.163
3	.02030	-.02282	.203	.01985	-.02268	.144	.01985	-.02266	-.012
2	.00587	-.01314	.674	.00567	-.01305	.589	.00578	-.01313	.491
1	.00057	.00379	.644	.00069	.00449	.604	.00050	.00361	.559
45	.00184	.00727	-.353	.00193	.00749	.101	.00193	.00757	.063
44	.00626	.01361	-.353	.00623	.01365	-.335	.00630	.01368	-.402
43	.01229	.01873	-.719	.01209	.01851	-.733	.01265	.01889	-.789
42	.02006	.02277	-1.108	.01983	.02268	-1.092	.02012	.02277	-1.139
41	.02988	.02581	-1.298	.02991	.02584	-1.302	.02999	.02583	-1.349
40	.04966	.02966	-1.327	.04972	.02967	-1.349	.04995	.02970	-1.404
39	.07448	.03322	-1.285	.07488	.03329	-1.315	.07482	.03327	-1.396
38	.09994	.03621	-1.250	.09991	.03620	-1.280	.09990	.03621	-1.336
37	.13986	.03995	-1.219	.13983	.03994	-1.274	.13976	.03995	-1.049
36	.17979	.04286	-1.197	.17999	.04272	-1.288	.17991	.04288	-.986
35	.22001	.04515	-1.185	.22010	.04514	-1.080	.21990	.04514	-.949
34	.25964	.04681	-1.045	.25996	.04681	-.735	.25976	.04682	-.897
33	.29988	.04800	-.630	.29994	.04799	-.613	.29986	.04800	-.536
32	.33985	.04869	-.581	.34008	.04869	-.460	.33979	.04868	-.316
31	.37986	.04892	-.549	.37994	.04891	-.319	.37976	.04892	-.212
30	.41959	.04867	-.479	.41988	.04867	-.253	.41988	.04868	-.254
29	.45975	.04789	-.394	.45976	.04790	-.233	.45970	.04789	-.259
28	.49960	.04650	-.292	.49994	.04649	-.211	.49987	.04649	-.271
27	.53959	.04457	-.218	.53989	.04450	-.198	.53975	.04452	-.275
26	.57961	.04214	-.148	.57991	.04210	-.155	.57985	.04214	-.320
25	.61987	.03928	-.106	.61970	.03939	-.131	.61976	.03940	-.387
24	.65968	.03637	-.072	.65979	.03635	-.112	.65966	.03636	-.447
23	.69970	.03308	-.041	.69976	.03308	-.082	.69979	.03308	-.476
22	.73940	.02949	-.020	.73970	.02946	-.076	.73980	.02946	-.509
21	.77960	.02567	.008	.77962	.02567	-.054	.77942	.02570	-.533
20	.81937	.02157	.037	.81965	.02154	-.027	.81985	.02150	-.544
19	.85955	.01709	.061	.85980	.01707	-.006	.85943	.01712	-.528
18	.89940	.01246	.088	.89977	.01241	.012	.89961	.01243	-.471
17	.94727	.00755	.125	.94961	.00742	.058	.94959	.00733	-.400
16	.98506	.00266	.159	.98462	.00272	.115	.98455	.00274	-.224

TABLE B1-16

M6 WING - SURFACE PRESSURE DISTRIBUTIONS TEST 2565

MO = .8372
ALPHA = 6.06
REC = 11.71*10**6

	SECTION 1			SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.096	.94937	-.00735	.139	.94999	-.00737	.147	.94987	-.00731	.074
11	.81597	-.02193	-.050	.81705	-.02182	-.010	.81986	-.02152	-.008	.82223	-.02125	-.034
10	.66593	-.03587	-.099	.66698	-.03579	-.095	.67008	-.03553	-.101	.67216	-.03537	-.123
9	.56588	-.04301	-.129	.56705	-.04294	-.132	.57033	-.04272	-.143	.57230	-.04261	-.168
8	.46599	-.04773	-.138	.46706	-.04769	-.147	.47037	-.04760	-.165	.47220	-.04753	-.208
7	.36589	-.04889	-.084	.36705	-.04889	-.094	.37009	-.04890	-.130	.37235	-.04891	-.159
6	.26579	-.04702	-.022	.26705	-.04706	-.026	.27010	-.04716	-.040	.27230	-.04723	-.078
5	.16594	-.04194	.066	.16699	-.04202	.046	.17010	-.04224	.054	.17242	-.04238	.029
4	.04993	-.02971	.206	.04909	-.02958	.211	.05016	-.02975	.240	.05017	-.02974	.219
3	.02002	-.02268	.296	.01922	-.02242	.330	.02010	-.02275	.361	.01999	-.02268	.356
2	.00593	-.01333	.733	.00523	-.01261	.751	.00591	.01326	.757	.00611	-.01355	.745
1	.00034	.00292	.702	.00031	.00277	.665	.00042	.00317	.610	.00000	.00000	.616
34	.00216	.00802	.219	.00108	.00553	.152	.00222	.00806	.067	.00210	.00787	.058
33	.00866	.01592	-.428	.00789	.01531	-.526	.00914	.01640	-.579	.00893	.01619	-.629
32	.02037	.02285	-.971	.01906	.02232	-1.096	.02036	.02273	-1.144	.02012	.02276	-1.206
31	.03525	.02701	-1.292	.03402	.02674	-1.333	.03508	.02698	-1.398	.03550	.02701	-1.423
30	.04036	.03130	-1.274	.05911	.03113	-1.325	.06022	.03128	-1.376	.06011	.03127	-1.396
29	.09959	.03617	-1.092	.09913	.03613	-1.252	.10029	.03626	-1.307	.10019	.03623	-1.336
28	.15037	.04080	-.706	.14927	.04071	-1.182	.15032	.04078	-1.247	.15024	.04078	-1.288
27	.20044	.04413	-.731	.19939	.04405	-1.151	.20029	.04411	-1.221	.20016	.04410	-1.206
26	.25039	.04647	-.627	.25080	.04649	-1.109	.25024	.04647	-1.200	.25021	.04647	-.808
25	.30050	.04800	-.619	.29925	.04798	-.777	.30008	.04800	-1.191	.30021	.04799	-.696
24	.35050	.04879	-.614	.34927	.04878	-.685	.35024	.04879	-1.160	.35015	.04879	-.638
23	.40047	.04886	-.620	.39931	.04886	-.718	.40037	.04886	-.687	.39977	.04885	-.597
22	.45030	.04912	-.649	.44897	.04815	-.744	.45010	.04813	-.589	.45039	.04813	-.557
21	.50039	.04648	-.644	.49927	.04652	-.787	.50024	.04649	-.486	.50020	.04648	-.486
20	.55025	.04394	-.665	.54927	.04398	-.382	.55042	.04392	-.346	.55033	.04393	-.411
19	.60029	.04075	-.527	.59931	.04083	-.212	.60071	.04073	-.226	.60018	.04078	-.325
18	.65032	.03711	-.302	.64917	.03719	-.164	.65026	.03711	-.159	.65015	.03711	-.255
17	.71026	.03219	-.223	.70397	.03229	-.116	.71034	.03218	-.111	.70977	.03222	-.153
16	.78026	.02561	-.144	.77912	.02572	-.057	.78008	.02563	-.040	.78012	.02562	-.081
15	.85021	.01814	-.051	.84903	.01826	.022	.85001	.01815	.027	.85010	.01815	-.005
14	.92027	.01021	.059	.91929	.01032	.115	.92012	.01023	.108	.92005	.01023	.044
13	.98518	.00265	.169	.98387	.00283	.209	.98611	.00251	.211	.98498	.00267	.093

	SECTION 5			SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	.063	.94953	-.00734	.051	.94946	-.00735	-.005
14	.84954	-.01822	-.024	.84934	-.01823	-.034	.84958	-.01821	-.085
13	.75003	-.02851	-.087	.74963	-.02854	-.096	.75002	-.02850	-.147
12	.64988	-.03713	-.141	.64980	-.03714	-.152	.64957	-.03715	-.187
11	.54983	-.04397	-.242	.54955	-.04396	-.191	.54967	-.04398	-.221
10	.44990	-.04814	-.240	.44998	-.04814	-.258	.44970	-.04816	-.264
9	.35016	-.04880	-.210	.34990	-.04880	-.262	.34973	-.04879	-.307
8	.25012	-.04646	-.139	.24997	-.04645	-.239	.24976	-.04645	-.288
7	.15054	-.04081	-.008	.15016	-.04078	-.149	.14996	-.04076	-.254
6	.10029	-.03625	.074	.10019	-.03624	-.049	.10039	-.03627	-.227
5	.06550	-.03203	.185	.06521	-.03198	.044	.06536	-.03200	-.170
4	.04030	-.02788	.184	.03999	-.02803	.096	.04025	-.02813	-.083
3	.02030	-.02282	.303	.01985	-.02268	.239	.01985	-.02266	.081
2	.00587	-.01314	.715	.00567	-.01305	.622	.00578	-.01313	.515
1	.00057	.00379	.580	.00068	.00449	.543	.00050	.00361	.500
45	.00184	.00727	-.468	.03190	.00749	-.004	.00193	.00757	-.037
44	.00626	.01361	-.469	.00623	.01365	-.443	.00630	.01368	-.516
43	.01228	.01873	-.834	.01209	.01851	-.842	.01265	.01889	-.894
42	.02006	.02272	-1.202	.01983	.02268	-1.191	.02012	.02277	-1.233
41	.02989	.02581	-1.392	.02991	.02584	-1.394	.02999	.02585	-1.436
40	.04966	.02966	-1.422	.04972	.02967	-1.441	.04995	.02970	-1.492
39	.07449	.03322	-1.385	.07488	.03329	-1.410	.07482	.03327	-1.481
38	.09994	.03621	-1.352	.09991	.03620	-1.382	.09990	.03621	-1.424
37	.13986	.03995	-1.322	.13983	.03994	-1.374	.13976	.03995	-1.117
36	.17979	.04286	-1.296	.17999	.04272	-1.212	.17991	.04288	-1.059
35	.22001	.04515	-1.218	.22013	.04514	-.870	.21990	.04514	-.939
34	.25964	.04681	-.844	.25996	.04681	-.774	.25976	.04682	-.742
33	.29989	.04800	-.663	.29994	.04799	-.626	.29986	.04800	-.441
32	.33985	.04869	-.577	.34008	.04869	-.458	.33979	.04868	-.267
31	.37986	.04892	-.514	.37994	.04891	-.344	.37976	.04892	-.249
30	.41959	.04867	-.412	.41988	.04867	-.281	.41988	.04868	-.303
29	.45975	.04789	-.343	.45976	.04790	-.256	.45970	.04789	-.290
28	.49960	.04650	-.275	.49994	.04649	-.238	.49987	.04649	-.306
27	.53959	.04452	-.233	.53988	.04450	-.227	.53975	.04452	-.307
26	.57961	.04214	-.194	.57991	.04210	-.196	.57985	.04214	-.345
25	.61987	.03938	-.161	.61970	.03939	-.175	.61976	.03940	-.407
24	.65968	.03637	-.123	.65979	.03635	-.156	.65966	.03636	-.480
23	.69970	.03308	-.091	.69976	.03308	-.126	.69979	.03308	-.527
22	.73940	.02949	-.073	.73972	.02946	-.124	.73980	.02946	-.571
21	.77940	.02567	-.045	.77962	.02567	-.104	.77942	.02570	-.580
20	.81937	.02157	-.008	.81965	.02154	-.082	.81985	.02150	-.579
19	.85955	.01709	.010	.85980	.01707	-.064	.85943	.01712	-.542
18	.89940	.01246	.044	.89977	.01241	-.043	.89961	.01243	-.469
17	.94727	.00755	.074	.94861	.00742	-.002	.94959	.00733	-.360
16	.98506	.00266	.103	.98452	.00272	.052	.98455	.00274	-.214

TABLE B1-17

M6 WING - SURFACE PRESSURE DISTRIBUTIONS TEST 2300

MO = .8840
ALPHA = .03
REC = 11.71*10**6

	SECTION 1			SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.115	.94937	-.00735	.160	.94999	-.00737	.181	.94987	-.00731	.188
11	.81597	-.02193	-.107	.81705	-.02182	-.031	.81986	-.02152	.013	.82223	-.02125	.029
10	.66593	-.03587	-.323	.66698	-.03579	-.205	.67008	-.03553	-.131	.67216	-.03537	-.062
9	.56588	-.04301	-.481	.56705	-.04294	-.582	.57033	-.04272	-.632	.57230	-.04261	-.256
8	.46599	-.04773	-.411	.46706	-.04769	-.494	.47037	-.04760	-.550	.47220	-.04753	-.636
7	.36580	-.04889	-.341	.36705	-.04889	-.416	.37009	-.04890	-.492	.37235	-.04891	-.531
6	.26579	-.04702	-.305	.26705	-.04706	-.356	.27010	-.04716	-.400	.27230	-.04723	-.443
5	.16594	-.04194	-.256	.16699	-.04202	-.323	.17010	-.04224	-.348	.17242	-.04238	-.371
4	.04993	-.02971	-.296	.06909	-.02958	-.335	.05016	-.02975	-.326	.05017	-.02974	-.425
3	.02002	-.02268	-.476	.01927	-.02242	-.473	.02010	-.02275	-.468	.01999	-.02268	-.492
2	.00593	-.01333	.318	.00520	-.01261	.300	.00591	-.01326	.322	.00611	-.01355	.303
1	.00034	.00292	.959	.00031	.00277	.847	.00042	.00317	.835	.00000	.00000	.927
34	.00216	.00902	.674	.00108	.00553	.644	.00222	.00806	.606	.00210	.00787	.586
33	.00586	.01592	.190	.00789	.01531	.124	.00914	.01640	.066	.00893	.01619	.065
32	.02037	.02285	-.319	.01906	.02232	-.417	.02036	.02273	-.471	.02012	.02276	-.542
31	.03525	.02701	-.378	.03402	.02674	-.461	.03508	.02698	-.637	.03530	.02701	-.688
30	.06036	.03130	-.237	.05911	.03113	-.289	.06022	.03128	-.310	.06011	.03127	-.319
29	.09959	.03617	-.214	.09913	.03613	-.286	.10029	.03626	-.343	.10019	.03623	-.372
28	.15037	.04080	-.221	.14927	.04071	-.288	.15032	.04078	-.343	.15024	.04078	-.395
27	.20044	.04413	-.251	.19909	.04405	-.334	.20029	.04411	-.379	.20016	.04410	-.426
26	.25039	.04647	-.275	.25080	.04649	-.357	.25024	.04647	-.407	.25021	.04667	-.451
25	.30050	.04800	-.290	.29925	.04798	-.373	.30008	.04800	-.433	.30021	.04799	-.485
24	.35050	.04879	-.324	.34927	.04878	-.398	.35024	.04879	-.485	.35015	.04879	-.536
23	.40047	.04886	-.358	.39931	.04886	-.449	.40037	.04886	-.514	.39977	.04885	-.570
22	.45030	.04812	-.407	.44997	.04815	-.491	.45010	.04813	-.567	.45039	.04813	-.624
21	.50039	.04648	-.441	.49927	.04652	-.549	.50024	.04649	-.630	.50020	.04648	-.681
20	.55025	.04394	-.479	.54927	.04398	-.568	.55042	.04392	-.654	.55033	.04393	-.585
19	.60029	.04075	-.505	.59931	.04083	-.577	.60071	.04073	-.501	.60018	.04078	-.140
18	.65032	.03711	-.404	.64917	.03719	-.241	.65026	.03711	-.164	.65015	.03711	-.067
17	.71026	.03219	-.264	.70897	.03229	-.147	.71034	.03218	-.088	.70977	.03222	-.042
16	.78026	.02561	-.164	.77912	.02572	-.072	.78008	.02563	-.022	.78012	.02562	.002
15	.85021	.01914	-.062	.84903	.01826	.018	.85001	.01815	.054	.85010	.01815	.064
14	.92027	.01021	.059	.91929	.01032	.118	.92012	.01023	.138	.92005	.01023	.148
13	.98518	.00265	.180	.98387	.00283	.221	.98611	.00251	.240	.98498	.00267	.239

	SECTION 5			SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	.181	.94953	-.00734	.172	.94946	-.00735	.151
14	.84954	-.01822	.064	.84934	-.01823	.064	.84958	-.01821	.064
13	.75003	-.02851	-.027	.74965	-.02854	-.017	.75002	-.02850	-.013
12	.64983	-.03713	-.089	.64980	-.03714	-.086	.64957	-.03715	-.071
11	.54973	-.04397	-.618	.54955	-.04396	-.141	.54967	-.04398	-.127
10	.44990	-.04814	-.619	.44998	-.04814	-.201	.44970	-.04816	-.192
9	.35016	-.04880	-.633	.34990	-.04880	-.527	.34973	-.04879	-.398
8	.25012	-.04646	-.516	.24997	-.04645	-.550	.24976	-.04645	-.465
7	.15054	-.04081	-.406	.15016	-.04078	-.569	.14996	-.04076	-.540
6	.10029	-.03625	-.376	.10019	-.03624	-.472	.10039	-.03627	-.625
5	.06550	-.03203	-.556	.06521	-.03198	-.430	.06536	-.03200	-.589
4	.04030	-.02788	-.556	.03999	-.02803	-.651	.04025	-.02813	-.818
3	.02030	-.02282	-.502	.01985	-.02268	-.505	.01985	-.02266	-.588
2	.00587	-.01314	.308	.00567	-.01305	.264	.00578	-.01313	.150
1	.00057	.00379	.817	.00068	.00449	.787	.00050	.00361	.729
45	.00194	.00727	.198	.00190	.00749	.513	.00193	.00757	.489
44	.00626	.01361	.197	.00623	.01365	.201	.00630	.01368	.098
43	.01228	.01873	-.176	.01239	.01851	-.182	.01265	.01889	-.270
42	.02006	.02272	-.548	.01983	.02268	-.604	.02012	.02277	-.655
41	.02998	.02581	-.732	.02991	.02584	-.748	.02999	.02583	-.837
40	.04966	.02966	-.503	.04972	.02967	-.623	.04995	.02970	-.772
39	.07448	.03322	-.397	.07488	.03329	-.474	.07482	.03327	-.633
38	.09994	.03621	-.402	.09991	.03620	-.506	.09990	.03621	-.648
37	.13986	.03995	-.446	.13983	.03994	-.581	.13976	.03995	-.588
36	.17979	.04286	-.468	.17999	.04272	-.632	.17991	.04288	-.515
35	.22001	.04515	-.502	.22010	.04514	-.610	.21990	.04514	-.499
34	.25964	.04681	-.537	.25996	.04681	-.555	.25976	.04682	-.494
33	.29988	.04800	-.591	.29994	.04799	-.535	.29986	.04800	-.470
32	.33985	.04869	-.640	.34008	.04869	-.535	.33979	.04868	-.427
31	.37986	.04892	-.655	.37994	.04891	-.526	.37976	.04892	-.298
30	.41959	.04867	-.629	.41988	.04867	-.290	.41988	.04868	-.211
29	.45975	.04789	-.623	.45976	.04790	-.189	.45970	.04789	-.182
28	.49940	.04650	-.191	.49994	.04649	-.167	.49987	.04649	-.164
27	.53959	.04452	-.126	.53988	.04450	-.153	.53975	.04452	-.132
26	.57961	.04214	-.105	.57991	.04210	-.115	.57985	.04214	-.101
25	.61987	.03938	-.089	.61970	.03939	-.092	.61976	.03940	-.079
24	.65968	.03637	-.071	.65979	.03635	-.074	.65966	.03636	-.060
23	.69970	.03308	-.054	.69976	.03308	-.043	.69979	.03308	-.038
22	.73940	.02949	-.032	.73970	.02946	-.026	.73980	.02946	-.015
21	.77940	.02567	.002	.77962	.02567	.005	.77942	.02570	.010
20	.81937	.02157	.043	.81965	.02154	.044	.81985	.02150	.042
19	.85955	.01709	.082	.85980	.01707	.080	.85943	.01712	.075
18	.89940	.01246	.124	.89977	.01241	.118	.89961	.01243	.110
17	.94727	.00755	.183	.94861	.00742	.174	.94959	.00733	.152
16	.98506	.00266	.241	.98462	.00272	.222	.98455	.00274	.194

TABLE B1-18

M6 WING - SURFACE PRESSURE DISTRIBUTIONS TEST 2301

MO = .8833
ALPHA = 1.08
REC = 11.77*10**6

	SECTION 1			SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.108	.94937	-.00735	.155	.94999	-.00737	.175	.94937	-.00731	.181
11	.81597	-.02193	-.108	.81705	-.02182	-.041	.81986	-.02152	-.002	.82223	-.02125	.014
10	.66593	-.03587	-.267	.66698	-.03579	-.201	.67008	-.03553	-.150	.67216	-.03537	-.189
9	.56588	-.04301	-.422	.56705	-.04294	-.301	.57033	-.04272	-.488	.57230	-.04261	-.184
8	.46599	-.04773	-.379	.46706	-.04769	-.453	.47037	-.04760	-.503	.47220	-.04753	-.592
7	.36590	-.04889	-.306	.36705	-.04889	-.368	.37009	-.04890	-.441	.37235	-.04891	-.682
6	.26579	-.04702	-.252	.26705	-.04706	-.297	.27010	-.04716	-.362	.27230	-.04723	-.583
5	.16594	-.04194	-.200	.16699	-.04202	-.256	.17010	-.04224	-.272	.17242	-.04238	-.297
4	.04993	-.02971	-.212	.04909	-.02958	-.253	.05016	-.02975	-.234	.05017	-.02974	-.271
3	.02092	-.02268	-.306	.01922	-.02242	-.307	.02010	-.02275	-.287	.01999	-.02268	-.510
2	.00593	-.01333	.407	.00520	-.01261	.400	.00591	-.01326	.418	.00611	-.01355	.402
1	.00034	.00292	.856	.00031	.00277	.844	.00042	.00317	.828	.00000	.00000	.420
34	.00216	.00802	.618	.00108	.00553	.581	.00222	.00806	.533	.00213	.00787	.518
33	.00866	.01592	.094	.00789	.01531	.021	.00914	.01640	-.038	.00893	.01619	-.038
32	.02037	.02285	-.430	.01906	.02232	-.551	.02036	.02273	-.590	.02012	.02276	-.660
31	.03525	.02701	-.650	.03402	.02674	-.803	.03508	.02698	-.863	.03550	.02701	-.888
30	.04036	.03130	-.320	.05911	.03113	-.320	.06022	.03128	-.750	.06011	.03127	-.788
29	.09959	.03617	-.285	.09913	.03613	-.368	.10029	.03626	-.410	.10019	.03623	-.382
28	.15037	.04080	-.285	.14927	.04071	-.358	.15032	.04078	-.425	.15024	.04078	-.454
27	.20044	.04413	-.306	.19909	.04405	-.394	.20029	.04411	-.450	.20016	.04410	-.496
26	.25039	.04647	-.330	.25080	.04649	-.417	.25024	.04647	-.474	.25021	.04647	-.516
25	.30050	.04800	-.337	.29925	.04798	-.424	.30008	.04800	-.495	.30021	.04799	-.547
24	.35050	.04879	-.365	.34927	.04878	-.451	.35024	.04879	-.538	.35015	.04879	-.581
23	.40047	.04886	-.394	.39931	.04886	-.488	.40037	.04886	-.569	.39977	.04885	-.617
22	.45050	.04812	-.440	.44897	.04815	-.533	.45010	.04813	-.609	.45009	.04813	-.671
21	.50039	.04648	-.470	.49927	.04652	-.591	.50024	.04649	-.665	.50020	.04648	-.726
20	.55025	.04394	-.509	.54927	.04398	-.614	.55042	.04392	-.690	.55033	.04393	-.674
19	.60029	.04075	-.559	.59931	.04083	-.628	.60071	.04073	-.698	.60018	.04078	-.184
18	.65032	.03711	-.497	.64917	.03719	-.492	.65026	.03711	-.200	.65015	.03711	-.379
17	.71026	.03219	-.318	.70897	.03229	-.152	.71034	.03218	-.079	.70977	.03222	-.323
16	.78026	.02561	-.167	.77912	.02572	-.060	.78008	.02563	-.004	.78012	.02562	.019
15	.85021	.01814	-.055	.84903	.01826	.028	.85001	.01815	.068	.85010	.01815	.075
14	.92027	.01021	.062	.91929	.01032	.123	.92012	.01023	.147	.92005	.01023	.154
13	.98518	.00265	.182	.98387	.00283	.220	.98611	.00251	.241	.98498	.00267	.239

	SECTION 5			SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	.176	.94953	-.00734	.163	.94946	-.00735	.153
14	.84954	-.01822	.054	.84934	-.01823	.053	.84958	-.01821	.047
13	.75005	-.02851	-.040	.74963	-.02854	-.029	.75012	-.02850	-.027
12	.64988	-.03713	-.107	.64980	-.03714	-.098	.64957	-.03715	-.082
11	.54985	-.04397	-.601	.54955	-.04396	-.153	.54967	-.04398	-.137
10	.44990	-.04814	-.601	.44998	-.04814	-.200	.44970	-.04816	-.198
9	.35016	-.04880	-.580	.34990	-.04880	-.511	.34973	-.04879	-.566
8	.25012	-.04646	-.458	.24997	-.04645	-.521	.24976	-.04645	-.459
7	.15054	-.04081	-.330	.15016	-.04078	-.501	.14996	-.04076	-.503
6	.10029	-.03625	-.291	.10019	-.03624	-.392	.10039	-.03627	-.564
5	.06550	-.03203	-.345	.06521	-.03198	-.342	.06536	-.03200	-.528
4	.04030	-.02788	-.345	.03999	-.02803	-.396	.04025	-.02813	-.563
3	.02030	-.02282	-.341	.01985	-.02268	-.369	.01985	-.02266	-.490
2	.00587	-.01314	.399	.00567	-.01305	.349	.00578	-.01313	.209
1	.00057	.00379	.903	.00068	.00449	.775	.00050	.00361	.718
45	.00184	.00722	.099	.00190	.00749	.451	.00193	.00757	.426
44	.00626	.01361	.099	.00623	.01365	.115	.00630	.01368	.014
43	.01279	.01873	-.284	.01209	.01851	-.283	.01265	.01889	-.362
42	.02006	.02272	-.673	.01983	.02268	-.699	.02012	.02277	-.727
41	.02989	.02581	-.858	.02991	.02584	-.883	.02999	.02583	-.941
40	.04966	.02966	-.844	.04972	.02967	-.879	.04995	.02970	-.958
39	.07448	.03322	-.752	.07488	.03329	-.807	.07482	.03327	-.941
38	.09994	.03621	-.410	.09991	.03620	-.743	.09990	.03621	-.884
37	.13986	.03995	-.486	.13983	.03994	-.587	.13976	.03995	-.498
36	.17979	.04286	-.527	.17999	.04272	-.675	.17991	.04288	-.499
35	.22001	.04515	-.566	.22010	.04514	-.643	.21990	.04514	-.513
34	.25964	.04681	-.597	.25995	.04681	-.579	.25976	.04682	-.523
33	.29988	.04800	-.646	.29994	.04799	-.566	.29986	.04800	-.497
32	.33985	.04869	-.694	.34008	.04869	-.563	.33979	.04868	-.451
31	.37986	.04892	-.705	.37994	.04891	-.549	.37976	.04892	-.562
30	.41959	.04867	-.649	.41988	.04867	-.393	.41988	.04868	-.233
29	.45975	.04789	-.668	.45976	.04790	-.200	.45970	.04789	-.191
28	.49960	.04650	-.239	.49994	.04649	-.164	.49987	.04649	-.168
27	.53959	.04452	-.132	.53988	.04450	-.146	.53975	.04452	-.135
26	.57961	.04214	-.096	.57991	.04210	-.108	.57985	.04214	-.102
25	.61987	.03938	-.077	.61973	.03939	-.085	.61976	.03940	-.081
24	.65968	.03637	-.058	.65979	.03635	-.068	.65966	.03636	-.064
23	.69970	.03308	-.042	.69976	.03308	-.038	.69979	.03308	-.044
22	.73940	.02949	-.021	.73970	.02946	-.020	.73980	.02946	-.023
21	.77960	.02567	.012	.77962	.02567	.010	.77942	.02570	.001
20	.81937	.02157	.050	.81965	.02154	.047	.81955	.02150	.028
19	.85955	.01709	.087	.85930	.01707	.083	.85943	.01712	.055
18	.89940	.01246	.128	.89977	.01241	.120	.89961	.01243	.080
17	.94727	.00755	.186	.94861	.00742	.173	.94959	.00733	.103
16	.98506	.00266	.241	.98462	.00272	.221	.98455	.00274	.133

TABLE B1-19

M6 WING - SURFACE PRESSURE DISTRIBUTIONS TEST 2302

MO = .8803
ALPHA = 2.05
REC = 11.78*10**6

	SECTION 1			SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.100	.94957	-.00735	.149	.94999	-.00737	.171	.94987	-.00731	.178
11	.81597	-.02193	-.111	.81705	-.02182	-.047	.81986	-.02152	-.012	.82223	-.02125	.006
10	.66593	-.03587	-.242	.66695	-.03579	-.204	.67008	-.03553	-.168	.67216	-.03537	-.121
9	.56588	-.04301	-.330	.56705	-.04294	-.322	.57033	-.04272	-.305	.57230	-.04261	-.174
8	.46599	-.04773	-.553	.46706	-.04769	-.405	.47037	-.04760	-.448	.47220	-.04753	-.528
7	.36580	-.04889	-.267	.36705	-.04889	-.323	.37009	-.04890	-.388	.37235	-.04891	-.431
6	.26579	-.04702	-.211	.26705	-.04706	-.250	.27010	-.04716	-.287	.27230	-.04723	-.329
5	.16594	-.04194	-.144	.16699	-.04202	-.198	.17010	-.04224	-.207	.17242	-.04238	-.231
4	.04993	-.02971	-.124	.04909	-.02958	-.148	.05016	-.02975	-.130	.05017	-.02974	-.154
3	.02002	-.02268	-.175	.01922	-.02242	-.160	.02010	-.02275	-.141	.01999	-.02268	-.153
2	.00593	-.01533	.480	.00520	-.01261	.480	.00591	-.01326	.500	.00611	-.01355	.485
1	.00034	.00292	.840	.00031	.00277	.828	.00042	.00317	.810	.00030	.00000	.306
34	.00216	.00802	.557	.00105	.00553	.515	.00222	.00806	.465	.00210	.00787	.448
33	.00866	.01592	-.001	.00789	.01531	-.072	.00914	.01640	-.133	.00893	.01619	-.127
32	.02037	.02285	-.523	.01906	.02232	-.647	.02036	.02273	-.694	.02012	.02276	-.757
31	.03525	.02701	-.863	.03402	.02674	-.915	.03508	.02698	-.958	.03530	.02701	-.981
30	.06036	.03130	-.369	.05911	.03113	-.858	.06022	.03129	-.901	.06011	.03127	-.910
29	.09959	.03617	-.358	.09913	.03613	-.366	.10029	.03626	-.789	.10019	.03623	-.813
28	.15037	.04080	-.349	.14927	.04071	-.418	.15032	.04078	-.430	.15024	.04078	-.741
27	.20044	.04413	-.366	.19909	.04405	-.456	.20029	.04411	-.496	.20016	.04410	-.494
26	.25039	.04647	-.379	.25080	.04649	-.475	.25024	.04647	-.529	.25021	.04647	-.551
25	.30050	.04800	-.386	.29925	.04798	-.478	.30008	.04800	-.562	.30021	.04799	-.595
24	.35050	.04879	-.411	.34927	.04878	-.498	.35024	.04879	-.584	.35015	.04879	-.640
23	.40047	.04886	-.430	.39931	.04886	-.536	.40037	.04886	-.618	.39977	.04885	-.659
22	.45030	.04812	-.477	.44897	.04815	-.565	.45010	.04813	-.656	.45039	.04813	-.706
21	.50039	.04648	-.502	.49927	.04652	-.627	.50024	.04649	-.706	.50020	.04648	-.762
20	.55025	.04394	-.536	.54927	.04398	-.655	.55042	.04392	-.727	.55033	.04393	-.495
19	.60029	.04075	-.593	.59931	.04083	-.668	.60071	.04073	-.736	.60018	.04078	-.184
18	.65032	.03711	-.618	.64917	.03719	-.661	.65026	.03711	-.222	.65015	.03711	-.080
17	.71026	.03219	-.360	.73897	.03229	-.180	.71034	.03218	-.081	.70977	.03222	-.019
16	.78026	.02561	-.174	.77912	.02572	-.056	.78008	.02563	.004	.78012	.02562	.027
15	.85021	.01814	-.059	.84903	.01826	.034	.85001	.01815	.075	.85010	.01815	.080
14	.92027	.01021	.062	.91929	.01032	.126	.92012	.01023	.151	.92005	.01023	.155
13	.98518	.00265	.178	.98387	.00283	.218	.98611	.00251	.240	.98498	.00267	.237

	SECTION 5			SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	.170	.94953	-.00734	.151	.94946	-.00735	.106
14	.84954	-.01822	.045	.84934	-.01823	.041	.84958	-.01821	.024
13	.75003	-.02851	-.050	.74963	-.02854	-.040	.75002	-.02850	-.046
12	.64988	-.03713	-.122	.64980	-.03714	-.110	.64957	-.03715	-.098
11	.54933	-.04397	-.518	.54955	-.04396	-.167	.54967	-.04398	-.152
10	.44990	-.04814	-.527	.44998	-.04814	-.197	.44970	-.04816	-.205
9	.35016	-.04880	-.519	.34993	-.04880	-.490	.34973	-.04879	-.381
8	.25012	-.04646	-.410	.24997	-.04645	-.479	.24976	-.04645	-.456
7	.15054	-.04081	-.272	.15016	-.04078	-.435	.14996	-.04076	-.459
6	.10029	-.03625	-.216	.10019	-.03624	-.332	.10039	-.03627	-.507
5	.06550	-.03203	-.221	.06521	-.03198	-.262	.06536	-.03200	-.466
4	.04030	-.02788	-.221	.03999	-.02803	-.270	.04025	-.02913	-.454
3	.02030	-.02282	-.195	.01985	-.02268	-.237	.01985	-.02266	-.372
2	.00597	-.01314	.472	.00567	-.01305	.422	.00578	-.01313	.248
1	.00057	.00379	.785	.00068	.00449	.753	.00050	.00361	.696
45	.00184	.00727	.011	.00193	.00749	.381	.00193	.00757	.359
44	.00626	.01361	.011	.00623	.01365	.030	.00630	.01368	-.068
43	.01228	.01873	-.374	.01209	.01851	-.575	.01265	.01889	-.451
42	.02096	.02272	-.765	.01983	.02268	-.775	.02012	.02277	-.806
41	.02988	.02581	-.957	.02991	.02584	-.974	.02999	.02583	-1.024
40	.04966	.02966	-.955	.04972	.02967	-.986	.04995	.02970	-1.061
39	.07468	.03322	-.887	.07488	.03329	-.941	.07482	.03327	-1.051
38	.09994	.03621	-.840	.09991	.03620	-.894	.09990	.03621	-1.006
37	.13986	.03995	-.796	.13983	.03994	-.895	.13976	.03995	-.826
36	.17979	.04286	-.769	.17999	.04272	-.912	.17991	.04288	-.729
35	.22001	.04515	-.560	.22010	.04514	-.864	.21990	.04514	-.674
34	.25964	.04681	-.590	.25996	.04681	-.518	.25976	.04682	-.478
33	.29988	.04800	-.661	.29994	.04799	-.491	.29986	.04800	-.394
32	.33995	.04869	-.725	.34008	.04869	-.512	.33979	.04868	-.344
31	.37986	.04892	-.768	.37994	.04891	-.452	.37976	.04892	-.320
30	.41959	.04867	-.675	.41983	.04867	-.294	.41988	.04868	-.250
29	.45975	.04789	-.535	.45976	.04790	-.215	.45970	.04789	-.211
28	.49960	.04650	-.199	.49994	.04649	-.177	.49987	.04649	-.185
27	.53959	.04452	-.134	.53988	.04450	-.153	.53975	.04452	-.152
26	.57961	.04214	-.102	.57991	.04210	-.114	.57985	.04214	-.123
25	.61987	.03938	-.081	.61970	.03939	-.091	.61976	.03940	-.106
24	.65968	.03637	-.060	.65979	.03635	-.074	.65966	.03636	-.093
23	.69970	.03308	-.042	.69976	.03308	-.043	.69979	.03308	-.079
22	.73940	.02949	-.020	.73970	.02946	-.026	.73980	.02946	-.070
21	.77960	.02567	.011	.77962	.02567	.002	.77942	.02570	-.060
20	.81937	.02157	.050	.81965	.02154	.040	.81985	.02150	-.051
19	.85955	.01709	.086	.85980	.01707	.073	.85943	.01712	-.046
18	.89940	.01246	.127	.89977	.01241	.109	.89961	.01243	-.045
17	.94727	.00755	.182	.94861	.00742	.160	.94959	.00733	-.061
16	.98506	.00266	.236	.99462	.00272	.211	.98455	.00274	-.042

TABLE B1- 20

M6 WING - SURFACE PRESSURE DISTRIBUTIONS TEST 2304

MO = .8800
ALPHA = 3.06
REC = 11.77*10**6

	SECTION 1			SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.094	.94937	-.00735	.146	.94999	-.00737	.166	.94987	-.00731	.174
11	.81597	-.02193	-.104	.81705	-.02182	-.045	.81986	-.02152	-.016	.82223	-.02125	.001
10	.66593	-.03587	-.212	.66698	-.03579	-.190	.67008	-.03553	-.170	.67216	-.03537	-.134
9	.56588	-.04301	-.279	.56705	-.04294	-.285	.57033	-.04272	-.289	.57230	-.04261	-.213
8	.46599	-.04773	-.297	.46706	-.04769	-.334	.47037	-.04760	-.373	.47220	-.04753	-.464
7	.36590	-.04889	-.220	.36705	-.04889	-.265	.37009	-.04890	-.327	.37235	-.04891	-.369
6	.26579	-.04707	-.159	.26705	-.04706	-.192	.27010	-.04716	-.224	.27230	-.04723	-.270
5	.16594	-.04194	-.083	.16699	-.04202	-.133	.17010	-.04224	-.139	.17242	-.04238	-.165
4	.04993	-.02971	-.036	.04909	-.02958	-.048	.05016	-.02975	-.026	.05017	-.02974	-.051
3	.02002	-.02268	-.041	.01922	-.02242	-.020	.02010	-.02275	-.004	.01999	-.02268	-.011
2	.00593	-.01333	.558	.00520	-.01261	.562	.00591	-.01326	.578	.00611	-.01355	.561
1	.00034	.00292	.827	.00031	.00277	.811	.00042	.00317	.785	.00000	.00000	.784
34	.00216	.00802	.502	.00108	.00553	.450	.00222	.00806	.396	.00210	.00787	.379
33	.00966	.01592	-.080	.00789	.01531	-.157	.00914	.01640	-.217	.00893	.01619	-.209
32	.02037	.02285	-.598	.01905	.02232	-.715	.02036	.02273	-.778	.02012	.02276	-.830
31	.03535	.02701	-.948	.03402	.02674	-.991	.03508	.02698	-1.031	.03530	.02701	-1.051
30	.06036	.03130	-.828	.05911	.03113	-.963	.06022	.03128	-.996	.06011	.03127	-1.010
29	.09959	.03617	-.436	.09913	.03613	-.835	.10029	.03626	-.906	.10019	.03623	-.922
28	.15037	.04080	-.384	.14927	.04071	-.425	.15032	.04078	-.843	.15024	.04078	-.378
27	.20044	.04413	-.425	.19909	.04405	-.490	.20029	.04411	-.768	.20016	.04410	-.855
26	.25039	.04647	-.442	.25080	.04649	-.521	.25024	.04647	-.523	.25021	.04647	-.845
25	.30050	.04800	-.428	.29925	.04798	-.522	.30008	.04800	-.579	.30021	.04799	-.711
24	.35050	.04879	-.456	.34927	.04878	-.540	.35024	.04879	-.626	.35015	.04879	-.625
23	.40047	.04886	-.470	.39931	.04886	-.582	.40037	.04886	-.646	.39977	.04885	-.673
22	.45039	.04812	-.504	.44897	.04815	-.598	.45010	.04813	-.694	.45039	.04813	-.731
21	.50039	.04648	-.523	.49927	.04652	-.655	.50024	.04649	-.749	.50020	.04643	-.777
20	.55025	.04394	-.555	.54927	.04398	-.683	.55042	.04392	-.761	.55033	.04393	-.452
19	.60029	.04075	-.615	.59931	.04083	-.699	.60071	.04073	-.781	.60018	.04078	-.198
18	.65032	.03711	-.660	.64937	.03719	-.718	.65026	.03711	-.259	.65015	.03711	-.094
17	.71026	.03219	-.449	.70897	.03229	-.222	.71034	.03218	-.103	.70977	.03222	-.016
16	.78026	.02561	-.180	.77912	.02572	-.060	.78008	.02563	.006	.78012	.02562	.043
15	.85021	.01814	-.054	.84903	.01826	.040	.85001	.01815	.086	.85010	.01815	.094
14	.92027	.01021	.066	.91929	.01032	.131	.92012	.01023	.160	.92005	.01023	.162
13	.98519	.00265	.178	.98387	.00283	.218	.98611	.00251	.240	.98498	.00267	.235

	SECTION 5			SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94927	-.00731	.167	.94953	-.00734	.143	.94946	-.00735	.083
14	.84954	-.01822	.041	.84934	-.01823	.034	.84958	-.01821	.002
13	.75003	-.02851	-.053	.74963	-.02854	-.046	.75002	-.02850	-.362
12	.64998	-.03713	-.127	.64990	-.03714	-.113	.64957	-.03715	-.110
11	.54983	-.04397	-.480	.54955	-.04396	-.170	.54967	-.04398	-.160
10	.44990	-.04814	-.482	.44998	-.04814	-.229	.44970	-.04816	-.221
9	.35015	-.04880	-.443	.34990	-.04880	-.450	.34973	-.04879	-.455
8	.25012	-.04646	-.348	.24997	-.04645	-.424	.24976	-.04645	-.418
7	.15054	-.04081	-.203	.15016	-.04078	-.366	.14996	-.04076	-.407
6	.10029	-.03625	-.139	.10019	-.03624	-.258	.10039	-.03627	-.441
5	.06550	-.03203	-.105	.06521	-.03198	-.180	.06536	-.03200	-.384
4	.04030	-.02788	-.105	.03999	-.02803	-.176	.04025	-.02813	-.355
3	.02030	-.02282	-.058	.01985	-.02268	-.105	.01985	-.02266	-.246
2	.00587	-.01314	.545	.00567	-.01305	.495	.00578	-.01313	.365
1	.00057	.00579	.759	.00068	.00449	.725	.00050	.00361	.673
45	.00184	.00727	-.073	.00190	.00749	.310	.00193	.00757	.290
44	.00626	.01361	-.072	.00623	.01365	-.047	.00630	.01368	-.145
43	.01228	.01873	-.450	.01209	.01851	-.462	.01265	.01889	-.522
42	.02006	.02272	-.838	.01983	.02268	-.838	.02012	.02277	-.870
41	.02988	.02581	-1.031	.02991	.02584	-1.042	.02999	.02583	-1.088
40	.04966	.02966	-1.039	.04972	.02967	-1.070	.04995	.02970	-1.136
39	.07449	.03322	-.991	.07488	.03329	-1.029	.07482	.03327	-1.131
38	.09994	.03621	-.950	.09991	.03620	-.988	.09990	.03621	-1.085
37	.13986	.03995	-.917	.13983	.03994	-.992	.13976	.03995	-.898
36	.17979	.04296	-.889	.17999	.04272	-1.014	.17991	.04288	-.867
35	.22001	.04515	-.896	.22010	.04514	-.992	.21990	.04514	-.772
34	.25964	.04681	-.890	.25996	.04681	-.839	.25976	.04682	-.756
33	.29988	.04800	-.906	.29994	.04799	-.796	.29986	.04800	-.725
32	.33985	.04969	-.933	.34008	.04869	-.769	.33979	.04868	-.714
31	.37986	.04892	-.944	.37994	.04891	-.632	.37976	.04892	-.402
30	.41959	.04867	-.619	.41988	.04867	-.259	.41988	.04868	-.278
29	.45975	.04789	-.350	.45975	.04790	-.169	.45970	.04789	-.183
28	.49960	.04650	-.224	.49994	.04649	-.122	.49987	.04649	-.155
27	.53959	.04452	-.133	.53988	.04450	-.103	.53975	.04452	-.156
26	.57961	.04214	-.076	.57991	.04210	-.079	.57985	.04214	-.159
25	.61987	.03938	-.048	.61970	.03939	-.066	.61976	.03940	-.169
24	.65968	.03637	-.030	.65979	.03635	-.056	.65966	.03636	-.186
23	.69970	.03308	-.016	.69976	.03308	-.032	.69979	.03308	-.200
22	.73940	.02949	-.001	.73970	.02946	-.024	.73980	.02946	-.215
21	.77940	.02567	.024	.77962	.02567	.000	.77942	.02570	-.229
20	.81957	.02157	.058	.81965	.02154	.032	.81985	.02150	-.244
19	.85955	.01709	.090	.85980	.01707	.059	.85943	.01712	-.246
18	.89940	.01246	.127	.89977	.01241	.086	.89961	.01243	-.249
17	.94727	.00755	.179	.94861	.00742	.135	.94959	.00733	-.255
16	.98506	.00266	.233	.98462	.00272	.188	.98455	.00274	-.182

TABLE B1-21

M6 WING - SURFACE PRESSURE DISTRIBUTIONS TEST 2591

MO = .8831
ALPHA = 4.07
REC = 11.78*10**6

	SECTION 1			SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.087	.94937	-.00735	.133	.94999	-.00737	.151	.94937	-.00731	.141
11	.81597	-.02193	-.100	.81705	-.02182	-.045	.81986	-.02152	-.027	.82223	-.02125	-.018
10	.66593	-.03587	-.189	.66698	-.03579	-.174	.67008	-.03553	-.170	.67216	-.03537	-.150
9	.56598	-.04301	-.239	.56705	-.04294	-.254	.57033	-.04272	-.258	.57230	-.04261	-.248
8	.46599	-.04773	-.252	.46706	-.04769	-.280	.47037	-.04760	-.317	.47220	-.04753	-.399
7	.36580	-.04889	-.179	.36705	-.04889	-.215	.37009	-.04890	-.266	.37235	-.04891	-.312
6	.26579	-.04702	-.114	.26705	-.04706	-.139	.27010	-.04716	-.166	.27230	-.04723	-.211
5	.16594	-.04194	-.034	.16699	-.04202	-.075	.17010	-.04224	-.076	.17242	-.04238	-.102
4	.04993	-.02971	.054	.04909	-.02958	.041	.05016	-.02975	.064	.05017	-.02974	.044
3	.02002	-.02268	.071	.01922	-.02242	.102	.02010	-.02275	.120	.01999	-.02268	.116
2	.00593	-.01333	.619	.00520	-.01261	.634	.00591	-.01326	.644	.00611	-.01355	.636
1	.00034	.00292	.807	.00031	.00277	.789	.00042	.00317	.759	.00000	.00000	.758
34	.00216	.00902	.438	.00138	.00553	.393	.00222	.00806	.324	.00210	.00787	.322
33	.00866	.01592	-.157	.00789	.01531	-.227	.00914	.01640	-.268	.00893	.01619	-.317
32	.02037	.02285	-.660	.01906	.02232	-.785	.02036	.02273	-.838	.02012	.02276	-.834
31	.03525	.02701	-1.011	.03402	.02674	-1.039	.03508	.02698	-1.091	.03530	.02701	-1.108
30	.06036	.03130	-.971	.05911	.03113	-1.027	.06022	.03128	-1.056	.06011	.03127	-1.077
29	.09959	.03617	-.464	.09915	.03613	-.938	.10029	.03626	-.983	.10019	.03623	-1.003
28	.15037	.04080	-.555	.14927	.04071	-.866	.15032	.04078	-.931	.15024	.04075	-.962
27	.20044	.04413	-.580	.19909	.04405	-.637	.20029	.04411	-.907	.20016	.04410	-.945
26	.25039	.04647	-.452	.25080	.04649	-.546	.25024	.04647	-.888	.25021	.04647	-.938
25	.30050	.04800	-.426	.29925	.04798	-.511	.30008	.04800	-.882	.30021	.04799	-.934
24	.35050	.04879	-.475	.34927	.04878	-.556	.35024	.04879	-.632	.35015	.04879	-.943
23	.40047	.04886	-.491	.39931	.04886	-.604	.40037	.04886	-.631	.39977	.04885	-.947
22	.45030	.04812	-.531	.44897	.04815	-.625	.45010	.04813	-.683	.45009	.04813	-.618
21	.50039	.04648	-.546	.49927	.04652	-.674	.50024	.04649	-.743	.50020	.04648	-.443
20	.55025	.04394	-.564	.54927	.04398	-.703	.55042	.04392	-.775	.55033	.04393	-.389
19	.60029	.04075	-.622	.59931	.04083	-.716	.60071	.04073	-.712	.60018	.04078	-.313
18	.65032	.03711	-.670	.64917	.03719	-.729	.65026	.03711	-.233	.65015	.03711	-.231
17	.71026	.03219	-.563	.70897	.03229	-.252	.71034	.03218	-.096	.70977	.03222	-.151
16	.78026	.02561	-.185	.77912	.02572	-.064	.78008	.02563	-.002	.78012	.02562	-.039
15	.85021	.01814	-.051	.84905	.01826	.042	.85001	.01815	.075	.85010	.01815	.056
14	.92027	.01021	.068	.91929	.01032	.129	.92012	.01023	.149	.92015	.01023	.129
13	.98518	.00265	.172	.98387	.00283	.207	.98611	.00251	.224	.98478	.00267	.199

	SECTION 5			SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	.095	.94953	-.00734	.089	.94946	-.00735	.046
14	.84954	-.01822	.002	.84934	-.01823	-.007	.84958	-.01821	-.038
13	.75003	-.02851	-.074	.74963	-.02854	-.074	.75002	-.02850	-.098
12	.64988	-.03713	-.145	.64980	-.03714	-.133	.64957	-.03715	-.145
11	.54983	-.04397	-.438	.54955	-.04396	-.194	.54967	-.04398	-.183
10	.44990	-.04814	-.439	.44998	-.04814	-.364	.44970	-.04816	-.280
9	.35016	-.04880	-.378	.34990	-.04880	-.417	.34973	-.04879	-.439
8	.25012	-.04646	-.292	.24997	-.04645	-.374	.24976	-.04645	-.387
7	.15054	-.04081	-.142	.15016	-.04078	-.308	.14996	-.04076	-.356
6	.10029	-.03625	-.069	.10019	-.03624	-.190	.10039	-.03627	-.380
5	.06550	-.03203	-.016	.06521	-.03198	-.102	.06536	-.03200	-.313
4	.04030	-.02788	-.015	.03999	-.02803	-.091	.04025	-.02813	-.257
3	.02030	-.02282	.066	.01985	-.02268	.011	.01985	-.02266	-.132
2	.00587	-.01314	.609	.00567	-.01305	.525	.00578	-.01313	.430
1	.00057	.00379	.731	.00068	.00449	.695	.00050	.00361	.646
45	.00184	.00727	-.144	.00190	.00749	.270	.00193	.00757	.229
44	.00626	.01361	-.145	.00623	.01365	-.134	.00630	.01368	-.203
43	.01228	.01873	-.509	.01209	.01851	-.526	.01265	.01889	-.583
42	.02006	.02272	-.896	.01983	.02268	-.870	.02012	.02277	-.930
41	.02998	.02581	-1.084	.02991	.02584	-1.092	.02999	.02583	-1.138
40	.04966	.02966	-1.105	.04972	.02967	-1.131	.04995	.02970	-1.191
39	.07448	.03322	-1.061	.07488	.03329	-1.095	.07482	.03327	-1.186
38	.09994	.03621	-1.021	.09991	.03620	-1.055	.09990	.03621	-1.140
37	.13986	.03995	-.995	.13983	.03994	-1.060	.13976	.03995	-.946
36	.17979	.04286	-.972	.17999	.04272	-1.083	.17991	.04288	-.845
35	.22001	.04515	-.971	.22010	.04514	-1.060	.21990	.04514	-.827
34	.25964	.04681	-.974	.25996	.04681	-.815	.25976	.04682	-.807
33	.29988	.04800	-.955	.29994	.04799	-.580	.29986	.04800	-.727
32	.33985	.04869	-.601	.34008	.04869	-.497	.33979	.04868	-.585
31	.37986	.04892	-.481	.37994	.04891	-.455	.37976	.04892	-.454
30	.41959	.04867	-.459	.41988	.04867	-.423	.41988	.04868	-.330
29	.45975	.04789	-.430	.45976	.04790	-.379	.45970	.04789	-.260
28	.49960	.04650	-.408	.49994	.04649	-.316	.49987	.04649	-.221
27	.53959	.04452	-.369	.53988	.04450	-.267	.53975	.04452	-.207
26	.57961	.04214	-.308	.57991	.04210	-.198	.57985	.04214	-.192
25	.61987	.03938	-.253	.61970	.03939	-.155	.61976	.03940	-.201
24	.65968	.03637	-.198	.65979	.03635	-.122	.65966	.03636	-.237
23	.69970	.03308	-.144	.69976	.03308	-.079	.69979	.03308	-.281
22	.73940	.02949	-.084	.73970	.02946	-.055	.73980	.02946	-.312
21	.77960	.02567	-.030	.77962	.02567	-.018	.77942	.02570	-.343
20	.81937	.02157	.020	.81965	.02154	.012	.81985	.02150	-.357
19	.85955	.01709	.053	.85990	.01707	.036	.85943	.01712	-.365
18	.89940	.01246	.078	.89977	.01241	.054	.89961	.01245	-.353
17	.94227	.00755	.108	.94861	.00742	.089	.94959	.00753	-.310
16	.98506	.00266	.143	.98462	.00272	.131	.98455	.00274	-.189

TABLE B1-22

M6 WING - SURFACE PRESSURE DISTRIBUTIONS TEST 2592

MO = .8809
ALPHA = 5.07
REC = 11.78*10**6

	SECTION 1			SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.088	.94937	-.00735	.129	.94999	-.00737	.116	.94987	-.00731	.012
11	.81597	-.02193	-.086	.81705	-.02182	-.048	.81986	-.02152	-.048	.82223	-.02125	-.071
10	.66595	-.03587	-.153	.66698	-.03579	-.159	.67008	-.03553	-.170	.67216	-.03537	-.172
9	.56589	-.04301	-.192	.56705	-.04294	-.215	.57033	-.04272	-.230	.57230	-.04261	-.250
8	.46599	-.04773	-.199	.46706	-.04769	-.230	.47037	-.04760	-.265	.47220	-.04753	-.326
7	.36590	-.04889	-.130	.36705	-.04889	-.164	.37009	-.04890	-.212	.37235	-.04891	-.253
6	.26579	-.04702	-.064	.26705	-.04706	-.089	.27010	-.04716	-.112	.27230	-.04723	-.153
5	.16594	-.04194	.020	.16693	-.04202	-.016	.17010	-.04224	-.014	.17242	-.04238	-.038
4	.04993	-.02971	.135	.04909	-.02958	.124	.05016	-.02975	.148	.05017	-.02974	.132
3	.02002	-.02268	.186	.01922	-.02242	.208	.02010	-.02275	.235	.01999	-.02268	.233
2	.00593	-.01333	.680	.00520	-.01261	.690	.00591	-.01326	.703	.00611	-.01355	.693
1	.00034	.00292	.776	.00031	.00277	.754	.00042	.00317	.718	.00000	.00000	.720
34	.00216	.00802	.372	.00158	.00553	.320	.00222	.00806	.248	.00210	.00787	.248
33	.00866	.01592	-.236	.00789	.01531	-.313	.00914	.01640	-.359	.00893	.01619	-.399
32	.02047	.02285	-.740	.01906	.02232	-.862	.02336	.02273	-.910	.02012	.02276	-.963
31	.03575	.02701	-1.078	.03402	.02674	-1.107	.03508	.02698	-1.161	.03550	.02701	-1.179
30	.06156	.03130	-1.057	.05911	.03113	-1.106	.06022	.03128	-1.134	.06011	.03127	-1.151
29	.09959	.03617	-.639	.09915	.03613	-1.029	.10029	.03626	-1.068	.10019	.03623	-1.085
28	.15037	.04080	-.592	.14927	.04071	-.963	.15032	.04078	-1.020	.15024	.04078	-1.050
27	.20044	.04413	-.632	.19909	.04405	-.939	.20029	.04411	-.999	.20016	.04410	-1.033
26	.25039	.04647	-.679	.25080	.04649	-.816	.25024	.04647	-.984	.25021	.04647	-1.025
25	.30050	.04800	-.472	.29925	.04798	-.664	.30008	.04800	-.981	.30021	.04799	-.882
24	.35050	.04879	-.508	.34927	.04878	-.606	.35024	.04879	-.984	.35015	.04879	-.560
23	.40047	.04886	-.529	.39931	.04886	-.607	.40037	.04886	-.989	.39977	.04885	-.499
22	.45030	.04817	-.567	.44897	.04815	-.648	.45010	.04813	-.969	.45059	.04813	-.466
21	.50039	.04648	-.579	.49927	.04652	-.701	.50024	.04649	-.592	.50020	.04648	-.441
20	.55025	.04394	-.585	.54927	.04398	-.726	.55042	.04392	-.458	.55033	.04393	-.413
19	.60029	.04075	-.640	.59931	.04083	-.739	.60071	.04073	-.369	.60018	.04078	-.389
18	.65032	.03711	-.686	.64917	.03719	-.698	.65026	.03711	-.297	.65015	.03711	-.352
17	.71026	.03219	-.524	.70897	.03229	-.176	.71034	.03218	-.209	.70977	.03222	-.302
16	.78026	.02561	-.175	.77912	.02572	-.035	.78008	.02563	-.106	.78012	.02562	-.241
15	.85021	.01814	-.039	.84903	.01826	.051	.85001	.01815	-.018	.85010	.01815	-.171
14	.92027	.01021	.074	.91929	.01032	.130	.92012	.01023	.068	.92035	.01023	-.074
13	.98518	.00265	.175	.98387	.00283	.204	.98611	.00251	.171	.98498	.00267	-.031

	SECTION 5			SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	.009	.94953	-.00734	.013	.94946	-.00735	-.013
14	.84954	-.01822	-.055	.84934	-.01823	-.055	.84958	-.01821	-.078
13	.75005	-.02851	-.114	.74965	-.02854	-.113	.75002	-.02850	-.138
12	.64988	-.03713	-.169	.64980	-.03711	-.165	.64957	-.03715	-.182
11	.54983	-.04397	-.371	.54955	-.04396	-.207	.54967	-.04398	-.209
10	.44990	-.04814	-.369	.44998	-.04814	-.349	.44970	-.04816	-.325
9	.35016	-.04880	-.318	.34993	-.04880	-.367	.34973	-.04879	-.413
8	.25012	-.04646	-.227	.24997	-.04645	-.331	.24976	-.04645	-.354
7	.15054	-.04081	-.080	.15016	-.04078	-.235	.14996	-.04076	-.312
6	.10029	-.03625	-.001	.10019	-.03624	-.125	.10039	-.03627	-.303
5	.06550	-.03203	.083	.06521	-.03198	-.032	.06556	-.03200	-.241
4	.04030	-.02789	.083	.03999	-.02803	.002	.04025	-.02813	-.173
3	.02030	-.02282	.178	.01985	-.02268	.120	.01985	-.02266	-.029
2	.00587	-.01314	.666	.00567	-.01305	.585	.00578	-.01313	.477
1	.00057	.00379	.690	.00068	.00449	.653	.00056	.00361	.606
45	.00184	.00727	-.234	.00193	.00749	.192	.00193	.00757	.154
44	.00626	.01361	-.234	.00623	.01365	-.224	.00630	.01368	-.285
43	.01278	.01973	-.589	.01209	.01851	-.608	.01265	.01889	-.658
42	.02006	.02272	-.967	.01983	.02268	-.950	.02012	.02277	-1.001
41	.02988	.02581	-1.150	.02991	.02584	-1.156	.02999	.02583	-1.202
40	.04966	.02966	-1.181	.04972	.02967	-1.200	.04995	.02970	-1.256
39	.07448	.03322	-1.139	.07488	.03329	-1.170	.07482	.03327	-1.254
38	.09994	.03621	-1.102	.09991	.03620	-1.137	.09990	.03621	-1.209
37	.13986	.03995	-1.077	.13983	.03994	-1.136	.13976	.03995	-.991
36	.17979	.04286	-1.043	.17999	.04272	-.953	.17991	.04288	-.781
35	.22001	.04515	-.833	.22010	.04514	-.688	.21990	.04514	-.650
34	.25966	.04681	-.575	.25996	.04681	-.576	.25976	.04682	-.539
33	.29988	.04800	-.526	.29994	.04799	-.531	.29986	.04800	-.485
32	.33985	.04869	-.501	.34003	.04869	-.498	.33979	.04868	-.448
31	.37986	.04892	-.480	.37994	.04891	-.462	.37976	.04892	-.402
30	.41989	.04867	-.468	.41989	.04867	-.436	.41988	.04868	-.353
29	.45975	.04789	-.441	.45976	.04790	-.392	.45970	.04789	-.304
28	.49960	.04650	-.416	.49996	.04649	-.350	.49987	.04649	-.282
27	.53959	.04452	-.394	.53988	.04450	-.321	.53975	.04452	-.273
26	.57961	.04214	-.366	.57991	.04210	-.269	.57985	.04214	-.248
25	.61987	.03938	-.315	.61970	.03939	-.243	.61976	.03940	-.259
24	.65968	.03637	-.279	.65979	.03635	-.208	.65966	.03636	-.283
23	.69970	.03308	-.234	.69976	.03308	-.175	.69979	.03308	-.295
22	.73940	.02949	-.189	.73970	.02946	-.150	.73980	.02946	-.310
21	.77940	.02567	-.166	.77962	.02567	-.131	.77942	.02570	-.310
20	.81937	.02157	-.126	.81965	.02154	-.117	.81985	.02150	-.306
19	.85955	.01709	-.090	.85980	.01707	-.088	.85943	.01712	-.315
18	.89940	.01246	-.049	.89977	.01241	-.071	.89961	.01243	-.283
17	.94727	.00755	-.013	.94861	.00742	-.026	.94959	.00733	-.250
16	.98506	.00266	.003	.98462	.00272	-.023	.98455	.00274	-.175

TABLE B1-23

M6 WING - SURFACE PRESSURE DISTRIBUTIONS TEST 2593

MO = .8868
ALPHA = 6.07
REC = 11.83*10**6

	SECTION 1			SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.078	.94937	-.00735	.111	.94999	-.00737	.010	.94937	-.00731	-.084
11	.81597	-.02193	-.078	.81705	-.02182	-.056	.81986	-.02152	-.082	.82223	-.02125	-.125
10	.66593	-.03587	-.129	.66698	-.03579	-.141	.67008	-.03553	-.177	.67216	-.03537	-.197
9	.56588	-.04301	-.155	.56705	-.04294	-.184	.57033	-.04272	-.211	.57230	-.04261	-.265
8	.46599	-.04773	-.153	.46706	-.04769	-.183	.47037	-.04760	-.225	.47220	-.04753	-.300
7	.36580	-.04889	-.084	.36705	-.04889	-.116	.37009	-.04890	-.166	.37235	-.04891	-.212
6	.26579	-.04702	-.013	.26705	-.04706	-.033	.27010	-.04716	-.060	.27230	-.04723	-.106
5	.16594	-.04194	.077	.16699	-.04202	.042	.17010	-.04224	.044	.17242	-.04238	.014
4	.04993	-.02971	.210	.04909	-.02958	.204	.05016	-.02975	.224	.05017	-.02974	.206
3	.02002	-.02268	.300	.01922	-.02242	.312	.02010	-.02275	.332	.01999	-.02268	.326
2	.00593	-.01333	.746	.00523	-.01261	.747	.00591	-.01326	.753	.00611	-.01355	.738
1	.00034	.00292	.753	.00031	.00277	.724	.00042	.00317	.683	.00000	.00000	.687
34	.00216	.00802	.315	.00108	.00553	.261	.00222	.00806	.189	.00210	.00787	.186
33	.00866	.01592	-.294	.00789	.01531	-.375	.00914	.01640	-.422	.00893	.01619	-.461
32	.02037	.02285	-.802	.01906	.02232	-.913	.02036	.02275	-.953	.02012	.02276	-1.007
31	.03525	.02701	-1.114	.03402	.02674	-1.141	.03508	.02698	-1.196	.03550	.02701	-1.215
30	.06036	.03130	-1.100	.05911	.03113	-1.140	.06022	.03128	-1.175	.06011	.03127	-1.192
29	.09959	.03617	-.964	.09913	.03613	-1.078	.10029	.03626	-1.117	.10019	.03623	-1.132
28	.15037	.04080	-.618	.14927	.04071	-1.024	.15032	.04078	-1.071	.15024	.04078	-1.099
27	.20044	.04413	-.651	.19909	.04405	-1.002	.20029	.04411	-1.055	.20016	.04410	-1.005
26	.25039	.04647	-.710	.25080	.04649	-.975	.25024	.04647	-1.040	.25021	.04647	-.778
25	.30050	.04800	-.744	.29925	.04798	-.934	.30006	.04800	-1.039	.30021	.04799	-.586
24	.35050	.04879	-.537	.34927	.04878	-.753	.35024	.04879	-1.035	.35015	.04879	-.544
23	.40047	.04886	-.563	.39931	.04886	-.772	.40037	.04886	-.633	.39977	.04885	-.496
22	.45030	.04812	-.599	.44997	.04815	-.708	.45010	.04813	-.561	.45009	.04813	-.472
21	.50039	.04648	-.616	.49927	.04652	-.710	.50024	.04649	-.535	.50020	.04648	-.457
20	.55025	.04394	-.589	.54927	.04398	-.737	.55042	.04392	-.519	.55033	.04393	-.439
19	.60029	.04075	-.642	.59931	.04083	-.756	.60071	.04073	-.483	.60018	.04078	-.407
18	.65032	.03711	-.689	.64917	.03719	-.499	.65026	.03711	-.455	.65015	.03711	-.387
17	.71026	.03219	-.638	.70897	.03229	-.166	.71054	.03218	-.408	.70977	.03222	-.363
16	.78026	.02561	-.190	.77912	.02572	-.055	.78068	.02563	-.339	.78012	.02562	-.318
15	.85021	.01814	-.047	.84903	.01826	.030	.85001	.01815	-.245	.85013	.01815	-.278
14	.92027	.01021	.064	.91929	.01032	.105	.92012	.01023	-.148	.92035	.01023	-.233
13	.98518	.00265	.159	.98387	.00283	.181	.98611	.00251	-.001	.98498	.00267	-.168

	SECTION 5			SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	-.092	.94953	-.00734	-.077	.94946	-.00735	-.090
14	.84954	-.01822	-.110	.84934	-.01823	-.105	.84958	-.01821	-.126
13	.75003	-.02851	-.156	.74963	-.02854	-.151	.75002	-.02850	-.165
12	.64988	-.03713	-.194	.64980	-.03714	-.188	.64957	-.03715	-.199
11	.54983	-.04397	-.360	.54955	-.04396	-.223	.54967	-.04398	-.223
10	.44990	-.04814	-.361	.44998	-.04814	-.385	.44970	-.04816	-.329
9	.35016	-.04880	-.276	.34990	-.04880	-.343	.34973	-.04879	-.399
8	.25012	-.04646	-.175	.24997	-.04645	-.290	.24976	-.04645	-.334
7	.15054	-.04081	-.021	.15015	-.04078	-.174	.14996	-.04076	-.275
6	.10029	-.03625	.062	.10019	-.03624	-.060	.10039	-.03627	-.246
5	.06550	-.03203	.167	.06521	-.03198	.037	.06536	-.03200	-.170
4	.04030	-.02788	.168	.03999	-.02803	.084	.04025	-.02813	-.090
3	.02030	-.02282	.277	.01985	-.02268	.218	.01985	-.02266	.067
2	.00587	-.01314	.715	.00567	-.01305	.632	.00578	-.01313	.524
1	.00057	.00329	.654	.00068	.00449	.617	.00050	.00361	.575
45	.00184	.00727	-.304	.00190	.00749	.132	.00193	.00757	.096
44	.00676	.01361	-.304	.00623	.01365	-.286	.00630	.01368	-.350
43	.01228	.01873	-.646	.01209	.01851	-.659	.01265	.01889	-.709
42	.02006	.02272	-1.006	.01983	.02268	-.995	.02012	.02277	-1.037
41	.02998	.02581	-1.186	.02991	.02584	-1.188	.02999	.02583	-1.230
40	.04966	.02966	-1.218	.04972	.02967	-1.234	.04995	.02970	-1.284
39	.07448	.03322	-1.180	.07488	.03329	-1.210	.07482	.03327	-1.272
38	.09994	.03621	-1.145	.09991	.03620	-1.165	.09990	.03621	-1.194
37	.13986	.03995	-.994	.13983	.03994	-.922	.13976	.03995	-.780
36	.17979	.04286	-.773	.17999	.04272	-.734	.17991	.04288	-.663
35	.22001	.04515	-.609	.22010	.04514	-.597	.21990	.04514	-.519
34	.25964	.04681	-.561	.25996	.04681	-.536	.25976	.04682	-.475
33	.29988	.04800	-.544	.29994	.04799	-.507	.29986	.04800	-.452
32	.33985	.04869	-.497	.34008	.04869	-.470	.33979	.04868	-.417
31	.37986	.04892	-.462	.37994	.04891	-.435	.37976	.04892	-.375
30	.41959	.04867	-.469	.41988	.04867	-.429	.41988	.04868	-.373
29	.45975	.04789	-.432	.45976	.04790	-.384	.45970	.04789	-.320
28	.49960	.04650	-.420	.49994	.04649	-.375	.49987	.04649	-.315
27	.53959	.04452	-.387	.53988	.04450	-.337	.53975	.04452	-.294
26	.57961	.04214	-.365	.57991	.04210	-.308	.57985	.04214	-.298
25	.61957	.03938	-.359	.61970	.03939	-.311	.61976	.03940	-.309
24	.65968	.03637	-.334	.65979	.03635	-.285	.65966	.03636	-.311
23	.69970	.03308	-.299	.69976	.03308	-.257	.69979	.03308	-.307
22	.73940	.02949	-.284	.73970	.02946	-.249	.73980	.02946	-.320
21	.77960	.02567	-.271	.77962	.02567	-.246	.77942	.02570	-.327
20	.81937	.02157	-.232	.81965	.02154	-.221	.81985	.02150	-.298
19	.85955	.01709	-.225	.85983	.01707	-.221	.85943	.01712	-.286
18	.89940	.01246	-.193	.89977	.01241	-.205	.89961	.01243	-.283
17	.94727	.00755	-.159	.94861	.00742	-.175	.94959	.00733	-.258
16	.98506	.00266	-.147	.98462	.00272	-.172	.98455	.00274	-.211

TABLE B1- 24

M6 WING - SURFACE PRESSURE DISTRIBUTIONS TEST 2296

MO = .9207
ALPHA = .03
REC = 11.78*10**6

	SECTION 1			SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.105	.94937	-.00735	.150	.94999	-.00737	.168	.94987	-.00731	.177
11	.81597	-.02193	-.194	.81705	-.02182	-.067	.81986	-.02152	-.039	.82223	-.02125	-.015
10	.66593	-.03587	-.511	.66698	-.03579	-.554	.67008	-.03553	-.521	.67216	-.03537	-.392
9	.56588	-.04301	-.439	.56705	-.04294	-.533	.57033	-.04272	-.586	.57230	-.04261	-.689
8	.46592	-.04773	-.367	.46706	-.04769	-.446	.47037	-.04760	-.515	.47220	-.04753	-.583
7	.36580	-.04889	-.309	.36705	-.04889	-.371	.37009	-.04890	-.443	.37235	-.04891	-.483
6	.26579	-.04702	-.270	.26705	-.04706	-.319	.27010	-.04716	-.363	.27230	-.04723	-.404
5	.16594	-.04194	-.233	.16699	-.04202	-.290	.17010	-.04224	-.311	.17242	-.04238	-.336
4	.04993	-.02971	-.232	.04909	-.02958	-.325	.05016	-.02975	-.317	.05017	-.02974	-.397
3	.02002	-.02268	-.428	.01922	-.02242	-.417	.02010	-.02275	-.411	.01999	-.02268	-.433
2	.00593	-.01333	.353	.00520	-.01261	.336	.00591	-.01326	.355	.00611	-.01355	.337
1	.00034	.00292	.874	.00031	.00277	.864	.00042	.00317	.852	.00000	.00000	.842
34	.00216	.00802	.693	.00108	.00553	.667	.00222	.00806	.627	.00213	.00787	.610
33	.00966	.01592	.221	.00789	.01551	.161	.00914	.01640	.108	.00893	.01619	.110
32	.02037	.02285	-.280	.01905	.02232	-.368	.02036	.02273	-.411	.02012	.02276	-.476
31	.03525	.02701	-.372	.03402	.02674	-.465	.03508	.02698	-.625	.03550	.02701	-.658
30	.06036	.03130	-.206	.05911	.03113	-.258	.06022	.03128	-.278	.06011	.03127	-.263
29	.09959	.03617	-.188	.09913	.03613	-.251	.10029	.03626	-.314	.10019	.03623	-.328
28	.15037	.04080	-.194	.14927	.04071	-.256	.15032	.04078	-.312	.15024	.04078	-.347
27	.20044	.04413	-.221	.19909	.04405	-.299	.20029	.04411	-.343	.20016	.04410	-.391
26	.25039	.04647	-.250	.25080	.04649	-.324	.25024	.04647	-.371	.25021	.04647	-.413
25	.30050	.04800	-.260	.29925	.04798	-.339	.30008	.04800	-.399	.30021	.04799	-.439
24	.35050	.04879	-.287	.34927	.04878	-.364	.35024	.04879	-.441	.35015	.04879	-.484
23	.40047	.04886	-.317	.39931	.04886	-.401	.40037	.04886	-.474	.39977	.04885	-.521
22	.45050	.04812	-.363	.44897	.04815	-.444	.45010	.04813	-.517	.45009	.04813	-.574
21	.50039	.04648	-.392	.49927	.04652	-.503	.50024	.04649	-.576	.50020	.04648	-.629
20	.55025	.04394	-.433	.54927	.04398	-.528	.55042	.04392	-.600	.55033	.04393	-.635
19	.60029	.04075	-.488	.59931	.04083	-.547	.60071	.04073	-.631	.60018	.04078	-.719
18	.65032	.03711	-.536	.64917	.03719	-.576	.65026	.03711	-.646	.65015	.03711	-.619
17	.71026	.03219	-.490	.70897	.03229	-.575	.71034	.03218	-.633	.70977	.03222	-.181
16	.78026	.02561	-.382	.77912	.02572	-.193	.78068	.02563	-.110	.78012	.02562	-.078
15	.85023	.01814	-.091	.84903	.01826	-.004	.85001	.01815	.319	.85010	.01815	.027
14	.92027	.01021	.048	.91929	.01032	.106	.92012	.01023	.124	.92005	.01023	.133
13	.98519	.00265	.165	.98387	.00283	.197	.98611	.00251	.217	.98498	.00267	.213

	SECTION 5			SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	.187	.94953	-.00734	.188	.94946	-.00735	.174
14	.84954	-.01822	.089	.84934	-.01823	.106	.84958	-.01821	.103
13	.75003	-.02851	-.036	.74963	-.02854	.033	.75002	-.02850	.052
12	.64988	-.03713	-.228	.64980	-.03714	-.109	.64957	-.03715	-.039
11	.54983	-.04397	-.615	.54955	-.04396	-.625	.54967	-.04398	-.594
10	.44990	-.04814	-.614	.44998	-.04814	-.574	.44970	-.04816	-.538
9	.35016	-.04880	-.586	.34990	-.04880	-.528	.34973	-.04879	-.500
8	.25012	-.04646	-.464	.24997	-.04645	-.532	.24976	-.04645	-.458
7	.15054	-.04081	-.361	.15016	-.04078	-.510	.14996	-.04076	-.510
6	.10029	-.03625	-.335	.10019	-.03624	-.417	.10039	-.03627	-.570
5	.06550	-.03203	-.571	.06521	-.03198	-.360	.06536	-.03200	-.522
4	.04030	-.02788	-.571	.03999	-.02803	-.633	.04025	-.02813	-.761
3	.02030	-.02282	-.433	.01985	-.02268	-.435	.01985	-.02266	-.513
2	.00587	-.01314	.341	.00567	-.01305	.300	.00578	-.01313	.181
1	.00057	.00379	.832	.00059	.00449	.803	.00050	.00361	.748
45	.00184	.00727	.238	.00190	.00749	.548	.00193	.00757	.521
44	.00626	.01361	.236	.00623	.01365	.245	.00630	.01368	.147
43	.01228	.01873	-.121	.01209	.01851	-.124	.01265	.01889	-.205
42	.02006	.02272	-.480	.01983	.02268	-.527	.02012	.02277	-.557
41	.02988	.02581	-.657	.02931	.02584	-.672	.02999	.02583	-.751
40	.04966	.02966	-.491	.04972	.02967	-.620	.04995	.02970	-.722
39	.07448	.03322	-.341	.07483	.03329	-.407	.07482	.03327	-.568
38	.09994	.03621	-.356	.09991	.03620	-.441	.09990	.03621	-.591
37	.13926	.03995	-.402	.13983	.03994	-.521	.13976	.03995	-.549
36	.17979	.04286	-.417	.17999	.04272	-.574	.17991	.04288	-.497
35	.22001	.04515	-.456	.22010	.04514	-.577	.21990	.04514	-.483
34	.25964	.04681	-.485	.25996	.04681	-.546	.25976	.04682	-.490
33	.29988	.04800	-.536	.29994	.04799	-.525	.29986	.04800	-.479
32	.33985	.04869	-.585	.34008	.04869	-.528	.33979	.04868	-.494
31	.37986	.04892	-.619	.37994	.04891	-.543	.37976	.04892	-.502
30	.41959	.04867	-.617	.41988	.04867	-.560	.41988	.04868	-.541
29	.45975	.04789	-.634	.45976	.04790	-.588	.45970	.04789	-.550
28	.49960	.04650	-.636	.49994	.04649	-.605	.49987	.04649	-.575
27	.53959	.04452	-.658	.53988	.04450	-.636	.53975	.04452	-.593
26	.57961	.04214	-.664	.57991	.04210	-.592	.57985	.04214	-.428
25	.61987	.03938	-.349	.61970	.03939	-.179	.61976	.03940	-.101
24	.65968	.03637	-.164	.65979	.03635	-.072	.65966	.03636	-.011
23	.69970	.03308	-.096	.69976	.03308	-.012	.69979	.03308	.029
22	.73940	.02949	-.039	.73970	.02946	.028	.73980	.02946	.051
21	.77960	.02567	.012	.77962	.02567	.059	.77942	.02570	.068
20	.81937	.02157	.061	.81965	.02154	.089	.81985	.02150	.089
19	.85955	.01709	.104	.85983	.01707	.120	.85943	.01712	.115
18	.89940	.01246	.143	.89977	.01241	.149	.89961	.01243	.143
17	.94727	.00755	.187	.94861	.00742	.191	.94959	.00733	.176
16	.98504	.00266	.220	.98462	.00272	.225	.98455	.00274	.212

TABLE B1-25

M6 WING - SURFACE PRESSURE DISTRIBUTIONS TEST 2297

MO = .9208
ALPHA = 1.07
REC = 11.79*10**6

	SECTION 1			SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.092	.94937	-.00735	.135	.94999	-.00737	.154	.94987	-.00731	.162
11	.81597	-.02193	-.180	.81705	-.02182	-.364	.81986	-.02152	-.039	.82223	-.02125	-.300
10	.66573	-.03587	-.472	.66698	-.03579	-.522	.67008	-.03553	-.592	.67216	-.03537	-.632
9	.56588	-.04301	-.415	.56705	-.04294	-.510	.57033	-.04272	-.557	.57230	-.04261	-.649
8	.46599	-.04773	-.343	.46706	-.04769	-.415	.47037	-.04760	-.469	.47220	-.04753	-.548
7	.36580	-.04889	-.270	.36705	-.04889	-.335	.37009	-.04890	-.405	.37235	-.04891	-.440
6	.26579	-.04702	-.231	.26705	-.04706	-.268	.27010	-.04715	-.307	.27230	-.04723	-.347
5	.16594	-.04194	-.171	.16699	-.04202	-.227	.17010	-.04224	-.246	.17242	-.04239	-.262
4	.04993	-.02971	-.190	.04909	-.02958	-.222	.05016	-.02975	-.206	.05017	-.02974	-.237
3	.02002	-.02268	-.279	.01922	-.02242	-.276	.02010	-.02275	-.253	.01999	-.02268	-.276
2	.00593	-.01333	.432	.00520	-.01261	.421	.00591	-.01326	.439	.00611	-.01355	.424
1	.00034	.00292	.871	.00031	.00277	.856	.00042	.00317	.844	.00000	.00000	.835
34	.00216	.00802	.640	.00108	.00553	.609	.00222	.00806	.565	.00210	.00787	.548
33	.00866	.01592	.135	.00789	.01531	.071	.00914	.01640	.014	.00893	.01619	.020
32	.02037	.02285	-.369	.01906	.02232	-.478	.02036	.02273	-.513	.02012	.02276	-.576
31	.03525	.02701	-.649	.03402	.02674	-.726	.03508	.02698	-.773	.03530	.02701	-.794
30	.06036	.03130	-.288	.05911	.03113	-.320	.06022	.03128	-.686	.06011	.03127	-.709
29	.09959	.03617	-.258	.09913	.03613	-.321	.10029	.03626	-.336	.10019	.03623	-.389
28	.15037	.04080	-.256	.14927	.04071	-.324	.15032	.04078	-.378	.15024	.04078	-.393
27	.20044	.04413	-.279	.19909	.04405	-.358	.20029	.04411	-.406	.20016	.04410	-.443
26	.25039	.04647	-.299	.25080	.04649	-.384	.25024	.04647	-.432	.25021	.04647	-.470
25	.30050	.04800	-.308	.29925	.04798	-.388	.30008	.04800	-.463	.30021	.04799	-.504
24	.35050	.04879	-.334	.34927	.04878	-.407	.35024	.04879	-.486	.35015	.04879	-.542
23	.40047	.04886	-.350	.39931	.04886	-.444	.40037	.04886	-.520	.39977	.04885	-.559
22	.45030	.04812	-.395	.44897	.04815	-.474	.45010	.04813	-.557	.45009	.04813	-.608
21	.50039	.04649	-.417	.49927	.04652	-.532	.50024	.04649	-.605	.50020	.04648	-.663
20	.55025	.04394	-.453	.54927	.04398	-.561	.55042	.04392	-.627	.55033	.04393	-.715
19	.60029	.04075	-.511	.59931	.04083	-.575	.60071	.04073	-.658	.60018	.04078	-.750
18	.65032	.03711	-.559	.64917	.03719	-.598	.65326	.03711	-.676	.65015	.03711	-.273
17	.71026	.03219	-.578	.70897	.03229	-.602	.71034	.03218	-.405	.70977	.03222	-.175
16	.78026	.02561	-.413	.77912	.02572	-.190	.78008	.02563	-.101	.78012	.02562	-.095
15	.85021	.01814	-.094	.84903	.01826	-.009	.85001	.01815	.004	.85010	.01815	.001
14	.92027	.01021	.051	.91929	.01032	.099	.92012	.01023	.103	.92035	.01023	.099
13	.98518	.00265	.165	.98387	.00283	.187	.98611	.00251	.194	.98498	.00267	.177

	SECTION 5			SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	.165	.94953	-.00734	.169	.94946	-.00735	.155
14	.84956	-.01822	.084	.84936	-.01823	.089	.84958	-.01821	.085
13	.75003	-.02851	-.025	.74963	-.02854	.033	.75002	-.02850	.043
12	.64988	-.03713	-.345	.64950	-.03714	-.118	.64957	-.03715	-.027
11	.54983	-.04397	-.593	.54955	-.04396	-.613	.54967	-.04398	-.586
10	.44990	-.04814	-.592	.44998	-.04814	-.558	.44970	-.04816	-.527
9	.35016	-.04880	-.541	.34990	-.04880	-.522	.34973	-.04879	-.484
8	.25012	-.04646	-.411	.24997	-.04645	-.495	.24976	-.04645	-.459
7	.15054	-.04081	-.287	.15016	-.04078	-.447	.14996	-.04076	-.471
6	.10029	-.03625	-.251	.10017	-.03624	-.335	.10039	-.03627	-.512
5	.06550	-.03203	-.310	.06521	-.03198	-.296	.06536	-.03200	-.466
4	.04030	-.02788	-.311	.03999	-.02803	-.361	.04025	-.02813	-.513
3	.02030	-.02282	-.302	.01985	-.02268	-.322	.01985	-.02266	-.429
2	.00587	-.01316	.421	.00567	-.01305	.379	.00578	-.01313	.224
1	.00057	.00379	.822	.00068	.00449	.794	.00050	.00361	.740
45	.00184	.00727	.154	.00190	.00749	.490	.00193	.00757	.465
44	.00626	.01361	.153	.00623	.01365	.166	.00630	.01368	.072
43	.01228	.01873	-.214	.01209	.01851	-.209	.01265	.01889	-.288
42	.02006	.02272	-.585	.01983	.02268	-.608	.02012	.02277	-.635
41	.02985	.02581	-.763	.02991	.02584	-.785	.02999	.02583	-.840
40	.04966	.02966	-.753	.04972	.02967	-.784	.04995	.02970	-.860
39	.07448	.03322	-.680	.07488	.03329	-.726	.07482	.03327	-.851
38	.09994	.03621	-.612	.09991	.03620	-.679	.09990	.03621	-.814
37	.13986	.03995	-.389	.13933	.03994	-.517	.13976	.03995	-.672
36	.17979	.04286	-.451	.17999	.04272	-.587	.17991	.04288	-.423
35	.22001	.04515	-.503	.22010	.04514	-.604	.21990	.04514	-.466
34	.25964	.04681	-.536	.25996	.04681	-.545	.25976	.04682	-.500
33	.29988	.04800	-.584	.29994	.04799	-.544	.29986	.04800	-.500
32	.33985	.04869	-.634	.34038	.04869	-.550	.33979	.04868	-.514
31	.37986	.04892	-.675	.37994	.04891	-.568	.37976	.04892	-.524
30	.41959	.04867	-.643	.41988	.04867	-.583	.41988	.04868	-.562
29	.45975	.04789	-.649	.45976	.04790	-.610	.45970	.04789	-.571
28	.49960	.04650	-.647	.49994	.04649	-.620	.49987	.04649	-.593
27	.53959	.04452	-.671	.53988	.04450	-.643	.53975	.04452	-.603
26	.57961	.04214	-.405	.57991	.04210	-.313	.57985	.04214	-.246
25	.61987	.03938	-.201	.61970	.03939	-.134	.61976	.03940	-.093
24	.65968	.03637	-.142	.65979	.03635	-.063	.65966	.03636	-.019
23	.69970	.03308	-.097	.69976	.03308	-.014	.69979	.03308	.021
22	.73940	.02949	-.049	.73970	.02946	.022	.73980	.02946	.039
21	.77960	.02567	-.004	.77962	.02567	.052	.77942	.02570	.057
20	.81937	.02157	.041	.81965	.02154	.085	.81985	.02150	.077
19	.85955	.01709	.086	.85980	.01707	.116	.85943	.01712	.097
18	.89940	.01246	.127	.89977	.01241	.147	.89961	.01243	.122
17	.94727	.00755	.169	.94861	.00742	.189	.94959	.00733	.148
16	.98506	.00266	.199	.98462	.00272	.221	.98455	.00274	.173

TABLE B1-26

M6 WING - SURFACE PRESSURE DISTRIBUTIONS TEST 2298

MO = .9180
ALPHA = 2.05
REC = 11.76*10**6

	SECTION 1			SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.083	.94937	-.00735	.101	.94999	-.00737	.132	.94987	-.00751	.140
11	.81597	-.02193	-.158	.81705	-.02182	-.089	.81986	-.02152	-.030	.82223	-.02125	.024
10	.66593	-.03587	-.720	.66698	-.03579	-.481	.67008	-.03553	-.557	.67216	-.03537	-.642
9	.56589	-.04301	-.396	.56705	-.04294	-.481	.57033	-.04272	-.527	.57230	-.04261	-.620
8	.46599	-.04773	-.317	.46706	-.04769	-.390	.47037	-.04760	-.436	.47223	-.04753	-.510
7	.36580	-.04889	-.239	.36735	-.04889	-.302	.37009	-.04890	-.366	.37235	-.04891	-.405
6	.26579	-.04702	-.185	.26705	-.04706	-.224	.27010	-.04716	-.262	.27230	-.04723	-.300
5	.16594	-.04194	-.119	.16699	-.04202	-.173	.17010	-.04224	-.180	.17242	-.04238	-.203
4	.04993	-.02971	-.100	.04909	-.02958	-.124	.05016	-.02975	-.107	.05017	-.02974	-.131
3	.02002	-.02268	-.152	.01922	-.02242	-.140	.02010	-.02275	-.117	.01999	-.02268	-.134
2	.00593	-.01333	.499	.00520	-.01261	.498	.00591	-.01326	.514	.00611	-.01355	.498
1	.00034	.00292	.860	.00031	.00277	.847	.00042	.00317	.829	.00000	.00000	.825
34	.00216	.00802	.591	.00108	.00553	.553	.00222	.00806	.504	.00210	.00787	.489
33	.00566	.01592	.052	.00759	.01531	-.011	.03914	.01640	-.064	.00893	.01619	-.058
32	.02037	.02285	-.447	.01906	.02232	-.560	.02036	.02273	-.601	.02012	.02276	-.658
31	.03525	.02701	-.780	.03402	.02674	-.819	.03508	.02698	-.854	.03530	.02701	-.875
30	.06036	.03130	-.327	.05911	.03113	-.776	.05022	.03128	-.906	.06011	.03127	-.912
29	.09959	.03617	-.336	.09913	.03613	-.317	.10329	.03626	-.714	.10019	.03623	-.728
28	.15037	.04080	-.303	.14927	.04071	-.375	.15032	.04078	-.411	.15024	.04078	-.680
27	.20044	.04413	-.339	.19909	.04405	-.411	.20029	.04411	-.428	.20016	.04410	-.587
26	.25039	.04647	-.361	.25080	.04649	-.435	.25024	.04647	-.471	.25021	.04647	-.470
25	.30050	.04800	-.350	.29925	.04798	-.435	.30008	.04800	-.513	.30021	.04799	-.526
24	.35050	.04879	-.380	.34927	.04878	-.453	.35024	.04879	-.542	.35015	.04879	-.576
23	.40047	.04886	-.392	.39931	.04886	-.493	.40037	.04886	-.555	.39977	.04885	-.608
22	.45030	.04812	-.425	.44397	.04815	-.507	.45010	.04813	-.602	.45009	.04813	-.653
21	.50039	.04648	-.444	.49927	.04652	-.562	.50024	.04649	-.655	.50020	.04648	-.686
20	.55025	.04394	-.471	.54927	.04398	-.591	.55042	.04392	-.666	.55033	.04393	-.743
19	.60029	.04075	-.533	.59931	.04083	-.605	.60071	.04073	-.686	.60018	.04078	-.528
18	.65032	.03711	-.584	.64917	.03719	-.625	.65026	.03711	-.703	.65015	.03711	-.231
17	.71026	.03219	-.611	.70897	.03229	-.629	.71034	.03218	-.258	.70977	.03222	-.163
16	.78026	.02561	-.425	.77912	.02572	-.173	.78008	.02563	-.101	.78012	.02562	-.085
15	.85021	.01814	-.097	.84903	.01826	-.017	.85001	.01815	-.009	.85010	.01815	.005
14	.92027	.01021	.051	.91929	.01032	.082	.92012	.01023	.079	.92005	.01023	.085
13	.98519	.00265	.161	.98387	.00283	.167	.98611	.00251	.170	.98498	.00267	.150

	SECTION 5			SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	.145	.94953	-.00734	.154	.94946	-.00735	.132
14	.84954	-.01822	.073	.84934	-.01823	.071	.84958	-.01821	.061
13	.75003	-.02851	-.006	.74967	-.02854	.029	.75002	-.02850	.024
12	.64988	-.03713	-.339	.64980	-.03714	-.089	.64957	-.03715	-.006
11	.54993	-.04397	-.566	.54955	-.04396	-.619	.54967	-.04393	-.590
10	.44990	-.04814	-.566	.44998	-.04814	-.567	.44970	-.04815	-.549
9	.35016	-.04880	-.502	.34990	-.04880	-.506	.34973	-.04879	-.506
8	.25012	-.04646	-.370	.24997	-.04645	-.459	.24976	-.04645	-.443
7	.15054	-.04081	-.231	.15016	-.04078	-.391	.14996	-.04076	-.433
6	.10029	-.03625	-.184	.10019	-.03624	-.289	.10039	-.03627	-.467
5	.06550	-.03203	-.194	.06521	-.03198	-.218	.06536	-.03200	-.416
4	.04030	-.02788	-.193	.03999	-.02803	-.237	.04025	-.02813	-.401
3	.02030	-.02282	-.169	.01955	-.02268	-.204	.01985	-.02266	-.327
2	.00587	-.01314	.489	.00567	-.01305	.443	.00578	-.01313	.272
1	.00057	.00379	.806	.00068	.00449	.776	.00050	.00361	.725
45	.00184	.00727	.076	.00193	.00749	.429	.00193	.00757	.407
44	.00626	.01361	.077	.00623	.01365	.095	.00630	.01368	.001
43	.01228	.01873	-.292	.01207	.01851	-.290	.01265	.01889	-.362
42	.02006	.02277	-.664	.01983	.02268	-.674	.02012	.02277	-.704
41	.02988	.02581	-.868	.02999	.02584	-.864	.02999	.02583	-.911
40	.04966	.02966	-.850	.04972	.02967	-.877	.04995	.02970	-.947
39	.07449	.03322	-.790	.07488	.03329	-.837	.07482	.03327	-.941
38	.09994	.03621	-.749	.09991	.03620	-.794	.09990	.03621	-.911
37	.13986	.03995	-.716	.13983	.03994	-.802	.13976	.03995	-.771
36	.17979	.04286	-.697	.17999	.04272	-.824	.17991	.04288	-.680
35	.22001	.04515	-.699	.22010	.04514	-.809	.21990	.04514	-.640
34	.25944	.04681	-.615	.25996	.04681	-.704	.25976	.04682	-.625
33	.29989	.04800	-.566	.29994	.04799	-.612	.29986	.04800	-.600
32	.33995	.04869	-.634	.34008	.04869	-.473	.33979	.04868	-.440
31	.37986	.04892	-.696	.37994	.04891	-.511	.37976	.04892	-.463
30	.41959	.04867	-.676	.41983	.04867	-.546	.41988	.04868	-.529
29	.45975	.04789	-.664	.45976	.04790	-.591	.45970	.04789	-.557
28	.49960	.04650	-.659	.49994	.04649	-.616	.49987	.04649	-.591
27	.53959	.04452	-.534	.53988	.04450	-.573	.53975	.04452	-.373
26	.57961	.04214	-.251	.57991	.04210	-.191	.57985	.04214	-.216
25	.61987	.03938	-.176	.61970	.03939	-.097	.61976	.03940	-.128
24	.65968	.03637	-.128	.65979	.03635	-.047	.65966	.03636	-.044
23	.69970	.03308	-.084	.69976	.03308	-.010	.69979	.03308	-.001
22	.73940	.02949	-.043	.73970	.02946	.019	.73980	.02946	.013
21	.77960	.02567	-.003	.77962	.02567	.045	.77942	.02570	.017
20	.81977	.02157	.040	.81965	.02154	.077	.81985	.02150	.025
19	.85955	.01709	.078	.85980	.01707	.105	.85943	.01712	.029
18	.89940	.01246	.112	.89977	.01241	.134	.89961	.01243	.042
17	.94727	.00755	.152	.94861	.00742	.178	.94959	.00733	.056
16	.98506	.00266	.191	.98467	.00272	.217	.98455	.00274	.087

TABLE B1- 27

M6 WING - SURFACE PRESSURE DISTRIBUTIONS TEST 2299

MO = .9190
ALPHA = 3.07
REC = 11.77*10**6

	SECTION 1			SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.063	.94937	-.00735	.081	.94999	-.00737	.092	.94937	-.00731	.103
11	.81597	-.02193	-.173	.81705	-.02182	-.103	.81986	-.02152	-.074	.82223	-.02125	-.004
10	.66593	-.03587	-.289	.66698	-.03579	-.344	.67008	-.03553	-.490	.67216	-.03537	-.608
9	.56588	-.04301	-.362	.56705	-.04294	-.429	.57033	-.04272	-.488	.57230	-.04261	-.582
8	.46599	-.04773	-.286	.46705	-.04769	-.349	.47037	-.04760	-.398	.47223	-.04753	-.471
7	.36590	-.04889	-.196	.36705	-.04889	-.253	.37009	-.04890	-.323	.37235	-.04891	-.360
6	.26579	-.04702	-.140	.26705	-.04706	-.172	.27010	-.04716	-.209	.27230	-.04723	-.251
5	.16594	-.04194	-.063	.16699	-.04202	-.111	.17010	-.04224	-.121	.17242	-.04239	-.144
4	.04993	-.02971	-.019	.04909	-.02958	-.032	.05016	-.02975	-.011	.05017	-.02974	-.036
3	.02002	-.02268	-.027	.01922	-.02242	-.008	.02010	-.02275	.007	.01999	-.02268	-.002
2	.00593	-.01333	.570	.00520	-.01261	.571	.00591	-.01526	.585	.00611	-.01355	.569
1	.00034	.00292	.849	.00031	.00277	.831	.00042	.00317	.810	.00000	.00000	.809
34	.00216	.00902	.544	.00108	.00553	.495	.00222	.00806	.446	.00210	.00787	.428
33	.00966	.01592	-.015	.00789	.01531	-.084	.00914	.01640	-.137	.00893	.01619	-.129
32	.02937	.02285	-.510	.01906	.02232	-.619	.02036	.02273	-.673	.02012	.02276	-.722
31	.03525	.02701	-.850	.03402	.02674	-.882	.03308	.02698	-.917	.03550	.02701	-.935
30	.06056	.03130	-.769	.05911	.03113	-.857	.06022	.03128	-.887	.06011	.03127	-.497
29	.09959	.03617	-.385	.09913	.03613	-.748	.10029	.03626	-.809	.10019	.03623	-.317
28	.15037	.04080	-.426	.14927	.04071	-.532	.15032	.04078	-.756	.15024	.04078	-.782
27	.20044	.04413	-.359	.19909	.04405	-.423	.20029	.04411	-.728	.20016	.04410	-.769
26	.25039	.04647	-.420	.25080	.04649	-.465	.25024	.04647	-.618	.25021	.04647	-.764
25	.30050	.04800	-.388	.29925	.04798	-.507	.30008	.04800	-.505	.30021	.04799	-.759
24	.35050	.04879	-.417	.34927	.04878	-.484	.35024	.04879	-.563	.35015	.04879	-.751
23	.40047	.04886	-.432	.39931	.04886	-.531	.40037	.04886	-.607	.39977	.04885	-.591
22	.45030	.04812	-.463	.44897	.04815	-.551	.45010	.04813	-.621	.45009	.04813	-.648
21	.50039	.04648	-.476	.49927	.04652	-.590	.50024	.04649	-.675	.50020	.04649	-.711
20	.55025	.04394	-.487	.54927	.04398	-.615	.55042	.04392	-.697	.55033	.04393	-.763
19	.60029	.04075	-.547	.59931	.04083	-.627	.60071	.04075	-.719	.60018	.04078	-.530
18	.65032	.03711	-.600	.64917	.03719	-.644	.65026	.03711	-.721	.65015	.03711	-.214
17	.71026	.03219	-.632	.70897	.03229	-.646	.71034	.03218	-.210	.70977	.03222	-.154
16	.78026	.02561	-.481	.77912	.02572	-.172	.78008	.02563	-.100	.78012	.02562	-.086
15	.85021	.01814	-.115	.84903	.01826	-.039	.85001	.01815	-.027	.85010	.01815	-.016
14	.92027	.01021	.039	.91929	.01032	.047	.92012	.01023	.046	.92005	.01023	.052
13	.98519	.00265	.146	.98387	.00283	.116	.98611	.00251	.117	.98498	.00267	.111

	SECTION 5			SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	.117	.94953	-.00734	.124	.94946	-.00735	.107
14	.84954	-.01822	.051	.84934	-.01823	.054	.84958	-.01821	.040
13	.75003	-.02851	-.033	.74963	-.02854	.014	.75002	-.02850	.014
12	.64988	-.03713	-.611	.64980	-.03714	-.216	.64957	-.03715	-.072
11	.54983	-.04397	-.525	.54955	-.04396	-.602	.54967	-.04398	-.606
10	.44990	-.04814	-.525	.44998	-.04814	-.546	.44970	-.04816	-.541
9	.35016	-.04880	-.454	.34990	-.04880	-.477	.34973	-.04879	-.495
8	.25012	-.04646	-.321	.24997	-.04645	-.420	.24976	-.04645	-.420
7	.15054	-.04081	-.176	.15016	-.04078	-.330	.14996	-.04076	-.389
6	.10029	-.03625	-.114	.10019	-.03624	-.223	.10039	-.03627	-.408
5	.06550	-.03203	-.088	.06521	-.03198	-.146	.06536	-.03200	-.343
4	.04030	-.02788	-.089	.03999	-.02803	-.152	.04025	-.02813	-.314
3	.02030	-.02282	-.048	.01985	-.02268	-.087	.01985	-.02266	-.213
2	.00587	-.01314	.555	.00567	-.01305	.507	.00578	-.01313	.358
1	.00057	.00379	.785	.00068	.00449	.755	.00050	.00361	.705
45	.00194	.00727	.003	.00190	.00749	.367	.00193	.00757	.348
44	.00424	.01361	.004	.00623	.01365	.026	.00630	.01368	-.064
43	.01229	.01873	-.356	.01209	.01851	-.367	.01265	.01889	-.426
42	.02006	.02272	-.728	.01983	.02268	-.727	.02012	.02277	-.759
41	.02988	.02581	-.912	.02991	.02584	-.922	.02999	.02583	-.967
40	.04966	.02966	-.922	.04972	.02967	-.950	.04995	.02970	-1.013
39	.07445	.03322	-.876	.07488	.03329	-.915	.07482	.03327	-1.013
38	.09994	.03621	-.838	.09991	.03620	-.878	.09990	.03621	-.977
37	.13986	.03995	-.818	.13983	.03994	-.884	.13976	.03995	-.825
36	.17979	.04286	-.791	.17999	.04272	-.909	.17991	.04288	-.741
35	.22001	.04515	-.801	.22010	.04514	-.907	.21990	.04514	-.712
34	.25964	.04681	-.803	.25996	.04681	-.783	.25976	.04682	-.703
33	.29988	.04800	-.820	.29994	.04799	-.744	.29986	.04800	-.684
32	.33995	.04869	-.848	.34008	.04869	-.729	.33979	.04868	-.681
31	.37986	.04892	-.880	.37994	.04891	-.729	.37976	.04892	-.683
30	.41959	.04867	-.886	.41988	.04867	-.729	.41988	.04868	-.715
29	.45975	.04789	-.693	.45976	.04790	-.698	.45970	.04789	-.714
28	.49960	.04650	-.369	.49994	.04649	-.347	.49987	.04649	-.478
27	.53959	.04452	-.284	.53988	.04450	-.255	.53975	.04452	-.360
26	.57961	.04214	-.239	.57991	.04210	-.205	.57985	.04214	-.274
25	.61987	.03938	-.203	.61970	.03939	-.159	.61976	.03940	-.155
24	.65968	.03637	-.163	.65979	.03635	-.112	.65966	.03636	-.059
23	.69970	.03308	-.119	.69976	.03308	-.064	.69979	.03308	.005
22	.73940	.02949	-.075	.73970	.02946	-.025	.73980	.02946	.018
21	.77960	.02567	-.037	.77962	.02567	.011	.77942	.02570	.008
20	.81937	.02157	.006	.81965	.02154	.048	.81985	.02150	-.001
19	.85955	.01709	.043	.85980	.01707	.075	.85943	.01712	-.006
18	.89940	.01246	.081	.89977	.01241	.103	.89961	.01243	.003
17	.94727	.00755	.119	.94861	.00742	.137	.94959	.00733	.021
16	.98506	.00266	.156	.98462	.00272	.171	.98455	.00274	.069

TABLE B1- 28

M6 WING - SURFACE PRESSURE DISTRIBUTIONS TEST 2583

MO = .9262
ALPHA = 4.09
REC = 11.73*10**6

	SECTION 1			SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.048	.94937	-.00735	.043	.94999	-.00737	.045	.94987	-.00731	.025
11	.81597	-.02193	-.205	.81705	-.02182	-.139	.81986	-.02152	-.148	.82223	-.02125	-.071
10	.66593	-.03587	-.247	.66698	-.03579	-.303	.67008	-.03553	-.394	.67216	-.03537	-.549
9	.56598	-.04301	-.311	.56705	-.04294	-.363	.57033	-.04272	-.436	.57230	-.04261	-.533
8	.46599	-.04773	-.247	.46726	-.04769	-.314	.47037	-.04760	-.351	.47220	-.04753	-.426
7	.36580	-.04889	-.150	.36705	-.04889	-.205	.37009	-.04890	-.267	.37235	-.04891	-.308
6	.26579	-.04702	-.088	.26705	-.04706	-.122	.27010	-.04715	-.152	.27230	-.04723	-.193
5	.16594	-.04194	-.007	.16699	-.04202	-.051	.17010	-.04224	-.058	.17242	-.04238	-.081
4	.04993	-.02971	.075	.04909	-.02958	.057	.05016	-.02975	.078	.05017	-.02974	.060
3	.02002	-.02268	.093	.01922	-.02242	.114	.02010	-.02275	.129	.01999	-.02268	.120
2	.00593	-.01333	.637	.00523	-.01261	.645	.00591	-.01326	.656	.00611	-.01355	.644
1	.00034	.00292	.938	.00031	.00277	.823	.00042	.00317	.795	.00000	.00000	.796
34	.00216	.00802	.494	.00108	.00553	.454	.00222	.00806	.593	.00210	.00787	.393
33	.00966	.01592	-.071	.00789	.01531	-.135	.00914	.01640	-.171	.00893	.01619	-.216
32	.02037	.02285	-.555	.01906	.02232	-.667	.02036	.02273	-.711	.02012	.02276	-.754
31	.03525	.02701	-.889	.03402	.02674	-.910	.03508	.02693	-.954	.03530	.02701	-.971
30	.06036	.03130	-.855	.05911	.03113	-.902	.06022	.03128	-.923	.06011	.03127	-.942
29	.09959	.03617	-.390	.09913	.03613	-.827	.10029	.03626	-.860	.10019	.03623	-.881
28	.15037	.04080	-.478	.14927	.04071	-.769	.15032	.04078	-.818	.15024	.04078	-.841
27	.20044	.04413	-.517	.19909	.04405	-.742	.20029	.04411	-.803	.20016	.04410	-.830
26	.25039	.04647	-.564	.25080	.04649	-.540	.25024	.04647	-.792	.25021	.04647	-.831
25	.30050	.04800	-.379	.29925	.04798	-.569	.30008	.04800	-.793	.30021	.04799	-.831
24	.35050	.04879	-.418	.34927	.04878	-.581	.35024	.04879	-.797	.35015	.04879	-.844
23	.40047	.04886	-.437	.39931	.04886	-.515	.40037	.04886	-.716	.39977	.04885	-.853
22	.45030	.04812	-.472	.44897	.04815	-.543	.45010	.04813	-.657	.45039	.04813	-.778
21	.50039	.04648	-.487	.49927	.04652	-.599	.50024	.04649	-.699	.50020	.04648	-.451
20	.55025	.04394	-.478	.54927	.04398	-.620	.55042	.04392	-.653	.55033	.04393	-.608
19	.60029	.04075	-.536	.59931	.04083	-.635	.60071	.04073	-.697	.60018	.04078	-.386
18	.65032	.03711	-.583	.64917	.03719	-.633	.65026	.03711	-.605	.65015	.03711	-.359
17	.71076	.03219	-.634	.70897	.03229	-.633	.71034	.03218	-.187	.70977	.03222	-.312
16	.78026	.02561	-.643	.77912	.02572	-.170	.78008	.02563	-.106	.78012	.02562	-.262
15	.85021	.01814	-.140	.84903	.01826	-.045	.85001	.01815	-.051	.85010	.01815	-.187
14	.92027	.01021	.021	.91929	.01032	.020	.92012	.01023	.004	.92005	.01023	-.118
13	.98518	.00265	.131	.98387	.00283	.074	.98611	.00251	.061	.98498	.00267	-.044

	SECTION 5			SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	-.009	.94953	-.00734	-.006	.94946	-.00735	-.009
14	.84954	-.01822	-.004	.84934	-.01823	-.005	.84958	-.01821	-.022
13	.75003	-.02851	-.117	.74963	-.02854	-.030	.75002	-.02850	-.022
12	.64988	-.03713	-.580	.64980	-.03714	-.594	.64957	-.03715	-.376
11	.54983	-.04397	-.476	.54955	-.04396	-.574	.54967	-.04398	-.591
10	.44990	-.04814	-.476	.44998	-.04814	-.509	.44970	-.04816	-.520
9	.35016	-.04880	-.392	.34990	-.04880	-.428	.34973	-.04879	-.459
8	.25012	-.04646	-.264	.24997	-.04645	-.367	.24976	-.04645	-.376
7	.15054	-.04081	-.113	.15016	-.04078	-.271	.14996	-.04076	-.339
6	.10029	-.03625	-.043	.10019	-.03624	-.151	.10039	-.03627	-.346
5	.06550	-.03203	.007	.06521	-.03198	-.066	.06536	-.03200	-.263
4	.04030	-.02788	.008	.03999	-.02803	-.066	.04025	-.02813	-.217
3	.02030	-.02282	.077	.01985	-.02268	.031	.01985	-.02266	-.100
2	.00587	-.01314	.624	.00567	-.01305	.554	.00578	-.01313	.469
1	.00057	.00379	.773	.00068	.00449	.737	.00050	.00361	.691
45	.00184	.00727	-.050	.00190	.00749	.344	.00193	.00757	.305
44	.00626	.01361	-.051	.00623	.01365	-.037	.00630	.01368	-.101
43	.01228	.01873	-.398	.01209	.01851	-.410	.01265	.01889	-.465
42	.02006	.02272	-.765	.01983	.02268	-.739	.02012	.02277	-.797
41	.02988	.02581	-.946	.02991	.02584	-.951	.02999	.02583	-.996
40	.04966	.02966	-.966	.04972	.02967	-.990	.04995	.02970	-1.048
39	.07448	.03322	-.922	.07488	.03329	-.955	.07482	.03327	-1.050
38	.09994	.03621	-.890	.09991	.03620	-.923	.09990	.03621	-1.009
37	.13986	.03995	-.871	.13983	.03994	-.930	.13976	.03995	-.849
36	.17979	.04286	-.852	.17999	.04272	-.955	.17991	.04288	-.765
35	.22001	.04515	-.857	.22010	.04514	-.944	.21990	.04514	-.742
34	.25964	.04681	-.861	.25996	.04681	-.756	.25976	.04682	-.731
33	.29998	.04800	-.868	.29994	.04799	-.553	.29986	.04800	-.621
32	.33985	.04869	-.658	.34008	.04869	-.472	.33979	.04869	-.582
31	.37986	.04892	-.418	.37994	.04891	-.413	.37976	.04892	-.470
30	.41959	.04867	-.399	.41988	.04867	-.383	.41988	.04868	-.408
29	.45975	.04789	-.395	.45976	.04790	-.356	.45970	.04789	-.365
28	.49960	.04650	-.360	.49994	.04649	-.314	.49987	.04649	-.289
27	.53959	.04452	-.351	.53988	.04450	-.296	.53975	.04452	-.265
26	.57961	.04214	-.326	.57991	.04210	-.263	.57985	.04214	-.236
25	.61987	.03939	-.303	.61970	.03939	-.232	.61976	.03940	-.210
24	.65963	.03637	-.286	.65979	.03635	-.222	.65966	.03636	-.198
23	.69970	.03308	-.264	.69976	.03308	-.207	.69979	.03308	-.168
22	.73960	.02949	-.239	.73970	.02946	-.178	.73986	.02946	-.135
21	.77960	.02567	-.219	.77962	.02567	-.163	.77942	.02570	-.116
20	.81937	.02157	-.193	.81965	.02154	-.146	.31985	.02150	-.102
19	.85955	.01709	-.174	.85980	.01707	-.131	.85943	.01712	-.105
18	.89940	.01246	-.162	.89977	.01241	-.117	.89961	.01243	-.098
17	.94727	.00755	-.108	.94861	.00742	-.081	.94959	.00735	-.086
16	.98506	.00266	-.085	.98462	.00272	-.068	.98455	.00274	-.063

TABLE B1- 29

M6 WING - SURFACE PRESSURE DISTRIBUTIONS TEST 2584

MO = .9181
ALPHA = 5.06
REC = 11.69x10**6

	SECTION 1			SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.049	.94937	-.00735	.046	.94999	-.00737	.053	.94937	-.00731	-.042
11	.81597	-.02193	-.145	.81705	-.02182	-.109	.81986	-.02152	-.111	.82223	-.02125	-.089
10	.66593	-.03587	-.199	.66698	-.03579	-.232	.67008	-.03553	-.298	.67216	-.03537	-.409
9	.56588	-.04501	-.221	.56705	-.04294	-.270	.57033	-.04272	-.328	.57230	-.04261	-.452
8	.46599	-.04773	-.213	.46706	-.04769	-.250	.47037	-.04760	-.307	.47220	-.04753	-.390
7	.36580	-.04889	-.120	.36705	-.04889	-.161	.37009	-.04890	-.219	.37235	-.04891	-.269
6	.26579	-.04702	-.050	.26735	-.04706	-.075	.27010	-.04716	-.106	.27230	-.04723	-.150
5	.16594	-.04194	.034	.16699	-.04202	-.001	.17010	-.04224	-.005	.17242	-.04238	-.033
4	.04993	-.02971	.148	.04909	-.02958	.138	.05016	-.02975	.154	.05017	-.02974	.132
3	.02002	-.02268	.192	.01922	-.02242	.212	.02010	-.02275	.232	.01999	-.02268	.223
2	.00593	-.01335	.694	.00520	-.01261	.700	.00591	-.01326	.707	.00611	-.01355	.695
1	.00034	.00292	.809	.00031	.00277	.788	.00042	.00317	.758	.00000	.00000	.760
34	.00216	.00802	.431	.00108	.00553	.381	.00222	.00806	.317	.00210	.00787	.316
33	.00866	.01592	-.155	.00789	.01531	-.221	.00914	.01640	-.261	.00893	.01619	-.300
32	.02037	.02285	-.633	.01906	.02232	-.751	.02036	.02273	-.794	.02012	.02276	-.840
31	.03525	.02701	-.961	.03432	.02674	-.989	.03508	.02698	-1.036	.03550	.02701	-1.051
30	.06036	.03130	-.942	.05911	.03113	-.991	.06022	.03128	-1.013	.06011	.03127	-1.028
29	.09959	.03617	-.741	.09913	.03613	-.921	.10029	.03626	-.952	.10019	.03623	-.966
28	.15037	.04080	-.514	.14927	.04071	-.862	.15032	.04078	-.913	.15024	.04078	-.936
27	.20044	.04413	-.563	.19939	.04405	-.849	.20029	.04411	-.896	.20016	.04410	-.924
26	.25039	.04647	-.609	.25080	.04649	-.820	.25024	.04647	-.886	.25021	.04647	-.919
25	.30050	.04800	-.650	.29925	.04798	-.625	.30008	.04800	-.887	.30021	.04799	-.921
24	.35050	.04879	-.452	.34927	.04878	-.650	.35024	.04879	-.895	.35015	.04879	-.929
23	.40047	.04886	-.489	.39931	.04886	-.674	.40037	.04886	-.904	.39977	.04885	-.626
22	.45030	.04812	-.518	.44897	.04815	-.624	.45010	.04813	-.910	.45039	.04813	-.465
21	.50039	.04648	-.539	.49927	.04652	-.631	.50024	.04649	-.893	.50020	.04646	-.435
20	.55025	.04394	-.511	.54927	.04398	-.658	.55042	.04392	-.731	.55033	.04393	-.415
19	.60029	.04075	-.565	.59931	.04083	-.676	.60071	.04073	-.480	.60018	.04078	-.397
18	.65032	.03711	-.616	.64917	.03719	-.676	.65026	.03711	-.372	.65015	.03711	-.380
17	.71026	.03219	-.662	.70897	.03229	-.632	.71034	.03218	-.285	.70977	.03222	-.350
16	.78026	.02561	-.566	.77912	.02572	-.138	.78008	.02563	-.186	.78012	.02562	-.317
15	.85021	.01814	-.125	.84903	.01826	-.039	.85001	.01815	-.085	.85010	.01815	-.266
14	.92037	.01021	.024	.91929	.01032	.026	.92012	.01023	.017	.92005	.01023	-.221
13	.98518	.00265	.127	.98387	.00283	.080	.98611	.00251	.089	.98498	.00267	-.150

	SECTION 5			SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	-.077	.94953	-.00734	-.066	.94946	-.00735	-.071
14	.84954	-.01822	-.071	.84934	-.01823	-.077	.84958	-.01821	-.092
13	.75003	-.02951	-.086	.74963	-.02854	-.068	.75002	-.02850	-.094
12	.64989	-.03713	-.481	.64980	-.03714	-.198	.64957	-.03715	-.087
11	.54983	-.04397	-.442	.54955	-.04396	-.551	.54967	-.04398	-.560
10	.44990	-.04814	-.443	.44998	-.04814	-.489	.44970	-.04816	-.513
9	.35016	-.04880	-.343	.34993	-.04880	-.398	.34973	-.04879	-.442
8	.25012	-.04646	-.224	.24997	-.04645	-.331	.24976	-.04645	-.360
7	.15054	-.04081	-.066	.15015	-.04078	-.227	.14996	-.04076	-.306
6	.10029	-.03625	.012	.10019	-.03624	-.106	.10039	-.03627	-.302
5	.06550	-.03203	.083	.06521	-.03198	-.011	.06536	-.03200	-.228
4	.04030	-.02788	.083	.03999	-.02803	.011	.04025	-.02813	-.154
3	.02030	-.02282	.176	.01985	-.02268	.122	.01985	-.02266	-.020
2	.00587	-.01314	.671	.00567	-.01305	.580	.00578	-.01313	.476
1	.00057	.00379	.732	.00068	.00449	.698	.00050	.00361	.653
45	.00184	.00727	-.140	.00193	.00749	.265	.00193	.00757	.231
44	.00626	.01361	-.139	.00623	.01365	-.128	.00630	.01368	-.188
43	.01228	.01873	-.481	.01209	.01851	-.501	.01265	.01889	-.548
42	.02006	.02272	-.846	.01983	.02268	-.827	.02012	.02277	-.876
41	.02989	.02581	-1.024	.02991	.02584	-1.026	.02999	.02583	-1.070
40	.04966	.02966	-1.051	.04972	.02967	-1.071	.04995	.02970	-1.124
39	.07448	.03322	-1.015	.07488	.03329	-1.042	.07482	.03327	-1.126
38	.09994	.03621	-.981	.09991	.03620	-1.011	.09990	.03621	-1.085
37	.13986	.03995	-.961	.13983	.03994	-1.014	.13976	.03995	-.908
36	.17979	.04286	-.943	.17999	.04272	-.864	.17991	.04288	-.726
35	.22001	.04515	-.943	.22010	.04514	-.659	.21990	.04514	-.641
34	.25964	.04681	-.850	.25996	.04681	-.551	.25976	.04682	-.553
33	.29988	.04800	-.604	.29994	.04799	-.501	.29986	.04800	-.477
32	.33985	.04869	-.485	.34008	.04869	-.472	.33979	.04868	-.431
31	.37986	.04892	-.450	.37994	.04891	-.434	.37976	.04892	-.400
30	.41959	.04867	-.437	.41998	.04867	-.401	.41988	.04868	-.385
29	.45975	.04789	-.414	.45976	.04790	-.379	.45970	.04789	-.340
28	.49960	.04650	-.378	.49994	.04649	-.335	.49987	.04649	-.293
27	.53959	.04452	-.375	.53988	.04450	-.320	.53975	.04452	-.290
26	.57961	.04214	-.326	.57991	.04210	-.292	.57985	.04214	-.267
25	.61987	.03938	-.338	.61970	.03939	-.291	.61976	.03940	-.253
24	.65968	.03637	-.303	.65979	.03635	-.255	.65966	.03636	-.222
23	.69970	.03308	-.279	.69976	.03308	-.238	.69979	.03308	-.198
22	.73940	.02969	-.267	.73970	.02946	-.220	.73980	.02946	-.189
21	.77960	.02567	-.252	.77962	.02567	-.214	.77942	.02570	-.198
20	.81937	.02157	-.234	.81965	.02154	-.206	.81985	.02150	-.192
19	.85955	.01709	-.228	.85980	.01707	-.192	.85943	.01712	-.261
18	.89960	.01246	-.196	.89977	.01241	-.173	.89961	.01243	-.181
17	.94727	.00755	-.181	.94861	.00742	-.164	.94959	.00733	-.169
16	.98506	.00266	-.142	.98462	.00272	-.125	.98455	.00274	-.140

TABLE B1- 30

M6 WING - SURFACE PRESSURE DISTRIBUTIONS TEST 2585

MO = .9298
ALPHA = 6.07
REC = 11.71*10**6

	SECTION 1			SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.028	.94937	-.00735	.019	.94999	-.00737	-.043	.94987	-.00731	-.117
11	.81597	-.02193	-.150	.81705	-.02182	-.148	.81986	-.02152	-.205	.82223	-.02125	-.197
10	.66593	-.03587	-.160	.66695	-.03579	-.226	.67008	-.03553	-.304	.67216	-.03537	-.397
9	.56588	-.04301	-.175	.56705	-.04294	-.227	.57033	-.04272	-.283	.57230	-.04261	-.388
8	.46599	-.04773	-.153	.46706	-.04769	-.203	.47037	-.04760	-.253	.47220	-.04753	-.329
7	.36580	-.04889	-.066	.36705	-.04889	-.109	.37009	-.04890	-.165	.37235	-.04891	-.210
6	.26579	-.04702	.006	.26705	-.04706	-.022	.27010	-.04716	-.048	.27230	-.04723	-.090
5	.16594	-.04194	.099	.16699	-.04202	.062	.17010	-.04224	.060	.17242	-.04238	.032
4	.04993	-.02971	.225	.04909	-.02958	.215	.05016	-.02975	.236	.05017	-.02974	.218
3	.02002	-.02268	.310	.01922	-.02242	.320	.02010	-.02275	.336	.01999	-.02268	.330
2	.00593	-.01333	.756	.00520	-.01261	.756	.00591	-.01326	.762	.00611	-.01355	.747
1	.00034	.00292	.794	.00031	.00277	.769	.00042	.00317	.731	.00030	.00000	.736
34	.00216	.00802	.383	.00103	.00553	.335	.00222	.00806	.269	.00210	.00787	.270
33	.00866	.01592	-.196	.00789	.01531	-.269	.00914	.01640	-.310	.00893	.01619	-.342
32	.02037	.02285	-.683	.01906	.02232	-.783	.02036	.02273	-.819	.02012	.02276	-.868
31	.03525	.02701	-.982	.03402	.02674	-1.004	.03508	.02698	-1.053	.03550	.02701	-1.068
30	.06036	.03130	-.973	.05911	.03113	-1.006	.06022	.03128	-1.035	.06011	.03127	-1.049
29	.09959	.03617	-.855	.09913	.03613	-.950	.10029	.03626	-.983	.10019	.03623	-.995
28	.15037	.04080	-.529	.14927	.04071	-.904	.15032	.04078	-.945	.15024	.04078	-.968
27	.20044	.04413	-.565	.19909	.04405	-.889	.20029	.04411	-.932	.20016	.04410	-.958
26	.25039	.04647	-.623	.25080	.04649	-.870	.25024	.04647	-.924	.25021	.04647	-.954
25	.30050	.04800	-.670	.29925	.04798	-.862	.30008	.04800	-.925	.30021	.04799	-.945
24	.35050	.04879	-.676	.34927	.04878	-.695	.35024	.04879	-.932	.35015	.04879	-.656
23	.40047	.04886	-.530	.39931	.04886	-.704	.40037	.04886	-.942	.39977	.04885	-.695
22	.45030	.04812	-.543	.44897	.04815	-.735	.45010	.04813	-.951	.45009	.04813	-.465
21	.50039	.04648	-.565	.49927	.04652	-.783	.50024	.04669	-.916	.50020	.04648	-.447
20	.55025	.04394	-.538	.54927	.04398	-.683	.55042	.04392	-.562	.55033	.04393	-.432
19	.60029	.04075	-.559	.59931	.04083	-.683	.60071	.04073	-.520	.60018	.04078	-.411
18	.65032	.03711	-.607	.64917	.03719	-.691	.65026	.03711	-.497	.65015	.03711	-.385
17	.71026	.03219	-.656	.70897	.03229	-.530	.71034	.03218	-.454	.70977	.03222	-.371
16	.78026	.02561	-.694	.77912	.02572	-.146	.78008	.02563	-.396	.78012	.02562	-.349
15	.85021	.01814	-.174	.84903	.01826	-.069	.85001	.01815	-.316	.85010	.01815	-.319
14	.92027	.01021	-.012	.91929	.01032	-.011	.92012	.01023	-.221	.92005	.01023	-.278
13	.98518	.00265	.096	.98337	.00283	.041	.98611	.00251	-.118	.98498	.00267	-.262

	SECTION 5			SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	-.134	.94953	-.00734	-.132	.94946	-.00735	-.142
14	.84954	-.01822	-.098	.84934	-.01823	-.107	.84958	-.01821	-.140
13	.75003	-.02851	-.274	.74963	-.02854	-.089	.75002	-.02850	-.104
12	.64988	-.03713	-.450	.64980	-.03714	-.456	.64957	-.03715	-.342
11	.54983	-.04397	-.390	.54955	-.04396	-.511	.54967	-.04398	-.524
10	.44990	-.04814	-.390	.44998	-.04814	-.446	.44970	-.04816	-.480
9	.35016	-.04880	-.280	.34993	-.04880	-.351	.34973	-.04879	-.402
8	.25012	-.04646	-.160	.24997	-.04645	-.276	.24976	-.04645	-.318
7	.15054	-.04081	.001	.15016	-.04078	-.155	.14996	-.04076	-.248
6	.10029	-.03625	.083	.10019	-.03624	-.034	.10039	-.03627	-.229
5	.06550	-.03203	.178	.06521	-.03198	.063	.06536	-.03200	-.134
4	.04030	-.02788	.177	.03999	-.02803	.101	.04025	-.02813	-.060
3	.02030	-.02282	.278	.01985	-.02268	.225	.01985	-.02266	.085
2	.00587	-.01314	.725	.00567	-.01305	.655	.00578	-.01313	.561
1	.00057	.00379	.706	.00068	.00449	.671	.00050	.00361	.631
45	.00184	.00727	-.195	.00190	.00749	.222	.00193	.00757	.185
44	.00626	.01361	-.195	.00623	.01365	-.176	.00630	.01368	-.237
43	.01229	.01873	-.520	.01209	.01851	-.535	.01265	.01889	-.581
42	.02006	.02272	-.866	.01983	.02268	-.855	.02012	.02277	-.897
41	.02989	.02581	-1.038	.02991	.02584	-1.042	.02999	.02583	-1.080
40	.04966	.02966	-1.070	.04972	.02967	-1.087	.04995	.02970	-1.135
39	.07449	.03322	-1.038	.07488	.03329	-1.064	.07482	.03327	-1.140
38	.09994	.03621	-1.009	.09991	.03620	-1.035	.09990	.03621	-1.100
37	.13996	.03995	-.991	.13983	.03994	-.988	.13976	.03995	-.855
36	.17979	.04286	-.970	.17999	.04272	-.696	.17991	.04288	-.615
35	.22001	.04515	-.897	.22010	.04514	-.592	.21990	.04514	-.554
34	.25964	.04681	-.624	.25996	.04681	-.542	.25976	.04682	-.497
33	.29988	.04800	-.510	.29994	.04799	-.497	.29986	.04800	-.444
32	.33935	.04869	-.488	.34008	.04869	-.470	.33979	.04868	-.413
31	.37936	.04892	-.461	.37994	.04891	-.432	.37976	.04892	-.392
30	.41959	.04867	-.443	.41988	.04867	-.410	.41988	.04868	-.361
29	.45975	.04789	-.411	.45976	.04790	-.365	.45970	.04789	-.327
28	.49960	.04650	-.406	.49994	.04649	-.355	.49987	.04649	-.325
27	.53959	.04452	-.375	.53988	.04450	-.332	.53975	.04452	-.299
26	.57961	.04214	-.360	.57991	.04210	-.314	.57985	.04214	-.296
25	.61987	.03938	-.357	.61973	.03939	-.307	.61976	.03940	-.295
24	.65968	.03637	-.341	.65979	.03635	-.307	.65966	.03636	-.295
23	.69970	.03308	-.332	.69976	.03308	-.292	.69979	.03308	-.287
22	.73940	.02949	-.304	.73973	.02946	-.290	.73980	.02946	-.277
21	.77960	.02567	-.289	.77962	.02567	-.285	.77942	.02570	-.272
20	.81977	.02157	-.290	.81965	.02154	-.294	.81985	.02150	-.282
19	.85955	.01709	-.270	.85983	.01707	-.284	.85943	.01712	-.276
18	.89940	.01246	-.281	.89977	.01241	-.272	.89961	.01243	-.262
17	.94727	.00755	-.241	.94861	.00742	-.231	.94959	.00733	-.239
16	.99506	.00266	-.229	.98462	.00272	-.216	.98455	.00274	-.223

TABLE B1-31

FIGURE B1-1

SWEPT WING M6

Aspect ratio $A = 3.8$

Taper ratio $\lambda = 0.56$

Sweep angle $\Lambda_{25\%} = 26.7°$

ROWS OF PRESSURE TAPS

N°	y/b	upper	under
1	0.20	23	11
2	0.44	23	11
3	0.65	23	11
4	0.80	23	11
5	0.90	31	14
6	0.95	31	14
7	0.99	31	14

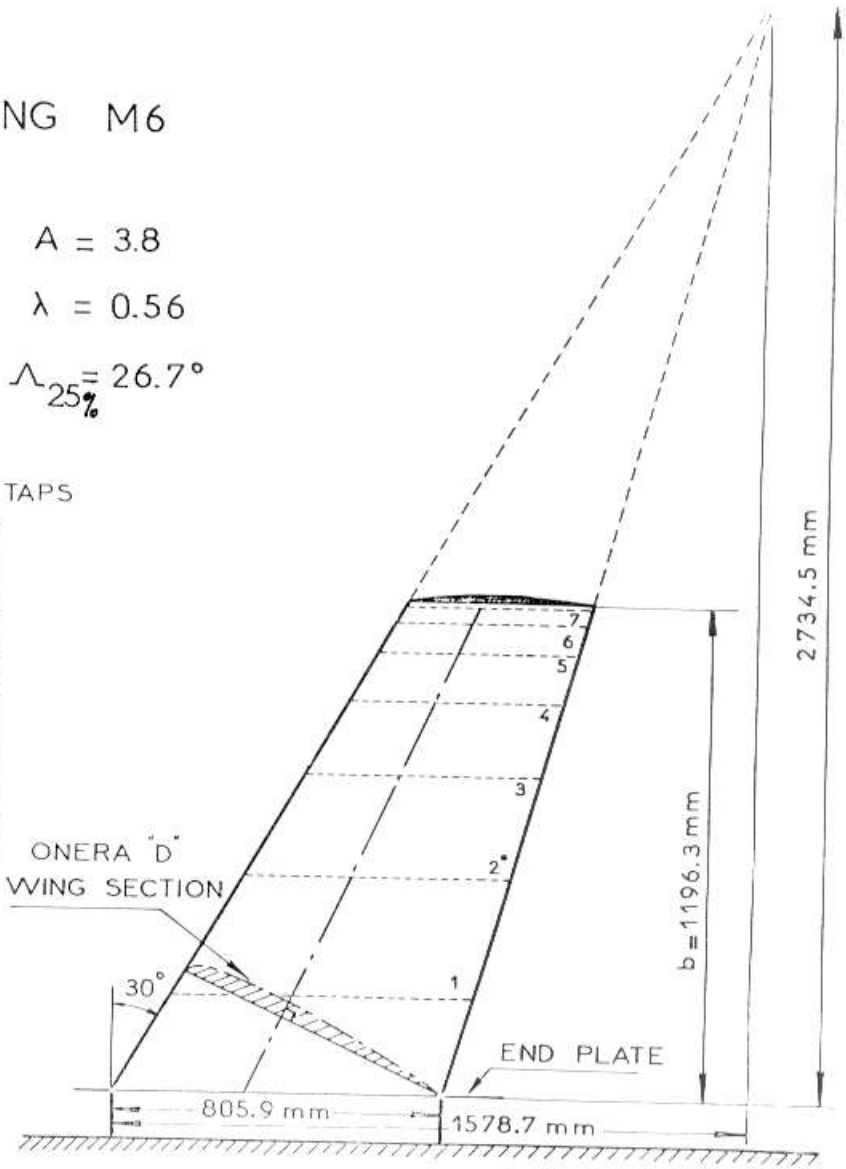


FIGURE B1-2

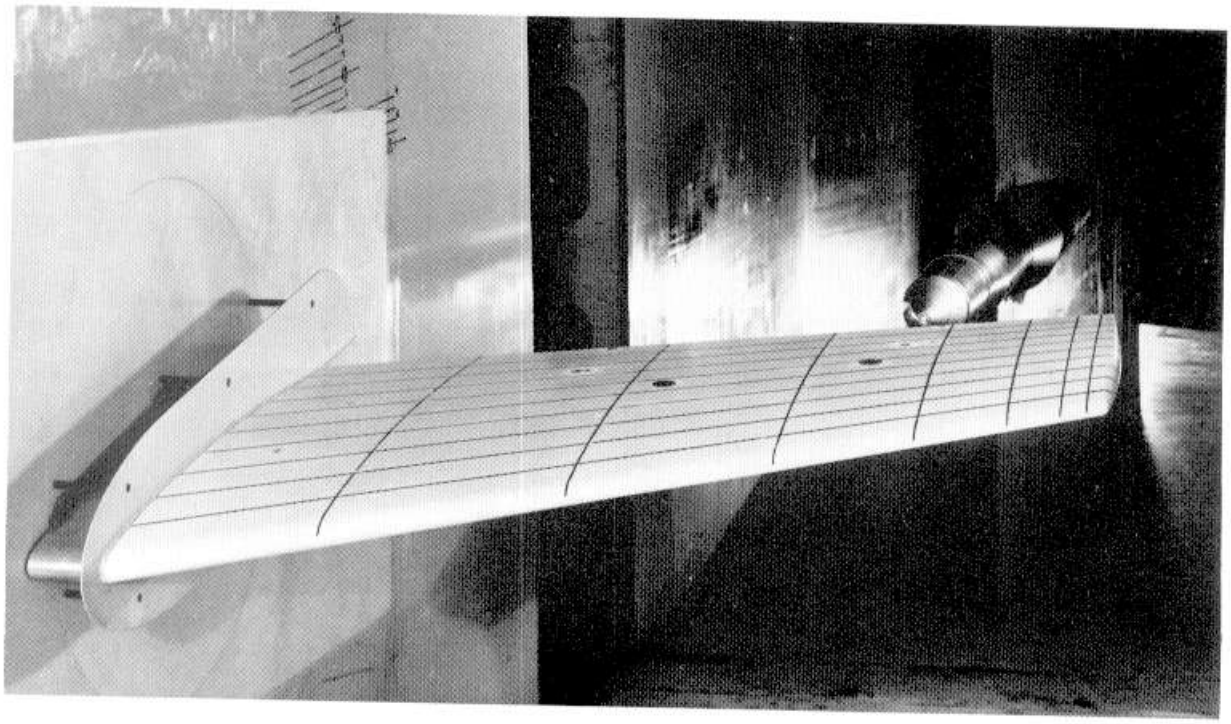


FIGURE B1- 3

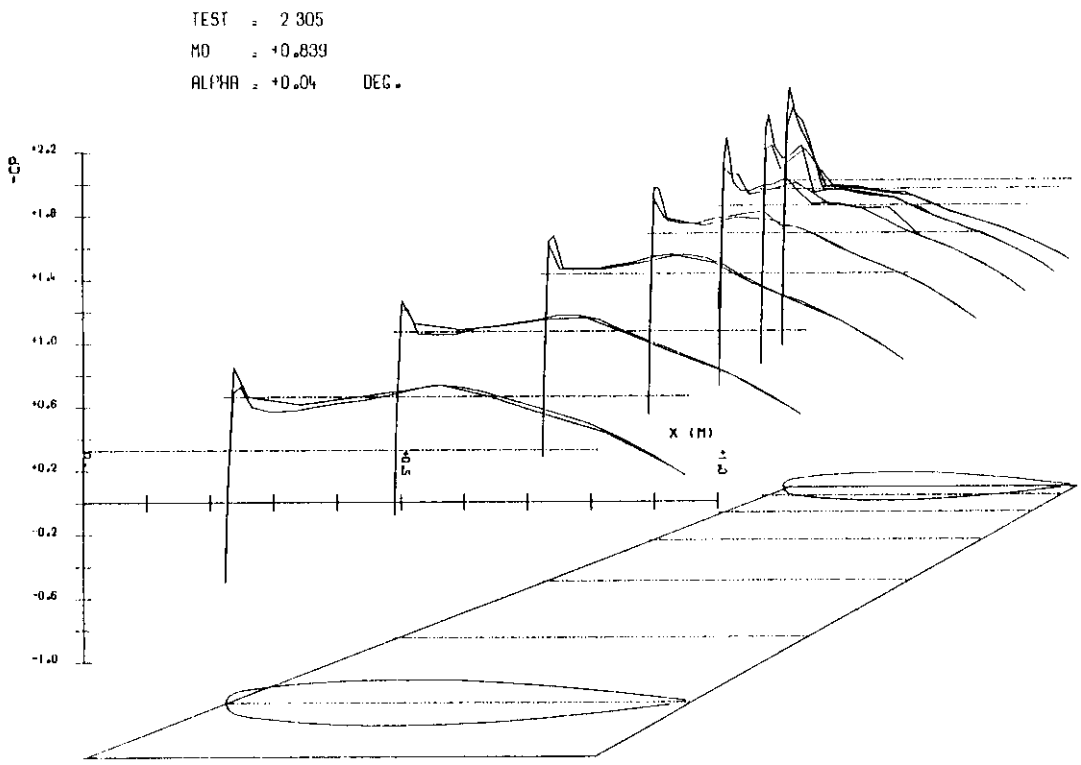


FIGURE B1- 4

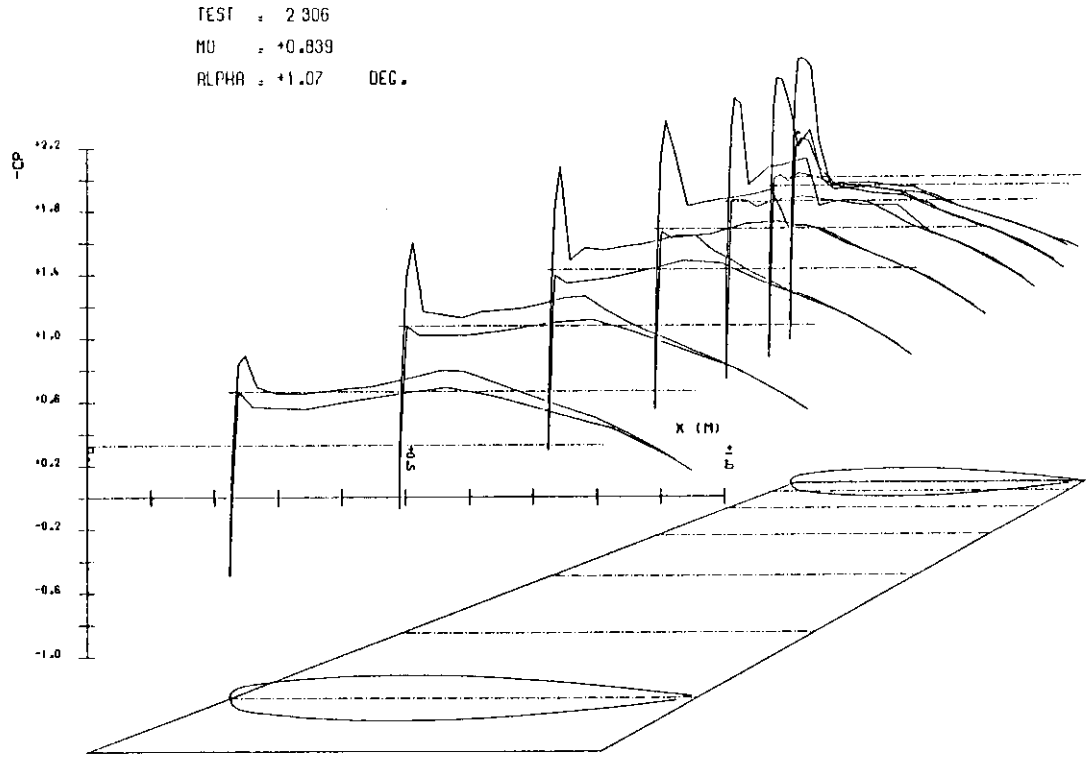


FIGURE B1- 5

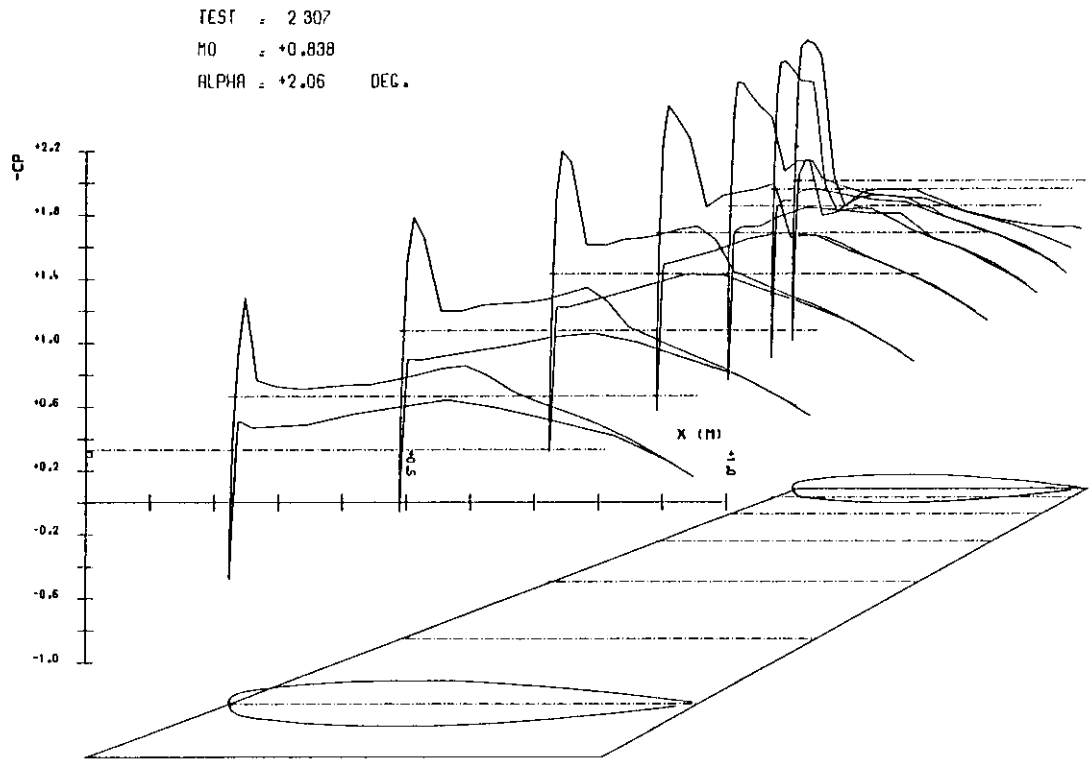


FIGURE B1- 6

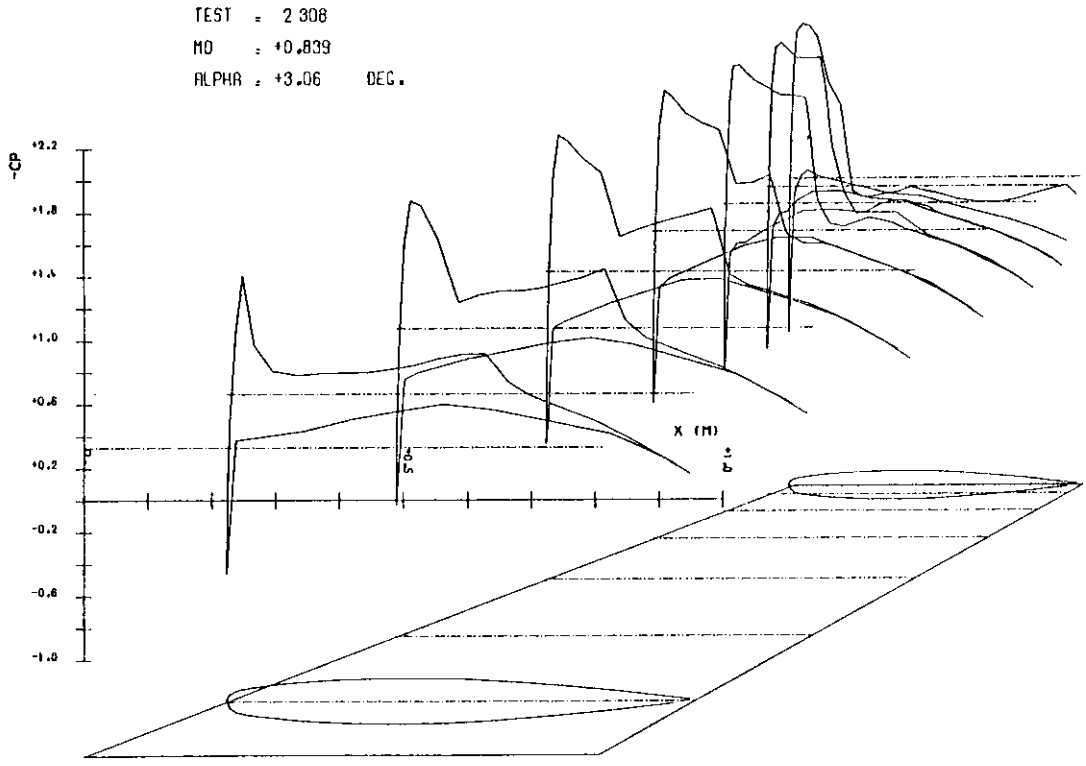


FIGURE B1- 7

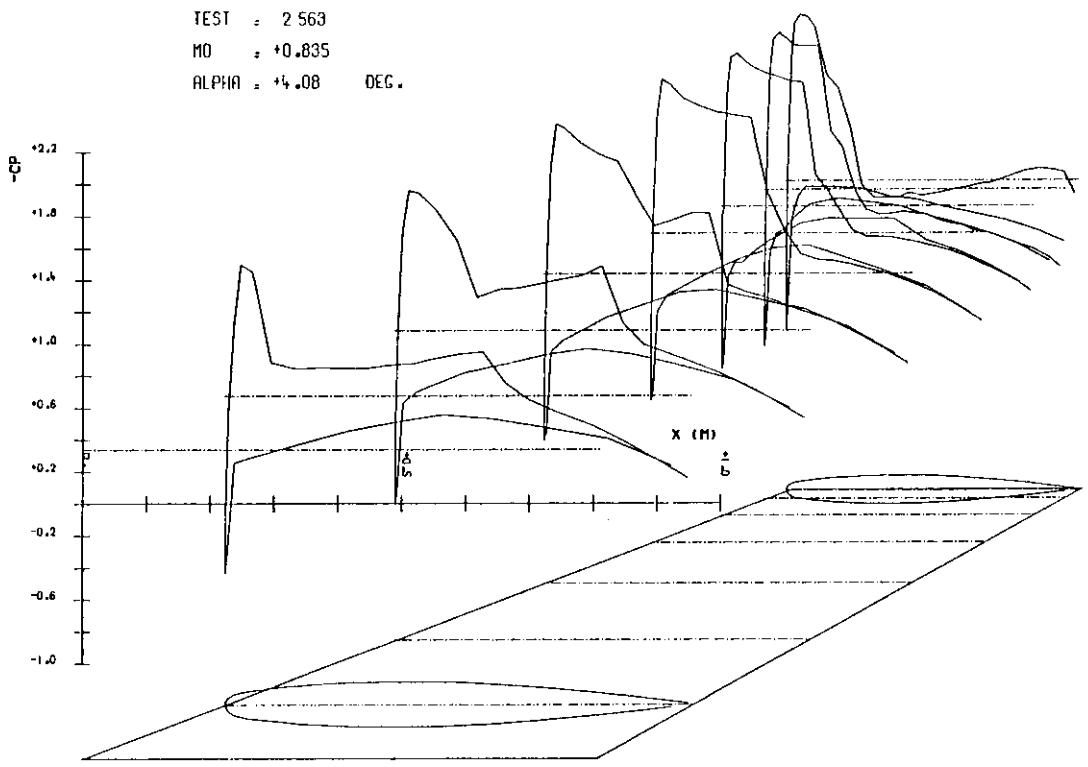


FIGURE B1- 8

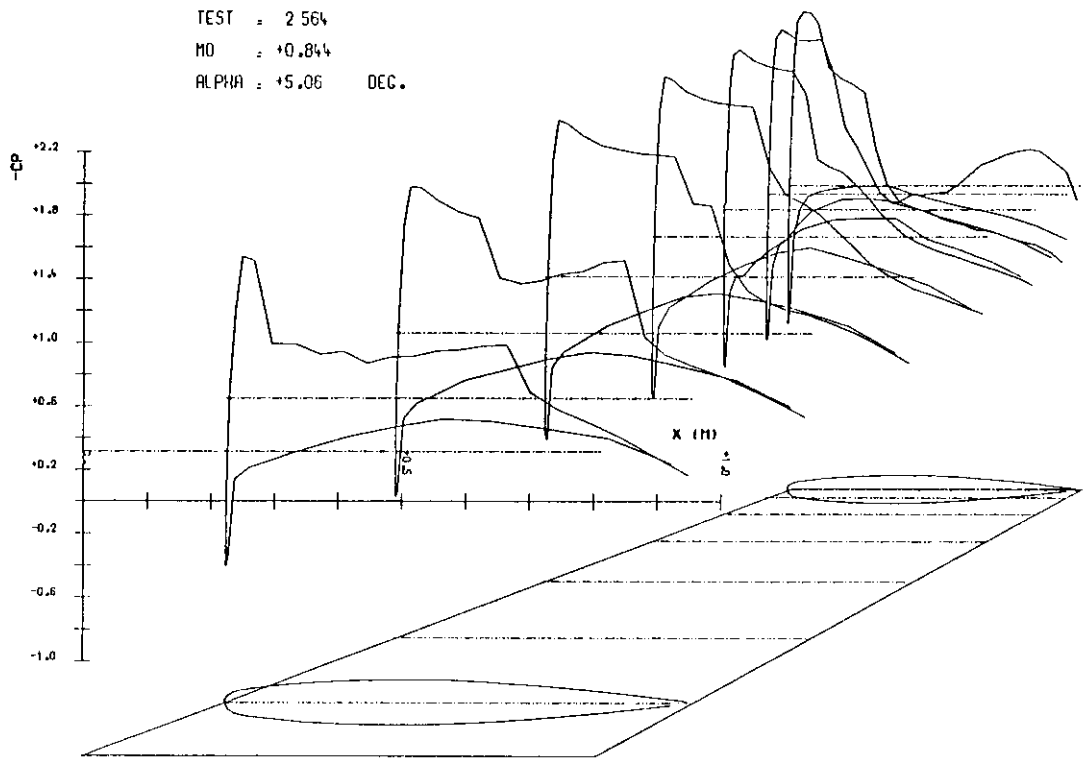


FIGURE B1- 9

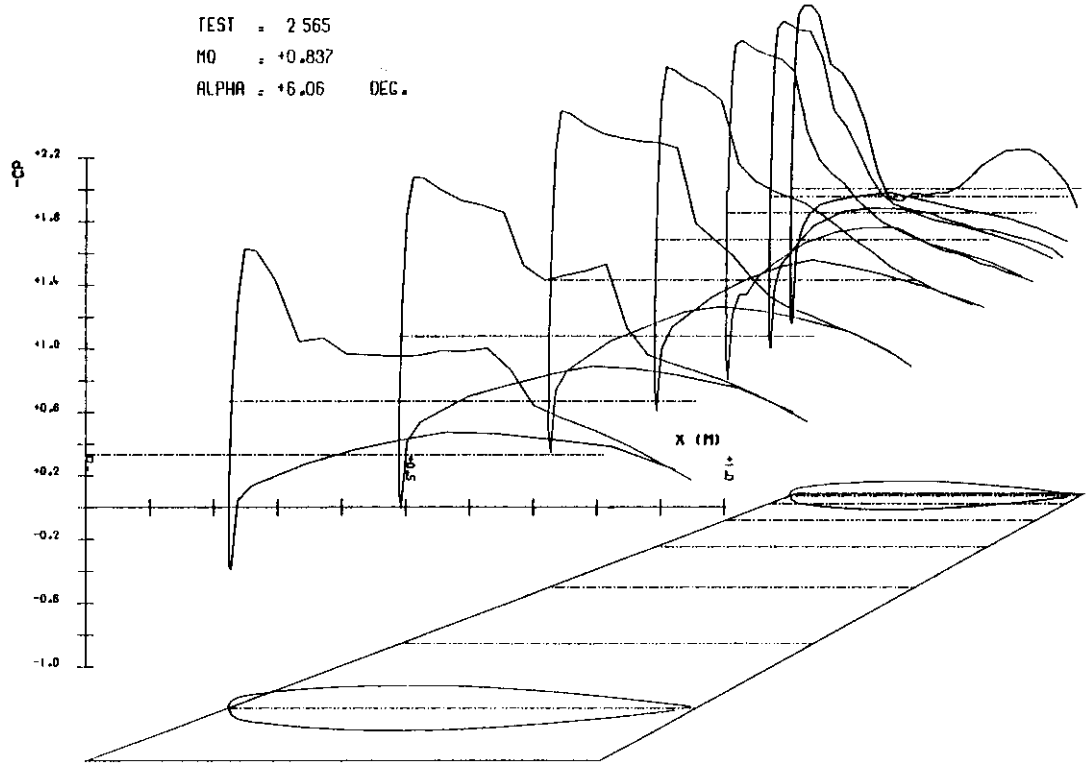


FIGURE B1-10

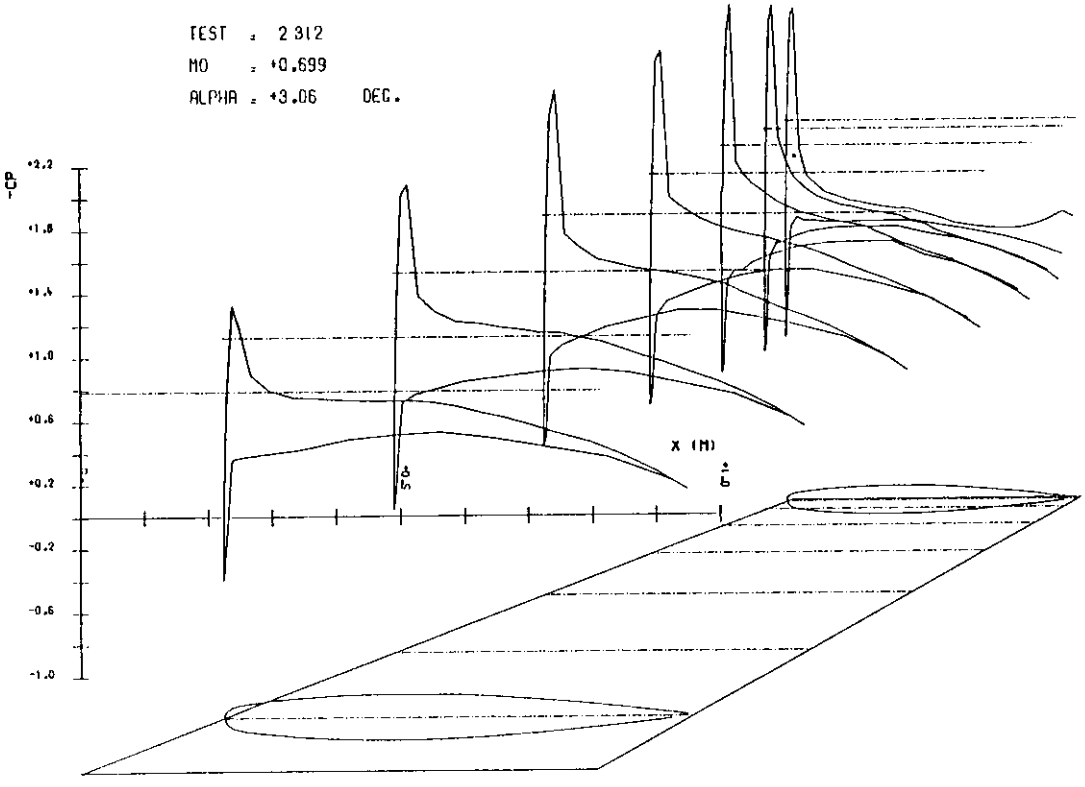


FIGURE B1-11

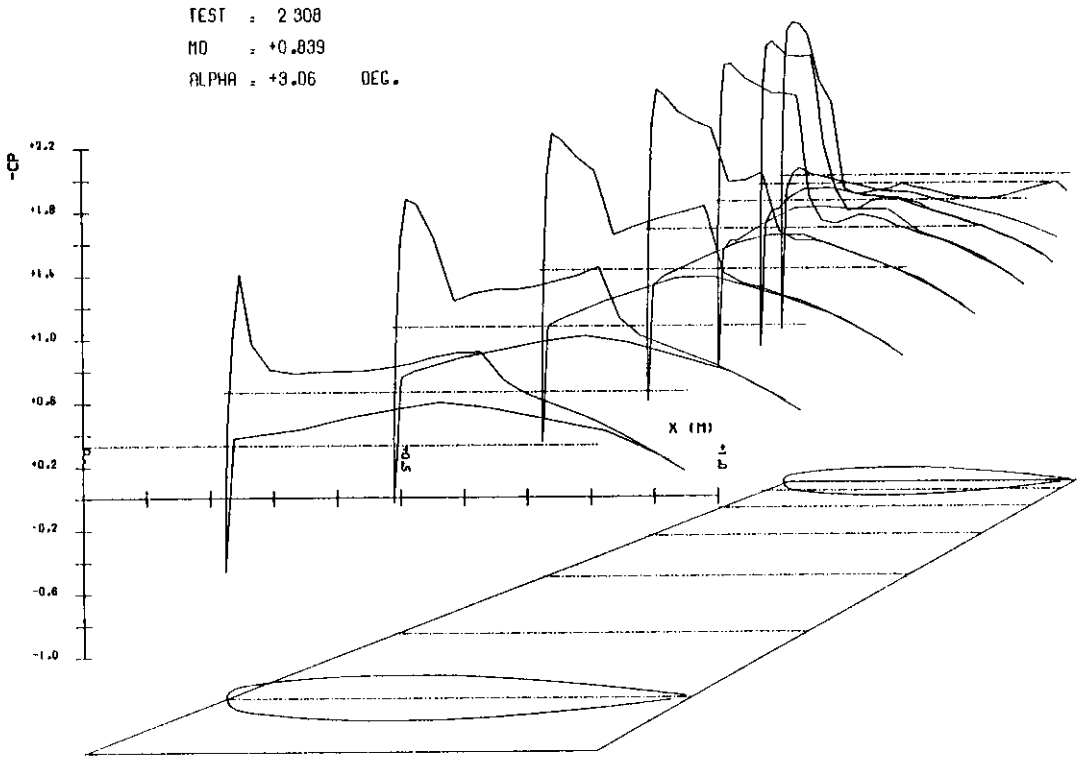


FIGURE B1-12

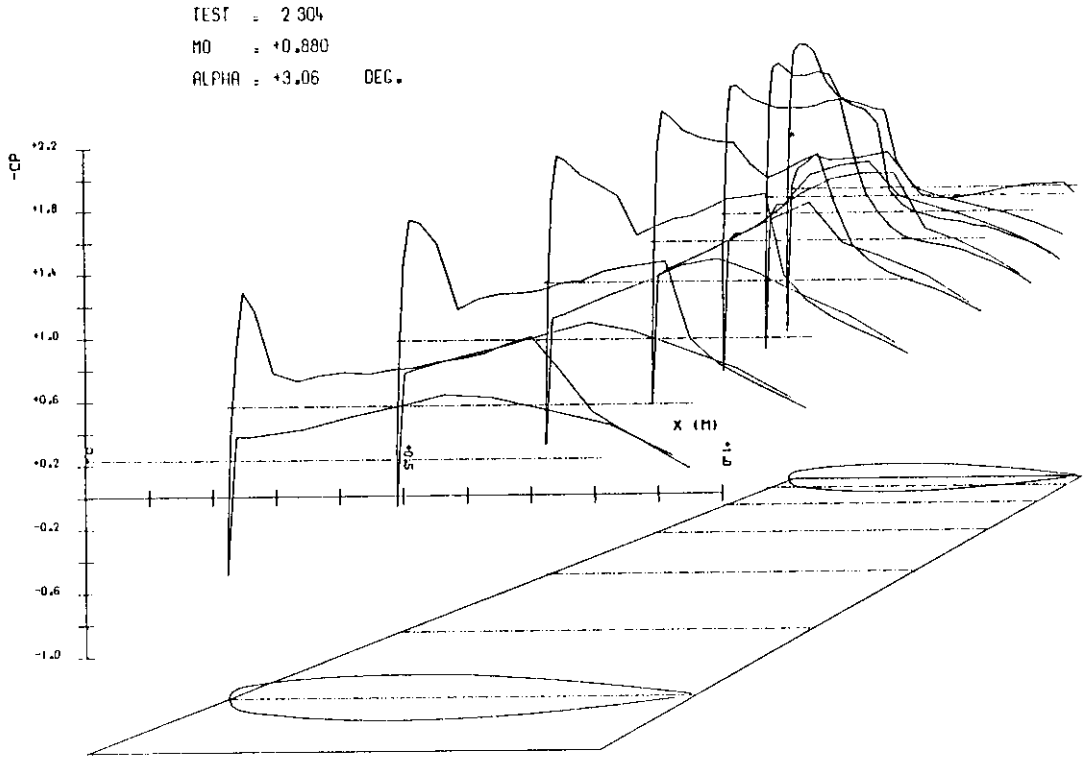
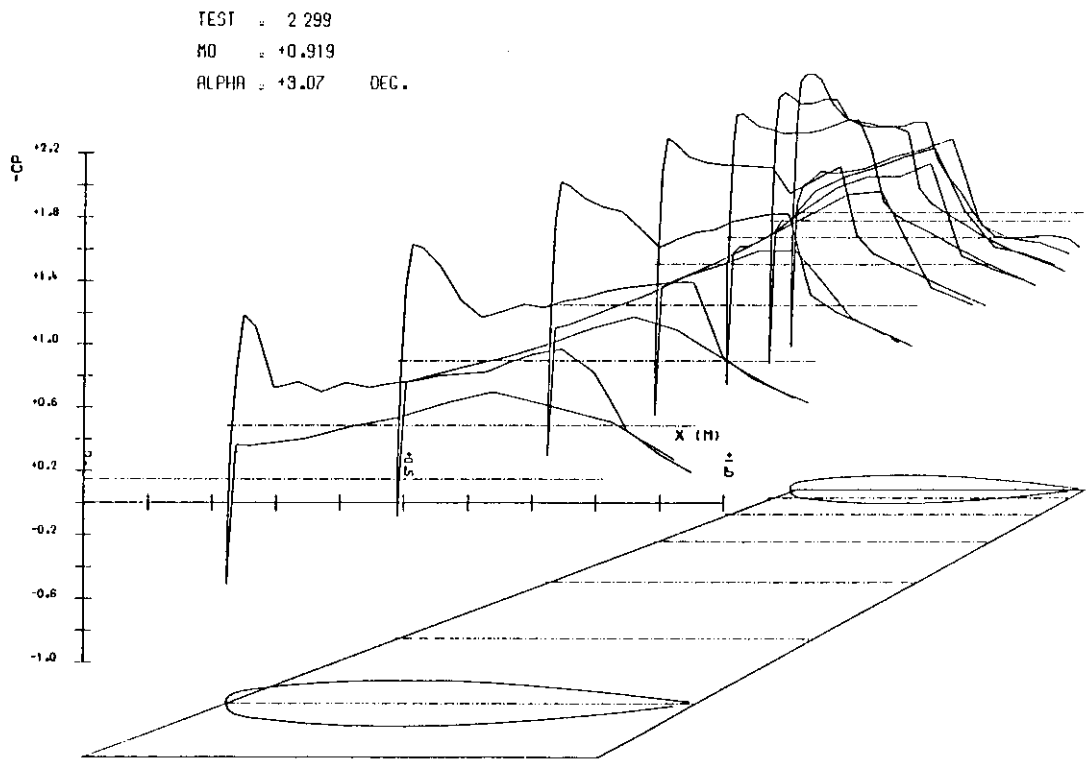


FIGURE B1- 13



AG-138

2. TRANSONIC MEASUREMENTS ON THE -ONERA AFV D- VARIABLE SWEEP WING IN THE -ONERA S2 MA- WIND TUNNEL

by

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2.1 - INTRODUCTION -

The ONERA AFV D Variable Sweep Wing designed with the symmetrical ONERA D peaky type airfoil has been chosen as a basic tool to study three-dimensional flows and to provide an experimental data base for comparisons with calculation methods from low to transonic speeds at sweep angles from 0° to 60°.

This contribution contains selected data from those obtained in the ONERA S2MA Transonic Wind Tunnel.

Tables and graphs are presented for three values of the wing sweep angle.

2.2 - DATA SET -

1. General description

1.1 Model designation or name	ONERA VARIABLE SWEEP WING AFV D
1.2 Model type (e.g. full span wing-body, semi-span wing)	semi-span wing : see fig. B2-1
1.3 Design requirements/conditions	variable sweep angle
1.4 Additional remarks	the reference section of the wing is the "ONERA D" Airfoil : $(\frac{e}{c})$ max = 0.105 ; $\frac{r_{LE}}{c}$ = 0.0143 See table B2-1

2. Model geometry

2.1 Wing data

2.1.1 Wing planform	rectangular
2.1.2 Aspect ratio	$2.7 \leq A \leq 8$
2.1.3 Leading-edge sweep	$0° \leq \Lambda \leq 60°$
2.1.4 Trailing-edge sweep	$0° \leq \Lambda \leq 60°$
2.1.5 Taper ratio	1
2.1.6 Twist	without twist
2.1.7 Mean aerodynamic chord	c = 0.2 m for Λ = 0°
2.1.8 Span or semispan	$0.43 \leq b \leq 0.8$ m for $0° \leq \Lambda \leq 60°$
2.1.9 Number of airfoil sections used to define wing	1
2.1.10 Spanwise location of reference section and section coordinates (note if ordinates are design or actual measured values)	ETA = 0 at Λ = 0° profile D ordinates : see table B2-1 (design values)
2.1.11 Lofting procedure between reference sections	cylindrical generation
2.1.12 Form of wing-body fillet, strakes	no body, no strake, no fillets
2.1.13 Form of wing tip	truncation normal to the leading edge
2.2 Body data (detail description of body geometry)	no body
2.3 Fabrication tolerances/waviness	0.08/0.1 mm

2.4 Additional remarks	inspection has shown some slight differences between the design and the real model : see table B2-41

3. Wind tunnel

3.1 Designation	S2 MA (ONERA - Modane Center)
3.2 Type of tunnel	
3.2.1 Continuous or blowdown. Indicate minimum run time if applicable	continuous
3.2.2 Stagnation pressure	from 0.3 to a limit stagnation pressure depending slightly on the Mach number ; P_o max $\leq$ 2.5 bar
3.2.3 Stagnation temperature	from 287 to 320 K
3.3 Test section	
3.3.1 Shape of test section	square
3.3.2 Size of test section (width, height, length)	height:1.770 m width : 1.750 m perforated length : 5.4 m
3.3.3 Type of test section walls: closed, open, slotted, perforated Open area ratio (give range if variable) Slot/hole geometry (e.g., 30-degree slanted holes) Treatment of side wall boundary layer	vertical solid walls horizontal perforated walls maximum geometric porosity : 6 % - Possibility of changing the porosity with sliding plates sixty degree inclined holes (diameter : 18 mm)
Full span models	no treatment
Half-model testing	b.l. diverter
3.4 Flow field (empty test section)	see 3.11
3.4.1 Reference static pressure	on the vertical wall 2.685m upstream of the balance axis
3.4.2 Flow angularity	unknown
3.4.3 Mach number distribution	ΔM/meter in x -direction : $\pm$ 3×10^{-3}/m.for $0.7 \leq M \leq 0.92$
3.4.4 Pressure gradient	according to 3.4.3
3.4.5 Turbulence/noise level	velocity turbulence ~ 0.2 % - ref. 1
3.4.6 Side wall boundary layer	displacement thickness δ_1 = 12 to 18 mm boundary layer thickness δ ~ 90 to 170 mm
3.5 Freestream Mach number (or velocity)	
3.5.1 Range	from M_o = 0.1 to M_o = 1.35
3.5.2 Pressures used to determine Mach number (e.g., settling chamber total pressure and plenum chamber pressure)	settling chamber stagnation pressure and static pressure on the vertical wall
3.5.3 Accuracy of Mach number determination (ΔM)	$\Delta M = \pm 0.001$
3.5.4 Maximum Mach number variation in x, y, z-direction (empty tunnel : specify at what Mach number)	see 3.4.3
Maximum variation of flow direction	upwash ~ 0.3° degree (dependent on model size)
Maximum Mach number variation during a run	function of the model size (see 6.3.9)
3.6 Reynolds number range	
3.6.1 Unit Reynolds number range. (give range at representative Mach numbers ; 1/m)	M_o : 0.25 ; 0.50 ; 0.72 ; 1. ; 1.35 $(RE/m)_{max} \cdot 10^{-6}$: 14. 21. 33. 27. 27.

3.6.2 Means of varying Reynolds number (e.g. by pressurization)	stagnation pressure P_o = 0 3 to 2.5 bar for $M_o \leq 0.7$ 0.3 to 1.75bar for $M_o \geq 1.$ 0.3 to 2.1 bar for $M_o = 0.8$ 0.3 to 1.9 bar for $M_o = 0.9$
3.7 Temperature range and dewpoint Can temperature be controlled ?	stagnation temperature $T_o = 292\ K \pm 5$ to 315 K ± 5 ; cannot be controlled humidity $< 0.2g\ H_2O$/Kg air
3.8 Model attitudes	
3.8.1 Angle of attack, yaw, roll	angle of attack : α- motorization up to 35° sweep angle : Λ = 0/30/40/50/60°
3.8.2 Accuracy in determining angles	$\Delta\alpha$ = 0.03 degree
3.9 Organisation operating the tunnel and location of tunnel	ONERA - Centre de Modane-Avrieux
3.10 Who is to be contacted for additional information	Direction GME - ONERA - Châtillon (FRANCE)
3.11 Literature concerning this facility	ref. 2,3
3.12 Additional remarks	

4. Tests

4.1 Type of tests	steady measurements of : - aerodynamic forces - pressure distributions at various span sections ($\perp$ to L.E.) for : Λ = 0/30/40/50/60°
4.2 Wing span or semispan to tunnel width	0.46 at $\Lambda = 0°$
4.3 Test conditions	
4.3.1 Angle of attack	$\alpha \leq 30°$; limited by the structure of the wing
4.3.2 Mach number	$0.275 \leq M_o \leq 1.300$
4.3.3 Dynamic pressure	$5000 \leq q_o \leq 35000\ N/m^2$
4.3.4 Reynolds number	$RE = \frac{V_o \cdot c}{\nu} = 2.5 \times 10^6$ (c = chord normal to L.E)
4.3.5 Stagnation temperature	~ 300 K
4.4 Transition	
4.4.1 Free or fixed	free
4.4.2 Position of free transition	variable
4.4.3 Position of fixed transition, width of strips, size and type of roughness elements	not relevant
4.4.4 Were checks made to determine if transition occurred at trip locations ?	not relevant
4.5 Bending or torsion under load	
4.5.1 Describe any aeroelastic measurements made during tests	bending and torsion measured by strain gauges on the wing root (for safety control only)
4.5.2 Describe results of any bench calibrations	not relevant

4.6 Were different sized models used in wind-tunnel investigation ? If so, indicate sizes	no
4.7 Areas and lengths used to form coefficients	varying with sweep (see table B2-41)
4.8 References on tests	ref. 4
4.9 Related reports	none

5. Instrumentation

5.1 Surface pressure measurements

5.1.1 Pressure orifices in wing. Location and number on upper and lower surfaces	at Λ = 0° : sections at ETA = 0.3/0.45/0.60/0.75/0.85/0.95 number : 28 on upper surface 13 on lower surface see fig. B2-1 and table B2-2 for the exact locations
5.1.2 Pressure orifices on fuselage. Location and number	not relevant
5.1.3 Pressure orifices on components, give components and orifice location	not relevant
5.1.4 Geometry of orifices	∅ 0.4 mm
5.1.5 Type of pressure transducer and scanning devices used. Indicate range and accuracy	6 transducers CEC : ± 12.5 PSID Accuracy : ± 0.012 PSI 6 scanivalves (D) 7 kulites

5.2 Force measurements

5.2.1 Type and location of balance	wall balance ∅ 120 mm (5 components : X, Z, l, m, n) see fig. B2-2
5.2.2 Forces and moments that can be measured. Maximum loads and accuracy	axial force : 1200 ± 1.2 daN normal force : 6500 ± 6.5 daN rolling moment : 800 ± 0.8 mdaN pitching moment : 250 ± 0.25 mdaN yawing moment : 140 ± 0.14 mdaN

6. Data

6.1 Accuracy

6.1.1 Pressure coefficient	$\Delta Cp = \pm 0.02$ (at Mo = 0.84)
6.1.2 Aerodynamic coefficients	≤ 0.005
6.1.3 Boundary layer and wake quantities	not relevant
6.1.4 Repeatability	not tested here but for pressure distributions generally as 6.1.1
6.2 Wall interference corrections	wall interference corrections were not made : $\frac{S}{C} = \frac{\text{Wing area}}{\text{test section area}} \leq 0.05$

6.3 Data presentation

6.3.1 Aerodynamic coefficients	graphs of C_L (α) for Λ =0°/30°/50° (fig. B2-3)
6.3.2 Surface pressure coefficients	Cp (x/c) for 6 sections defined 5.1.1

(detail, see page B2-5 : T3 means table B2-3
F4 means figure B2-4)

$\Lambda = 0°$

M_o \ α	0°	2°	4°	6°
0.7	T3 F4	T4	T5 F5	T6
0.78	T7 F6	T8	T9 F7	
0.84	T10 F8	T11 F9	T12	
0.92	T13 F10	T14 F11		

$\Lambda = 30°$

M_o \ α	0°	2°	4°	6°
0.7	T15 F12		T16 F13	T17
0.78	T18 F14	T19	T20 F15	
0.84	T21 F16	T22 F17	T23	
0.88		T24	T25	
0.92	T26 F18	T27 F19		

$\Lambda = 50°$

M_o \ α	0°	2°	4°	6°
0.7	T28 F20	T29		T30 F21
0.78	T31 F22	T32	T33 F23	
0.84	T34 F24	T35 F25	T36	
0.88		T37	T38	
0.92	T39 F26	T40 F27		

6.3.3 Flow conditions for

- aerodynamic coefficient data — $M_o = 0.70/0.78/0.84/0.92$ for $\Lambda = 0°/30°/50°$ plus $M_o = 0.88$ for $\Lambda = 30°/50°$
- pressure data — idem

6.3.4 Boundary layer and/or wake data — none

6.3.5 Flow conditions for boundary layer and/or wake data — not relevant

6.3.6	Wall interference corrections included ?	no, see 6.2
6.3.7	Aeroelastic corrections included ?	no
6.3.8	Other corrections ?	no
6.3.9	Additional remarks	for the force measurements, the Mach number is not kept strictly constant during the angle of attack variation. See table 42.
6.4	Were tests carried out in different facilities onthe current model ? If so, what facilities. Are data included in present data base ?	no

7. References

1. X. VAUCHERET — Fluctuations acoustiques engendrées par les parois perméables d'une soufflerie transsonique AGARD CP 174 (octobre 1975)

2. M. PIERRE, G. FASSO — The aerothermodynamic test center of Modane-Avrieux ONERA Technical Note n° 166E (1972)

3. M. PIERRE, G. FASSO — Exploitation du centre d'essais aérothermodynamique de Modane-Avrieux Note Technique ONERA n° 181 (1971)

4. J.C. RAYNAL — Essai de l'aile à flèche variable équipée du profil D à S2MA Procès-Verbal d'Essais ONERA n° 1/3072 AYG (not published)

8 - List of symbols

A	: aspect ratio
b	: semi-span
c	: geometric chord (normal to L.E.)
$\bar{c}$	: aerodynamic chord (= root chord)
e/c	: airfoil thickness
$r_{L.E.}$	: L.E. radius
x	: distance measured chordwise
y	: distance measured spanwise
z	: distance from the plane of the wing
S	: wing area
α	: angle of attack
η (ETA)	: spanwise location $\eta = y/b$
λ (lambda)	: taper ratio
Λ (LAMBDA)	: sweep angle
C	: test section area of the wind tunnel
M	: local Mach number
Mo	: free stream Mach number
p	: local static pressure
P_o	: stagnation pressure
po	: free stream static pressure
qo	: free stream dynamic pressure
To	: stagnation pressure
Cp	: pressure coefficient $Cp = \frac{p - po}{qo}$

Cp_c	: critical pressure coefficient $Cp_c = Cp$ for $M = 1$
X	: axial force
Y	: lateral force
Z	: normal force
l	: rolling moment
m	: pitching moment
n	: yawing moment
C_L	: lift coefficient [based on wall balance measurements]

9. Abreviations

B.L.	: boundary layer
L.E.	: leading edge
T.E.	: trailing edge

TABLE 1

PROFILE D ORDINATES

X/C	Z/C	X/C	Z/C
.000000	.000000	.072500	-.035193
.000050	-.001342	.077500	-.035912
.000200	-.002685	.082500	-.036604
.000500	-.004245	.087500	-.037269
.001000	-.006002	.092500	-.037908
.001700	-.007820	.105000	-.039405
.002600	-.009658	.120000	-.041028
.003700	-.011494	.135000	-.042486
.005000	-.013310	.155000	-.044213
.006500	-.015091	.195000	-.047057
.008300	-.016913	.235000	-.049242
.010300	-.018639	.275000	-.050853
.012500	-.020259	.315000	-.051902
.015000	-.021821	.355000	-.052369
.017500	-.023144	.395000	-.052230
.020000	-.024277	.435000	-.051476
.022500	-.025254	.475000	-.050123
.025000	-.026106	.520000	-.047942
.027500	-.026857	.580000	-.044120
.030000	-.027528	.640000	-.039509
.032500	-.028136	.690000	-.035239
.035000	-.028696	.730000	-.031601
.037500	-.029221	.770000	-.027763
.040000	-.029719	.810000	-.023691
.042500	-.030198	.850000	-.019335
.045000	-.030663	.890000	-.014658
.047500	-.031119	.930000	-.009698
.052500	-.032003	.970000	-.004621
.057500	-.032850	.990000	-.002090
.062500	-.033663	1.000000	-.000780
.067500	-.034444		

TABLE 2

PRESSURE HOLES ORDINATES. ETA=0,60

UPPER SURFACE X/C	UPPER SURFACE Z/C	LOWER SURFACE X/C	LOWER SURFACE Z/C
+.00000	-.00050	+.00731	-.01594
+.00993	+.01844	+.02214	-.02523
+.03027	+.02740	+.04011	-.03008
+.04954	+.03135	+.07529	-.03589
+.07515	+.03548	+.14011	-.04320
+.10060	+.03868	+.26028	-.05062
+.13953	+.04287	+.35027	-.05252
+.17976	+.04601	+.45005	-.05124
+.22010	+.04845	+.55019	-.04623
+.26019	+.05036	+.64982	-.03906
+.30001	+.05161	+.74975	-.02969
+.34026	+.05226	+.85020	-.01927
+.37958	+.05236	+.96999	-.00444
+.41998	+.05186		
+.46006	+.05076		
+.50001	+.04912		
+.53980	+.04678		
+.57986	+.04424		
+.61994	+.04129		
+.65968	+.03795		
+.69978	+.03446		
+.74009	+.03071		
+.77873	+.02685		
+.81984	+.02254		
+.85977	+.01800		
+.90014	+.01319		
+.93985	+.00584		

ONERA VARIABLE SWEEP WING ; AFV D CORD = 0.2 M S2MA WIND TUNNEL

TABLE 3

REYNOLDS NUMBER = 2500000.
LAMBDA= 0.DEG ALPHA= .01DEG MO= .7012

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	-.0216	.9700	.1539	.9700	.1616	.9700	.1565	.9700	.1551	.8500	-.0151
13	.7500	-.1112	.8500	-.0212	.8500	-.0151	.8500	-.0103				
12			.7500	-.1128	.7500	-.0999	.7500	-.0975	.7500	-.0898	.7500	-.0821
11	.6500	-.2064	.6500	-.2040	.6500	-.1939			.6500	-.1673	.6500	-.1418
10	.5500	-.2951	.5500	-.2947	.5500	-.2730	.5500	-.2677	.5500	-.2459	.5500	-.2044
9	.4500	-.3774	.4500	-.3879	.4500	-.3682	.4500	-.3472	.4500	-.3198	.4500	-.2604
8	.3500	-.4146	.3500	-.4158	.3500	-.3932	.3500	-.3766	.3500	-.3452	.3500	-.2818
7	.2600	-.4049	.2600	-.3791	.2600	-.3722	.2600	-.3557	.2600	-.3238	.2600	-.2673
6	.1400	-.3916	.1400	-.3924	.1400	-.3710	.1400	-.3468	.1400	-.3286	.1400	-.2931
5	.0750	-.4190			.0750	-.3855	.0750	-.3738	.0750	-.3464	.0750	-.3315
4	.0400	-.6240	.0400	-.6074	.0400	-.5614	.0400	-.5162	.0400	-.5013	.0400	-.5090
3	.0210	-.7765	.0220	-.6962	.0220	-.6712	.0220	-.6042	.0220	-.5296	.0220	-.5469
2	.0070	.1842	.0070	.2055	.0070	.2249	.0070	.2733	.0070	.2965	.0070	.2899
1	.0000	1.1311	.0000	1.1298	.0000	1.1282	.0000	.3649	.0000	1.1286	.0000	1.1282
42	.0100	-.0252	.0100	-.0236	.0100	-.0849	.0100	-.0160	.0100	-.1249	.0100	-.1217
41	.0300	-.5509	.0300	-.5868	.0300	-.5836	.0300	-.6365	.0300	-.6544	.0300	-.6574
40	.0500	-.3940	.0500	-.4275	.0500	-.4335	.0500	-.4408	.0500	-.4610	.0500	-.4424
39	.0750	-.3375	.0750	-.3698	.0750	-.3742	.0750	-.4013	.0750	-.3621	.0750	-.3226
38	.1000	-.3391	.1000	-.3754	.1000	-.3662	.1000	-.3710	.1000	-.3428	.1000	-.3395
37	.1400	-.3557	.1400	-.3557	.1400	-.3666	.1400	-.3581	.1400	-.3476	.1400	-.2927
36	.1800	-.3605	.1800	-.3855	.1800	-.3686	.1800	-.3807	.1800	-.3413	.1800	-.3004
35	.2200	-.3690	.2200	-.3900	.2200	-.3690	.2200	-.3758	.2200	-.3573	.2200	-.2931
34	.2600	-.3774	.2600	-.3896	.2600	-.3649	.2600	-.3795	.2600	-.3194	.2600	-.3004
33	.3000	-.3746	.3000	-.3799	.3000	-.3609	.3000	-.3819	.3000	-.3532	.3000	-.2790
32	.3400	-.3746	.3400	-.3900	.3400	-.3883	.3400	-.3726	.3400	-.3577	.3400	-.2830
31	.3800	-.3807	.3800	-.3980	.3800	-.3843	.3800	-.3734	.3800	-.3480	.3800	-.2955
30	.4200	-.3887	.4200	-.3803	.4200	-.3605	.4200	-.3698	.4200	-.3456	.4200	-.2697
29	.4600	-.3520	.4600	-.3637	.4600	-.3391	.4600	-.3327	.4600	-.3254	.4600	-.2560
28	.5000	-.3407	.5000	-.3294	.5000	-.3101	.5000	-.3181	.5000	-.2863	.5000	-.2266
27	.5400	-.2754	.5400	-.2843	.5400	-.2758	.5400	-.2685	.5400	-.2443	.5400	-.2019
26	.5800	-.2487	.5800	-.2584	.5800	-.2391	.5800	-.2334	.5800	-.2136	.5800	-.1822
25	.6200	-.2217	.6200	-.2104	.6200	-.2052	.6200	-.2088	.6200	-.1842	.6200	-.1483
24			.6600	-.1915	.6600	-.1717	.6600	-.1721	.6600	-.1596	.6600	-.1289
23	.7000	-.1487	.7000	-.1620	.7000	-.1455	.7000	-.1406	.7000	-.1382	.7000	-.1104
22	.7400	-.1196	.7400	-.1245	.7400	-.1071	.7400	-.1031	.7400	-.0898	.7400	-.0878
21	.7800	-.0805	.7800	-.0966	.7800	-.0761	.7800	-.0680	.7800	-.0656	.7800	-.0591
20	.8200	-.0531	.8200	-.0559	.8200	-.0377	.8200	-.0497	.8200	-.0416	.8200	-.0236
19	.8600	-.0091	.8600	-.0030	.8600	.0103	.8600	.0167	.8600	.0179	.8600	.0123
18	.9000	.0450	.9000	.0438	.9000	.0546	.9000	.0623	.9000	.0696	.9000	.0571
17	.9400	.0950	.9400	.0966	.9400	.1079			.9400	.1160		
16			.9800	.1624			.9800	.1745	.9800	.1737		

TABLE 4

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

REYNOLDS NUMBER = 2500000.
LAMBDA= 0.DEG ALPHA= 2.01DEG MO= .7014

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	-.0292	.9700	.1293	.9700	.1350	.9700	.1370	.9700	.1300	.8500	-.0219
13	.7500	-.0945	.8500	-.0287	.8500	-.0247	.8500	-.0158				
12			.7500	-.0977	.7500	-.0852	.7500	-.0804	.7500	-.0796	.7500	-.0788
11	.6500	-.1784	.6500	-.1711	.6500	-.1598			.6500	-.1481	.6500	-.1328
10	.5500	-.2489	.5500	-.2534	.5500	-.2457	.5500	-.2453	.5500	-.2304	.5500	-.1897
9	.4500	-.3050	.4500	-.3175	.4500	-.3062	.4500	-.2969	.4500	-.2844	.4500	-.2397
8	.3500	-.3090	.3500	-.3171	.3500	-.3062	.3500	-.3002	.3500	-.2901	.3500	-.2477
7	.2600	-.2671	.2600	-.2735	.2600	-.2602	.2600	-.2586	.2600	-.2493	.2600	-.2247
6	.1400	-.2070	.1400	-.2139	.1400	-.1969	.1400	-.1925	.1400	-.1933	.1400	-.2086
5	.0750	-.1554			.0750	-.1384	.0750	-.1372	.0750	-.1388	.0750	-.1836
4	.0400	-.1941	.0400	-.1897	.0400	-.1739	.0400	-.1526	.0400	-.1751	.0400	-.2530
3	.0210	-.2090	.0220	-.1875	.0220	-.1663	.0220	-.1409	.0220	-.1235	.0220	-.2114
2	.0070	.5528	.0070	.5613	.0070	.5653	.0070	.5863	.0070	.5847	.0070	.5286
1	.0000	1.1126	.0000	1.1106	.0000	1.1081	.0000	.3532	.0000	1.1055	.0000	1.1126
42	.0100	-.4833	.0100	-.4603	.0100	-.5204	.0100	-.3715	.0100	-.5115	.0100	-.4292
41	.0300	-1.2564	.0300	-1.2991	.0300	-1.2584	.0300	-1.3386	.0300	-1.1761	.0300	-1.0640
40	.0500	-1.1172	.0500	-1.1814	.0500	-1.1761	.0500	-1.1152	.0500	-1.1164	.0500	-.9886
39	.0750	-.4784	.0750	-.5135	.0750	-.5143	.0750	-.5647	.0750	-.4445	.0750	-.4183
38	.1000	-.5434	.1000	-.5877	.1000	-.5639	.1000	-.5563	.1000	-.4946	.1000	-.4558
37	.1400	-.5550	.1400	-.5583	.1400	-.5571	.1400	-.5296	.1400	-.4958	.1400	-.3901
36	.1800	-.5385	.1800	-.5651	.1800	-.5357	.1800	-.5333	.1800	-.4704	.1800	-.3788
35	.2200	-.5268	.2200	-.5474	.2200	-.5175	.2200	-.5091	.2200	-.4683	.2200	-.3582
34	.2600	-.5131	.2600	-.5260	.2600	-.4950	.2600	-.4921	.2600	-.4159	.2600	-.3534
33	.3000	-.4946	.3000	-.5014	.3000	-.4764	.3000	-.4764	.3000	-.4320	.3000	-.3236
32	.3400	-.4780	.3400	-.4941	.3400	-.4829	.3400	-.4534	.3400	-.4232	.3400	-.3207
31	.3800	-.4683	.3800	-.4865	.3800	-.4663	.3800	-.4401	.3800	-.4018	.3800	-.3264
30	.4200	-.4595	.4200	-.4546	.4200	-.4296	.4200	-.4228	.4200	-.3889	.4200	-.2973
29	.4600	-.4099	.4600	-.4240	.4600	-.3970	.4600	-.3776	.4600	-.3594	.4600	-.2784
28	.5000	-.3845	.5000	-.3792	.5000	-.3550	.5000	-.3522	.5000	-.3147	.5000	-.2461
27	.5400	-.3167	.5400	-.3260	.5400	-.3139	.5400	-.2961	.5400	-.2679	.5400	-.2187
26	.5800	-.2808	.5800	-.2885	.5800	-.2683	.5800	-.2546	.5800	-.2300	.5800	-.1941
25	.6200	-.2417	.6200	-.2364	.6200	-.2264	.6200	-.2211	.6200	-.1957	.6200	-.1590
24			.6600	-.2066	.6600	-.1852	.6600	-.1796	.6600	-.1651	.6600	-.1372
23	.7000	-.1570	.7000	-.1683	.7000	-.1518	.7000	-.1437	.7000	-.1376	.7000	-.1155
22	.7400	-.1183	.7400	-.1243	.7400	-.1082	.7400	-.1005	.7400	-.0876	.7400	-.0896
21	.7800	-.0743	.7800	-.0880	.7800	-.0699	.7800	-.0610	.7800	-.0574	.7800	-.0590
20	.8200	-.0368	.8200	-.0417	.8200	-.0263	.8200	-.0179	.8200	-.0102	.8200	-.0219
19	.8600	.0132	.8600	.0120	.8600	.0241	.8600	.0305	.8600	.0321	.8600	.0168
18	.9000	.0480	.9000	.0616	.9000	.0729	.9000	.0773	.9000	.0830	.9000	.0616
17	.9400	.1201	.9400	.1144	.9400	.1261			.9400	.1318		
16			.9800	.1725			.9800	.1846	.9800	.1856		

TABLE 5

ONERA VARIABLE SWEEP WING : AFV D COND = 0.2 M S2MA WIND TUNNEL

REYNOLDS NUMBER = 2500000.
LAMBDA= 0.DEG ALPHA= 4.01DEG MO= .7001

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	-.0083	.9700	.1332	.9700	.1384	.9700	.1332	.9700	.1182	.8500	-.0274
13	.7500	-.0512	.8500	-.0071	.8500	-.0043	.8500	-.0007				
12			.7500	-.0617	.7500	-.0524	.7500	-.0548	.7500	-.0573	.7500	-.0743
11	.6500	-.1385	.6500	-.1199	.6500	-.1280			.6500	-.1446	.6500	-.1248
10	.5500	-.1810	.5500	-.1818	.5500	-.1765	.5500	-.1862	.5500	-.1891	.5500	-.1757
9	.4500	-.2069	.4500	-.2198	.4500	-.2146	.4500	-.2218	.4500	-.2259	.4500	-.2105
8	.3500	-.1915	.3500	-.1964	.3500	-.1939	.3500	-.2028	.3500	-.2121	.3500	-.2044
7	.2600	-.1264	.2600	-.1309	.2600	-.1256	.2600	-.1389	.2600	-.1491	.2600	-.1636
6	.1400	-.0201	.1400	-.0253	.1400	-.0205	.1400	-.0326	.1400	-.0524	.1400	-.1070
5	.0750	.0814			.0750	.0842	.0750	.0677	.0750	.0474	.0750	-.0326
4	.0400	.1295	.0400	.1265	.0400	.1247	.0400	.1206	.0400	.0810	.0400	-.0278
3	.0210	.1861	.0220	.2128	.0220	.2007	.0220	.1970	.0220	.1829	.0220	.0697
2	.0070	.8161	.0070	.8193	.0070	.8132	.0070	.8096	.0070	.7967	.0070	.7299
1	.0000	1.0097	.0000	1.0223	.0000	1.0130	.0000	.3228	.0000	1.0304	.0000	1.0514
42	.0100	-.8202	.0100	-.7758	.0100	-.8453	.0100	-.6266	.0100	-.8109	.0100	-.7135
41	.0300	-1.7603	.0300	-1.7886	.0300	-1.7047	.0300	-1.7401	.0300	-1.7223	.0300	-1.4671
40	.0500	-1.7243	.0500	-1.7514	.0500	-1.7085	.0500	-1.7109	.0500	-1.5913	.0500	-1.4595
39	.0750	-1.6091	.0750	-1.6309	.0750	-1.5848	.0750	-1.5848	.0750	-1.5104	.0750	-.9104
38	.1000	-1.4999	.1000	-1.5229	.1000	-1.4861	.1000	-1.4574	.1000	-1.2876	.1000	-.5380
37	.1400	-1.4105	.1400	-1.4324	.1400	-1.3875	.1400	-.7224	.1400	-.4984	.1400	-.4483
36	.1800	-.5401	.1800	-.5691	.1800	-.4867	.1800	-.5154	.1800	-.5125	.1800	-.4402
35	.2200	-.5089	.2200	-.5162	.2200	-.5057	.2200	-.5392	.2200	-.5271	.2200	-.4139
34	.2600	-.5473	.2600	-.5465	.2600	-.5218	.2600	-.5421	.2600	-.4741	.2600	-.4009
33	.3000	-.5469	.3000	-.5429	.3000	-.5198	.3000	-.5311	.3000	-.4875	.3000	-.3694
32	.3400	-.5376	.3400	-.5441	.3400	-.5323	.3400	-.5036	.3400	-.4717	.3400	-.3617
31	.3800	-.5259	.3800	-.5360	.3800	-.5101	.3800	-.4850	.3800	-.4430	.3800	-.3625
30	.4200	-.5129	.4200	-.5000	.4200	-.4701	.4200	-.4624	.4200	-.4240	.4200	-.3278
29	.4600	-.4555	.4600	-.4640	.4600	-.4321	.4600	-.4098	.4600	-.3888	.4600	-.3067
28	.5000	-.4268	.5000	-.4131	.5000	-.3868	.5000	-.3819	.5000	-.3399	.5000	-.2728
27	.5400	-.3500	.5400	-.3544	.5400	-.3399	.5400	-.3209	.5400	-.2885	.5400	-.2425
26	.5800	-.3088	.5800	-.3136	.5800	-.2889	.5800	-.2760	.5800	-.2477	.5800	-.2182
25	.6200	-.2659	.6200	-.2570	.6200	-.2441	.6200	-.2376	.6200	-.2109	.6200	-.1810
24			.6600	-.2226	.6600	-.2004	.6600	-.1927	.6600	-.1770	.6600	-.1592
23	.7000	-.1693	.7000	-.1806	.7000	-.1612	.7000	-.1531	.7000	-.1458	.7000	-.1345
22	.7400	-.1288	.7400	-.1329	.7400	-.1147	.7400	-.1086	.7400	-.0945	.7400	-.1098
21	.7800	-.0811	.7800	-.0945	.7800	-.0771	.7800	-.0674	.7800	-.0625	.7800	-.0779
20	.8200	-.0411	.8200	-.0439	.8200	-.0282	.8200	-.0217	.8200	-.0132	.8200	-.0405
19	.8600	.0111	.8600	.0115	.8600	.0228	.8600	.0276	.8600	.0288	.8600	-.0015
18	.9000	.0681	.9000	.0632	.9000	.0737	.9000	.0758	.9000	.0794	.9000	.0442
17	.9400	.1214	.9400	.1170	.9400	.1275			.9400	.1271		
16			.9800	.1752			.9800	.1813	.9800	.1772		

TABLE 6

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

REYNOLDS NUMBER = 2500000.
LAMBDA= 0.DEG ALPHA= 6.00DEG MO= .0996

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	.0187	.9700	.1409	.9700	.1433	.9700	.1393	.9700	.1166	.8500	-.0279
13	.7500	-.0319	.8500	.0142	.8500	.0146	.8500	.0179				
12			.7500	-.0283	.7500	-.0230	.7500	-.0404	.7500	-.0554	.7500	-.0704
11	.6500	-.0809	.6500	-.0772	.6500	-.0817			.6500	-.1100	.6500	-.1120
10	.5500	-.1116	.5500	-.1141	.5500	-.1133	.5500	-.1303	.5500	-.1448	.5500	-.1562
9	.4500	-.1238	.4500	-.1327	.4500	-.1339	.4500	-.1485	.4500	-.1659	.4500	-.1804
8	.3500	-.0841	.3500	-.0918	.3500	-.0934	.3500	-.1112	.3500	-.1331	.3500	-.1598
7	.2600	-.0056	.2600	-.0121	.2600	-.0117	.2600	-.0319	.2600	-.0554	.2600	-.1040
6	.1400	.1320	.1400	.1267	.1400	.1243	.1400	.1081	.1400	.0766	.1400	-.0097
5	.0750	.2647			.0750	.2611	.0750	.2376	.0750	.2081	.0750	.1029
4	.0400	.3623	.0400	.3574	.0400	.3493	.0400	.3340	.0400	.2915	.0400	.1636
3	.0210	.4618	.0220	.4813	.0220	.4671	.0220	.4525	.0220	.4260	.0220	.2996
2	.0070	.9767	.0070	.9762	.0070	.9694	.0070	.9597	.0070	.9451	.0070	.8803
1	.0000	.8585	.0000	.8824	.0000	.8751	.0000	.2801	.0000	.9184	.0000	.9568
42	.0100	-1.1230	.0100	-1.0684	.0100	-1.1437	.0100	-.8826	.0100	-1.0858	.0100	-.9640
41	.0300	-1.9770	.0300	-1.9976	.0300	-1.9721	.0300	-1.9640	.0300	-1.9406	.0300	-1.7479
40	.0500	-1.9750	.0500	-1.9936	.0500	-1.9345	.0500	-1.9503	.0500	-1.9256	.0500	-1.6775
39	.0750	-1.8957	.0750	-1.9151	.0750	-1.8677	.0750	-1.8754	.0750	-1.8224	.0750	-1.4715
38	.1000	-1.8349	.1000	-1.8548	.1000	-1.8147	.1000	-1.8042	.1000	-1.7481	.1000	-1.0834
37	.1400	-1.7678	.1400	-1.7872	.1400	-1.7467	.1400	-1.7212	.1400	-1.6399	.1400	-.7438
36	.1800	-1.7156	.1800	-1.7265	.1800	-1.6686	.1800	-1.6318	.1800	-1.0024	.1800	-.5455
35	.2200	-1.6593	.2200	-1.6706	.2200	-1.6314	.2200	-1.0328	.2200	-.5520	.2200	-.4682
34	.2600	-1.6152	.2600	-1.6083	.2600	-1.1672	.2600	-.6443	.2600	-.4407	.2600	-.4419
33	.3000	-.8584	.3000	-.8041	.3000	-.5916	.3000	-.4512	.3000	-.4609	.3000	-.4099
32	.3400	-.5350	.3400	-.5147	.3400	-.4403	.3400	-.4253	.3400	-.4625	.3400	-.3994
31	.3800	-.4140	.3800	-.4229	.3800	-.4123	.3800	-.4330	.3800	-.4411	.3800	-.3986
30	.4200	-.4022	.4200	-.3986	.4200	-.3949	.4200	-.4277	.4200	-.4261	.4200	-.3642
29	.4600	-.3767	.4600	-.3864	.4600	-.3767	.4600	-.3889	.4600	-.3937	.4600	-.3407
28	.5000	-.3699	.5000	-.3593	.5000	-.3472	.5000	-.3666	.5000	-.3460	.5000	-.3023
27	.5400	-.3120	.5400	-.3176	.5400	-.3128	.5400	-.3124	.5400	-.2958	.5400	-.2695
26	.5800	-.2820	.5800	-.2877	.5800	-.2691	.5800	-.2703	.5800	-.2533	.5800	-.2456
25	.6200	-.2476	.6200	-.2367	.6200	-.2294	.6200	-.2343	.6200	-.2181	.6200	-.2068
24			.6600	-.2084	.6600	-.1906	.6600	-.1906	.6600	-.1865	.6600	-.1865
23	.7000	-.1606	.7000	-.1707	.7000	-.1549	.7000	-.1517	.7000	-.1533	.7000	-.1651
22	.7400	-.1209	.7400	-.1250	.7400	-.1092	.7400	-.1072	.7400	-.0995	.7400	-.1408
21	.7800	-.0752	.7800	-.0894	.7800	-.0716	.7800	-.0663	.7800	-.0671	.7800	-.1116
20	.8200	-.0368	.8200	-.0420	.8200	-.0275	.8200	-.0210	.8200	-.0182	.8200	-.0732
19	.8600	.0114	.8600	.0134	.8600	.0223	.8600	.0264	.8600	.0231	.8600	-.0372
18	.9000	.0664	.9000	.0604	.9000	.0697	.9000	.0713	.9000	.0729	.9000	.0082
17	.9400	.1178	.9400	.1122	.9400	.1219			.9400	.1190		
16			.9800	.1717			.9800	.1789	.9800	.1684		

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

TABLE 7

REYNOLDS NUMBER = 2500000.
LAMBDA= 0.DEG ALPHA= .01DEG MO= .7819

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	-.0133	.9700	.1593	.9700	.1770	.9700	.1704	.9700	.1662	.8500	-.0119
13	.7500	-.1134	.8500	-.0088	.8500	-.0046	.8500	.0003				
12			.7500	-.1120	.7500	-.0998	.7500	-.0931	.7500	-.0910	.7500	-.0861
11	.6500	-.2226	.6500	-.2156	.6500	-.2065			.6500	-.1802	.6500	-.1561
10	.5500	-.3328	.5500	-.3279	.5500	-.3097	.5500	-.2912	.5500	-.2751	.5500	-.2510
9	.4500	-.4724	.4500	-.4899	.4500	-.4556	.4500	-.4161	.4500	-.3814	.4500	-.3020
8	.3500	-.5228	.3500	-.5298	.3500	-.5001	.3500	-.4605	.3500	-.4192	.3500	-.3297
7	.2600	-.4850	.2600	-.4700	.2600	-.4493	.2600	-.3639	.2600	-.3821	.2600	-.3090
6	.1400	-.4406	.1400	-.4402	.1400	-.4091	.1400	-.3839	.1400	-.3730	.1400	-.3283
5	.0750	-.4129			.0750	-.3965	.0750	-.3856	.0750	-.3653	.0750	-.3720
4	.0400	-.7159	.0400	-.6907	.0400	-.6348	.0400	-.5749	.0400	-.5609	.0400	-.6019
3	.0210	-.6925	.0220	-.6390	.0220	-.6176	.0220	-.5574	.0220	-.4917	.0220	-.5424
2	.0070	.2809	.0070	.2970	.0070	.3086	.0070	.3492	.0070	.3698	.0070	.3509
1	.0000	1.1658	.0000	1.1625	.0000	1.1606	.0000	.3855	.0000	1.1606	.0000	1.1595
42	.0100	.0489	.0100	.0580	.0100	.0010	.0100	.0769	.0100	-.0340	.0100	-.0186
41	.0300	-.5896	.0300	-.6351	.0300	-.6516	.0300	-.7205	.0300	-.7229	.0300	-.7436
40	.0500	-.4126	.0500	-.4400	.0500	-.4560	.0500	-.4945	.0500	-.5210	.0500	-.5445
39	.0750	-.3531	.0750	-.3832	.0750	-.3891	.0750	-.4213	.0750	-.3793	.0750	-.5272
38	.1000	-.3590	.1000	-.4080	.1000	-.3993	.1000	-.3993	.1000	-.3699	.1000	-.3674
37	.1400	-.3933	.1400	-.4003	.1400	-.4133	.1400	-.3958	.1400	-.3870	.1400	-.3283
36	.1800	-.4101	.1800	-.4420	.1800	-.4259	.1800	-.4371	.1800	-.3954	.1800	-.3408
35	.2200	-.4339	.2200	-.4644	.2200	-.4458	.2200	-.4539	.2200	-.4224	.2200	-.3359
34	.2600	-.4483	.2600	-.4637	.2600	-.4585	.2600	-.4525	.2600	-.3828	.2600	-.3412
33	.3000	-.4504	.3000	-.4679	.3000	-.4458	.3000	-.4609	.3000	-.4217	.3000	-.3202
32	.3400	-.4560	.3400	-.4857	.3400	-.4805	.3400	-.4518	.3400	-.4255	.3400	-.3265
31	.3800	-.4689	.3800	-.4917	.3800	-.4840	.3800	-.4546	.3800	-.4140	.3800	-.3422
30	.4200	-.4871	.4200	-.4787	.4200	-.4567	.4200	-.4514	.4200	-.4112	.4200	-.3118
29	.4600	-.4283	.4600	-.4448	.4600	-.4154	.4600	-.3951	.4600	-.3737	.4600	-.2905
28	.5000	-.4028	.5000	-.3965	.5000	-.3671	.5000	-.3639	.5000	-.3265	.5000	-.2600
27	.5400	-.3157	.5400	-.3216	.5400	-.3192	.5400	-.3017	.5400	-.2730	.5400	-.2303
26	.5800	-.2772	.5800	-.2792	.5800	-.2681	.5800	-.2590	.5800	-.2338	.5800	-.2019
25	.6200	-.2394	.6200	-.2247	.6200	-.2271	.6200	-.2261	.6200	-.1991	.6200	-.1624
24			.6600	-.1995	.6600	-.1844	.6600	-.1816	.6600	-.1676	.6600	-.1390
23	.7000	-.1599	.7000	-.1666	.7000	-.1544	.7000	-.1460	.7000	-.1425	.7000	-.1169
22	.7400	-.1229	.7400	-.1236	.7400	-.1117	.7400	-.1029	.7400	-.0903	.7400	-.0928
21	.7800	-.0909	.7800	-.0935	.7800	-.0767	.7800	-.0641	.7800	-.0613	.7800	-.0599
20	.8200	-.0497	.8200	-.0490	.8200	-.0515	.8200	-.0207	.8200	-.0144	.8200	-.0214
19	.8600	-.0025	.8600	.0073	.8600	.0171	.8600	.0276	.8600	.0293	.8600	.0171
18	.9000	.0545	.9000	.0570	.9000	.0675	.9000	.0755	.9000	.0818	.9000	.0650
17	.9400	.1070	.9400	.1116	.9400	.1221			.9400	.1319		
16			.9800	.1756			.9800	.1875	.9800	.1893		

TABLE 8

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

REYNOLDS NUMBER = 2500000.
LAMBDA= 0.DEG ALPHA= 2.00DEG MO= .7784

	ETA = .5000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	-.0334	.9700	.1569	.9700	.1643	.9700	.1633	.9700	.1478	.8500	-.0239
13	.7500	-.1094	.8500	-.0204	.8500	-.0158	.8500	-.0088				
12			.7500	-.0999	.7500	-.0886	.7500	-.0851	.7500	-.0823	.7500	-.0858
11	.6500	-.1967	.6500	-.1900	.6500	-.1752			.6500	-.1583	.6500	-.1460
10	.5500	-.3043	.5500	-.2864	.5500	-.2811	.5500	-.2614	.5500	-.2611	.5500	-.2167
9	.4500	-.3779	.4500	-.3923	.4500	-.3687	.4500	-.3466	.4500	-.3381	.4500	-.2804
8	.3500	-.3768	.3500	-.3839	.3500	-.3691	.3500	-.3466	.3500	-.3466	.3500	-.2899
7	.2600	-.3163	.2600	-.3177	.2600	-.3019	.2600	-.2706	.2600	-.2903	.2600	-.2572
6	.1400	-.2326	.1400	-.2392	.1400	-.2185	.1400	-.2181	.1400	-.2195	.1400	-.2399
5	.0750	-.1724			.0750	-.1537	.0750	-.1555	.0750	-.1575	.0750	-.2114
4	.0400	-.2136	.0400	-.2160	.0400	-.1942	.0400	-.1770	.0400	-.1984	.0400	-.2913
3	.0210	-.2304	.0220	-.1865	.0220	-.1858	.0220	-.1611	.0220	-.1525	.0220	-.2280
2	.0070	.5609	.0070	.5711	.0070	.5764	.0070	.5932	.0070	.5971	.0070	.5489
1	.0000	1.1548	.0000	1.1562	.0000	1.1534	.0000	.3776	.0000	1.1488	.0000	1.1495
42	.0100	-.2509	.0100	-.2262	.0100	-.2811	.0100	-.1566	.0100	-.2941	.0100	-.2431
41	.0300	-1.1006	.0300	-1.1417	.0300	-1.1530	.0300	-1.1298	.0300	-1.1351	.0300	-1.1878
40	.0500	-1.0798	.0500	-1.1041	.0500	-1.0914	.0500	-1.0956	.0500	-1.1076	.0500	-1.0235
39	.0750	-.9778	.0750	-1.0105	.0750	-1.0052	.0750	-1.0249	.0750	-1.0084	.0750	-.9458
38	.1000	-.9163	.1000	-.9517	.1000	-.9426	.1000	-.9584	.1000	-.9197	.1000	-.3647
37	.1400	-.8444	.1400	-.8838	.1400	-.8814	.1400	-.8814	.1400	-.8175	.1400	-.3539
36	.1800	-.7487	.1800	-.8268	.1800	-.8223	.1800	-.7892	.1800	-.3564	.1800	-.3965
35	.2200	-.4729	.2200	-.7463	.2200	-.7325	.2200	-.4338	.2200	-.4532	.2200	-.3912
34	.2600	-.5179	.2600	-.4493	.2600	-.4088	.2600	-.4595	.2600	-.4366	.2600	-.3909
33	.3000	-.5700	.3000	-.5095	.3000	-.4634	.3000	-.5133	.3000	-.4845	.3000	-.3620
32	.3400	-.5904	.3400	-.5788	.3400	-.5457	.3400	-.5133	.3400	-.4838	.3400	-.3627
31	.3800	-.5707	.3800	-.5946	.3800	-.5506	.3800	-.5098	.3800	-.4613	.3800	-.3755
30	.4200	-.5770	.4200	-.5436	.4200	-.5193	.4200	-.5021	.4200	-.4479	.4200	-.3360
29	.4600	-.4817	.4600	-.4915	.4600	-.4588	.4600	-.4317	.4600	-.4021	.4600	-.3114
28	.5000	-.4352	.5000	-.4370	.5000	-.3905	.5000	-.3849	.5000	-.3444	.5000	-.2758
27	.5400	-.3462	.5400	-.3518	.5400	-.3321	.5400	-.3145	.5400	-.2836	.5400	-.2438
26	.5800	-.3012	.5800	-.2976	.5800	-.2790	.5800	-.2646	.5800	-.2406	.5800	-.2129
25	.6200	-.2554	.6200	-.2385	.6200	-.2301	.6200	-.2290	.6200	-.2041	.6200	-.1731
24			.6600	-.2051	.6600	-.1865	.6600	-.1808	.6600	-.1668	.6600	-.1478
23	.7000	-.1636	.7000	-.1654	.7000	-.1502	.7000	-.1425	.7000	-.1376	.7000	-.1231
22	.7400	-.1203	.7400	-.1189	.7400	-.1013	.7400	-.0964	.7400	-.0834	.7400	-.0950
21	.7800	-.0752	.7800	-.0816	.7800	-.0633	.7800	-.0531	.7800	-.0496	.7800	-.0601
20	.8200	-.0334	.8200	-.0327	.8200	-.0158	.8200	-.0070	.8200	-.0003	.8200	-.0200
19	.8600	.0183	.8600	.0264	.8600	.0370	.8600	.0433	.8600	.0461	.8600	.0222
18	.9000	.0778	.9000	.0788	.9000	.0933	.9000	.0936	.9000	.0985	.9000	.0700
17	.9400	.1341	.9400	.1341	.9400	.1482			.9400	.1492		
16			.9800	.1955			.9800	.2041	.9800	.2016		

ONERA VARIABLE SWEEP WING : AFV 0 CORD = 0.2 M S2MA WIND TUNNEL

TABLE 9

REYNOLDS NUMBER = 2500000.
LAMBDA= 0.DEG ALPHA= 4.02DEG MO= .7787

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	-.0067	.9700	.1744	.9700	.1776	.9700	.1766	.9700	.1516	.8500	-.0292
13	.7500	-.0605	.8500	.0063	.8500	.0056	.8500	.0091				
12			.7500	-.0640	.7500	-.0503	.7500	-.0605	.7500	-.0601	.7500	-.0837
11	.6500	-.1670	.6500	-.1350	.6500	-.1481			.6500	-.1597	.6500	-.1357
10	.5500	-.2244	.5500	-.2187	.5500	-.2149	.5500	-.2110	.5500	-.2240	.5500	-.2078
9	.4500	-.2652	.4500	-.2718	.4500	-.2676	.4500	-.2613	.4500	-.2726	.4500	-.2529
8	.3500	-.2420	.3500	-.2455	.3500	-.2427	.3500	-.2388	.3500	-.2574	.3500	-.2483
7	.2600	-.1649	.2600	-.1681	.2600	-.1621	.2600	-.1424	.2600	-.1836	.2600	-.2015
6	.1400	-.0489	.1400	-.0506	.1400	-.0475	.1400	-.0549	.1400	-.0749	.1400	-.1410
5	.0750	.0521			.0750	.0556	.0750	.0450	.0750	.0278	.0750	-.0640
4	.0400	.0834	.0400	.0819	.0400	.0809	.0400	.0883	.0400	.0510	.0400	-.0700
3	.0210	.1220	.0220	.1544	.0220	.1431	.0220	.1526	.0220	.1495	.0220	.0299
2	.0070	.7800	.0070	.7850	.0070	.7818	.0070	.7881	.0070	.7814	.0070	.7143
1	.0000	1.1008	.0000	1.1071	.0000	1.0987	.0000	.3591	.0000	1.1022	.0000	1.1134
42	.0100	-.4750	.0100	-.4592	.0100	-.5043	.0100	-.3590	.0100	-.4983	.0100	-.4335
41	.0300	-1.3153	.0300	-1.3491	.0300	-1.3445	.0300	-1.3220	.0300	-1.3227	.0300	-1.3600
40	.0500	-1.3012	.0500	-1.3304	.0500	-1.3085	.0500	-1.3174	.0500	-1.3040	.0500	-1.2984
39	.0750	-1.2341	.0750	-1.2601	.0750	-1.2481	.0750	-1.2618	.0750	-1.2432	.0750	-1.2108
38	.1000	-1.1908	.1000	-1.2214	.1000	-1.2119	.1000	-1.2147	.1000	-1.2084	.1000	-1.1222
37	.1400	-1.1549	.1400	-1.1831	.1400	-1.1711	.1400	-1.1757	.1400	-1.1686	.1400	-1.0519
36	.1800	-1.1356	.1800	-1.1584	.1800	-1.1458	.1800	-1.1542	.1800	-1.1380	.1800	-.5425
35	.2200	-1.1349	.2200	-1.1584	.2200	-1.1440	.2200	-1.1553	.2200	-1.1169	.2200	-.4783
34	.2600	-1.1349	.2600	-1.1560	.2600	-1.1430	.2600	-1.1451	.2600	-1.0779	.2600	-.4642
33	.3000	-1.1364	.3000	-1.1598	.3000	-1.1409	.3000	-1.1416	.3000	-.9854	.3000	-.4238
32	.3400	-1.1437	.3400	-1.1623	.3400	-1.1496	.3400	-1.1229	.3400	-.4618	.3400	-.4160
31	.3800	-1.1342	.3800	-1.1613	.3800	-1.1282	.3800	-1.0062	.3800	-.3777	.3800	-.4189
30	.4200	-1.1071	.4200	-1.1257	.4200	-1.0888	.4200	-.4895	.4200	-.3851	.4200	-.3735
29	.4600	-.9179	.4600	-1.0143	.4600	-.7526	.4600	-.3295	.4600	-.3612	.4600	-.3457
28	.5000	-.4765	.5000	-.5595	.5000	-.3759	.5000	-.2652	.5000	-.3179	.5000	-.3067
27	.5400	-.2578	.5400	-.3070	.5400	-.2166	.5400	-.2311	.5400	-.2690	.5400	-.2733
26	.5800	-.1713	.5800	-.1801	.5800	-.1553	.5800	-.2043	.5800	-.2289	.5800	-.2405
25	.6200	-.1477	.6200	-.1259	.6200	-.1322	.6200	-.1822	.6200	-.1952	.6200	-.1980
24			.6600	-.1111	.6600	-.1062	.6600	-.1474	.6600	-.1625	.6600	-.1725
23	.7000	-.0942	.7000	-.0895	.7000	-.0883	.7000	-.1143	.7000	-.1357	.7000	-.1459
22	.7400	-.0707	.7400	-.0584	.7400	-.0535	.7400	-.0749	.7400	-.0812	.7400	-.1196
21	.7800	-.0316	.7800	-.0527	.7800	-.0267	.7800	-.0376	.7800	-.0503	.7800	-.0855
20	.8200	-.0056	.8200	.0055	.8200	.0109	.8200	.0042	.8200	-.0007	.8200	-.0457
19	.8600	.0387	.8600	.0542	.8600	.0570	.8600	.0517	.8600	.0440	.8600	-.0049
18	.9000	.0911	.9000	.0974	.9000	.1030	.9000	.0974	.9000	.0964	.9000	.0443
17	.9400	.1414	.9400	.1453	.9400	.1533			.9400	.1474		
16			.9800	.2040			.9800	.2110	.9800	.2057		

TABLE 10

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

REYNOLDS NUMBER = 2500000.
LAMBDA= 0.DEG ALPHA= .02DEG MO= .8402

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	.0235	.9700	.1874	.9700	.1967	.9700	.1890	.9700	.1861	.8500	-.0076
13	.7500	-.0838	.8500	.0309	.8500	.0374	.8500	.0280				
12			.7500	-.0841	.7500	-.0632	.7500	-.0658	.7500	-.0777	.7500	-.0908
11	.6500	-.2901	.6500	-.2839	.6500	-.2280			.6500	-.1740	.6500	-.1756
10	.5500	-.7636	.5500	-.7815	.5500	-.7533	.5500	-.7085	.5500	-.4484	.5500	-.2884
9	.4500	-.6916	.4500	-.7170	.4500	-.7000	.4500	-.6666	.4500	-.6200	.4500	-.4683
8	.3500	-.5805	.3500	-.5923	.3500	-.5715	.3500	-.5647	.3500	-.5024	.3500	-.4201
7	.2600	-.5159	.2600	-.5249	.2600	-.5001	.2600	-.4063	.2600	-.4705	.2600	-.3700
6	.1400	-.3838	.1400	-.3845	.1400	-.3758	.1400	-.3871	.1400	-.3919	.1400	-.3421
5	.0750	-.5149			.0750	-.4481	.0750	-.4201	.0750	-.4144	.0750	-.5011
4	.0400	-.7273	.0400	-.7176	.0400	-.6675	.0400	-.6315	.0400	-.6492	.0400	-.7106
3	.0210	-.5448	.0220	-.5114	.0220	-.4956	.0220	-.4532	.0220	-.4038	.0220	-.4494
2	.0070	.3818	.0070	.3792	.0070	.3843	.0070	.4149	.0070	.4268	.0070	.4158
1	.0000	1.1946	.0000	1.1895	.0000	1.1892	.0000	.4001	.0000	1.1879	.0000	1.1865
42	.0100	.1254	.0100	.1579	.0100	.0888	.0100	.1672	.0100	.0637	.0100	.0695
41	.0300	-.6235	.0300	-.6611	.0300	-.6682	.0300	-.6810	.0300	-.7128	.0300	-.8189
40	.0500	-.4224	.0500	-.4536	.0500	-.4626	.0500	-.5544	.0500	-.5686	.0500	-.6479
39	.0750	-.3135	.0750	-.3488	.0750	-.3585	.0750	-.4227	.0750	-.4349	.0750	-.5345
38	.1000	-.3247	.1000	-.3787	.1000	-.3617	.1000	-.3752	.1000	-.3597	.1000	-.4214
37	.1400	-.3819	.1400	-.3795	.1400	-.3919	.1400	-.3941	.1400	-.4057	.1400	-.3119
36	.1800	-.4083	.1800	-.4298	.1800	-.4253	.1800	-.3967	.1800	-.4198	.1800	-.3568
35	.2200	-.4613	.2200	-.4921	.2200	-.4648	.2200	-.4892	.2200	-.4606	.2200	-.4237
34	.2600	-.4963	.2600	-.5107	.2600	-.4998	.2600	-.5358	.2600	-.4937	.2600	-.3938
33	.3000	-.5178	.3000	-.5345	.3000	-.5136	.3000	-.5702	.3000	-.5310	.3000	-.3983
32	.3400	-.5544	.3400	-.5740	.3400	-.5875	.3400	-.5959	.3400	-.5740	.3400	-.4208
31	.3800	-.5869	.3800	-.6152	.3800	-.6219	.3800	-.6132	.3800	-.5644	.3800	-.4638
30	.4200	-.6550	.4200	-.6550	.4200	-.6560	.4200	-.6688	.4200	-.6068	.4200	-.4754
29	.4600	-.6653	.4600	-.6926	.4600	-.6839	.4600	-.6878	.4600	-.6290	.4600	-.4285
28	.5000	-.7234	.5000	-.7347	.5000	-.7148	.5000	-.7087	.5000	-.6505	.5000	-.3507
27	.5400	-.7094	.5400	-.7578	.5400	-.7427	.5400	-.7003	.5400	-.4243	.5400	-.2849
26	.5800	-.7273	.5800	-.7795	.5800	-.7302	.5800	-.3678	.5800	-.2399	.5800	-.2380
25	.6200	-.5117	.6200	-.5140	.6200	-.3376	.6200	-.2129	.6200	-.1927	.6200	-.1862
24			.6600	-.2195	.6600	-.1744	.6600	-.1528	.6600	-.1595	.6600	-.1570
23	.7000	-.1204	.7000	-.1275	.7000	-.1088	.7000	-.1127	.7000	-.1323	.7000	-.1297
22	.7400	-.0767	.7400	-.0751	.7400	-.0616	.7400	-.0722	.7400	-.0812	.7400	-.1001
21	.7800	-.0401	.7800	-.0436	.7800	-.0291	.7800	-.0359	.7800	-.0491	.7800	-.0638
20	.8200	-.0131	.8200	-.0038	.8200	.0107	.8200	.0068	.8200	-.0012	.8200	-.0205
19	.8600	.0290	.8600	.0428	.8600	.0521	.8600	.0525	.8600	.0428	.8600	.0229
18	.9000	.0782	.9000	.0868	.9000	.0981	.9000	.0978	.9000	.0952	.9000	.0724
17	.9400	.1260	.9400	.1331	.9400	.1447			.9400	.1445		
16			.9800	.1895			.9800	.2028	.9800	.2015		

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

TABLE 11

REYNOLDS NUMBER = 2500000.
LAMBDA= 0.DEG ALPHA= 2.010EG MO= .0406

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	-.0004	.9700	.1955	.9700	.2039	.9700	.2095	.9700	.1920	.8500	-.0209
13	.7500	-.0665	.8500	.0154	.8500	.0202	.8500	.0212				
12			.7500	-.0681	.7500	-.0495	.7500	-.0649	.7500	-.0761	.7500	-.0912
11	.6500	-.1545	.6500	-.1471	.6500	-.0803			.6500	-.1606	.6500	-.1609
10	.5500	-.5475	.5500	-.5925	.5500	-.5161	.5500	-.4592	.5500	-.3645	.5500	-.2588
9	.4500	-.5690	.4500	-.5883	.4500	-.5729	.4500	-.5649	.4500	-.5401	.4500	-.3992
8	.3500	-.4390	.3500	-.4416	.3500	-.4412	.3500	-.4297	.3500	-.4287	.3500	-.3741
7	.2600	-.3484	.2600	-.3587	.2600	-.3411	.2600	-.3083	.2600	-.3430	.2600	-.3150
6	.1400	-.2434	.1400	-.2495	.1400	-.2299	.1400	-.2386	.1400	-.2495	.1400	-.2884
5	.0750	-.1725			.0750	-.1606	.0750	-.1660	.0750	-.1744	.0750	-.2466
4	.0400	-.2319	.0400	-.2389	.0400	-.2168	.0400	-.2023	.0400	-.2360	.0400	-.3425
3	.0210	-.2473	.0220	-.2035	.0220	-.2072	.0220	-.1824	.0220	-.1551	.0220	-.2360
2	.0070	.5699	.0070	.5764	.0070	.5792	.0070	.5956	.0070	.5992	.0070	.5642
1	.0000	1.1913	.0000	1.1897	.0000	1.1884	.0000	.3972	.0000	1.1839	.0000	1.1816
42	.0100	-.0668	.0100	-.0415	.0100	-.0919	.0100	.0192	.0100	-.1044	.0100	-.0790
41	.0300	-.8555	.0300	-.8892	.0300	-.9007	.0300	-.8821	.0300	-.8927	.0300	-.9592
40	.0500	-.8458	.0500	-.8645	.0500	-.8526	.0500	-.8638	.0500	-.8786	.0500	-.8959
39	.0750	-.7659	.0750	-.7906	.0750	-.7868	.0750	-.8131	.0750	-.8102	.0750	-.8266
38	.1000	-.7290	.1000	-.7559	.1000	-.7476	.1000	-.7729	.1000	-.7765	.1000	-.7884
37	.1400	-.7087	.1400	-.7245	.1400	-.7206	.1400	-.7485	.1400	-.7492	.1400	-.7295
36	.1800	-.7004	.1800	-.7151	.1800	-.7094	.1800	-.7383	.1800	-.7434	.1800	-.6744
35	.2200	-.7103	.2200	-.7354	.2200	-.7277	.2200	-.7534	.2200	-.7521	.2200	-.4252
34	.2600	-.7284	.2600	-.7551	.2600	-.7389	.2600	-.7559	.2600	-.7668	.2600	-.4522
33	.3000	-.7360	.3000	-.7418	.3000	-.7399	.3000	-.7681	.3000	-.7729	.3000	-.4579
32	.3400	-.7479	.3400	-.7649	.3400	-.7742	.3400	-.7835	.3400	-.7735	.3400	-.4737
31	.3800	-.7472	.3800	-.7925	.3800	-.8012	.3800	-.7912	.3800	-.7440	.3800	-.4884
30	.4200	-.8353	.4200	-.8343	.4200	-.8269	.4200	-.8519	.4200	-.7145	.4200	-.5119
29	.4600	-.8384	.4600	-.8519	.4600	-.8564	.4600	-.8702	.4600	-.6477	.4600	-.4926
28	.5000	-.8853	.5000	-.8943	.5000	-.8731	.5000	-.8815	.5000	-.6728	.5000	-.4483
27	.5400	-.8677	.5400	-.8940	.5400	-.8433	.5400	-.8783	.5400	-.6342	.5400	-.3292
26	.5800	-.8314	.5800	-.8503	.5800	-.8051	.5800	-.5286	.5800	-.2415	.5800	-.2556
25	.6200	-.7925	.6200	-.7868	.6200	-.6907	.6200	-.2858	.6200	-.1564	.6200	-.1975
24			.6600	-.5196	.6600	-.3960	.6600	-.1721	.6600	-.1301	.6600	-.1641
23	.7000	-.2476	.7000	-.3015	.7000	-.2120	.7000	-.0890	.7000	-.1099	.7000	-.1339
22	.7400	-.1995	.7400	-.1564	.7400	-.0771	.7400	-.0325	.7400	-.0585	.7400	-.1021
21	.7800	-.0187	.7800	-.0472	.7800	.0029	.7800	.0070	.7800	-.0515	.7800	-.0620
20	.8200	.0343	.8200	.0534	.8200	.0597	.8200	.0443	.8200	.0170	.8200	-.0180
19	.8600	.0812	.8600	.0915	.8600	.1066	.8600	.0854	.8600	.0610	.8600	.0273
18	.9000	.1290	.9000	.1377	.9000	.1480	.9000	.1274	.9000	.1136	.9000	.0795
17	.9400	.1737	.9400	.1817	.9400	.1926			.9400	.1653		
16			.9800	.2312			.9800	.2360	.9800	.2257		

TABLE 12

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

REYNOLDS NUMBER = 2500000.
LAMBDA= 0.DEG ALPHA= 4.04DEG MO= .6420

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	-.0881	.9700	.0276	.9700	.0542	.9700	.1615	.9700	.1827	.8500	-.0359
13	.7500	-.1301	.8500	-.0894	.8500	-.0670	.8500	-.0186				
12			.7500	-.1474	.7500	-.1170	.7500	-.0987	.7500	-.0930	.7500	-.1051
11	.6500	-.2251	.6500	-.2189	.6500	-.1689			.6500	-.1721	.6500	-.1651
10	.5500	-.4001	.5500	-.4324	.5500	-.3971	.5500	-.3506	.5500	-.3276	.5500	-.2795
9	.4500	-.4711	.4500	-.4926	.4500	-.4766	.4500	-.4689	.4500	-.4445	.4500	-.3625
8	.3500	-.3378	.3500	-.3458	.3500	-.3417	.3500	-.3394	.3500	-.3554	.3500	-.3381
7	.2600	-.2253	.2600	-.2346	.2600	-.2224	.2600	-.1917	.2600	-.2446	.2600	-.2631
6	.1400	-.0904	.1400	-.0994	.1400	-.0865	.1400	-.0958	.1400	-.1164	.1400	-.1901
5	.0750	.0115			.0750	.0215	.0750	.0070	.0750	-.0095	.0750	-.1016
4	.0400	.0221	.0400	.0141	.0400	.0227	.0400	.0285	.0400	-.0039	.0400	-.1208
3	.0210	.0401	.0220	.0740	.0220	.0692	.0220	.0788	.0220	.0862	.0220	-.0141
2	.0070	.7404	.0070	.7410	.0070	.7413	.0070	.7490	.0070	.7490	.0070	.6974
1	.0000	1.1547	.0000	1.1641	.0000	1.1625	.0000	.3881	.0000	1.1596	.0000	1.1605
42	.0100	-.2212	.0100	-.1933	.0100	-.2471	.0100	-.1125	.0100	-.2526	.0100	-.2141
41	.0300	-1.0134	.0300	-1.0420	.0300	-1.0375	.0300	-1.0202	.0300	-1.0237	.0300	-1.0795
40	.0500	-1.0093	.0500	-1.0291	.0500	-1.0070	.0500	-1.0202	.0500	-1.0202	.0500	-1.0317
39	.0750	-.9522	.0750	-.9702	.0750	-.9599	.0750	-.9801	.0750	-.9750	.0750	-.9814
38	.1000	-.9192	.1000	-.9442	.1000	-.9336	.1000	-.9449	.1000	-.9509	.1000	-.9497
37	.1400	-.9009	.1400	-.9215	.1400	-.9074	.1400	-.9256	.1400	-.9298	.1400	-.9083
36	.1800	-.8977	.1800	-.9102	.1800	-.8990	.1800	-.9199	.1800	-.9192	.1800	-.8711
35	.2200	-.9051	.2200	-.9247	.2200	-.9074	.2200	-.9324	.2200	-.9288	.2200	-.7660
34	.2600	-.9125	.2600	-.9269	.2600	-.9186	.2600	-.9352	.2600	-.9384	.2600	-.5619
33	.3000	-.9259	.3000	-.9397	.3000	-.9231	.3000	-.9442	.3000	-.9442	.3000	-.5548
32	.3400	-.9410	.3400	-.9561	.3400	-.9490	.3400	-.9561	.3400	-.9679	.3400	-.5670
31	.3800	-.9612	.3800	-.9779	.3800	-.9686	.3800	-.9647	.3800	-.9830	.3800	-.6013
30	.4200	-.9945	.4200	-1.0016	.4200	-.9747	.4200	-1.0166	.4200	-.9708	.4200	-.6154
29	.4600	-.9731	.4600	-.9721	.4600	-.9413	.4600	-1.0224	.4600	-.9442	.4600	-.5939
28	.5000	-.9442	.5000	-.9545	.5000	-.9349	.5000	-1.0077	.5000	-.9391	.5000	-.5769
27	.5400	-.9388	.5400	-.9445	.5400	-.8968	.5400	-.9330	.5400	-.7820	.5400	-.4580
26	.5800	-.8343	.5800	-.7907	.5800	-.6673	.5800	-.5554	.5800	-.3663	.5800	-.3058
25	.6200	-.6048	.6200	-.5689	.6200	-.4965	.6200	-.4500	.6200	-.1753	.6200	-.2256
24			.6600	-.4423	.6600	-.4032	.6600	-.3083	.6600	-.1095	.6600	-.1849
23	.7000	-.3490	.7000	-.3532	.7000	-.3301	.7000	-.2644	.7000	-.0840	.7000	-.1516
22	.7400	-.2545	.7400	-.2676	.7400	-.2571	.7400	-.1500	.7400	-.0343	.7400	-.1192
21	.7800	-.2087	.7800	-.2256	.7800	-.1888	.7800	-.0599	.7800	-.0119	.7800	-.0824
20	.8200	-.1635	.8200	-.1638	.8200	-.1365	.8200	.0151	.8200	.0317	.8200	-.0385
19	.8600	-.0917	.8600	-.1074	.8600	-.0708	.8600	.0651	.8600	.0689	.8600	.0032
18	.9000	-.0337	.9000	-.0522	.9000	-.0170	.9000	.1106	.9000	.1170	.9000	.0545
17	.9400	.0269	.9400	.0026	.9400	.0359			.9400	.1628		
16			.9800	.0510			.9800	.2032	.9800	.2154		

ONERA VARIABLE SWEEP WING : AFV 0 CORD = 0.2 M S2MA WIND TUNNEL

TABLE 13

REYNOLDS NUMBER = 2500000.
LAMBDA= 0.DEG ALPHA= -.01DEG MO= .9221

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	-.0944	.9700	-.2414	.9700	-.2158	.9700	-.1527	.9700	-.0504	.8500	-.2420
13	.7500	-.0973	.8500	-.0950	.8500	-.6275	.8500	-.5416				
12			.7500	-.7288	.7500	-.7139	.7500	-.7064	.7500	-.6554	.7500	-.5113
11	.6500	-.6796	.6500	-.6985	.6500	-.6962			.6500	-.6582	.6500	-.5107
10	.5500	-.6318	.5500	-.6525	.5500	-.6409	.5500	-.6618	.5500	-.5989	.5500	-.5096
9	.4500	-.5701	.4500	-.5818	.4500	-.5751	.4500	-.5835	.4500	-.5517	.4500	-.4892
8	.3500	-.4659	.3500	-.4650	.3500	-.4560	.3500	-.4662	.3500	-.4953	.3500	-.5774
7	.2600	-.3858	.2600	-.3888	.2600	-.3791	.2600	-.3023	.2600	-.4109	.2600	-.3008
6	.1400	-.2953	.1400	-.2694	.1400	-.2502	.1400	-.2697	.1400	-.2924	.1400	-.4190
5	.0750	-.4048			.0750	-.3643	.0750	-.3428	.0750	-.3666	.0750	-.4650
4	.0400	-.5390	.0400	-.5361	.0400	-.5346	.0400	-.5101	.0400	-.5096	.0400	-.5358
3	.0220	-.5535	.0220	-.5238	.0220	-.3163	.0220	-.2816	.0220	-.2555	.0220	-.2866
2	.0070	.4977	.0070	.4936	.0070	.4933	.0070	.5166	.0070	.5285	.0070	.5111
1	.0000	1.2307	.0000	1.2295	.0000	1.2278	.0000	.4295	.0000	1.2272	.0000	1.2234
42	.0100	.2450	.0100	.2610	.0100	.2176	.0100	.2910	.0100	.1981	.0100	.2022
41	.0300	-.4685	.0300	-.4944	.0300	-.5101	.0300	-.4927	.0300	-.5238	.0300	-.6129
40	.0500	-.3343	.0500	-.3599	.0500	-.3780	.0500	-.4580	.0500	-.4819	.0500	-.5212
39	.0750	-.2219	.0750	-.2511	.0750	-.2639	.0750	-.3643	.0750	-.3858	.0750	-.4545
38	.1000	-.1946	.1000	-.2449	.1000	-.2301	.1000	-.2656	.1000	-.3366	.1000	-.4260
37	.1400	-.2569	.1400	-.2551	.1400	-.2691	.1400	-.2845	.1400	-.3072	.1400	-.4225
36	.1800	-.2912	.1800	-.3061	.1800	-.3040	.1800	-.3125	.1800	-.3365	.1800	-.4374
35	.2200	-.3422	.2200	-.3634	.2200	-.3521	.2200	-.3690	.2200	-.3981	.2200	-.3896
34	.2600	-.3719	.2600	-.3858	.2600	-.3838	.2600	-.4091	.2600	-.4240	.2600	-.3340
33	.3000	-.3969	.3000	-.4074	.3000	-.4001	.3000	-.4470	.3000	-.4540	.3000	-.3163
32	.3400	-.4315	.3400	-.4478	.3400	-.4607	.3400	-.4796	.3400	-.5101	.3400	-.3832
31	.3800	-.4735	.3800	-.4935	.3800	-.4970	.3800	-.5081	.3800	-.5387	.3800	-.4184
30	.4200	-.5398	.4200	-.5415	.4200	-.5305	.4200	-.5754	.4200	-.5960	.4200	-.4676
29	.4600	-.5558	.4600	-.5730	.4600	-.5678	.4600	-.6004	.4600	-.5595	.4600	-.4749
28	.5000	-.6117	.5000	-.6117	.5000	-.6030	.5000	-.6266	.5000	-.5952	.5000	-.4955
27	.5400	-.6135	.5400	-.6356	.5400	-.6359	.5400	-.6601	.5400	-.5984	.5400	-.4936
26	.5800	-.6374	.5800	-.6518	.5800	-.6496	.5800	-.6819	.5800	-.6269	.5800	-.5255
25	.6200	-.6726	.6200	-.6621	.6200	-.6729	.6200	-.7040	.6200	-.6304	.6200	-.5139
24			.6600	-.6869	.6600	-.6770	.6600	-.7139	.6600	-.6411	.6600	-.5045
23	.7000	-.6671	.7000	-.7081	.7000	-.7034	.7000	-.7302	.7000	-.6720	.7000	-.5110
22	.7400	-.6383	.7400	-.7205	.7400	-.7159	.7400	-.7296	.7400	-.6656	.7400	-.5200
21	.7800	-.6857	.7800	-.7308	.7800	-.7317	.7800	-.7034	.7800	-.6755	.7800	-.5227
20	.8200	-.7163	.8200	-.7535	.8200	-.7480	.8200	-.5724	.8200	-.5570	.8200	-.4228
19	.8600	-.7221	.8600	-.7439	.8600	-.5532	.8600	-.2706	.8600	-.2170	.8600	-.1358
18	.9000	-.5509	.9000	-.4391	.9000	-.2755	.9000	-.1934	.9000	-.1256	.9000	-.0240
17	.9400	-.2674	.9400	-.2676	.9400	-.2199			.9400	-.0627		
16			.9800	-.2275			.9800	-.1186	.9800	-.0065		

TABLE 14

ONERA VARIABLE SWEEP WING : AFV 0 CORD = 0.2 M S2MA WIND TUNNEL

REYNOLDS NUMBER = 2500000.
LAMBDA= 0.DEG ALPHA= 2.030DEG MO= .9196

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	-.6189	.9700	-.2724	.9700	-.2558	.9700	-.2111	.9700	.0811	.8500	-.4563
13	.7500	-.6198	.8500	-.6691	.8500	-.6201	.8500	-.6172				
12			.7500	-.6425	.7500	-.6358	.7500	-.6440	.7500	-.6093	.7500	-.4922
11	.6500	-.6037	.6500	-.6165	.6500	-.6201			.6500	-.5985	.6500	-.4946
10	.5500	-.5559	.5500	-.5702	.5500	-.5646	.5500	-.5742	.5500	-.5643	.5500	-.4908
9	.4500	-.4705	.4500	-.4928	.4500	-.4881	.4500	-.4984	.4500	-.5019	.4500	-.4627
8	.3500	-.3420	.3500	-.3690	.3500	-.3623	.3500	-.3705	.3500	-.3935	.3500	-.3620
7	.2600	-.2941	.2600	-.2934	.2600	-.2818	.2600	-.2564	.2600	-.3212	.2600	-.3150
6	.1400	-.1624	.1400	-.1717	.1400	-.1536	.1400	-.1692	.1400	-.1866	.1400	-.2774
5	.0750	-.0859			.0750	-.0888	.0750	-.0955	.0750	-.1087	.0750	-.2059
4	.0400	-.1729	.0400	-.1834	.0400	-.1673	.0400	-.1504	.0400	-.1901	.0400	-.3454
3	.0210	-.1717	.0220	-.1271	.0220	-.1349	.0220	-.1116	.0220	-.0812	.0220	-.1516
2	.0070	.6251	.0070	.6266	.0070	.6251	.0070	.6412	.0070	.6465	.0070	.6138
1	.0000	1.2288	.0000	1.2276	.0000	1.2253	.0000	.4261	.0000	1.2232	.0000	1.2194
42	.0100	.1065	.0100	.1275	.0100	.0811	.0100	.1785	.0100	.0714	.0100	.0889
41	.0300	-.6180	.0300	-.6493	.0300	-.6618	.0300	-.6434	.0300	-.6551	.0300	-.7176
40	.0500	-.6119	.0500	-.6294	.0500	-.6224	.0500	-.6306	.0500	-.6461	.0500	-.6665
39	.0750	-.5454	.0750	-.5675	.0750	-.5661	.0750	-.5894	.0750	-.5912	.0750	-.6166
38	.1000	-.5156	.1000	-.5401	.1000	-.5381	.1000	-.5614	.1000	-.5661	.1000	-.5961
37	.1400	-.5189	.1400	-.5226	.1400	-.5211	.1400	-.5486	.1400	-.5541	.1400	-.5953
36	.1800	-.5197	.1800	-.5225	.1800	-.5214	.1800	-.5477	.1800	-.5591	.1800	-.6072
35	.2200	-.5259	.2200	-.5471	.2200	-.5439	.2200	-.5693	.2200	-.5769	.2200	-.5734
34	.2600	-.5468	.2600	-.5570	.2600	-.5617	.2600	-.5813	.2600	-.6020	.2600	-.5521
33	.3000	-.5667	.3000	-.5740	.3000	-.5745	.3000	-.5988	.3000	-.6189	.3000	-.5982
32	.3400	-.5856	.3400	-.6002	.3400	-.6096	.3400	-.6212	.3400	-.6571	.3400	-.4484
31	.3800	-.6090	.3800	-.6294	.3800	-.6393	.3800	-.6358	.3800	-.6852	.3800	-.4829
30	.4200	-.6595	.4200	-.6700	.4200	-.6694	.4200	-.6945	.4200	-.7257	.4200	-.5245
29	.4600	-.6860	.4600	-.6995	.4600	-.7001	.4600	-.7158	.4600	-.7526	.4600	-.5275
28	.5000	-.7219	.5000	-.7336	.5000	-.7319	.5000	-.7371	.5000	-.7657	.5000	-.5410
27	.5400	-.7348	.5400	-.7590	.5400	-.7552	.5400	-.7654	.5400	-.7421	.5400	-.5343
26	.5800	-.7561	.5800	-.7759	.5800	-.7695	.5800	-.7859	.5800	-.7272	.5800	-.5614
25	.6200	-.7821	.6200	-.7859	.6200	-.7815	.6200	-.8051	.6200	-.7152	.6200	-.5497
24			.6600	-.7894	.6600	-.7614	.6600	-.7365	.6600	-.7044	.6600	-.5416
23	.7000	-.7739	.7000	-.7704	.7000	-.7421	.7000	-.3755	.7000	-.7114	.7000	-.5465
22	.7400	-.7561	.7400	-.7561	.7400	-.7522	.7400	-.3080	.7400	-.7021	.7400	-.5529
21	.7800	-.7386	.7800	-.7438	.7800	-.7193	.7800	-.2978	.7800	-.6904	.7800	-.4625
20	.8200	-.7316	.8200	-.7117	.8200	-.6218	.8200	-.2975	.8200	-.2940	.8200	-.1703
19	.8600	-.6715	.8600	-.5661	.8600	-.4496	.8600	-.2984	.8600	-.0623	.8600	-.0605
18	.9000	-.5254	.9000	-.4112	.9000	-.3279	.9000	-.2832	.9000	.0262	.9000	-.0115
17	.9400	-.3571	.9400	-.3086	.9400	-.2488			.9400	.0819		
16			.9800	-.2275			.9800	-.1977	.9800	.1321		

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

TABLE 15

REYNOLDS NUMBER = 2500000.
LAMBDA=50.DEG ALPHA= .01DEG MO= .7014

	ETA = .5000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	-.0400	.9700	.0890	.9700	.1072	.9700	.1100	.9700	.1176	.8500	.0475
13	.7500	-.1017	.8500	-.0312	.8500	-.0191	.8500	-.0046				
12			.7500	-.0896	.7500	-.0711	.7500	-.0663	.7500	-.0489	.7500	.0067
11	.6500	-.1626	.6500	-.1526	.6500	-.1393			.6500	-.1062	.6500	-.0404
10	.5500	-.2171	.5500	-.2114	.5500	-.1868	.5500	-.1812	.5500	-.1594	.5500	-.0993
9	.4500	-.2635	.4500	-.2663	.4500	-.2514	.4500	-.2373	.4500	-.2175	.4500	-.1651
8	.3500	-.2816	.3500	-.2824	.3500	-.2655	.3500	-.2574	.3500	-.2413	.3500	-.2046
7	.2600	-.2744	.2600	-.2437	.2600	-.2514	.2600	-.2437	.2600	-.2312	.2600	-.2405
6	.1400	-.2651	.1400	-.2840	.1400	-.2643	.1400	-.2562	.1400	-.2566	.1400	-.2957
5	.0750	-.2973			.0750	-.2856	.0750	-.2740	.0750	-.2663	.0750	-.3098
4	.0400	-.4175	.0400	-.4248	.0400	-.3953	.0400	-.3651	.0400	-.3639	.0400	-.4091
3	.0210	-.5421	.0220	-.5087	.0220	-.4829	.0220	-.4449	.0220	-.4014	.0220	-.4276
2	.0070	.0668	.0070	.0854	.0070	.1112	.0070	.1439	.0070	.1543	.0070	.1205
1	.0000	.8089	.0000	.8105	.0000	.8061	.0000	.2435	.0000	.8069	.0000	.8016
42	.0100	-.0780	.0100	-.0852	.0100	-.1211	.0100	-.0082	.0100	-.1505	.0100	-.2239
41	.0300	-.4018	.0300	-.4268	.0300	-.4228	.0300	-.4655	.0300	-.4776	.0300	-.5942
40	.0500	-.2917	.0500	-.3155	.0500	-.3139	.0500	-.3433	.0500	-.3570	.0500	-.4312
39	.0750	-.2514	.0750	-.2760	.0750	-.2735	.0750	-.2921	.0750	-.3010	.0750	-.3534
38	.1000	-.2510	.1000	-.2711	.1000	-.2671	.1000	-.2756	.1000	-.2844	.1000	-.3457
37	.1400	-.2530	.1400	-.2635	.1400	-.2623	.1400	-.2663	.1400	-.2748	.1400	-.2973
36	.1800	-.2614	.1800	-.2715	.1800	-.2582	.1800	-.2671	.1800	-.2554	.1800	-.2901
35	.2200	-.2675	.2200	-.2756	.2200	-.2606	.2200	-.2687	.2200	-.2699	.2200	-.2784
34	.2600	-.2483	.2600	-.2723	.2600	-.2514	.2600	-.2655	.2600	-.2348	.2600	-.2772
33	.3000	-.2695	.3000	-.2719	.3000	-.2457	.3000	-.2614	.3000	-.2550	.3000	-.2461
32	.3400	-.2691	.3400	-.2715	.3400	-.2570	.3400	-.2614	.3400	-.2550	.3400	-.2385
31	.3800	-.2711	.3800	-.2780	.3800	-.2594	.3800	-.2586	.3800	-.2554	.3800	-.2312
30	.4200	-.2727	.4200	-.2623	.4200	-.2417	.4200	-.2538	.4200	-.2389	.4200	-.2078
29	.4600	-.2550	.4600	-.2493	.4600	-.2352	.4600	-.2219	.4600	-.2296	.4600	-.1868
28	.5000	-.2457	.5000	-.2260	.5000	-.2159	.5000	-.2235	.5000	-.2046	.5000	-.1542
27	.5400	-.2074	.5400	-.2058	.5400	-.1961	.5400	-.1917	.5400	-.1711	.5400	-.1364
26	.5800	-.1925	.5800	-.1905	.5800	-.1663	.5800	-.1695	.5800	-.1501	.5800	-.1110
25	.6200	-.1796	.6200	-.1618	.6200	-.1481	.6200	-.1526	.6200	-.1227	.6200	-.0775
24			.6600	-.1457	.6600	-.1255	.6600	-.1235	.6600	-.1094	.6600	-.0550
23	.7000	-.1103	.7000	-.1296	.7000	-.1094	.7000	-.1082	.7000	-.0929	.7000	-.0372
22	.7400	-.1102	.7400	-.1066	.7400	-.0844	.7400	-.0763	.7400	-.0566	.7400	-.0171
21	.7800	-.0800	.7800	-.0836	.7800	-.0634	.7800	-.0509	.7800	-.0413	.7800	.0043
20	.8200	-.0667	.8200	-.0570	.8200	-.0356	.8200	-.0239	.8200	-.0098	.8200	.0289
19	.8600	-.0340	.8600	-.0179	.8600	-.0050	.8600	.0051	.8600	.0188	.8600	.0539
18	.9000	.0059	.9000	.0132	.9000	.0301	.9000	.0386	.9000	.0604	.9000	.0858
17	.9400	.0386	.9400	.0523	.9400	.0644			.9400	.0870		
16			.9800	.0979			.9800	.1185	.9800	.1285		

TABLE 16

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

REYNOLDS NUMBER = 2500000.
LAMBDA=30.DEG ALPHA= 4.01DEG MO= .6992

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	-.0050	.9700	.0699	.9700	.0869	.9700	.0922	.9700	.0974	.8500	.0355
13	.7500	-.0674	.8500	-.0103	.8500	-.0050	.8500	.0152				
12			.7500	-.0540	.7500	-.0411	.7500	-.0528	.7500	-.0237	.7500	-.0018
11	.6500	-.0966	.6500	-.0966	.6500	-.0832			.6500	-.0788	.6500	-.0427
10	.5500	-.1229	.5500	-.1217	.5500	-.1095	.5500	-.1116	.5500	-.1120	.5500	-.0816
9	.4500	-.1326	.4500	-.1423	.4500	-.1334	.4500	-.1326	.4500	-.1379	.4500	-.1233
8	.3500	-.1221	.3500	-.1249	.3500	-.1035	.3500	-.1201	.3500	-.1294	.3500	-.1428
7	.2600	-.0792	.2600	-.0771	.2600	-.0577	.2600	-.0731	.2600	-.0840	.2600	-.1375
6	.1400	-.0006	.1400	-.0022	.1400	.0099	.1400	.0095	.1400	-.0063	.1400	-.0950
5	.0750	.0772			.0750	.0877	.0750	.0893	.0750	.0792	.0750	-.0131
4	.0400	.1242	.0400	.1274	.0400	.1383	.0400	.1513	.0400	.1302	.0400	.0298
3	.0210	.1740	.0220	.2036	.0220	.2141	.0220	.2242	.0220	.2246	.0220	.1351
2	.0070	.6224	.0070	.6426	.0070	.6414	.0070	.6438	.0070	.6406	.0070	.5588
1	.0000	.6418	.0000	.6556	.0000	.6293	.0000	.1788	.0000	.6216	.0000	.6386
42	.0100	-.9670	.0100	-.9605	.0100	-1.0294	.0100	-.8034	.0100	-1.0606	.0100	-1.0184
41	.0300	-1.3959	.0300	-1.4458	.0300	-1.4348	.0300	-1.5175	.0300	-1.4194	.0300	-1.3664
40	.0500	-1.3514	.0500	-1.4182	.0500	-1.3895	.0500	-1.3498	.0500	-1.3639	.0500	-1.2935
39	.0750	-.6033	.0750	-.7033	.0750	-.7531	.0750	-.7483	.0750	-.7661	.0750	-.7390
38	.1000	-.5397	.1000	-.5851	.1000	-.5923	.1000	-.6057	.1000	-.5599	.1000	-.5567
37	.1400	-.5340	.1400	-.5445	.1400	-.5389	.1400	-.5336	.1400	-.5069	.1400	-.4692
36	.1800	-.4927	.1800	-.5312	.1800	-.4951	.1800	-.4996	.1800	-.4563	.1800	-.4218
35	.2200	-.4999	.2200	-.4959	.2200	-.4725	.2200	-.4708	.2200	-.4437	.2200	-.3821
34	.2600	-.4364	.2600	-.4656	.2600	-.4344	.2600	-.4372	.2600	-.3821	.2600	-.3562
33	.3000	-.4238	.3000	-.4332	.3000	-.4064	.3000	-.4105	.3000	-.3756	.3000	-.3137
32	.3400	-.4198	.3400	-.4162	.3400	-.4028	.3400	-.3890	.3400	-.3566	.3400	-.2955
31	.3800	-.3878	.3800	-.4052	.3800	-.3821	.3800	-.3659	.3800	-.3388	.3800	-.2740
30	.4200	-.3837	.4200	-.3688	.4200	-.3461	.4200	-.3404	.4200	-.3040	.4200	-.2408
29	.4600	-.3376	.4600	-.3465	.4600	-.3246	.4600	-.2971	.4600	-.2813	.4600	-.2100
28	.5000	-.3307	.5000	-.3072	.5000	-.2914	.5000	-.2797	.5000	-.2456	.5000	-.1711
27	.5400	-.2724	.5400	-.2732	.5400	-.2558	.5400	-.2383	.5400	-.2031	.5400	-.1432
26	.5800	-.2220	.5800	-.2448	.5800	-.2165	.5800	-.2067	.5800	-.1739	.5800	-.1128
25	.6200	-.2181	.6200	-.2035	.6200	-.1869	.6200	-.1776	.6200	-.1359	.6200	-.0759
24			.6600	-.1752	.6600	-.1561	.6600	-.1387	.6600	-.1156	.6600	-.0488
23	.7000	-.1322	.7000	-.1472	.7000	-.1286	.7000	-.1160	.7000	-.0913	.7000	-.0277
22	.7400	-.1265	.7400	-.1156	.7400	-.0962	.7400	-.0796	.7400	-.0528	.7400	-.0050
21	.7800	-.0893	.7800	-.0832	.7800	-.0666	.7800	-.0480	.7800	-.0326	.7800	.0185
20	.8200	-.0593	.8200	-.0476	.8200	-.0302	.8200	-.0123	.8200	.0023	.8200	.0448
19	.8600	-.0188	.8600	-.0058	.8600	.0047	.8600	.0197	.8600	.0334	.8600	.0703
18	.9000	.0245	.9000	.0322	.9000	.0428	.9000	.0545	.9000	.0752	.9000	.0995
17	.9400	.0638	.9400	.0687	.9400	.0752			.9400	.1007		
16			.9800	.1055			.9800	.1197	.9800	.1355		

ONERA VARIABLE SWEEP WING : AFV D CORD = 0,2 M S2MA WIND TUNNEL

TABLE 17

REYNOLDS NUMBER = 2500000,
LAMBDA=50.DEG ALPHA= 6,01DEG MO= ,6999

	ETA = ,3000		ETA = ,4500		ETA = ,6000		ETA = ,7500		ETA = ,8500		ETA = ,9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	,8500	-,0024	,9700	,0591	,9700	,0781	,9700	,0773	,9700	,0777	,8500	,0247
13	,7500	-,0166	,8500	-,0089	,8500	,0008	,8500	,0093				
12			,7500	-,0186	,7500	-,0105	,7500	-,0157	,7500	-,0218	,7500	-,0060
11	,6500	-,0449	,6500	-,0461	,6500	-,0388			,6500	-,0513	,6500	-,0457
10	,5500	-,0760	,5500	-,0471	,5500	-,0647	,5500	-,0728	,5500	-,0857	,5500	-,0805
9	,4500	-,0772	,4500	-,0813	,4500	-,0752	,4500	-,0817	,4500	-,0966	,4500	-,1132
8	,3500	-,0477	,3500	-,0513	,3500	-,0315	,3500	-,0530	,3500	-,0728	,3500	-,1229
7	,2600	,0101	,2600	,0110	,2600	,0271	,2600	,0077	,2600	-,0145	,2600	-,0974
6	,1400	,1117	,1400	,1129	,1400	,1230	,1400	,1161	,1400	,0931	,1400	-,0178
5	,0750	,2164			,0750	,2278	,0750	,2229	,0750	,2039	,0750	,0967
4	,0400	,2985	,0400	,3070	,0400	,3139	,0400	,3171	,0400	,2888	,0400	,1776
3	,0210	,3867	,0220	,4130	,0220	,4183	,0220	,4187	,0220	,4053	,0220	,3062
2	,0070	,7358	,0070	,7487	,0070	,7540	,0070	,7491	,0070	,7394	,0070	,6577
1	,0000	,4785	,0000	,4911	,0000	,4587	,0000	,1359	,0000	,4709	,0000	,5008
42	,0100	-1,2886	,0100	-1,2834	,0100	-1,3400	,0100	-1,1790	,0100	-1,3590	,0100	-1,2733
41	,0300	-1,6418	,0300	-1,6248	,0300	-1,5342	,0300	-1,4549	,0300	-1,5451	,0300	-1,4735
40	,0500	-1,6519	,0500	-1,6592	,0500	-1,5669	,0500	-1,4027	,0500	-1,5609	,0500	-1,4537
39	,0750	-1,4318	,0750	-1,4998	,0750	-1,4286	,0750	-1,2955	,0750	-1,3975	,0750	-1,2907
38	,1000	-1,1572	,1000	-1,2749	,1000	-1,2660	,1000	-1,1980	,1000	-1,1984	,1000	-1,0460
37	,1400	-,8429	,1400	-,9545	,1400	-,9857	,1400	-1,0087	,1400	-,8275	,1400	-,6107
36	,1800	-,6698	,1800	-,7070	,1800	-,7066	,1800	-,7762	,1800	-,5359	,1800	-,4570
35	,2200	-,5929	,2200	-,5776	,2200	-,5472	,2200	-,5877	,2200	-,4793	,2200	-,4077
34	,2600	-,5480	,2600	-,5238	,2600	-,4764	,2600	-,4829	,2600	-,4214	,2600	-,3818
33	,3000	-,5124	,3000	-,4841	,3000	-,4437	,3000	-,4368	,3000	-,4146	,3000	-,3365
32	,3400	-,4845	,3400	-,4578	,3400	-,4328	,3400	-,4089	,3400	-,3818	,3400	-,3001
31	,3800	-,4607	,3800	-,4469	,3800	-,4154	,3800	-,3794	,3800	-,3502	,3800	-,2653
30	,4200	-,4364	,4200	-,4117	,4200	-,3806	,4200	-,3523	,4200	-,3078	,4200	-,2334
29	,4600	-,4000	,4600	-,3834	,4600	-,3559	,4600	-,3041	,4600	-,2787	,4600	-,2022
28	,5000	-,3664	,5000	-,3377	,5000	-,3122	,5000	-,2819	,5000	-,2418	,5000	-,1646
27	,5400	-,3155	,5400	-,2981	,5400	-,2734	,5400	-,2410	,5400	-,2075	,5400	-,1391
26	,5800	-,2799	,5800	-,2629	,5800	-,2321	,5800	-,2091	,5800	-,1824	,5800	-,1104
25	,6200	-,2487	,6200	-,2224	,6200	-,1990	,6200	-,1824	,6200	-,1452	,6200	-,0813
24			,6600	-,1885	,6600	-,1650	,6600	-,1419	,6600	-,1205	,6600	-,0554
23	,7000	-,1614	,7000	-,1581	,7000	-,1339	,7000	-,1181	,7000	-,0902	,7000	-,0343
22	,7400	-,1367	,7400	-,1245	,7400	-,1007	,7400	-,0849	,7400	-,0530	,7400	-,0113
21	,7800	-,0954	,7800	-,0898	,7800	-,0720	,7800	-,0530	,7800	-,0319	,7800	,0110
20	,8200	-,0655	,8200	-,0574	,8200	-,0372	,8200	-,0210	,8200	,0021	,8200	,0344
19	,8600	-,0259	,8600	-,0186	,8600	-,0052	,8600	,0073	,8600	,0320	,8600	,0559
18	,9000	,0154	,9000	,0150	,9000	,0300	,9000	,0393	,9000	,0664	,9000	,0830
17	,9400	,0538	,9400	,0502	,9400	,0619			,9400	,0858		
16			,9800	,0825			,9800	,0987	,9800	,1105		

TABLE 18

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

REYNOLDS NUMBER = 2500000.
LAMBDA=30.DEG ALPHA= -.02DEG MO= .7818

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	-.0514	.9700	.0907	.9700	.1072	.9700	.1128	.9700	.1233	.8500	.0547
13	.7500	-.1175	.8500	-.0342	.8500	-.0206	.8500	-.0059				
12			.7500	-.0986	.7500	-.0815	.7500	-.0699	.7500	-.0496	.7500	.0134
11	.6500	-.1858	.6500	-.1669	.6500	-.1504			.6500	-.1112	.6500	-.0356
10	.5500	-.2445	.5500	-.2316	.5500	-.2074	.5500	-.1973	.5500	-.1714	.5500	-.1007
9	.4500	-.2977	.4500	-.3005	.4500	-.2753	.4500	-.2624	.4500	-.2400	.4500	-.1746
8	.3500	-.3149	.3500	-.3152	.3500	-.2953	.3500	-.2876	.3500	-.2697	.3500	-.2277
7	.2600	-.3023	.2600	-.2802	.2600	-.2813	.2600	-.2697	.2600	-.2687	.2600	-.2834
6	.1400	-.2816	.1400	-.3019	.1400	-.2876	.1400	-.2753	.1400	-.2816	.1400	-.3499
5	.0750	-.3100			.0750	-.3079	.0750	-.2988	.0750	-.2928	.0750	-.3520
4	.0400	-.4402	.0400	-.4587	.0400	-.4328	.0400	-.4003	.0400	-.3996	.0400	-.4559
3	.0210	-.5602	.0220	-.5333	.0220	-.5081	.0220	-.4724	.0220	-.4192	.0220	-.4338
2	.0070	.1096	.0070	.1233	.0070	.1404	.0070	.1702	.0070	.1824	.0070	.1464
1	.0000	.8249	.0000	.8253	.0000	.8239	.0000	.2517	.0000	.8221	.0000	.8214
42	.0100	-.0556	.0100	-.0615	.0100	-.0958	.0100	.0263	.0100	-.1249	.0100	-.1816
41	.0300	-.4241	.0300	-.4570	.0300	-.4542	.0300	-.5007	.0300	-.5193	.0300	-.6466
40	.0500	-.3089	.0500	-.3425	.0500	-.3404	.0500	-.3737	.0500	-.3905	.0500	-.4776
39	.0750	-.2722	.0750	-.3019	.0750	-.3005	.0750	-.3184	.0750	-.3303	.0750	-.3908
38	.1000	-.2736	.1000	-.3009	.1000	-.2974	.1000	-.3037	.1000	-.3089	.1000	-.3922
37	.1400	-.2799	.1400	-.2963	.1400	-.2921	.1400	-.2942	.1400	-.3058	.1400	-.3656
36	.1800	-.2949	.1800	-.3079	.1800	-.2865	.1800	-.3037	.1800	-.2942	.1800	-.3611
35	.2200	-.3068	.2200	-.3135	.2200	-.2939	.2200	-.3082	.2200	-.3103	.2200	-.3408
34	.2600	-.3096	.2600	-.3117	.2600	-.2876	.2600	-.3054	.2600	-.2785	.2600	-.3250
33	.3000	-.3110	.3000	-.3107	.3000	-.2830	.3000	-.3023	.3000	-.2963	.3000	-.2869
32	.3400	-.3131	.3400	-.3100	.3400	-.2956	.3400	-.3016	.3400	-.2946	.3400	-.2683
31	.3800	-.3173	.3800	-.3194	.3800	-.2967	.3800	-.2977	.3800	-.2928	.3800	-.2575
30	.4200	-.3226	.4200	-.3037	.4200	-.2774	.4200	-.2911	.4200	-.2732	.4200	-.2267
29	.4600	-.3026	.4600	-.2907	.4600	-.2666	.4600	-.2568	.4600	-.2543	.4600	-.1990
28	.5000	-.2904	.5000	-.2620	.5000	-.2477	.5000	-.2519	.5000	-.2277	.5000	-.1644
27	.5400	-.2477	.5400	-.2368	.5400	-.2193	.5400	-.2141	.5400	-.1896	.5400	-.1452
26	.5800	-.2267	.5800	-.2179	.5800	-.1896	.5800	-.1879	.5800	-.1644	.5800	-.1144
25	.6200	-.2130	.6200	-.1854	.6200	-.1641	.6200	-.1697	.6200	-.1315	.6200	-.0804
24			.6600	-.1641	.6600	-.1413	.6600	-.1343	.6600	-.1147	.6600	-.0552
23	.7000	-.1452	.7000	-.1455	.7000	-.1210	.7000	-.1151	.7000	-.0948	.7000	-.0346
22	.7400	-.1343	.7400	-.1210	.7400	-.0972	.7400	-.0822	.7400	-.0570	.7400	-.0136
21	.7800	-.1018	.7800	-.0962	.7800	-.0696	.7800	-.0535	.7800	-.0409	.7800	.0081
20	.8200	-.0853	.8200	-.0668	.8200	-.0423	.8200	-.0251	.8200	-.0076	.8200	.0344
19	.8600	-.0496	.8400	-.0241	.8600	-.0062	.8600	.0060	.8600	.0228	.8600	.0603
18	.9000	-.0094	.9000	.0120	.9000	.0277	.9000	.0407	.9000	.0655	.9000	.0942
17	.9400	.0988	.9400	.0515	.9400	.0694			.9400	.0939		
16			.9800	.0977			.9800	.1233	.9800	.1355		

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

TABLE 19

REYNOLDS NUMBER = 2500000.
LAMBDA=30.DEG ALPHA= 2.01DEG MO= .7784

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	-.0404	.9700	.0746	.9700	.0954	.9700	.1014	.9700	.1105	.8500	.0472
13	.7500	-.0721	.8500	-.0341	.8500	-.0200	.8500	-.0035				
12			.7500	-.0686	.7500	-.0538	.7500	-.0443	.7500	-.0366	.7500	.0064
11	.6500	-.1632	.6500	-.1439	.6500	-.1193			.6500	-.0915	.6500	-.0397
10	.5500	-.2016	.5500	-.1974	.5500	-.1805	.5500	-.1756	.5500	-.1432	.5500	-.0844
9	.4500	-.2319	.4500	-.2354	.4500	-.2192	.4500	-.2143	.4500	-.2100	.4500	-.1604
8	.3500	-.2259	.3500	-.2304	.3500	-.2072	.3500	-.2153	.3500	-.2171	.3500	-.2002
7	.2600	-.1924	.2600	-.1984	.2600	-.1791	.2600	-.1819	.2600	-.1752	.2600	-.2252
6	.1400	-.1439	.1400	-.1537	.1400	-.1383	.1400	-.1319	.1400	-.1400	.1400	-.2234
5	.0750	-.1010			.0750	-.0950	.0750	-.0908	.0750	-.0922	.0750	-.1675
4	.0400	-.1235	.0400	-.1302	.0400	-.1062	.0400	-.0862	.0400	-.1010	.0400	-.1773
3	.0220	-.1358	.0220	-.1122	.0220	-.0943	.0220	-.0718	.0220	-.0528	.0220	-.1101
2	.0070	.4011	.0070	.4208	.0070	.4367	.0070	.4507	.0070	.4543	.0070	.3937
1	.0000	.7959	.0000	.8019	.0000	.7906	.0000	.2344	.0000	.7787	.0000	.7769
42	.0100	-.4282	.0100	-.4324	.0100	-.4848	.0100	-.3191	.0100	-.4971	.0100	-.5267
41	.0300	-.8807	.0300	-.9591	.0300	-.9848	.0300	-1.0401	.0300	-1.0316	.0300	-1.1238
40	.0500	-.7264	.0500	-.8898	.0500	-.9116	.0500	-.9616	.0500	-.9500	.0500	-1.0267
39	.0750	-.3634	.0750	-.3754	.0750	-.3708	.0750	-.4078	.0750	-.3905	.0750	-.5056
38	.1000	-.4226	.1000	-.4641	.1000	-.4560	.1000	-.4489	.1000	-.4296	.1000	-.4950
37	.1400	-.4215	.1400	-.4440	.1400	-.4398	.1400	-.4419	.1400	-.4359	.1400	-.4665
36	.1800	-.4211	.1800	-.4504	.1800	-.4155	.1800	-.4359	.1800	-.4085	.1800	-.4335
35	.2200	-.4211	.2200	-.4324	.2200	-.4109	.2200	-.4190	.2200	-.4095	.2200	-.3919
34	.2600	-.4190	.2600	-.4152	.2600	-.3916	.2600	-.4014	.2600	-.3645	.2600	-.3687
33	.3000	-.4043	.3000	-.3958	.3000	-.3719	.3000	-.3835	.3000	-.3649	.3000	-.3195
32	.3400	-.3983	.3400	-.3891	.3400	-.3747	.3400	-.3691	.3400	-.3466	.3400	-.2941
31	.3800	-.3923	.3800	-.3881	.3800	-.3617	.3800	-.3532	.3800	-.3321	.3800	-.2794
30	.4200	-.3891	.4200	-.3617	.4200	-.3346	.4200	-.3346	.4200	-.3033	.4200	-.2435
29	.4600	-.3592	.4600	-.3416	.4600	-.3142	.4600	-.2934	.4600	-.2786	.4600	-.2121
28	.5000	-.3353	.5000	-.3036	.5000	-.2846	.5000	-.2755	.5000	-.2428	.5000	-.1734
27	.5400	-.2857	.5400	-.2677	.5400	-.2466	.5400	-.2322	.5400	-.1998	.5400	-.1456
26	.5800	-.2589	.5800	-.2428	.5800	-.2132	.5800	-.2030	.5800	-.1699	.5800	-.1112
25	.6200	-.2329	.6200	-.2030	.6200	-.1805	.6200	-.1756	.6200	-.1330	.6200	-.0732
24			.6600	-.1734	.6600	-.1509	.6600	-.1358	.6600	-.1119	.6600	-.0429
23	.7000	-.1548	.7000	-.1495	.7000	-.1249	.7000	-.1126	.7000	-.0876	.7000	-.0214
22	.7400	-.1358	.7400	-.1175	.7400	-.0957	.7400	-.0774	.7400	-.0496	.7400	.0021
21	.7800	-.0971	.7800	-.0862	.7800	-.0637	.7800	-.0436	.7800	-.0257	.7800	.0264
20	.8200	-.0696	.8200	-.0514	.8200	-.0309	.8200	-.0116	.8200	.0081	.8200	.0517
19	.8600	-.0291	.8600	-.0084	.8600	.0071	.8600	.0218	.8600	.0408	.8600	.0778
18	.9000	.0142	.9000	.0306	.9000	.0433	.9000	.0581	.9000	.0820	.9000	.1098
17	.9400	.0577	.9400	.0711	.9400	.0827			.9400	.1105		
16			.9800	.1137			.9800	.1327	.9800	.1482		

TABLE 20

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

REYNOLDS NUMBER = 2500000.
LAMBDA=30.DEG ALPHA= 4.03DEG MO= .7798

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	-.0189	.9700	.0654	.9700	.0910	.9700	.0998	.9700	.1061	.8500	.0366
13	.7500	-.0842	.8500	-.0231	.8500	-.0098	.8500	.0067				
12			.7500	-.0519	.7500	-.0407	.7500	-.0410	.7500	-.0319	.7500	-.0045
11	.6500	-.1168	.6500	-.1158	.6500	-.0951			.6500	-.0930	.6500	-.0575
10	.5500	-.1442	.5500	-.1446	.5500	-.1316	.5500	-.1344	.5500	-.1397	.5500	-.1123
9	.4500	-.1604	.4500	-.1670	.4500	-.1555	.4500	-.1583	.4500	-.1691	.4500	-.1656
8	.3500	-.1393	.3500	-.1467	.3500	-.1253	.3500	-.1421	.3500	-.1583	.3500	-.2029
7	.2600	-.0898	.2600	-.0958	.2600	-.0838	.2600	-.0905	.2600	-.1074	.2600	-.1951
6	.1400	-.0115	.1400	-.0175	.1400	-.0052	.1400	-.0045	.1400	-.0213	.1400	-.1274
5	.0750	.0685			.0750	.0777	.0750	.0759	.0750	.0654	.0750	-.0284
4	.0400	.1089	.0400	.1092	.0400	.1208	.0400	.1345	.0400	.1135	.0400	.0152
3	.0210	.1552	.0220	.1781	.0220	.1914	.0220	.2012	.0220	.2044	.0220	.1208
2	.0070	.6014	.0070	.6183	.0070	.6264	.0070	.6302	.0070	.6271	.0070	.5523
1	.0000	.7117	.0000	.7159	.0000	.6959	.0000	.1974	.0000	.6839	.0000	.6938
42	.0100	-.7144	.0100	-.7105	.0100	-.7737	.0100	-.5904	.0100	-.8137	.0100	-.7870
41	.0300	-1.4379	.0300	-1.4814	.0300	-1.4800	.0300	-1.4899	.0300	-1.4772	.0300	-1.5194
40	.0500	-1.3301	.0500	-1.4049	.0500	-1.4211	.0500	-1.4393	.0500	-1.4453	.0500	-1.3870
39	.0750	-1.2726	.0750	-1.3056	.0750	-1.3066	.0750	-1.3298	.0750	-1.3393	.0750	-1.3491
38	.1000	-1.1981	.1000	-1.2726	.1000	-1.2782	.1000	-1.2978	.1000	-1.2870	.1000	-1.2080
37	.1400	-.5100	.1400	-.7955	.1400	-.9306	.1400	-.9032	.1400	-.8165	.1400	-.5350
36	.1800	-.5525	.1800	-.4862	.1800	-.4342	.1800	-.4525	.1800	-.3822	.1800	-.3363
35	.2200	-.5620	.2200	-.5058	.2200	-.4328	.2200	-.4282	.2200	-.3977	.2200	-.3457
34	.2600	-.5511	.2600	-.4977	.2600	-.4437	.2600	-.4332	.2600	-.3679	.2600	-.3612
33	.3000	-.5220	.3000	-.4770	.3000	-.4303	.3000	-.4216	.3000	-.3738	.3000	-.3240
32	.3400	-.5044	.3400	-.4626	.3400	-.4324	.3400	-.4068	.3400	-.3605	.3400	-.2994
31	.3800	-.4869	.3800	-.4560	.3800	-.4145	.3800	-.3872	.3800	-.3461	.3800	-.2818
30	.4200	-.4676	.4200	-.4181	.4200	-.3805	.4200	-.3629	.4200	-.3162	.4200	-.2474
29	.4600	-.4247	.4600	-.3900	.4600	-.3538	.4600	-.3162	.4600	-.2882	.4600	-.2137
28	.5000	-.3889	.5000	-.3429	.5000	-.3162	.5000	-.2931	.5000	-.2488	.5000	-.1734
27	.5400	-.3299	.5400	-.3022	.5400	-.2727	.5400	-.2460	.5400	-.2043	.5400	-.1484
26	.5800	-.2938	.5800	-.2692	.5800	-.2344	.5800	-.2127	.5800	-.1744	.5800	-.1151
25	.6200	-.2604	.6200	-.2250	.6200	-.1993	.6200	-.1867	.6200	-.1361	.6200	-.0793
24			.6600	-.1920	.6600	-.1653	.6600	-.1428	.6600	-.1144	.6600	-.0508
23	.7000	-.1754	.7000	-.1611	.7000	-.1344	.7000	-.1189	.7000	-.0895	.7000	-.0305
22	.7400	-.1435	.7400	-.1260	.7400	-.1035	.7400	-.0796	.7400	-.0505	.7400	-.0073
21	.7800	-.1031	.7800	-.0916	.7800	-.0701	.7800	-.0463	.7800	-.0284	.7800	.0159
20	.8200	-.0698	.8200	-.0533	.8200	-.0350	.8200	-.0136	.8200	.0060	.8200	.0432
19	.8600	-.0263	.8600	-.0098	.8600	.0046	.8600	.0194	.8600	.0387	.8600	.0692
18	.9000	.0169	.9000	.0289	.9000	.0408	.9000	.0548	.9000	.0798	.9000	.1015
17	.9400	.0569	.9400	.0682	.9400	.0812			.9400	.1071		
16			.9800	.1043			.9800	.1300	.9800	.1440		

ONERA VARIABLE SWEEP WING : AFV D CORD = 0,2 M S2MA WIND TUNNEL

TABLE 21

REYNOLDS NUMBER = 2500000,
LAMBDA=30,DEG ALPHA= ,01DEG MO= ,8413

	ETA = ,3000		ETA = ,4500		ETA = ,6000		ETA = ,7500		ETA = ,8500		ETA = ,9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	,8500	-,0637	,9700	,0896	,9700	,1092	,9700	,1155	,9700	,1272	,8500	,0550
13	,7500	-,1397	,8500	-,0380	,8500	-,0265	,8500	-,0104				
12			,7500	-,1109	,7500	-,0919	,7500	-,0807	,7500	-,0582	,7500	,0014
11	,6500	-,2190	,6500	-,1885	,6500	-,1718			,6500	-,1330	,6500	-,0618
10	,5500	-,2937	,5500	-,2681	,5500	-,2379	,5500	-,2331	,5500	-,2106	,5500	-,1394
9	,4500	-,3585	,4500	-,3537	,4500	-,3255	,4500	-,3165	,4500	-,3043	,4500	-,2302
8	,3500	-,3900	,3500	-,3774	,3500	-,3492	,3500	-,3479	,3500	-,3492	,3500	-,3242
7	,2600	-,3447	,2600	-,3351	,2600	-,3319	,2600	-,3075	,2600	-,3306	,2600	-,4066
6	,1400	-,3053	,1400	-,3415	,1400	-,3274	,1400	-,3120	,1400	-,3287	,1400	-,4082
5	,0750	-,3293			,0750	-,3434	,0750	-,3348	,0750	-,3303	,0750	-,3848
4	,0400	-,4737	,0400	-,5074	,0400	-,4817	,0400	-,4480	,0400	-,4496	,0400	-,5006
3	,0210	-,5693	,0220	-,5603	,0220	-,5305	,0220	-,4997	,0220	-,4426	,0220	-,4682
2	,0070	,1487	,0070	,1557	,0070	,1708	,0070	,1949	,0070	,2051	,0070	,1727
1	,0000	,8371	,0000	,8371	,0000	,8326	,0000	,2529	,0000	,8355	,0000	,8413
42	,0100	-,0226	,0100	-,0323	,0100	-,0685	,0100	,0608	,0100	-,0929	,0100	-,1295
41	,0300	-,4384	,0300	-,4904	,0300	-,4865	,0300	-,5404	,0300	-,5603	,0300	-,7053
40	,0500	-,3916	,0500	-,3659	,0500	-,3678	,0500	-,4066	,0500	-,4236	,0500	-,5186
39	,0750	-,2873	,0750	-,3268	,0750	-,3274	,0750	-,3470	,0750	-,3617	,0750	-,4217
38	,1000	-,2902	,1000	-,3316	,1000	-,3309	,1000	-,3367	,1000	-,3425	,1000	-,4089
37	,1400	-,3011	,1400	-,3316	,1400	-,3313	,1400	-,3370	,1400	-,3454	,1400	-,4111
36	,1800	-,3168	,1800	-,3508	,1800	-,3306	,1800	-,3489	,1800	-,3415	,1800	-,4336
35	,2200	-,3390	,2200	-,3637	,2200	-,3457	,2200	-,3515	,2200	-,3662	,2200	-,4336
34	,2600	-,3563	,2600	-,3653	,2600	-,3450	,2600	-,3582	,2600	-,3431	,2600	-,4236
33	,3000	-,3643	,3000	-,3774	,3000	-,3386	,3000	-,3560	,3000	-,3617	,3000	-,3633
32	,3400	-,3717	,3400	-,3774	,3400	-,3524	,3400	-,3576	,3400	-,3649	,3400	-,3268
31	,3800	-,3887	,3800	-,3855	,3800	-,3511	,3800	-,3540	,3800	-,3579	,3800	-,3043
30	,4200	-,3980	,4200	-,3688	,4200	-,3319	,4200	-,3454	,4200	-,3322	,4200	-,2610
29	,4600	-,3781	,4600	-,3524	,4600	-,3213	,4600	-,3021	,4600	-,3053	,4600	-,2180
28	,5000	-,3582	,5000	-,3094	,5000	-,2905	,5000	-,2940	,5000	-,2665	,5000	-,1757
27	,5400	-,3094	,5400	-,2745	,5400	-,2555	,5400	-,2440	,5400	-,2183	,5400	-,1468
26	,5800	-,2822	,5800	-,2494	,5800	-,2206	,5800	-,2161	,5800	-,1859	,5800	-,1137
25	,6200	-,2562	,6200	-,2129	,6200	-,1917	,6200	-,1920	,6200	-,1481	,6200	-,0759
24			,6600	-,1882	,6600	-,1641	,6600	-,1551	,6600	-,1279	,6600	-,0473
23	,7000	-,1773	,7000	-,1676	,7000	-,1407	,7000	-,1314	,7000	-,1032	,7000	-,0284
22	,7400	-,1615	,7400	-,1378	,7400	-,1118	,7400	-,0945	,7400	-,0634	,7400	-,0076
21	,7800	-,1266	,7800	-,1118	,7800	-,0833	,7800	-,0631	,7800	-,0422	,7800	,0168
20	,8200	-,1099	,8200	-,0801	,8200	-,0522	,8200	-,0316	,8200	-,0079	,8200	,0418
19	,8600	-,0695	,8600	-,0319	,8600	-,0155	,8600	,0024	,8600	,0232	,8600	,0704
18	,9000	-,0262	,9000	,0037	,9000	,0248	,9000	,0390	,9000	,0675	,9000	,1018
17	,9400	,0136	,9400	,0467	,9400	,0637			,9400	,0964		
16			,9800	,0941			,9800	,1253	,9800	,1362		

TABLE 22

ONERA VARIABLE SWEEP WING : AFV D CORD = 0,2 M S2MA WIND TUNNEL

REYNOLDS NUMBER = 2500000.
LAMBDA=50.DEG ALPHA= 2.00DEG MO= .8398

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	-.0489	.9700	.0642	.9700	.0918	.9700	.0996	.9700	.1145	.8500	.0465
13	.7500	-.1046	.8500	-.0515	.8500	-.0335	.8500	-.0168				
12			.7500	-.0930	.7500	-.0753	.7500	-.0682	.7500	-.0551	.7500	.0009
11	.6500	-.2113	.6500	-.1727	.6500	-.1409			.6500	-.1046	.6500	-.0567
10	.5500	-.2512	.5500	-.2418	.5500	-.2209	.5500	-.2224	.5500	-.2197	.5500	-.1136
9	.4500	-.2798	.4500	-.2865	.4500	-.2637	.4500	-.2656	.4500	-.2740	.4500	-.2512
8	.3500	-.2757	.3500	-.2817	.3500	-.2637	.3500	-.2663	.3500	-.2827	.3500	-.3122
7	.2600	-.2293	.2600	-.2396	.2600	-.2235	.2600	-.2222	.2600	-.2248	.2600	-.3376
6	.1400	-.1695	.1400	-.1846	.1400	-.1679	.1400	-.1640	.1400	-.1763	.1400	-.2717
5	.0750	-.1239			.0750	-.1197	.0750	-.1168	.0750	-.1194	.0750	-.1949
4	.0400	-.1512	.0400	-.1631	.0400	-.1435	.0400	-.1174	.0400	-.1332	.0400	-.2110
3	.0210	-.1746	.0220	-.1470	.0220	-.1268	.0220	-.1049	.0220	-.0808	.0220	-.1386
2	.0070	.3911	.0070	.4081	.0070	.4229	.0070	.4397	.0070	.4461	.0070	.3840
1	.0000	.8193	.0000	.8212	.0000	.8135	.0000	.2400	.0000	.8035	.0000	.8090
42	.0100	-.3023	.0100	-.3058	.0100	-.3543	.0100	-.2000	.0100	-.3733	.0100	-.3871
41	.0300	-.9307	.0300	-1.0236	.0300	-1.0519	.0300	-1.0426	.0300	-1.0590	.0300	-1.1220
40	.0500	-.8008	.0500	-.8851	.0500	-.9503	.0500	-1.0001	.0500	-1.0210	.0500	-1.0455
39	.0750	-.6523	.0750	-.8243	.0750	-.8619	.0750	-.8870	.0750	-.9079	.0750	-.9381
38	.1000	-.3955	.1000	-.4006	.1000	-.7542	.1000	-.8455	.1000	-.8388	.1000	-.8693
37	.1400	-.4517	.1400	-.4839	.1400	-.4350	.1400	-.3341	.1400	-.3633	.1400	-.5520
36	.1800	-.4459	.1800	-.5395	.1800	-.5035	.1800	-.4765	.1800	-.4263	.1800	-.4357
35	.2200	-.4755	.2200	-.5395	.2200	-.4836	.2200	-.4958	.2200	-.4617	.2200	-.3720
34	.2600	-.4919	.2600	-.5366	.2600	-.4437	.2600	-.4752	.2600	-.4273	.2600	-.3559
33	.3000	-.4897	.3000	-.5369	.3000	-.4355	.3000	-.4434	.3000	-.4318	.3000	-.3653
32	.3400	-.5183	.3400	-.5205	.3400	-.4659	.3400	-.4235	.3400	-.4000	.3400	-.3479
31	.3800	-.5305	.3800	-.4431	.3800	-.4190	.3800	-.4151	.3800	-.3833	.3800	-.3122
30	.4200	-.5643	.4200	-.4096	.4200	-.3955	.4200	-.3852	.4200	-.3434	.4200	-.2611
29	.4600	-.5199	.4600	-.3891	.4600	-.3627	.4600	-.3299	.4600	-.3029	.4600	-.2171
28	.5000	-.4052	.5000	-.3447	.5000	-.3225	.5000	-.3087	.5000	-.2605	.5000	-.1734
27	.5400	-.3357	.5400	-.3019	.5400	-.2762	.5400	-.2544	.5400	-.2126	.5400	-.1435
26	.5800	-.3016	.5800	-.2695	.5800	-.2351	.5800	-.2187	.5800	-.1788	.5800	-.1084
25	.6200	-.2492	.6200	-.2258	.6200	-.1991	.6200	-.1878	.6200	-.1393	.6200	-.0705
24			.6600	-.1875	.6600	-.1663	.6600	-.1467	.6600	-.1155	.6600	-.0419
23	.7000	-.1802	.7000	-.1631	.7000	-.1351	.7000	-.1184	.7000	-.0885	.7000	-.0197
22	.7400	-.1506	.7400	-.1274	.7400	-.1033	.7400	-.0801	.7400	-.0483	.7400	.0028
21	.7800	-.1171	.7800	-.0943	.7800	-.0689	.7800	-.0461	.7800	-.0249	.7800	.0282
20	.8200	-.0853	.8200	-.0567	.8200	-.0258	.8200	-.0117	.8200	.0115	.8200	.0549
19	.8600	-.0425	.8600	-.0117	.8600	.0050	.8600	.0221	.8600	.0433	.8600	.0832
18	.9000	.0044	.9000	.0279	.9000	.0439	.9000	.0590	.9000	.0864	.9000	.1150
17	.9400	.0475	.9400	.0680	.9400	.0838			.9400	.1153		
16			.9800	.1082			.9800	.1356	.9800	.1513		

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

TABLE 23

REYNOLDS NUMBER = 2500000.
LAMBDA=30.DEG ALPHA= 4.02DEG MO= .8423

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	-.0433	.9700	.0621	.9700	.1067	.9700	.1268	.9700	.1304	.8500	.0442
13	.7500	-.1186	.8500	-.0353	.8500	-.0109	.8500	.0067				
12			.7500	-.0622	.7500	-.0394	.7500	-.0333	.7500	-.0423	.7500	-.0064
11	.6500	-.1525	.6500	-.1458	.6500	-.1141			.6500	-.1230	.6500	-.0718
10	.5500	-.1910	.5500	-.1794	.5500	-.1586	.5500	-.1666	.5500	-.1814	.5500	-.1535
9	.4500	-.2015	.4500	-.2089	.4500	-.1903	.4500	-.1961	.4500	-.2195	.4500	-.2451
8	.3500	-.1804	.3500	-.1862	.3500	-.1576	.3500	-.1794	.3500	-.2047	.3500	-.2970
7	.2600	-.1230	.2600	-.1317	.2600	-.1154	.2600	-.1198	.2600	-.1429	.2600	-.2659
6	.1400	-.0378	.1400	-.0449	.1400	-.0324	.1400	-.0321	.1400	-.0519	.1400	-.1593
5	.0750	.0400			.0750	.0474	.0750	.0445	.0750	.0346	.0750	-.0535
4	.0400	.0653	.0400	.0602	.0400	.0775	.0400	.0932	.0400	.0730	.0400	-.0164
3	.0210	.0983	.0220	.1204	.0220	.1368	.0220	.1509	.0220	.1573	.0220	.0839
2	.0070	.5677	.0070	.5827	.0070	.5943	.0070	.6000	.0070	.6007	.0070	.5976
1	.0000	.7698	.0000	.7711	.0000	.7551	.0000	.2149	.0000	.7378	.0000	.7432
42	.0100	-.4934	.0100	-.4899	.0100	-.5424	.0100	-.3877	.0100	-.5953	.0100	-.5828
41	.0300	-1.1700	.0300	-1.2059	.0300	-1.2056	.0300	-1.2184	.0300	-1.2146	.0300	-1.2471
40	.0500	-1.1460	.0500	-1.1822	.0500	-1.1755	.0500	-1.2011	.0500	-1.2130	.0500	-1.2293
39	.0750	-1.0637	.0750	-1.1159	.0750	-1.1204	.0750	-1.1572	.0750	-1.1591	.0750	-1.1742
38	.1000	-.9938	.1000	-1.0778	.1000	-1.0829	.1000	-1.1156	.1000	-1.1242	.1000	-1.1341
37	.1400	-.9262	.1400	-1.0275	.1400	-1.0384	.1400	-1.0736	.1400	-1.0864	.1400	-1.0925
36	.1800	-.6350	.1800	-.9839	.1800	-1.0082	.1800	-1.0438	.1800	-1.0576	.1800	-1.0316
35	.2200	-.5732	.2200	-.9371	.2200	-.9909	.2200	-1.0329	.2200	-1.0409	.2200	-.9996
34	.2600	-.6273	.2600	-.8897	.2600	-.9788	.2600	-1.0102	.2600	-.9996	.2600	-.6754
33	.3000	-.6366	.3000	-.5873	.3000	-.9602	.3000	-.9743	.3000	-.9621	.3000	-.3098
32	.3400	-.6590	.3400	-.6651	.3400	-.9355	.3400	-.9285	.3400	-.7052	.3400	-.1625
31	.3800	-.6706	.3800	-.7221	.3800	-.7516	.3800	-.5543	.3800	-.2454	.3800	-.1532
30	.4200	-.7202	.4200	-.7628	.4200	-.3053	.4200	-.2509	.4200	-.1993	.4200	-.1615
29	.4600	-.7052	.4600	-.7715	.4600	-.2608	.4600	-.1903	.4600	-.1689	.4600	-.1634
28	.5000	-.7212	.5000	-.3947	.5000	-.2493	.5000	-.1990	.5000	-.1432	.5000	-.1416
27	.5400	-.6783	.5400	-.2743	.5400	-.2227	.5400	-.1759	.5400	-.1170	.5400	-.1237
26	.5800	-.4601	.5800	-.2349	.5800	-.1996	.5800	-.1612	.5800	-.1099	.5800	-.0987
25	.6200	-.2964	.6200	-.2006	.6200	-.1721	.6200	-.1445	.6200	-.0888	.6200	-.0660
24			.6600	-.1689	.6600	-.1413	.6600	-.1080	.6600	-.0782	.6600	-.0388
23	.7000	-.1766	.7000	-.1410	.7000	-.1118	.7000	-.0897	.7000	-.0651	.7000	-.0208
22	.7400	-.1407	.7400	-.1090	.7400	-.0820	.7400	-.0571	.7400	-.0292	.7400	.0013
21	.7800	-.0987	.7800	-.0750	.7800	-.0500	.7800	-.0279	.7800	-.0154	.7800	.0243
20	.8200	-.0654	.8200	-.0394	.8200	-.0180	.8200	.0009	.8200	.0189	.8200	.0490
19	.8600	-.0257	.8600	.0009	.8600	.0205	.8600	.0314	.8600	.0474	.8600	.0762
18	.9000	.0131	.9000	.0378	.9000	.0586	.9000	.0660	.9000	.0913	.9000	.1079
17	.9400	.0474	.9400	.0724	.9400	.0974			.9400	.1169		
16			.9800	.1044			.9800	.1502	.9800	.1560		

TABLE 24

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

REYNOLDS NUMBER = 2500000.
LAMBDA=30.DEG ALPHA= 2.02DEG MO= .8783

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	-.0860	.9700	.0624	.9700	.0973	.9700	.1110	.9700	.1309	.8500	.0636
13	.7500	-.1472	.8500	-.0585	.8500	-.0355	.8500	-.0163				
12			.7500	-.1035	.7500	-.0839	.7500	-.0793	.7500	-.0514	.7500	.0159
11	.6500	-.2552	.6500	-.1766	.6500	-.1448			.6500	-.1035	.6500	-.0456
10	.5500	-.2972	.5500	-.2816	.5500	-.2479	.5500	-.2537	.5500	-.2666	.5500	-.0918
9	.4500	-.3320	.4500	-.3348	.4500	-.3030	.4500	-.3014	.4500	-.3256	.4500	-.3559
8	.3500	-.3091	.3500	-.3253	.3500	-.2984	.3500	-.3008	.3500	-.3229	.3500	-.4349
7	.2600	-.2451	.2600	-.2730	.2600	-.2555	.2600	-.2494	.2600	-.2510	.2600	-.3819
6	.1400	-.1772	.1400	-.2072	.1400	-.1916	.1400	-.1867	.1400	-.1953	.1400	-.2788
5	.0750	-.1283			.0750	-.1442	.0750	-.1383	.0750	-.1359	.0750	-.1980
4	.0400	-.1650	.0400	-.1919	.0400	-.1683	.0400	-.1448	.0400	-.1576	.0400	-.2204
3	.0210	-.1882	.0220	-.1723	.0220	-.1601	.0220	-.1344	.0220	-.1039	.0220	-.1657
2	.0070	.3837	.0070	.3938	.0070	.4069	.0070	.4231	.0070	.4323	.0070	.3815
1	.0000	.8341	.0000	.8344	.0000	.8258	.0000	.2503	.0000	.8191	.0000	.8949
42	.0100	-.2210	.0100	-.2204	.0100	-.2595	.0100	-.1200	.0100	-.2794	.0100	-.3027
41	.0300	-.8626	.0300	-.9070	.0300	-.9321	.0300	-.9220	.0300	-.9367	.0300	-1.0003
40	.0500	-.7304	.0500	-.8385	.0500	-.8798	.0500	-.9058	.0500	-.9189	.0500	-.9403
39	.0750	-.6628	.0750	-.7338	.0750	-.7867	.0750	-.8470	.0750	-.8476	.0750	-.8816
38	.1000	-.2926	.1000	-.6852	.1000	-.7158	.1000	-.7864	.1000	-.8033	.1000	-.8394
37	.1400	-.4269	.1400	-.3535	.1400	-.6420	.1400	-.7161	.1400	-.7561	.1400	-.7996
36	.1800	-.4584	.1800	-.4994	.1800	-.4202	.1800	-.6533	.1800	-.7093	.1800	-.7782
35	.2200	-.4670	.2200	-.5520	.2200	-.5263	.2200	-.5003	.2200	-.6573	.2200	-.7543
34	.2600	-.4798	.2600	-.5309	.2600	-.5511	.2600	-.5603	.2600	-.4826	.2600	-.7047
33	.3000	-.4847	.3000	-.5401	.3000	-.5444	.3000	-.6028	.3000	-.5661	.3000	-.5468
32	.3400	-.4973	.3400	-.5680	.3400	-.5973	.3400	-.6206	.3400	-.6132	.3400	-.1518
31	.3800	-.5129	.3800	-.6041	.3800	-.6295	.3800	-.6331	.3800	-.6215	.3800	-.1553
30	.4200	-.5609	.4200	-.6334	.4200	-.6533	.4200	-.6585	.4200	-.3149	.4200	-.1852
29	.4600	-.5667	.4600	-.6650	.4600	-.6677	.4600	-.3091	.4600	-.2445	.4600	-.1821
28	.5000	-.5955	.5000	-.6821	.5000	-.3758	.5000	-.2519	.5000	-.2063	.5000	-.1530
27	.5400	-.5667	.5400	-.5548	.5400	-.2439	.5400	-.2164	.5400	-.1656	.5400	-.1221
26	.5800	-.5741	.5800	-.2923	.5800	-.1989	.5800	-.1870	.5800	-.1387	.5800	-.0882
25	.6200	-.5475	.6200	-.2130	.6200	-.1683	.6200	-.1613	.6200	-.1056	.6200	-.0478
24			.6600	-.1686	.6600	-.1380	.6600	-.1240	.6600	-.0879	.6600	-.0190
23	.7000	-.2219	.7000	-.1371	.7000	-.1126	.7000	-.0983	.7000	-.0640	.7000	.0015
22	.7400	-.1668	.7400	-.1053	.7400	-.0814	.7400	-.0631	.7400	-.0270	.7400	.0232
21	.7800	-.1188	.7800	-.0719	.7800	-.0530	.7800	-.0294	.7800	-.0052	.7800	.0456
20	.8200	-.0836	.8200	-.0383	.8200	-.0169	.8200	.0042	.8200	.0299	.8200	.0716
19	.8600	-.0401	.8600	.0018	.8600	.0171	.8600	.0364	.8600	.0624	.8600	.0991
18	.9000	.0036	.9000	.0382	.9000	.0556	.9000	.0734	.9000	.1037	.9000	.1315
17	.9400	.0431	.9400	.0746	.9400	.0921			.9400	.1309		
16			.9800	.1095			.9800	.1450	.9800	.1676		

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

TABLE 25

REYNOLDS NUMBER = 2500000.
LAMBDA=30.DEG ALPHA= 4.02DEG MO= .8815

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	-.1055	.9700	.0203	.9700	.0794	.9700	.1367	.9700	.1449	.8500	.0468
13	.7500	-.1657	.8500	-.0651	.8500	-.0334	.8500	-.0005				
12			.7500	-.0864	.7500	-.0654	.7500	-.0535	.7500	-.0532	.7500	-.0127
11	.6500	-.1971	.6500	-.1876	.6500	-.1471			.6500	-.1577	.6500	-.0943
10	.5500	-.2327	.5500	-.2239	.5500	-.1971	.5500	-.2029	.5500	-.2272	.5500	-.1977
9	.4500	-.2407	.4500	-.2565	.4500	-.2330	.4500	-.2361	.4500	-.2675	.4500	-.3562
8	.3500	-.2068	.3500	-.2266	.3500	-.2111	.3500	-.2166	.3500	-.2425	.3500	-.3699
7	.2600	-.1431	.2600	-.1638	.2600	-.1507	.2600	-.1507	.2600	-.1699	.2600	-.2973
6	.1400	-.0550	.1400	-.0748	.1400	-.0639	.1400	-.0623	.1400	-.0764	.1400	-.1709
5	.0750	.0203			.0750	.0117	.0750	.0126	.0750	.0069	.0750	-.0663
4	.0400	.0355	.0400	.0178	.0400	.0297	.0400	.0520	.0400	.0331	.0400	-.0376
3	.0220	.0575	.0220	.0724	.0220	.0824	.0220	.0992	.0220	.1135	.0220	.0596
2	.0070	.5439	.0070	.5509	.0070	.5586	.0070	.5668	.0070	.5698	.0070	.5089
1	.0000	.8015	.0000	.8018	.0000	.7869	.0000	.7294	.0000	.7704	.0000	.7719
42	.0100	-.3720	.0100	-.3659	.0100	-.4150	.0100	-.2733	.0100	-.4574	.0100	-.4638
41	.0300	-1.0213	.0300	-1.0518	.0300	-1.0524	.0300	-1.0536	.0300	-1.0612	.0300	-1.1170
40	.0500	-.9996	.0500	-1.0304	.0500	-1.0280	.0500	-1.0475	.0500	-1.0624	.0500	-1.0804
39	.0750	-.9304	.0750	-.9731	.0750	-.9759	.0750	-1.0109	.0750	-1.0133	.0750	-1.0338
38	.1000	-.8817	.1000	-.9411	.1000	-.9445	.1000	-.9756	.1000	-.9841	.1000	-1.0012
37	.1400	-.8076	.1400	-.9012	.1400	-.9091	.1400	-.9426	.1400	-.9557	.1400	-.9774
36	.1800	-.7677	.1800	-.8734	.1800	-.8865	.1800	-.9210	.1800	-.9371	.1800	-.9652
35	.2200	-.5110	.2200	-.8488	.2200	-.8789	.2200	-.9198	.2200	-.9326	.2200	-.9576
34	.2600	-.5762	.2600	-.8094	.2600	-.8768	.2600	-.9115	.2600	-.9347	.2600	-.9246
33	.3000	-.5820	.3000	-.7488	.3000	-.8692	.3000	-.9158	.3000	-.9332	.3000	-.8960
32	.3400	-.6131	.3400	-.4012	.3400	-.8750	.3400	-.9216	.3400	-.9309	.3400	-.8489
31	.3800	-.6320	.3800	-.6787	.3800	-.8570	.3800	-.9198	.3800	-.9335	.3800	-.5153
30	.4200	-.6851	.4200	-.7189	.4200	-.8314	.4200	-.8939	.4200	-.9073	.4200	-.3361
29	.4600	-.6957	.4600	-.7567	.4600	-.7415	.4600	-.8731	.4600	-.4967	.4600	-.2288
28	.5000	-.7159	.5000	-.7802	.5000	-.7415	.5000	-.7951	.5000	-.3867	.5000	-.1324
27	.5400	-.6762	.5400	-.7988	.5400	-.7826	.5400	-.3894	.5400	-.2900	.5400	-.0690
26	.5800	-.6787	.5800	-.7930	.5800	-.3601	.5800	-.2458	.5800	-.1596	.5800	-.0288
25	.6200	-.6875	.6200	-.4159	.6200	-.2452	.6200	-.1696	.6200	-.0130	.6200	-.0127
24			.6600	-.2836	.6600	-.1797	.6600	-.0904	.6600	.0123	.6600	.0026
23	.7000	-.4510	.7000	-.2080	.7000	-.1078	.7000	-.0239	.7000	.0172	.7000	.0154
22	.7400	-.2647	.7400	-.1456	.7400	-.0517	.7400	.0163	.7400	.0376	.7400	.0312
21	.7800	-.1763	.7800	-.0950	.7800	-.0160	.7800	.0325	.7800	.0434	.7800	.0504
20	.8200	-.1248	.8200	-.0559	.8200	.0111	.8200	.0495	.8200	.0684	.8200	.0721
19	.8600	-.0834	.8600	-.0218	.8600	.0404	.8600	.0718	.8600	.0861	.8600	.0937
18	.9000	-.0504	.9000	.0059	.9000	.0660	.9000	.1001	.9000	.1205	.9000	.1227
17	.9400	-.0206	.9400	.0309	.9400	.0913			.9400	.1364		
16			.9800	.0520			.9800	.1699	.9800	.1693		

TABLE 26

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

REYNOLDS NUMBER = 2500000.
LAMBDA=30.DEG ALPHA= -.01DEG MO= .9193

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	-.1373	.9700	.0861	.9700	.1132	.9700	.1205	.9700	.1506	.8500	.0937
13	.7500	-.3890	.8500	-.0281	.8500	-.0001	.8500	.0102				
12			.7500	-.1364	.7500	-.0734	.7500	-.0652	.7500	-.0354	.7500	.0411
11	.6500	-.4567	.6500	-.5201	.6500	-.2083			.6500	-.1350	.6500	-.0211
10	.5500	-.4635	.5500	-.5712	.5500	-.6135	.5500	-.5712	.5500	-.3706	.5500	-.1627
9	.4500	-.4623	.4500	-.5508	.4500	-.5756	.4500	-.5873	.4500	-.5937	.4500	-.6754
8	.3500	-.3829	.3500	-.4486	.3500	-.4731	.3500	-.4848	.3500	-.4880	.3500	-.5683
7	.2600	-.3274	.2600	-.3756	.2600	-.4071	.2600	-.3975	.2600	-.4281	.2600	-.4991
6	.1400	-.2699	.1400	-.3064	.1400	-.3291	.1400	-.3388	.1400	-.3446	.1400	-.4042
5	.0750	-.3090			.0750	-.3610	.0750	-.3726	.0750	-.3615	.0750	-.3849
4	.0400	-.4626	.0400	-.5163	.0400	-.5131	.0400	-.5221	.0400	-.5119	.0400	-.5470
3	.0210	-.4856	.0220	-.4775	.0220	-.4693	.0220	-.4503	.0220	-.4121	.0220	-.4150
2	.0070	.2227	.0070	.2178	.0070	.2192	.0070	.2335	.0070	.2417	.0070	.2137
1	.0000	.8628	.0000	.8549	.0000	.8470	.0000	.2610	.0000	.8493	.0000	.8622
42	.0100	.0566	.0100	.0452	.0100	.0084	.0100	.1418	.0100	-.0047	.0100	-.0328
41	.0300	-.3940	.0300	-.4608	.0300	-.4772	.0300	-.5677	.0300	-.5811	.0300	-.6930
40	.0500	-.2772	.0500	-.3335	.0500	-.3499	.0500	-.4191	.0500	-.4331	.0500	-.5306
39	.0750	-.2450	.0750	-.2961	.0750	-.3061	.0750	-.3472	.0750	-.3668	.0750	-.4275
38	.1000	-.2526	.1000	-.3078	.1000	-.3207	.1000	-.3502	.1000	-.3347	.1000	-.4045
37	.1400	-.2666	.1400	-.3134	.1400	-.3309	.1400	-.3429	.1400	-.3475	.1400	-.4071
36	.1800	-.2865	.1800	-.3437	.1800	-.3513	.1800	-.3843	.1800	-.3659	.1800	-.4328
35	.2200	-.3075	.2200	-.3703	.2200	-.3867	.2200	-.4413	.2200	-.4538	.2200	-.5037
34	.2600	-.3239	.2600	-.3738	.2600	-.3919	.2600	-.4369	.2600	-.4491	.2600	-.5502
33	.3000	-.3353	.3000	-.3928	.3000	-.4144	.3000	-.4623	.3000	-.4705	.3000	-.5505
32	.3400	-.3569	.3400	-.4232	.3400	-.4655	.3400	-.4953	.3400	-.5131	.3400	-.5843
31	.3800	-.3785	.3800	-.4643	.3800	-.4956	.3800	-.5131	.3800	-.5432	.3800	-.6226
30	.4200	-.4354	.4200	-.4967	.4200	-.5294	.4200	-.5697	.4200	-.5861	.4200	-.6728
29	.4600	-.4363	.4600	-.5327	.4600	-.5560	.4600	-.5855	.4600	-.6273	.4600	-.6892
28	.5000	-.4708	.5000	-.5487	.5000	-.5878	.5000	-.6165	.5000	-.6480	.5000	-.6389
27	.5400	-.4445	.5400	-.5586	.5400	-.6135	.5400	-.6378	.5400	-.6494	.5400	-.2214
26	.5800	-.4521	.5800	-.5662	.5800	-.6129	.5800	-.6284	.5800	-.3905	.5800	-.1303
25	.6200	-.4731	.6200	-.5493	.6200	-.6039	.6200	-.3239	.6200	-.2010	.6200	-.0696
24			.6600	-.5435	.6600	-.3455	.6600	-.1723	.6600	-.1347	.6600	-.0220
23	.7000	-.4456	.7000	-.5344	.7000	-.1823	.7000	-.1186	.7000	-.0850	.7000	.0128
22	.7400	-.4494	.7400	-.3478	.7400	-.1154	.7400	-.0751	.7400	-.0415	.7400	.0391
21	.7800	-.4135	.7800	-.1475	.7800	-.0722	.7800	-.0369	.7800	-.0117	.7800	.0613
20	.8200	-.3942	.8200	-.0812	.8200	-.0328	.8200	-.0030	.8200	.0224	.8200	.0843
19	.8600	-.2307	.8600	-.0234	.8600	.0011	.8600	.0303	.8600	.0548	.8600	.1086
18	.9000	-.1107	.9000	.0189	.9000	.0388	.9000	.0671	.9000	.0942	.9000	.1360
17	.9400	-.0336	.9400	.0580	.9400	.0729			.9400	.1202		
16			.9800	.0910			.9800	.1351	.9800	.1550		

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

TABLE 27

REYNOLDS NUMBER = 2500000.
LAMBDA=30.DEG ALPHA= 1.99DEG MO= .9248

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	-.3104	.9700	.0092	.9700	.0403	.9700	.0557	.9700	.0978	.8500	.0745
13	.7500	-.3356	.8500	-.0302	.8500	-.0567	.8500	-.0549				
12			.7500	-.3716	.7500	-.0552	.7500	-.0927	.7500	-.0967	.7500	.0423
11	.6500	-.3652	.6500	-.4195	.6500	-.4256			.6500	-.1504	.6500	.0735
10	.5500	-.3803	.5500	-.4616	.5500	-.4941	.5500	-.4593	.5500	-.4680	.5500	-.5374
9	.4500	-.3739	.4500	-.4529	.4500	-.4825	.4500	-.4996	.4500	-.5127	.4500	-.5917
8	.3500	-.3040	.3500	-.3574	.3500	-.3766	.3500	-.3940	.3500	-.4035	.3500	-.5011
7	.2600	-.2314	.2600	-.2810	.2600	-.2964	.2600	-.3043	.2600	-.3127	.2600	-.4024
6	.1400	-.1603	.1400	-.2041	.1400	-.2076	.1400	-.2250	.1400	-.2294	.1400	-.2863
5	.0750	-.1118			.0750	-.1559	.0750	-.1693	.0750	-.1675	.0750	-.2096
4	.0400	-.1571	.0400	-.1943	.0400	-.1977	.0400	-.1838	.0400	-.2035	.0400	-.2427
3	.0220	-.1906	.0220	-.1693	.0220	-.1815	.0220	-.1760	.0220	-.1446	.0220	-.1632
2	.0070	.3976	.0070	.4005	.0070	.4002	.0070	.4034	.0070	.4098	.0070	.3692
1	.0000	.8572	.0000	.8554	.0000	.8452	.0000	.2595	.0000	.8392	.0000	.8476
42	.0100	-.1284	.0100	-.1208	.0100	-.1548	.0100	-.0186	.0100	-.1615	.0100	-.1916
41	.0300	-.7400	.0300	-.7702	.0300	-.7951	.0300	-.7792	.0300	-.7893	.0300	-.8529
40	.0500	-.6395	.0500	-.7339	.0500	-.7493	.0500	-.7652	.0500	-.7742	.0500	-.8004
39	.0750	-.5652	.0750	-.6393	.0750	-.6779	.0750	-.7179	.0750	-.7115	.0750	-.7507
38	.1000	-.4631	.1000	-.5751	.1000	-.6288	.1000	-.6709	.1000	-.6799	.1000	-.7156
37	.1400	-.3392	.1400	-.4973	.1400	-.5667	.1400	-.6303	.1400	-.6532	.1400	-.6892
36	.1800	-.3092	.1800	-.4149	.1800	-.5086	.1800	-.6001	.1800	-.6384	.1800	-.6831
35	.2200	-.4752	.2200	-.4741	.2200	-.4271	.2200	-.5681	.2200	-.6294	.2200	-.6918
34	.2600	-.4442	.2600	-.4915	.2600	-.4741	.2600	-.5487	.2600	-.6050	.2600	-.6959
33	.3000	-.4465	.3000	-.4976	.3000	-.5075	.3000	-.5223	.3000	-.5856	.3000	-.6947
32	.3400	-.4636	.3400	-.5182	.3400	-.5568	.3400	-.5632	.3400	-.6065	.3400	-.6840
31	.3800	-.4793	.3800	-.5583	.3800	-.5829	.3800	-.5940	.3800	-.6001	.3800	-.6729
30	.4200	-.5205	.4200	-.5856	.4200	-.6047	.4200	-.6570	.4200	-.6515	.4200	-.7261
29	.4600	-.5153	.4600	-.6091	.4600	-.6349	.4600	-.6639	.4600	-.6991	.4600	-.7292
28	.5000	-.5382	.5000	-.6265	.5000	-.6619	.5000	-.6906	.5000	-.7194	.5000	-.4567
27	.5400	-.5179	.5400	-.6398	.5400	-.6860	.5400	-.7153	.5400	-.6692	.5400	-.2181
26	.5800	-.5226	.5800	-.6372	.5800	-.6822	.5800	-.4692	.5800	-.2752	.5800	-.1112
25	.6200	-.5438	.6200	-.6303	.6200	-.6930	.6200	-.2523	.6200	-.1876	.6200	-.0021
24			.6600	-.6160	.6600	-.2593	.6600	-.1922	.6600	-.1394	.6600	.0356
23	.7000	-.5330	.7000	-.4085	.7000	-.1902	.7000	-.1522	.7000	-.0973	.7000	.0496
22	.7400	-.5472	.7400	-.2169	.7400	-.1484	.7400	-.1118	.7400	-.0619	.7400	.0658
21	.7800	-.4938	.7800	-.1435	.7800	-.1130	.7800	-.0761	.7800	-.0279	.7800	.0835
20	.8200	-.3104	.8200	-.0976	.8200	-.0741	.8200	-.0410	.8200	.0185	.8200	.1071
19	.8600	-.1670	.8600	-.0616	.8600	-.0430	.8600	-.0099	.8600	.0574	.8600	.1312
18	.9000	-.0906	.9000	-.0294	.9000	-.0088	.9000	.0226	.9000	.0908	.9000	.1535
17	.9400	-.0395	.9400	-.0024	.9400	.0203			.9400	.1123		
16			.9800	.0237			.9800	.0818	.9800	.1346		

TABLE 28

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

REYNOLDS NUMBER = 2500000.
LAMBDA=50.DEG ALPHA= .01DEG MO= .7001

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	-.0645	.9700	.0317	.9700	.0523	.9700	.0511	.9700	.0592	.8500	.0252
13	.7500	-.0888	.8500	-.0314	.8500	-.0132	.8500	-.0039				
12			.7500	-.0597	.7500	-.0358	.7500	-.0350	.7500	-.0282	.7500	-.0055
11	.6500	-.1151	.6500	-.0916	.6500	-.0726			.6500	-.0597	.6500	-.0431
10	.5500	-.1345	.5500	-.1216	.5500	-.0933	.5500	-.0929	.5500	-.0848	.5500	-.0848
9	.4500	-.1555	.4500	-.1462	.4500	-.1292	.4500	-.1203	.4500	-.1098	.4500	-.1224
8	.3500	-.1598	.3500	-.1515	.3500	-.1317	.3500	-.1305	.3500	-.1220	.3500	-.1410
7	.2600	-.1547	.2600	-.1155	.2600	-.1224	.2600	-.1248	.2600	-.1175	.2600	-.1571
6	.1400	-.1402	.1400	-.1491	.1400	-.1248	.1400	-.1236	.1400	-.1353	.1400	-.1802
5	.0750	-.1701			.0750	-.1571	.0750	-.1543	.0750	-.1499	.0750	-.1854
4	.0400	-.2340	.0400	-.2396	.0400	-.2174	.0400	-.2024	.0400	-.2032	.0400	-.2376
3	.0220	-.3043	.0220	-.2918	.0220	-.2720	.0220	-.2558	.0220	-.2327	.0220	-.2546
2	.0070	-.0286	.0070	-.0103	.0070	.0054	.0070	.0280	.0070	.0353	.0070	-.0047
1	.0000	.4146	.0000	.4158	.0000	.4146	.0000	.1162	.0000	.4267	.0000	.4409
42	.0100	-.0367	.0100	-.0459	.0100	-.0480	.0100	-.0172	.0100	-.0552	.0100	-.0961
41	.0300	-.1854	.0300	-.1992	.0300	-.1911	.0300	-.2113	.0300	-.2125	.0300	-.2845
40	.0500	-.1414	.0500	-.1555	.0500	-.1462	.0500	-.1592	.0500	-.1640	.0500	-.2146
39	.0750	-.1288	.0750	-.1389	.0750	-.1280	.0750	-.1398	.0750	-.1418	.0750	-.1850
38	.1000	-.1309	.1000	-.1389	.1000	-.1260	.1000	-.1337	.1000	-.1365	.1000	-.1915
37	.1400	-.1345	.1400	-.1385	.1400	-.1232	.1400	-.1309	.1400	-.1268	.1400	-.1822
36	.1800	-.1389	.1800	-.1430	.1800	-.1195	.1800	-.1313	.1800	-.1066	.1800	-.1648
35	.2200	-.1454	.2200	-.1426	.2200	-.1203	.2200	-.1313	.2200	-.1305	.2200	-.1648
34	.2600	-.1458	.2600	-.1377	.2600	-.1102	.2600	-.1264	.2600	-.1058	.2600	-.1721
33	.3000	-.1450	.3000	-.1305	.3000	-.1127	.3000	-.1232	.3000	-.1163	.3000	-.1620
32	.3400	-.1462	.3400	-.1300	.3400	-.1183	.3400	-.1288	.3400	-.1167	.3400	-.1531
31	.3800	-.1474	.3800	-.1414	.3800	-.1195	.3800	-.1260	.3800	-.1276	.3800	-.1454
30	.4200	-.1515	.4200	-.1418	.4200	-.1139	.4200	-.1260	.4200	-.1123	.4200	-.1393
29	.4600	-.1446	.4600	-.1284	.4600	-.1171	.4600	-.1046	.4600	-.1179	.4600	-.1224
28	.5000	-.1389	.5000	-.1143	.5000	-.1042	.5000	-.1110	.5000	-.1050	.5000	-.1026
27	.5400	-.1268	.5400	-.1090	.5400	-.0916	.5400	-.0965	.5400	-.0844	.5400	-.0957
26	.5800	-.1135	.5800	-.1054	.5800	-.0763	.5800	-.0900	.5800	-.0779	.5800	-.0783
25	.6200	-.1082	.6200	-.0900	.6200	-.0686	.6200	-.0803	.6200	-.0577	.6200	-.0557
24			.6600	-.0787	.6600	-.0589	.6600	-.0585	.6600	-.0585	.6600	-.0395
23	.7000	-.0601	.7000	-.0763	.7000	-.0516	.7000	-.0585	.7000	-.0508	.7000	-.0314
22	.7400	-.0674	.7400	-.0694	.7400	-.0447	.7400	-.0407	.7400	-.0290	.7400	-.0176
21	.7800	-.0540	.7800	-.0540	.7800	-.0350	.7800	-.0257	.7800	-.0274	.7800	-.0055
20	.8200	-.0548	.8200	-.0439	.8200	-.0197	.8200	-.0136	.8200	-.0096	.8200	.0094
19	.8600	-.0439	.8600	-.0225	.8600	-.0031	.8600	-.0031	.8600	.0062	.8600	.0260
18	.9000	-.0403	.9000	-.0067	.9000	.0139	.9000	.0155	.9000	.0325	.9000	.0446
17	.9400	-.0346	.9400	.0111	.9400	.0305			.9400	.0402		
16			.9800	.0345			.9800	.0572	.9800	.0628		

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

TABLE 29

REYNOLDS NUMBER = 2500000.
LAMBDA=50.DEG ALPHA= 2.00DEG MO= .6996

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	-.0356	.9700	.0284	.9700	.0511	.9700	.0519	.9700	.0567	.8500	.0284
13	.7500	-.0513	.8500	-.0202	.8500	-.0048	.8500	.0049				
12			.7500	-.0380	.7500	-.0182	.7500	-.0194	.7500	-.0141	.7500	.0001
11	.6500	-.0793	.6500	-.0623	.6500	-.0505			.6500	-.0380	.6500	-.0327
10	.5500	-.1027	.5500	-.0825	.5500	-.0586	.5500	-.0623	.5500	-.0619	.5500	-.0809
9	.4500	-.1125	.4500	-.0983	.4500	-.0849	.4500	-.0825	.4500	-.0821	.4500	-.1104
8	.3500	-.1060	.3500	-.0999	.3500	-.0849	.3500	-.0841	.3500	-.0805	.3500	-.1222
7	.2600	-.0906	.2600	-.0817	.2600	-.0704	.2600	-.0687	.2600	-.0744	.2600	-.1262
6	.1400	-.0623	.1400	-.0602	.1400	-.0416	.1400	-.0400	.1400	-.0469	.1400	-.1031
5	.0750	-.0356			.0750	-.0190	.0750	-.0157	.0750	-.0190	.0750	-.0671
4	.0400	-.0388	.0400	-.0356	.0400	-.0169	.0400	-.0028	.0400	-.0117	.0400	-.0619
3	.0220	-.0388	.0220	-.0169	.0220	.0029	.0220	.0122	.0220	.0243	.0220	-.0165
2	.0070	.2142	.0070	.2409	.0070	.2546	.0070	.2680	.0070	.2704	.0070	.2162
1	.0000	.3752	.0000	.3789	.0000	.3671	.0000	.1029	.0000	.3635	.0000	.3760
42	.0100	-.3956	.0100	-.4136	.0100	-.4346	.0100	-.3828	.0100	-.4504	.0100	-.4573
41	.0300	-.4342	.0300	-.4718	.0300	-.4690	.0300	-.4901	.0300	-.4901	.0300	-.5330
40	.0500	-.3622	.0500	-.3832	.0500	-.3213	.0500	-.3703	.0500	-.3379	.0500	-.4306
39	.0750	-.2266	.0750	-.2573	.0750	-.2310	.0750	-.2715	.0750	-.2484	.0750	-.2739
38	.1000	-.2205	.1000	-.2412	.1000	-.2407	.1000	-.2339	.1000	-.2266	.1000	-.2776
37	.1400	-.2080	.1400	-.2209	.1400	-.2173	.1400	-.2144	.1400	-.2080	.1400	-.2383
36	.1800	-.2004	.1800	-.2270	.1800	-.1958	.1800	-.2084	.1800	-.1881	.1800	-.2246
35	.2200	-.2116	.2200	-.2140	.2200	-.1926	.2200	-.2003	.2200	-.1987	.2200	-.2128
34	.2600	-.2092	.2600	-.2031	.2600	-.1780	.2600	-.1885	.2600	-.1675	.2600	-.2100
33	.3000	-.1970	.3000	-.1914	.3000	-.1723	.3000	-.1792	.3000	-.1683	.3000	-.1914
32	.3400	-.1938	.3400	-.1853	.3400	-.1736	.3400	-.1772	.3400	-.1626	.3400	-.1817
31	.3800	-.1934	.3800	-.1922	.3800	-.1651	.3800	-.1703	.3800	-.1663	.3800	-.1707
30	.4200	-.1831	.4200	-.1667	.4200	-.1533	.4200	-.1598	.4200	-.1452	.4200	-.1566
29	.4600	-.1913	.4600	-.1671	.4600	-.1533	.4600	-.1347	.4600	-.1436	.4600	-.1371
28	.5000	-.1715	.5000	-.1501	.5000	-.1371	.5000	-.1351	.5000	-.1278	.5000	-.1145
27	.5400	-.1529	.5400	-.1388	.5400	-.1197	.5400	-.1193	.5400	-.1040	.5400	-.1040
26	.5800	-.1444	.5800	-.1282	.5800	-.1003	.5800	-.1080	.5800	-.0930	.5800	-.0853
25	.6200	-.1412	.6200	-.1108	.6200	-.0894	.6200	-.0938	.6200	-.0712	.6200	-.0606
24			.6600	-.0971	.6600	-.0740	.6600	-.0704	.6600	-.0679	.6600	-.0412
23	.7000	-.0983	.7000	-.0890	.7000	-.0623	.7000	-.0655	.7000	-.0554	.7000	-.0307
22	.7400	-.0930	.7400	-.0760	.7400	-.0517	.7400	-.0449	.7400	-.0319	.7400	-.0149
21	.7800	-.0756	.7800	-.0582	.7800	-.0384	.7800	-.0262	.7800	-.0262	.7800	-.0003
20	.8200	-.0744	.8200	-.0449	.8200	-.0222	.8200	-.0121	.8200	-.0080	.8200	.0142
19	.8600	-.0570	.8600	-.0226	.8600	-.0024	.8600	.0005	.8600	.0094	.8600	.0312
18	.9000	-.0315	.9000	-.0016	.9000	.0163	.9000	.0215	.9000	.0365	.9000	.0523
17	.9400	-.0262	.9400	.0187	.9400	.0349			.9400	.0474		
16			.9800	.0422			.9800	.0612	.9800	.0677		

TABLE 30

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

REYNOLDS NUMBER = 2500000.
LAMBDA=50.DEG ALPHA= 6.01DEG MO= .7000

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	.0068	.9700	.0298	.9700	.0480	.9700	.0436	.9700	.0476	.8500	.0225
13	.7500	.0060	.8500	.0084	.8500	.0185	.8500	.0213				
12			.7500	.0043	.7500	.0161	.7500	.0116	.7500	.0072	.7500	.0015
11	.6500	-.0025	.6500	-.0054	.6500	.0055			.6500	-.0066	.6500	-.0268
10	.5500	-.0029	.5500	-.0094	.5500	.0092	.5500	.0003	.5500	-.0062	.5500	-.0499
9	.4500	-.0001	.4500	-.0054	.4500	.0047	.4500	.0035	.4500	-.0029	.4500	-.0656
8	.3500	.0213	.3500	.0189	.3500	.0326	.3500	.0254	.3500	.0185	.3500	-.0551
7	.2600	.0525	.2600	.0864	.2600	.0743	.2600	.0642	.2600	.0557	.2600	-.0308
6	.1400	.1087	.1400	.1273	.1400	.1337	.1400	.1248	.1400	.1131	.1400	.0282
5	.0750	.1766			.0750	.2025	.0750	.1948	.0750	.1851	.0750	.1131
4	.0400	.2357	.0400	.2490	.0400	.2632	.0400	.2668	.0400	.2547	.0400	.1831
3	.0210	.2987	.0220	.3202	.0220	.3335	.0220	.3319	.0220	.3303	.0220	.2716
2	.0070	.4205	.0070	.4346	.0070	.4455	.0070	.4391	.0070	.4322	.0070	.3857
1	.0000	-.0761	.0000	-.0430	.0000	-.0867	.0000	.0306	.0000	-.0729	.0000	-.0102
42	.0100	-1.3168	.0100	-1.2922	.0100	-1.1785	.0100	-1.2048	.0100	-1.1870	.0100	-1.1252
41	.0300	-1.1874	.0300	-1.1688	.0300	-1.0722	.0300	-1.0936	.0300	-1.1126	.0300	-1.0471
40	.0500	-.9424	.0500	-1.0754	.0500	-1.0063	.0500	-1.0233	.0500	-1.0293	.0500	-.9403
39	.0750	-.5400	.0750	-.7762	.0750	-.8211	.0750	-.8574	.0750	-.8073	.0750	-.7406
38	.1000	-.4680	.1000	-.5489	.1000	-.6431	.1000	-.6233	.1000	-.5837	.1000	-.5355
37	.1400	-.4191	.1400	-.4239	.1400	-.4223	.1400	-.4090	.1400	-.3584	.1400	-.3479
36	.1800	-.3952	.1800	-.4005	.1800	-.3495	.1800	-.3532	.1800	-.3386	.1800	-.3212
35	.2200	-.3714	.2200	-.3629	.2200	-.3188	.2200	-.3277	.2200	-.3147	.2200	-.2820
34	.2600	-.3523	.2600	-.3439	.2600	-.3103	.2600	-.3062	.2600	-.2642	.2600	-.2674
33	.3000	-.3244	.3000	-.3180	.3000	-.2812	.3000	-.2796	.3000	-.2605	.3000	-.2496
32	.3400	-.3111	.3400	-.2901	.3400	-.2638	.3400	-.2601	.3400	-.2419	.3400	-.2294
31	.3800	-.2986	.3800	-.2848	.3800	-.2460	.3800	-.2452	.3800	-.2290	.3800	-.2035
30	.4200	-.2816	.4200	-.2508	.4200	-.2209	.4200	-.2266	.4200	-.1878	.4200	-.1833
29	.4600	-.2699	.4600	-.2375	.4600	-.2120	.4600	-.1898	.4600	-.1789	.4600	-.1558
28	.5000	-.2496	.5000	-.2104	.5000	-.1874	.5000	-.1809	.5000	-.1526	.5000	-.1299
27	.5400	-.2254	.5400	-.1938	.5400	-.1619	.5400	-.1590	.5400	-.1247	.5400	-.1210
26	.5800	-.2116	.5800	-.1760	.5800	-.1372	.5800	-.1408	.5800	-.1097	.5800	-.0972
25	.6200	-.1995	.6200	-.1526	.6200	-.1154	.6200	-.1198	.6200	-.0850	.6200	-.0717
24			.6600	-.1328	.6600	-.0968	.6600	-.0883	.6600	-.0802	.6600	-.0495
23	.7000	-.1477	.7000	-.1186	.7000	-.0786	.7000	-.0790	.7000	-.0636	.7000	-.0341
22	.7400	-.1360	.7400	-.0992	.7400	-.0636	.7400	-.0547	.7400	-.0353	.7400	-.0143
21	.7800	-.1154	.7800	-.0725	.7800	-.0450	.7800	-.0329	.7800	-.0296	.7800	-.0005
20	.8200	-.1044	.8200	-.0555	.8200	-.0268	.8200	-.0159	.8200	-.0106	.8200	.0157
19	.8600	-.0778	.8600	-.0308	.8600	-.0017	.8600	-.0033	.8600	.0068	.8600	.0318
18	.9000	-.0495	.9000	-.0070	.9000	.0157	.9000	.0197	.9000	.0330	.9000	.0468
17	.9400	-.0199	.9400	.0140	.9400	.0335			.9400	.0411		
16			.9800	.0359			.9800	.0512	.9800	.0577		

TABLE 31

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

REYNOLDS NUMBER = 2500000.
LAMBDA=50.DEG ALPHA= .00DEG MO= .7807

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	-.0785	.9700	.0253	.9700	.0452	.9700	.0452	.9700	.0519	.8500	.0214
13	.7500	-.1031	.8500	-.0378	.8500	-.0214	.8500	-.0126				
12			.7500	-.0673	.7500	-.0459	.7500	-.0435	.7500	-.0354	.7500	-.0133
11	.6500	-.1290	.6500	-.1009	.6500	-.0831			.6500	-.0701	.6500	-.0550
10	.5500	-.1518	.5500	-.1314	.5500	-.1034	.5500	-.1020	.5500	-.0960	.5500	-.1065
9	.4500	-.1718	.4500	-.1609	.4500	-.1413	.4500	-.1297	.4500	-.1227	.4500	-.1444
8	.3500	-.1732	.3500	-.1644	.3500	-.1409	.3500	-.1399	.3500	-.1314	.3500	-.1616
7	.2600	-.1697	.2600	-.1290	.2600	-.1374	.2600	-.1381	.2600	-.1343	.2600	-.1830
6	.1400	-.1560	.1400	-.1619	.1400	-.1402	.1400	-.1360	.1400	-.1392	.1400	-.1900
5	.0750	-.1823			.0750	-.1718	.0750	-.1679	.0750	-.1637	.0750	-.1995
4	.0400	-.2475	.0400	-.2538	.0400	-.2352	.0400	-.2170	.0400	-.2177	.0400	-.2534
3	.0210	-.3176	.0220	-.3039	.0220	-.2853	.0220	-.2710	.0220	-.2440	.0220	-.2661
2	.0070	-.0270	.0070	-.0077	.0070	.0049	.0070	.0274	.0070	.0365	.0070	-.0059
1	.0000	.4140	.0000	.4161	.0000	.4119	.0000	.1118	.0000	.4281	.0000	.4459
42	.0100	-.0407	.0100	-.0505	.0100	-.0557	.0100	-.0224	.0100	-.0613	.0100	-.0908
41	.0300	-.1977	.0300	-.2121	.0300	-.2031	.0300	-.2247	.0300	-.2254	.0300	-.2969
40	.0500	-.1518	.0500	-.1672	.0500	-.1595	.0500	-.1711	.0500	-.1756	.0500	-.2243
39	.0750	-.1420	.0750	-.1504	.0750	-.1402	.0750	-.1500	.0750	-.1518	.0750	-.1949
38	.1000	-.1430	.1000	-.1472	.1000	-.1441	.1000	-.1427	.1000	-.1427	.1000	-.1988
37	.1400	-.1448	.1400	-.1462	.1400	-.1357	.1400	-.1371	.1400	-.1339	.1400	-.1882
36	.1800	-.1504	.1800	-.1535	.1800	-.1321	.1800	-.1406	.1800	-.1178	.1800	-.1809
35	.2200	-.1574	.2200	-.1546	.2200	-.1343	.2200	-.1420	.2200	-.1420	.2200	-.1844
34	.2600	-.1574	.2600	-.1476	.2600	-.1248	.2600	-.1371	.2600	-.1181	.2600	-.1928
33	.3000	-.1570	.3000	-.1416	.3000	-.1227	.3000	-.1360	.3000	-.1307	.3000	-.1840
32	.3400	-.1584	.3400	-.1402	.3400	-.1350	.3400	-.1402	.3400	-.1286	.3400	-.1746
31	.3800	-.1616	.3800	-.1546	.3800	-.1353	.3800	-.1381	.3800	-.1399	.3800	-.1655
30	.4200	-.1630	.4200	-.1483	.4200	-.1251	.4200	-.1360	.4200	-.1216	.4200	-.1567
29	.4600	-.1581	.4600	-.1402	.4600	-.1276	.4600	-.1150	.4600	-.1258	.4600	-.1402
28	.5000	-.1525	.5000	-.1237	.5000	-.1174	.5000	-.1199	.5000	-.1139	.5000	-.1206
27	.5400	-.1409	.5400	-.1181	.5400	-.1017	.5400	-.1055	.5400	-.0932	.5400	-.1146
26	.5800	-.1300	.5800	-.1143	.5800	-.0880	.5800	-.0971	.5800	-.0862	.5800	-.0897
25	.6200	-.1244	.6200	-.0939	.6200	-.0764	.6200	-.0887	.6200	-.0662	.6200	-.0662
24			.6600	-.0855	.6600	-.0610	.6600	-.0655	.6600	-.0666	.6600	-.0466
23	.7000	-.0838	.7000	-.0820	.7000	-.0624	.7000	-.0648	.7000	-.0582	.7000	-.0375
22	.7400	-.0838	.7400	-.0740	.7400	-.0526	.7400	-.0480	.7400	-.0347	.7400	-.0228
21	.7800	-.0697	.7800	-.0596	.7800	-.0414	.7800	-.0322	.7800	-.0319	.7800	-.0080
20	.8200	-.0697	.8200	-.0491	.8200	-.0203	.8200	-.0200	.8200	-.0161	.8200	.0063
19	.8600	-.0606	.8400	-.0277	.8600	-.0130	.8600	-.0098	.8600	-.0010	.8600	.0232
18	.9000	-.0571	.9000	-.0119	.9000	.0060	.9000	.0088	.9000	.0263	.9000	.0449
17	.9400	-.0529	.9400	.0063	.9400	.0235			.9400	.0344		
16			.9800	.0267			.9800	.0494	.9800	.0554		

TABLE 32

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

REYNOLDS NUMBER = 2500000.
LAMBDA=50.DEG ALPHA= 2.01DEG MO= .7802

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	-.0495	.9700	.0206	.9700	.0427	.9700	.0427	.9700	.0490	.8500	.0210
13	.7500	-.0657	.8500	-.0285	.8500	-.0148	.8500	-.0053				
12			.7500	-.0481	.7500	-.0295	.7500	-.0299	.7500	-.0243	.7500	-.0092
11	.6500	-.0923	.6500	-.0720	.6500	-.0590			.6500	-.0499	.6500	-.0481
10	.5500	-.1130	.5500	-.0916	.5500	-.0688	.5500	-.0716	.5500	-.0706	.5500	-.0937
9	.4500	-.1222	.4500	-.1113	.4500	-.0955	.4500	-.0920	.4500	-.0867	.4500	-.1292
8	.3500	-.1190	.3500	-.1130	.3500	-.0944	.3500	-.0952	.3500	-.0846	.3500	-.1383
7	.2600	-.1022	.2600	-.0934	.2600	-.0822	.2600	-.0801	.2600	-.0846	.2600	-.1443
6	.1400	-.0727	.1400	-.0706	.1400	-.0516	.1400	-.0492	.1400	-.0534	.1400	-.1120
5	.0750	-.0457			.0750	-.0292	.0750	-.0246	.0750	-.0243	.0750	-.0713
4	.0400	-.0457	.0400	-.0394	.0400	-.0197	.0400	-.0064	.0400	-.0120	.0400	-.0604
3	.0220	-.0453	.0220	-.0201	.0220	-.0008	.0220	.0098	.0220	.0231	.0220	-.0131
2	.0070	.2150	.0070	.2424	.0070	.2553	.0070	.2690	.0070	.2732	.0070	.2203
1	.0000	.3732	.0000	.3760	.0000	.3620	.0000	.0978	.0000	.3634	.0000	.3788
42	.0100	-.3853	.0100	-.4207	.0100	-.4470	.0100	-.3849	.0100	-.4667	.0100	-.4716
41	.0300	-.4579	.0300	-.5060	.0300	-.5077	.0300	-.5323	.0300	-.5316	.0300	-.5786
40	.0500	-.3892	.0500	-.4179	.0500	-.3478	.0500	-.4063	.0500	-.3593	.0500	-.4688
39	.0750	-.2372	.0750	-.2709	.0750	-.2471	.0750	-.2860	.0750	-.2657	.0750	-.2909
38	.1000	-.2323	.1000	-.2548	.1000	-.2593	.1000	-.2502	.1000	-.2446	.1000	-.2979
37	.1400	-.2208	.1400	-.2397	.1400	-.2323	.1400	-.2323	.1400	-.2257	.1400	-.2579
36	.1800	-.2239	.1800	-.2422	.1800	-.2134	.1800	-.2267	.1800	-.2064	.1800	-.2471
35	.2200	-.2257	.2200	-.2292	.2200	-.2081	.2200	-.2169	.2200	-.2158	.2200	-.2372
34	.2600	-.2253	.2600	-.2162	.2600	-.1962	.2600	-.2039	.2600	-.1860	.2600	-.2341
33	.3000	-.2113	.3000	-.2022	.3000	-.1843	.3000	-.1937	.3000	-.1850	.3000	-.2151
32	.3400	-.2109	.3400	-.1965	.3400	-.1857	.3400	-.1913	.3400	-.1787	.3400	-.2057
31	.3800	-.2106	.3800	-.2029	.3800	-.1829	.3800	-.1839	.3800	-.1822	.3800	-.1927
30	.4200	-.2071	.4200	-.1867	.4200	-.1639	.4200	-.1730	.4200	-.1597	.4200	-.1790
29	.4600	-.1965	.4600	-.1776	.4600	-.1643	.4600	-.1492	.4600	-.1587	.4600	-.1572
28	.5000	-.1881	.5000	-.1608	.5000	-.1464	.5000	-.1474	.5000	-.1397	.5000	-.1330
27	.5400	-.1650	.5400	-.1488	.5400	-.1302	.5400	-.1313	.5400	-.1173	.5400	-.1232
26	.5800	-.1618	.5800	-.1397	.5800	-.1102	.5800	-.1180	.5800	-.1046	.5800	-.0994
25	.6200	-.1590	.6200	-.1197	.6200	-.0966	.6200	-.1050	.6200	-.0804	.6200	-.0723
24			.6600	-.1060	.6600	-.0808	.6600	-.0794	.6600	-.0766	.6600	-.0516
23	.7000	-.1176	.7000	-.0923	.7000	-.0737	.7000	-.0745	.7000	-.0643	.7000	-.0401
22	.7400	-.1162	.7400	-.0864	.7400	-.0590	.7400	-.0555	.7400	-.0408	.7400	-.0232
21	.7800	-.0990	.7800	-.0681	.7800	-.0478	.7800	-.0362	.7800	-.0338	.7800	-.0067
20	.8200	-.0937	.8200	-.0552	.8200	-.0257	.8200	-.0222	.8200	-.0159	.8200	.0098
19	.8600	-.0759	.8600	-.0313	.8600	-.0134	.8600	-.0081	.8600	.0027	.8600	.0276
18	.9000	-.0545	.9000	-.0109	.9000	.0087	.9000	.0140	.9000	.0298	.9000	.0497
17	.9400	-.0418	.9400	.0105	.9400	.0266			.9400	.0392		
16			.9800	.0347			.9800	.0526	.9800	.0603		

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

TABLE 33

REYNOLDS NUMBER = 2500000.
LAMBDA=50.DEG ALPHA= 3.90DEG MO= .7793

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	-.0255	.9700	.0232	.9700	.0390	.9700	.0386	.9700	.0439	.8500	.0179
13	.7500	-.0359	.8500	-.0123	.8500	-.0053	.8500	.0024				
12			.7500	-.0250	.7500	-.0120	.7500	-.0148	.7500	-.0158	.7500	-.0095
11	.6500	-.0531	.6500	-.0439	.6500	-.0359			.6500	-.0373	.6500	-.0478
10	.5500	-.0587	.5500	-.0562	.5500	-.0373	.5500	-.0411	.5500	-.0450	.5500	-.0829
9	.4500	-.0608	.4500	-.0615	.4500	-.0520	.4500	-.0471	.4500	-.0492	.4500	-.1061
8	.3500	-.0439	.3500	-.0415	.3500	-.0313	.3500	-.0324	.3500	-.0366	.3500	-.1019
7	.2600	-.0274	.2600	.0200	.2600	-.0053	.2600	-.0028	.2600	-.0158	.2600	-.0959
6	.1400	.0144	.1400	.0232	.1400	.0379	.1400	.0379	.1400	.0305	.1400	-.0401
5	.0750	.0639			.0750	.0910	.0750	.0896	.0750	.0850	.0750	.0270
4	.0400	.0976	.0400	.1121	.0400	.1296	.0400	.1416	.0400	.1324	.0400	.0741
3	.0220	.1402	.0220	.1700	.0220	.1897	.0220	.1953	.0220	.2009	.0220	.1542
2	.0070	.3475	.0070	.3759	.0070	.3861	.0070	.3928	.0070	.3928	.0070	.3387
1	.0000	.2350	.0000	.2301	.0000	.1943	.0000	.0646	.0000	.1999	.0000	.2262
42	.0100	-.8225	.0100	-.8738	.0100	-.9272	.0100	-.9104	.0100	-.9905	.0100	-.9283
41	.0300	-.8443	.0300	-.9367	.0300	-.9314	.0300	-.9659	.0300	-.9550	.0300	-.9525
40	.0500	-.5653	.0500	-.6672	.0500	-.7164	.0500	-.6743	.0500	-.7097	.0500	-.7308
39	.0750	-.3900	.0750	-.4287	.0750	-.4044	.0750	-.4462	.0750	-.4076	.0750	-.4220
38	.1000	-.3658	.1000	-.3928	.1000	-.3921	.1000	-.3805	.1000	-.3682	.1000	-.3907
37	.1400	-.3349	.1400	-.3524	.1400	-.3422	.1400	-.3345	.1400	-.3247	.1400	-.3278
36	.1800	-.3233	.1800	-.3408	.1800	-.3061	.1800	-.3138	.1800	-.2850	.1800	-.2987
35	.2200	-.3152	.2200	-.3138	.2200	-.2888	.2200	-.2916	.2200	-.2867	.2200	-.2783
34	.2600	-.3071	.2600	-.2923	.2600	-.2667	.2600	-.2671	.2600	-.2414	.2600	-.2674
33	.3000	-.2874	.3000	-.2702	.3000	-.2516	.3000	-.2519	.3000	-.2330	.3000	-.2446
32	.3400	-.2836	.3400	-.2590	.3400	-.2446	.3400	-.2418	.3400	-.2217	.3400	-.2288
31	.3800	-.2772	.3800	-.2600	.3800	-.2351	.3800	-.2263	.3800	-.2172	.3800	-.2122
30	.4200	-.2692	.4200	-.2351	.4200	-.2119	.4200	-.2112	.4200	-.1905	.4200	-.1943
29	.4600	-.2565	.4600	-.2245	.4600	-.2063	.4600	-.1810	.4600	-.1841	.4600	-.1704
28	.5000	-.2442	.5000	-.2038	.5000	-.1834	.5000	-.1757	.5000	-.1623	.5000	-.1451
27	.5400	-.2203	.5400	-.1855	.5400	-.1616	.5400	-.1557	.5400	-.1342	.5400	-.1297
26	.5800	-.2105	.5800	-.1725	.5800	-.1392	.5800	-.1423	.5800	-.1181	.5800	-.1061
25	.6200	-.2006	.6200	-.1490	.6200	-.1226	.6200	-.1216	.6200	-.0914	.6200	-.0787
24			.6600	-.1311	.6600	-.0924	.6600	-.0931	.6600	-.0854	.6600	-.0559
23	.7000	-.1550	.7000	-.1191	.7000	-.0910	.7000	-.0844	.7000	-.0692	.7000	-.0415
22	.7400	-.1451	.7400	-.1026	.7400	-.0710	.7400	-.0612	.7400	-.0439	.7400	-.0239
21	.7800	-.1290	.7800	-.0808	.7800	-.0573	.7800	-.0401	.7800	-.0355	.7800	-.0085
20	.8200	-.1205	.8200	-.0633	.8200	-.0373	.8200	-.0229	.8200	-.0165	.8200	.0095
19	.8600	-.0995	.8600	-.0376	.8600	-.0186	.8600	-.0102	.8600	.0017	.8600	.0288
18	.9000	-.0742	.9000	-.0151	.9000	.0045	.9000	.0130	.9000	.0281	.9000	.0502
17	.9400	-.0541	.9400	.0074	.9400	.0228			.9400	.0386		
16			.9800	.0323			.9800	.0495	.9800	.0572		

TABLE 34

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

REYNOLDS NUMBER = 2500000.
LAMBDA=50.DEG ALPHA= .03DEG MO= .8437

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	-.0994	.9700	.0173	.9700	.0368	.9700	.0387	.9700	.0454	.8500	.0170
13	.7500	-.1369	.8500	-.0480	.8500	-.0288	.8500	-.0217				
12			.7500	-.0812	.7500	-.0582	.7500	-.0540	.7500	-.0492	.7500	-.0224
11	.6500	-.1564	.6500	-.1183	.6500	-.0950			.6500	-.0876	.6500	-.0729
10	.5500	-.1765	.5500	-.1497	.5500	-.1209	.5500	-.1180	.5500	-.1161	.5500	-.1321
9	.4500	-.1970	.4500	-.1807	.4500	-.1564	.4500	-.1474	.4500	-.1449	.4500	-.1788
8	.3500	-.1967	.3500	-.1867	.3500	-.1644	.3500	-.1580	.3500	-.1525	.3500	-.1951
7	.2600	-.1893	.2600	-.1487	.2600	-.1541	.2600	-.1544	.2600	-.1519	.2600	-.2059
6	.1400	-.1736	.1400	-.1861	.1400	-.1583	.1400	-.1509	.1400	-.1554	.1400	-.2059
5	.0750	-.1979			.0750	-.1890	.0750	-.1835	.0750	-.1784	.0750	-.2114
4	.0400	-.2657	.0400	-.2776	.0400	-.2555	.0400	-.2373	.0400	-.2354	.0400	-.2657
3	.0220	-.3329	.0220	-.3268	.0220	-.3051	.0220	-.2894	.0220	-.2603	.0220	-.2785
2	.0070	-.0301	.0070	-.0163	.0070	-.0048	.0070	.0208	.0070	.0294	.0070	-.0086
1	.0000	.4093	.0000	.4116	.0000	.4109	.0000	.1071	.0000	.4307	.0000	.4534
42	.0100	-.0569	.0100	-.0656	.0100	-.0671	.0100	-.0288	.0100	-.0668	.0100	-.0908
41	.0300	-.2190	.0300	-.2366	.0300	-.2245	.0300	-.2443	.0300	-.2417	.0300	-.3102
40	.0500	-.1704	.0500	-.1864	.0500	-.1749	.0500	-.1867	.0500	-.1887	.0500	-.2338
39	.0750	-.1557	.0750	-.1701	.0750	-.1560	.0750	-.1644	.0750	-.1666	.0750	-.2031
38	.1000	-.1560	.1000	-.1676	.1000	-.1599	.1000	-.1567	.1000	-.1573	.1000	-.2101
37	.1400	-.1567	.1400	-.1666	.1400	-.1522	.1400	-.1513	.1400	-.1513	.1400	-.2053
36	.1800	-.1637	.1800	-.1717	.1800	-.1487	.1800	-.1525	.1800	-.1314	.1800	-.1986
35	.2200	-.1724	.2200	-.1733	.2200	-.1516	.2200	-.1554	.2200	-.1573	.2200	-.2056
34	.2600	-.1781	.2600	-.1704	.2600	-.1426	.2600	-.1519	.2600	-.1362	.2600	-.2165
33	.3000	-.1772	.3000	-.1631	.3000	-.1391	.3000	-.1503	.3000	-.1484	.3000	-.2104
32	.3400	-.1784	.3400	-.1618	.3400	-.1516	.3400	-.1554	.3400	-.1484	.3400	-.2063
31	.3800	-.1839	.3800	-.1765	.3800	-.1522	.3800	-.1544	.3800	-.1602	.3800	-.2002
30	.4200	-.1877	.4200	-.1730	.4200	-.1429	.4200	-.1525	.4200	-.1455	.4200	-.1935
29	.4600	-.1829	.4600	-.1663	.4600	-.1452	.4600	-.1311	.4600	-.1490	.4600	-.1727
28	.5000	-.1775	.5000	-.1452	.5000	-.1330	.5000	-.1388	.5000	-.1362	.5000	-.1500
27	.5400	-.1679	.5400	-.1369	.5400	-.1164	.5400	-.1206	.5400	-.1148	.5400	-.1401
26	.5800	-.1599	.5800	-.1311	.5800	-.1020	.5800	-.1126	.5800	-.1055	.5800	-.1132
25	.6200	-.1554	.6200	-.1145	.6200	-.0908	.6200	-.1030	.6200	-.0873	.6200	-.0867
24			.6600	-.1033	.6600	-.0799	.6600	-.0812	.6600	-.0860	.6600	-.0640
23	.7000	-.1081	.7000	-.0994	.7000	-.0735	.7000	-.0793	.7000	-.0764	.7000	-.0521
22	.7400	-.1097	.7400	-.0908	.7400	-.0665	.7400	-.0611	.7400	-.0524	.7400	-.0339
21	.7800	-.0931	.7800	-.0745	.7800	-.0512	.7800	-.0435	.7800	-.0473	.7800	-.0176
20	.8200	-.0943	.8200	-.0646	.8200	-.0403	.8200	-.0317	.8200	-.0288	.8200	-.0006
19	.8600	-.0835	.8600	-.0412	.8600	-.0118	.8600	-.0195	.8600	-.0125	.8600	.0173
18	.9000	-.0783	.9000	-.0246	.9000	-.0042	.9000	.0000	.9000	.0157	.9000	.0413
17	.9400	-.0755	.9400	-.0051	.9400	.0160			.9400	.0253		
16			.9800	.0176			.9800	.0422	.9800	.0483		

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

TABLE 35

REYNOLDS NUMBER = 2500000.
LAMBDA=50.DEG ALPHA= 2.01DEG MO= .8424

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	-.0652	.9700	.0133	.9700	.0329	.9700	.0341	.9700	.0402	.8500	.0136
13	.7500	-.0908	.8500	-.0376	.8500	-.0235	.8500	-.0158				
12			.7500	-.0578	.7500	-.0411	.7500	-.0415	.7500	-.0389	.7500	-.0216
11	.6500	-.1196	.6500	-.0850	.6500	-.0713			.6500	-.0677	.6500	-.0668
10	.5500	-.1347	.5500	-.1062	.5500	-.0841	.5500	-.0860	.5500	-.0837	.5500	-.1193
9	.4500	-.1436	.4500	-.1241	.4500	-.1084	.4500	-.1062	.4500	-.1023	.4500	-.1590
8	.3500	-.1350	.3500	-.1260	.3500	-.1116	.3500	-.1084	.3500	-.0994	.3500	-.1638
7	.2600	-.1161	.2600	-.1058	.2600	-.0924	.2600	-.0905	.2600	-.0956	.2600	-.1403
6	.1400	-.0857	.1400	-.0812	.1400	-.0636	.1400	-.0584	.1400	-.0623	.1400	-.1171
5	.0750	-.0559			.0750	-.0370	.0750	-.0331	.0750	-.0325	.0750	-.0738
4	.0400	-.0600	.0400	-.0524	.0400	-.0338	.0400	-.0168	.0400	-.0219	.0400	-.0629
3	.0210	-.0591	.0220	-.0283	.0220	-.0085	.0220	.0011	.0220	.0162	.0220	-.0123
2	.0070	.2049	.0070	.2369	.0070	.2481	.0070	.2641	.0070	.2702	.0070	.2235
1	.0000	.3724	.0000	.3756	.0000	.3641	.0000	.0928	.0000	.3692	.0000	.3865
42	.0100	-.3900	.0100	-.4275	.0100	-.4528	.0100	-.3935	.0100	-.4864	.0100	-.4938
41	.0300	-.4806	.0300	-.5357	.0300	-.5421	.0300	-.5706	.0300	-.5671	.0300	-.6155
40	.0500	-.4284	.0500	-.4778	.0500	-.4400	.0500	-.4829	.0500	-.4448	.0500	-.5473
39	.0750	-.2593	.0750	-.2936	.0750	-.2679	.0750	-.2945	.0750	-.2843	.0750	-.2990
38	.1000	-.2580	.1000	-.2840	.1000	-.2840	.1000	-.2734	.1000	-.2663	.1000	-.3195
37	.1400	-.2478	.1400	-.2647	.1400	-.2574	.1400	-.2564	.1400	-.2494	.1400	-.2827
36	.1800	-.2519	.1800	-.2705	.1800	-.2391	.1800	-.2478	.1800	-.2276	.1800	-.2715
35	.2200	-.2561	.2200	-.2561	.2200	-.2333	.2200	-.2391	.2200	-.2381	.2200	-.2631
34	.2600	-.2574	.2600	-.2465	.2600	-.2221	.2600	-.2260	.2600	-.2093	.2600	-.2612
33	.3000	-.2449	.3000	-.2340	.3000	-.2100	.3000	-.2154	.3000	-.2087	.3000	-.2455
32	.3400	-.2446	.3400	-.2269	.3400	-.2122	.3400	-.2125	.3400	-.2032	.3400	-.2369
31	.3800	-.2442	.3800	-.2333	.3800	-.2087	.3800	-.2048	.3800	-.2045	.3800	-.2244
30	.4200	-.2417	.4200	-.2119	.4200	-.1898	.4200	-.1949	.4200	-.1824	.4200	-.2109
29	.4600	-.2340	.4600	-.2052	.4600	-.1872	.4600	-.1677	.4600	-.1795	.4600	-.1866
28	.5000	-.2241	.5000	-.1869	.5000	-.1693	.5000	-.1690	.5000	-.1622	.5000	-.1600
27	.5400	-.2039	.5400	-.1728	.5400	-.1501	.5400	-.1485	.5400	-.1376	.5400	-.1452
26	.5800	-.1959	.5800	-.1609	.5800	-.1283	.5800	-.1366	.5800	-.1228	.5800	-.1199
25	.6200	-.1920	.6200	-.1369	.6200	-.1161	.6200	-.1206	.6200	-.1001	.6200	-.0902
24			.6600	-.1247	.6600	-.1010	.6600	-.0953	.6600	-.0943	.6600	-.0655
23	.7000	-.1494	.7000	-.1151	.7000	-.0905	.7000	-.0885	.7000	-.0802	.7000	-.0511
22	.7400	-.1475	.7400	-.1007	.7400	-.0754	.7400	-.0680	.7400	-.0549	.7400	-.0319
21	.7800	-.1286	.7800	-.0809	.7800	-.0591	.7800	-.0479	.7800	-.0466	.7800	-.0133
20	.8200	-.1215	.8200	-.0652	.8200	-.0421	.8200	-.0331	.8200	-.0270	.8200	.0034
19	.8600	-.1023	.8600	-.0402	.8600	-.0210	.8600	-.0184	.8600	-.0081	.8600	.0232
18	.9000	-.0796	.9000	-.0194	.9000	-.0014	.9000	.0027	.9000	.0188	.9000	.0466
17	.9400	-.0671	.9400	.0027	.9400	.0181			.9400	.0309		
16			.9800	.0271			.9800	.0447	.9800	.0518		

TABLE 36

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

REYNOLDS NUMBER = 2500000.
LAMBDA=50.DEG ALPHA= 4.02DEG MO= .8377

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	-.0403	.9700	.0113	.9700	.0274	.9700	.0281	.9700	.0326	.8500	.0055
13	.7500	-.0477	.8500	-.0251	.8500	-.0145	.8500	-.0087				
12			.7500	-.0361	.7500	-.0238	.7500	-.0261	.7500	-.0303	.7500	-.0255
11	.6500	-.0619	.6500	-.0538	.6500	-.0435			.6500	-.0509	.6500	-.0670
10	.5500	-.0667	.5500	-.0680	.5500	-.0487	.5500	-.0516	.5500	-.0590	.5500	-.1080
9	.4500	-.0709	.4500	-.0741	.4500	-.0619	.4500	-.0570	.4500	-.0639	.4500	-.1312
8	.3500	-.0519	.3500	-.0538	.3500	-.0419	.3500	-.0422	.3500	-.0470	.3500	-.1196
7	.2600	-.0348	.2600	.0087	.2600	-.0048	.2600	-.0097	.2600	-.0187	.2600	-.1031
6	.1400	.0103	.1400	.0161	.1400	.0319	.1400	.0345	.1400	.0274	.1400	-.0383
5	.0750	.0613			.0750	.0903	.0750	.0864	.0750	.0835	.0750	.0335
4	.0400	.0941	.0400	.1099	.0400	.1277	.0400	.1402	.0400	.1332	.0400	.0822
3	.0210	.1361	.0220	.1676	.0220	.1892	.0220	.1941	.0220	.2015	.0220	.1615
2	.0070	.3427	.0070	.3717	.0070	.3820	.0070	.3914	.0070	.3901	.0070	.3421
1	.0000	.2470	.0000	.2376	.0000	.2047	.0000	.0597	.0000	.2073	.0000	.2370
42	.0100	-.7911	.0100	-.8253	.0100	-.8781	.0100	-.8846	.0100	-.9316	.0100	-.8991
41	.0300	-.8975	.0300	-.9710	.0300	-.9423	.0300	-.9523	.0300	-.9497	.0300	-.9526
40	.0500	-.7350	.0500	-.9600	.0500	-.9378	.0500	-.8988	.0500	-.9426	.0500	-.9526
39	.0750	-.4274	.0750	-.4916	.0750	-.5106	.0750	-.5877	.0750	-.5931	.0750	-.5815
38	.1000	-.4029	.1000	-.4278	.1000	-.4413	.1000	-.4571	.1000	-.3862	.1000	-.3978
37	.1400	-.3643	.1400	-.3884	.1400	-.3675	.1400	-.3578	.1400	-.3394	.1400	-.3411
36	.1800	-.3633	.1800	-.3762	.1800	-.3291	.1800	-.3327	.1800	-.3220	.1800	-.3236
35	.2200	-.3585	.2200	-.3498	.2200	-.3124	.2200	-.3143	.2200	-.3169	.2200	-.2943
34	.2600	-.3517	.2600	-.3294	.2600	-.2988	.2600	-.2982	.2600	-.2630	.2600	-.2795
33	.3000	-.3323	.3000	-.3127	.3000	-.2827	.3000	-.2824	.3000	-.2566	.3000	-.2624
32	.3400	-.3265	.3400	-.2927	.3400	-.2698	.3400	-.2646	.3400	-.2472	.3400	-.2550
31	.3800	-.3214	.3800	-.2940	.3800	-.2595	.3800	-.2501	.3800	-.2443	.3800	-.2350
30	.4200	-.3127	.4200	-.2669	.4200	-.2360	.4200	-.2318	.4200	-.2131	.4200	-.2160
29	.4600	-.3011	.4600	-.2543	.4600	-.2279	.4600	-.2005	.4600	-.2040	.4600	-.1908
28	.5000	-.2846	.5000	-.2273	.5000	-.2040	.5000	-.1950	.5000	-.1776	.5000	-.1637
27	.5400	-.2595	.5400	-.2086	.5400	-.1802	.5400	-.1754	.5400	-.1496	.5400	-.1499
26	.5800	-.2482	.5800	-.1944	.5800	-.1550	.5800	-.1579	.5800	-.1338	.5800	-.1202
25	.6200	-.2392	.6200	-.1696	.6200	-.1376	.6200	-.1363	.6200	-.1099	.6200	-.0922
24			.6600	-.1496	.6600	-.1218	.6600	-.1064	.6600	-.1009	.6600	-.0693
23	.7000	-.1882	.7000	-.1357	.7000	-.1015	.7000	-.0964	.7000	-.0815	.7000	-.0545
22	.7400	-.1795	.7400	-.1176	.7400	-.0867	.7400	-.0735	.7400	-.0554	.7400	-.0338
21	.7800	-.1586	.7800	-.0951	.7800	-.0664	.7800	-.0525	.7800	-.0467	.7800	-.0148
20	.8200	-.1492	.8200	-.0767	.8200	-.0487	.8200	-.0351	.8200	-.0274	.8200	.0029
19	.8600	-.1260	.8600	-.0503	.8600	-.0235	.8600	-.0213	.8600	-.0113	.8600	.0239
18	.9000	-.1002	.9000	-.0271	.9000	-.0084	.9000	.0007	.9000	.0171	.9000	.0429
17	.9400	-.0767	.9400	-.0026	.9400	.0145			.9400	.0284		
16			.9800	.0206			.9800	.0377	.9800	.0461		

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

TABLE 37

REYNOLDS NUMBER = 2500000.
LAMBDA=50.DEG ALPHA= 2.020EG MO= .8823

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	-.0884	.9700	.0014	.9700	.0252	.9700	.0249	.9700	.0310	.8500	.0072
13	.7500	-.1183	.8500	-.0513	.8500	-.0339	.8500	-.0248				
12			.7500	-.0720	.7500	-.0500	.7500	-.0528	.7500	-.0531	.7500	-.0339
11	.6500	-.1411	.6500	-.0997	.6500	-.0823			.6500	-.0820	.6500	-.0878
10	.5500	-.1548	.5500	-.1237	.5500	-.0951	.5500	-.0976	.5500	-.0945	.5500	-.1490
9	.4500	-.1621	.4500	-.1411	.4500	-.1225	.4500	-.1173	.4500	-.1125	.4500	-.1886
8	.3500	-.1515	.3500	-.1429	.3500	-.1225	.3500	-.1195	.3500	-.1085	.3500	-.1840
7	.2600	-.1307	.2600	-.1225	.2600	-.1046	.2600	-.1012	.2600	-.1027	.2600	-.1697
6	.1400	-.0994	.1400	-.0994	.1400	-.0744	.1400	-.0692	.1400	-.0711	.1400	-.1186
5	.0750	-.0680			.0750	-.0491	.0750	-.0427	.0750	-.0394	.0750	-.0720
4	.0400	-.0735	.0400	-.0705	.0400	-.0434	.0400	-.0248	.0400	-.0281	.0400	-.0625
3	.0210	-.0753	.0220	-.0497	.0220	-.0223	.0220	-.0077	.0220	.0099	.0220	-.0108
2	.0070	.1942	.0070	.2228	.0070	.2395	.0070	.2581	.0070	.2667	.0070	.2246
1	.0000	.3702	.0000	.3714	.0000	.3604	.0000	.0897	.0000	.3699	.0000	.3930
42	.0100	-.3841	.0100	-.4280	.0100	-.4560	.0100	-.4002	.0100	-.4995	.0100	-.4986
41	.0300	-.4953	.0300	-.5641	.0300	-.5729	.0300	-.6043	.0300	-.5924	.0300	-.6329
40	.0500	-.4417	.0500	-.5184	.0500	-.5202	.0500	-.5339	.0500	-.5233	.0500	-.5845
39	.0750	-.2772	.0750	-.3116	.0750	-.2717	.0750	-.3016	.0750	-.3019	.0750	-.3486
38	.1000	-.2854	.1000	-.3025	.1000	-.3098	.1000	-.2733	.1000	-.2833	.1000	-.3281
37	.1400	-.2599	.1400	-.2931	.1400	-.2714	.1400	-.2845	.1400	-.2647	.1400	-.2955
36	.1800	-.2797	.1800	-.2979	.1800	-.2574	.1800	-.2660	.1800	-.2443	.1800	-.2921
35	.2200	-.2809	.2200	-.2857	.2200	-.2559	.2200	-.2550	.2200	-.2571	.2200	-.2891
34	.2600	-.2839	.2600	-.2733	.2600	-.2401	.2600	-.2449	.2600	-.2273	.2600	-.2836
33	.3000	-.2733	.3000	-.2605	.3000	-.2291	.3000	-.2343	.3000	-.2255	.3000	-.2438
32	.3400	-.2708	.3400	-.2507	.3400	-.2291	.3400	-.2303	.3400	-.2200	.3400	-.2577
31	.3800	-.2754	.3800	-.2583	.3800	-.2261	.3800	-.2218	.3800	-.2218	.3800	-.2565
30	.4200	-.2736	.4200	-.2370	.4200	-.2066	.4200	-.2117	.4200	-.2005	.4200	-.2459
29	.4600	-.2656	.4600	-.2297	.4600	-.2041	.4600	-.1840	.4600	-.1980	.4600	-.2178
28	.5000	-.2553	.5000	-.2081	.5000	-.1840	.5000	-.1846	.5000	-.1779	.5000	-.1874
27	.5400	-.2352	.5400	-.1932	.5400	-.1639	.5400	-.1630	.5400	-.1533	.5400	-.1673
26	.5800	-.2285	.5800	-.1801	.5800	-.1411	.5800	-.1493	.5800	-.1378	.5800	-.1399
25	.6200	-.2248	.6200	-.1575	.6200	-.1277	.6200	-.1344	.6200	-.1152	.6200	-.1067
24			.6600	-.1411	.6600	-.1082	.6600	-.1097	.6600	-.1091	.6600	-.0808
23	.7000	-.1810	.7000	-.1311	.7000	-.1021	.7000	-.1015	.7000	-.0936	.7000	-.0610
22	.7400	-.1758	.7400	-.1152	.7400	-.0854	.7400	-.0808	.7400	-.0677	.7400	-.0406
21	.7800	-.1572	.7800	-.0939	.7800	-.0698	.7800	-.0598	.7800	-.0580	.7800	-.0202
20	.8200	-.1475	.8200	-.0781	.8200	-.0504	.8200	-.0430	.8200	-.0367	.8200	-.0010
19	.8600	-.1259	.8600	-.0531	.8600	-.0293	.8600	-.0290	.8600	-.0178	.8600	.0197
18	.9000	-.1046	.9000	-.0309	.9000	-.0089	.9000	-.0059	.9000	.0090	.9000	.0428
17	.9400	-.0927	.9400	-.0074	.9400	.0105			.9400	.0236		
16			.9800	.0166			.9800	.0370	.9800	.0444		

TABLE 38

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

REYNOLDS NUMBER = 2500000.
LAMBDA=50.DEG ALPHA= 4.05DEG MO= .8811

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	-.0552	.9700	.0076	.9700	.0207	.9700	.0228	.9700	.0274	.8500	-.0022
13	.7500	-.0619	.8500	-.0308	.8500	-.0208	.8500	-.0150				
12			.7500	-.0433	.7500	-.0311	.7500	-.0333	.7500	-.0409	.7500	-.0409
11	.6500	-.0729	.6500	-.0632	.6500	-.0525			.6500	-.0610	.6500	-.0918
10	.5500	-.0775	.5500	-.0775	.5500	-.0580	.5500	-.0595	.5500	-.0686	.5500	-.1348
9	.4500	-.0793	.4500	-.0824	.4500	-.0699	.4500	-.0644	.4500	-.0702	.4500	-.1522
8	.3500	-.0610	.3500	-.0625	.3500	-.0507	.3500	-.0476	.3500	-.0522	.3500	-.1302
7	.2600	-.0442	.2600	-.0022	.2600	-.0134	.2600	-.0141	.2600	-.0192	.2600	-.1016
6	.1400	.0009	.1400	.0076	.1400	.0244	.1400	.0311	.1400	.0259	.1400	-.0314
5	.0750	.0515			.0750	.0829	.0750	.0832	.0750	.0829	.0750	.0399
4	.0400	.0823	.0400	.0997	.0400	.1204	.0400	.1375	.0400	.1317	.0400	.0866
3	.0210	.1207	.0220	.1552	.0220	.1814	.0220	.1909	.0220	.1988	.0220	.1653
2	.0070	.3321	.0070	.3632	.0070	.3763	.0070	.3891	.0070	.3894	.0070	.3440
1	.0000	.2659	.0000	.2488	.0000	.2202	.0000	.0631	.0000	.2235	.0000	.2574
42	.0100	-.7167	.0100	-.7585	.0100	-.8115	.0100	-.8231	.0100	-.8548	.0100	-.8353
41	.0300	-.8090	.0300	-.9695	.0300	-.9219	.0300	-.8893	.0300	-.9454	.0300	-.9927
40	.0500	-.8262	.0500	-.9704	.0500	-.9167	.0500	-.8850	.0500	-.9567	.0500	-.9826
39	.0750	-.4117	.0750	-.6828	.0750	-.7380	.0750	-.7566	.0750	-.8115	.0750	-.8027
38	.1000	-.4160	.1000	-.5343	.1000	-.5602	.1000	-.5907	.1000	-.4514	.1000	-.3760
37	.1400	-.3983	.1400	-.4410	.1400	-.3709	.1400	-.3742	.1400	-.3187	.1400	-.3437
36	.1800	-.3919	.1800	-.4178	.1800	-.3431	.1800	-.3635	.1800	-.3394	.1800	-.3309
35	.2200	-.3992	.2200	-.3629	.2200	-.3422	.2200	-.3324	.2200	-.3465	.2200	-.3157
34	.2600	-.3971	.2600	-.3462	.2600	-.3276	.2600	-.3086	.2600	-.2876	.2600	-.2894
33	.3000	-.3767	.3000	-.3245	.3000	-.3019	.3000	-.2937	.3000	-.2824	.3000	-.2638
32	.3400	-.3791	.3400	-.3019	.3400	-.2766	.3400	-.2745	.3400	-.2714	.3400	-.2592
31	.3800	-.3852	.3800	-.3096	.3800	-.2629	.3800	-.2595	.3800	-.2641	.3800	-.2440
30	.4200	-.3852	.4200	-.2824	.4200	-.2464	.4200	-.2470	.4200	-.2202	.4200	-.2339
29	.4600	-.3690	.4600	-.2724	.4600	-.2370	.4600	-.2126	.4600	-.2104	.4600	-.2068
28	.5000	-.3501	.5000	-.2473	.5000	-.2187	.5000	-.2080	.5000	-.1854	.5000	-.1812
27	.5400	-.3144	.5400	-.2275	.5400	-.1946	.5400	-.1876	.5400	-.1562	.5400	-.1662
26	.5800	-.2946	.5800	-.2071	.5800	-.1690	.5800	-.1665	.5800	-.1412	.5800	-.1360
25	.6200	-.2791	.6200	-.1790	.6200	-.1467	.6200	-.1427	.6200	-.1162	.6200	-.1071
24			.6600	-.1519	.6600	-.1272	.6600	-.1123	.6600	-.1065	.6600	-.0833
23	.7000	-.2208	.7000	-.1446	.7000	-.1104	.7000	-.1049	.7000	-.0891	.7000	-.0641
22	.7400	-.2114	.7400	-.1263	.7400	-.0940	.7400	-.0833	.7400	-.0644	.7400	-.0394
21	.7800	-.1867	.7800	-.1010	.7800	-.0732	.7800	-.0589	.7800	-.0558	.7800	-.0162
20	.8200	-.1742	.8200	-.0815	.8200	-.0558	.8200	-.0391	.8200	-.0363	.8200	.0024
19	.8600	-.1492	.8600	-.0552	.8600	-.0339	.8600	-.0250	.8600	-.0174	.8600	.0204
18	.9000	-.1214	.9000	-.0311	.9000	-.0128	.9000	-.0034	.9000	.0125	.9000	.0405
17	.9400	-.0964	.9400	-.0080	.9400	.0088			.9400	.0231		
16			.9800	.0161			.9800	.0326	.9800	.0414		

ONERA VARIABLE SWEEP WING ; AFV D CORD = 0.2 M S2MA WIND TUNNEL

TABLE 39

REYNOLDS NUMBER = 2500000.
LAMBDA=50.DEG ALPHA= .03DEG MO= .9225

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	-.1527	.9700	.0097	.9700	.0306	.9700	.0280	.9700	.0300	.8500	.0123
13	.7500	-.2022	.8500	-.0599	.8500	-.0369	.8500	-.0325				
12			.7500	-.0966	.7500	-.0678	.7500	-.0683	.7500	-.0742	.7500	-.0413
11	.6500	-.2194	.6500	-.1379	.6500	-.1088			.6500	-.1117	.6500	-.1948
10	.5500	-.2263	.5500	-.1757	.5500	-.1367	.5500	-.1347	.5500	-.1379	.5500	-.2132
9	.4500	-.2322	.4500	-.2112	.4500	-.1737	.4500	-.1649	.4500	-.1626	.4500	-.2374
8	.3500	-.2266	.3500	-.1908	.3500	-.1868	.3500	-.1757	.3500	-.1687	.3500	-.2275
7	.2600	-.2185	.2600	-.2074	.2600	-.1734	.2600	-.1405	.2600	-.1644	.2600	-.2103
6	.1400	-.2054	.1400	-.2359	.1400	-.1824	.1400	-.1641	.1400	-.1725	.1400	-.2013
5	.0750	-.2098			.0750	-.2089	.0750	-.1972	.0750	-.1882	.0750	-.2028
4	.0400	-.2778	.0400	-.3104	.0400	-.2778	.0400	-.2505	.0400	-.2461	.0400	-.2607
3	.0210	-.3358	.0220	-.3538	.0220	-.3244	.0220	-.3040	.0220	-.2688	.0220	-.2685
2	.0070	-.0186	.0070	-.0168	.0070	-.0055	.0070	.0309	.0070	.0422	.0070	.0117
1	.0000	.4039	.0000	.3999	.0000	.4066	.0000	.1089	.0000	.4357	.0000	.4700
42	.0100	-.0654	.0100	-.0843	.0100	-.0742	.0100	-.0343	.0100	-.0718	.0100	-.0730
41	.0300	-.2400	.0300	-.2744	.0300	-.2540	.0300	-.2656	.0300	-.2581	.0300	-.3154
40	.0500	-.1891	.0500	-.2223	.0500	-.1970	.0500	-.2048	.0500	-.2013	.0500	-.2319
39	.0750	-.1786	.0750	-.2066	.0750	-.1804	.0750	-.1824	.0750	-.1789	.0750	-.1970
38	.1000	-.1786	.1000	-.2051	.1000	-.1821	.1000	-.1745	.1000	-.1722	.1000	-.2048
37	.1400	-.1795	.1400	-.2080	.1400	-.1766	.1400	-.1716	.1400	-.1644	.1400	-.2051
36	.1800	-.1891	.1800	-.2167	.1800	-.1705	.1800	-.1705	.1800	-.1475	.1800	-.1946
35	.2200	-.2010	.2200	-.2185	.2200	-.1780	.2200	-.1702	.2200	-.1719	.2200	-.2019
34	.2600	-.2092	.2600	-.2167	.2600	-.1699	.2600	-.1708	.2600	-.1527	.2600	-.2217
33	.3000	-.2103	.3000	-.2100	.3000	-.1617	.3000	-.1684	.3000	-.1620	.3000	-.2226
32	.3400	-.2141	.3400	-.1952	.3400	-.1751	.3400	-.1751	.3400	-.1655	.3400	-.2357
31	.3800	-.2188	.3800	-.2112	.3800	-.1769	.3800	-.1731	.3800	-.1775	.3800	-.2418
30	.4200	-.2240	.4200	-.2051	.4200	-.1641	.4200	-.1728	.4200	-.1644	.4200	-.2528
29	.4600	-.2205	.4600	-.1981	.4600	-.1676	.4600	-.1472	.4600	-.1716	.4600	-.2644
28	.5000	-.2162	.5000	-.1734	.5000	-.1545	.5000	-.1582	.5000	-.1577	.5000	-.2345
27	.5400	-.2071	.5400	-.1626	.5400	-.1353	.5400	-.1385	.5400	-.1364	.5400	-.2263
26	.5800	-.2016	.5800	-.1548	.5800	-.1163	.5800	-.1289	.5800	-.1262	.5800	-.1987
25	.6200	-.2007	.6200	-.1379	.6200	-.1065	.6200	-.1181	.6200	-.1091	.6200	-.1524
24			.6600	-.1242	.6600	-.0960	.6600	-.0963	.6600	-.1108	.6600	-.1079
23	.7000	-.1754	.7000	-.1219	.7000	-.0887	.7000	-.0948	.7000	-.1021	.7000	-.0803
22	.7400	-.1734	.7400	-.1123	.7400	-.0788	.7400	-.0756	.7400	-.0779	.7400	-.0520
21	.7800	-.1591	.7800	-.0922	.7800	-.0654	.7800	-.0573	.7800	-.0727	.7800	-.0399
20	.8200	-.1550	.8200	-.0817	.8200	-.0517	.8200	-.0451	.8200	-.0517	.8200	-.0090
19	.8600	-.1402	.8600	-.0567	.8600	-.0224	.8600	-.0328	.8600	-.0349	.8600	.0143
18	.9000	-.1309	.9000	-.0375	.9000	-.0136	.9000	-.0119	.9000	-.0043	.9000	.0396
17	.9400	-.1326	.9400	-.0174	.9400	.0082			.9400	.0082		
16			.9800	.0065			.9800	.0329	.9800	.0329		

TABLE 40

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

REYNOLDS NUMBER = 2500000.
LAMBDA=50.DEG ALPHA= 2.00DEG MO= .9212

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	.8500	-.1119	.9700	.0040	.9700	.0265	.9700	.0230	.9700	.0250	.8500	.0040
13	.7500	-.1323	.8500	-.0513	.8500	-.0327	.8500	-.0277				
12			.7500	-.0720	.7500	-.0504	.7500	-.0534	.7500	-.0615	.7500	-.0469
11	.6500	-.1551	.6500	-.1011	.6500	-.0825			.6500	-.0901	.6500	-.1274
10	.5500	-.1647	.5500	-.1271	.5500	-.0974	.5500	-.0991	.5500	-.0991	.5500	-.1889
9	.4500	-.1696	.4500	-.1486	.4500	-.1233	.4500	-.1195	.4500	-.1128	.4500	-.2023
8	.3500	-.1591	.3500	-.1521	.3500	-.1253	.3500	-.1218	.3500	-.1064	.3500	-.1801
7	.2600	-.1329	.2600	-.1344	.2600	-.1058	.2600	-.0968	.2600	-.1014	.2600	-.1568
6	.1400	-.1026	.1400	-.1090	.1400	-.0761	.1400	-.0685	.1400	-.0671	.1400	-.1032
5	.0750	-.0729			.0750	-.0493	.0750	-.0411	.0750	-.0353	.0750	-.0580
4	.0400	-.0767	.0400	-.0819	.0400	-.0455	.0400	-.0228	.0400	-.0236	.0400	-.0484
3	.0210	-.0773	.0220	-.0577	.0220	-.0207	.0220	-.0038	.0220	.0160	.0220	.0046
2	.0070	.1917	.0070	.2162	.0070	.2407	.0070	.2619	.0070	.2718	.0070	.2386
1	.0000	.3759	.0000	.3697	.0000	.3630	.0000	.0941	.0000	.3785	.0000	.4073
42	.0100	-.3695	.0100	-.4170	.0100	-.4607	.0100	-.4141	.0100	-.4879	.0100	-.4738
41	.0300	-.4852	.0300	-.5860	.0300	-.6227	.0300	-.6248	.0300	-.6216	.0300	-.6560
40	.0500	-.4397	.0500	-.5388	.0500	-.5872	.0500	-.5735	.0500	-.5744	.0500	-.6082
39	.0750	-.2611	.0750	-.3229	.0750	-.2600	.0750	-.2973	.0750	-.2780	.0750	-.3080
38	.1000	-.2891	.1000	-.3413	.1000	-.2611	.1000	-.2804	.1000	-.2777	.1000	-.3232
37	.1400	-.2774	.1400	-.3258	.1400	-.2629	.1400	-.2871	.1400	-.2745	.1400	-.2978
36	.1800	-.2754	.1800	-.3322	.1800	-.2576	.1800	-.2766	.1800	-.2503	.1800	-.2888
35	.2200	-.2897	.2200	-.3168	.2200	-.2623	.2200	-.2620	.2200	-.2582	.2200	-.2865
34	.2600	-.2932	.2600	-.3115	.2600	-.2602	.2600	-.2576	.2600	-.2352	.2600	-.2882
33	.3000	-.2894	.3000	-.3077	.3000	-.2541	.3000	-.2390	.3000	-.2337	.3000	-.2664
32	.3400	-.2941	.3400	-.3121	.3400	-.2541	.3400	-.2396	.3400	-.2253	.3400	-.2742
31	.3800	-.3005	.3800	-.3162	.3800	-.2468	.3800	-.2259	.3800	-.2329	.3800	-.2728
30	.4200	-.3057	.4200	-.2643	.4200	-.2122	.4200	-.2197	.4200	-.2093	.4200	-.2716
29	.4600	-.2987	.4600	-.2145	.4600	-.2026	.4600	-.1827	.4600	-.2014	.4600	-.2495
28	.5000	-.2868	.5000	-.1967	.5000	-.1836	.5000	-.1883	.5000	-.1865	.5000	-.2221
27	.5400	-.2652	.5400	-.1842	.5400	-.1632	.5400	-.1667	.5400	-.1609	.5400	-.2055
26	.5800	-.2588	.5800	-.1752	.5800	-.1408	.5800	-.1521	.5800	-.1466	.5800	-.1775
25	.6200	-.2637	.6200	-.1545	.6200	-.1268	.6200	-.1367	.6200	-.1230	.6200	-.1323
24			.6600	-.1396	.6600	-.1096	.6600	-.1119	.6600	-.1175	.6600	-.0944
23	.7000	-.2343	.7000	-.1300	.7000	-.1006	.7000	-.1038	.7000	-.1032	.7000	-.0711
22	.7400	-.2384	.7400	-.1151	.7400	-.0842	.7400	-.0828	.7400	-.0767	.7400	-.0464
21	.7800	-.2209	.7800	-.0933	.7800	-.0682	.7800	-.0612	.7800	-.0671	.7800	-.0939
20	.8200	-.2034	.8200	-.0761	.8200	-.0493	.8200	-.0446	.8200	-.0446	.8200	-.0021
19	.8600	-.1693	.8600	-.0507	.8600	-.0213	.8600	-.0306	.8600	-.0236	.8600	.0207
18	.9000	-.1393	.9000	-.0280	.9000	-.0064	.9000	-.0070	.9000	.0032	.9000	.0457
17	.9400	-.1265	.9400	-.0041	.9400	.0122			.9400	.0175		
16			.9800	.0192			.9800	.0344	.9800	.0384		

TABLE 41

WING GEOMETRY

1: Theoretical wing geometry

2: Measured wing geometry

$\Lambda°$	Root chord c(m)		Semi span b(m)		Aspect ratio A		Wing area $S(m^2)$	
	1	2	1	2	1	2	1	2
0	0,200	0,200	0,800	0,795	8,00	7,95	0,1600	0,1590
30	0,231	0,231	0,721	0,714	6,71	6,64	0,1550	0,1533
40	0,261	0,261	0,645	0,637	5,49	5,43	0,1515	0,1495
50	0,311	0,312	0,547	0,539	4,09	4,04	0,1463	0,1437
60	0,400	0,401	0,430	0,422	2,69	2,66	0,1373	0,1341

TABLE 42

FREE STREAM MACH NUMBER VARIATION WITH INCIDENCE DURING FORCE MEASUREMENTS

$\Lambda°$	$\alpha°$	2	4	6	8	10	12	14	16
	M_o at $\alpha=0°$	$\Delta M_o = \left[M_{o\,\alpha=0°} - M_o\right]$							
0	0.781	0.001	0.003	0.005	0.009				
	0.921	0.000	0.004	0.014	0.025				
30	0.781	0.001	0.003	0.005	0.010	0.019	0.019	0.016	0.016
	0.921	0.000	0.002	0.009					
60	0.783	-.002	0.000	0.005	0.011	0.015	0.015	0.016	0.016
	0.926	0.000	0.004	0.014	0.030				

FIG 1

VARIABLE SWEEP WING
AFV D

Aspect ratio $8 \geqslant A \geqslant 2.71$

Taper ratio $\lambda = 1$

Sweep angle $0° \leqslant \Lambda \leqslant 60°$

Number of pressure holes (246)

N°	y/b	upper	lower
1	0,30	28	13
2	0,45	28	13
3	0,60	28	13
4	0,75	28	13
5	0,85	28	13
6	0,95	28	13

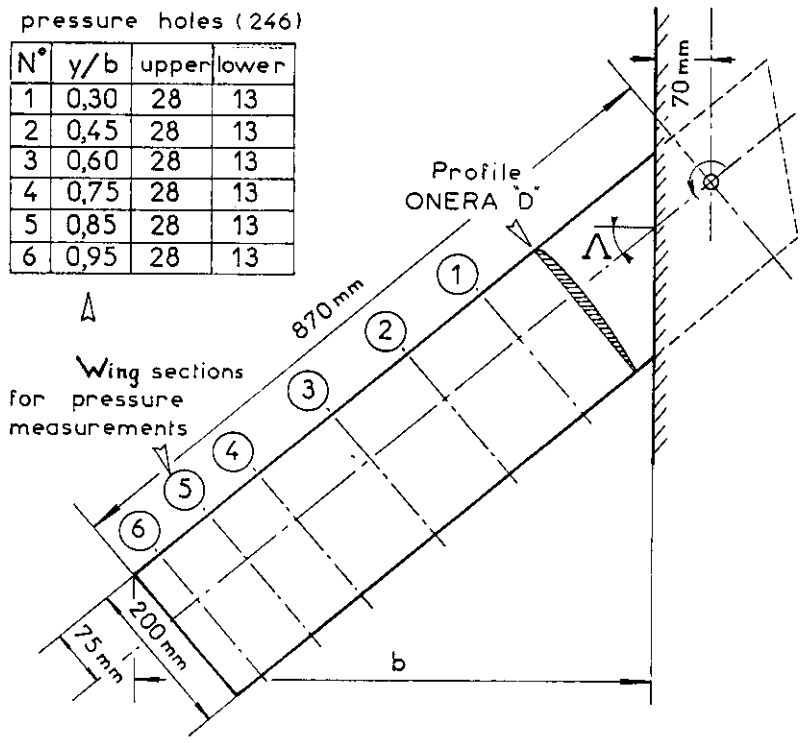


FIG 2 S2MA WIND TUNNEL : WING MOUNTING

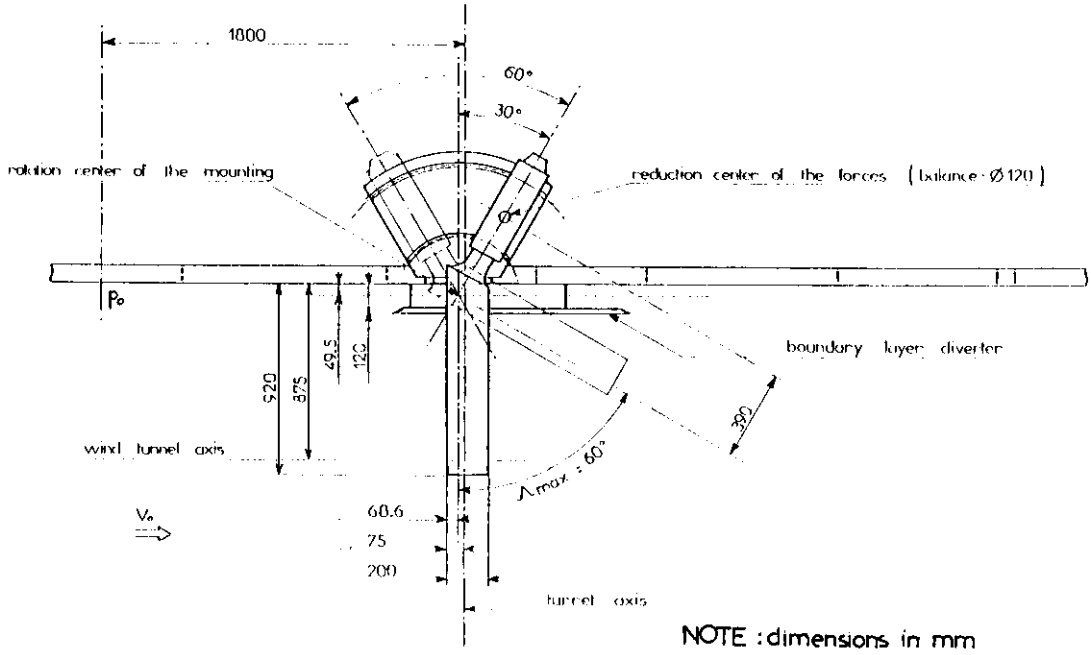


FIG 3

VARIABLE SWEEP WING AFVD
S2MA WIND TUNNEL $Re = 2.5 \times 10^6$

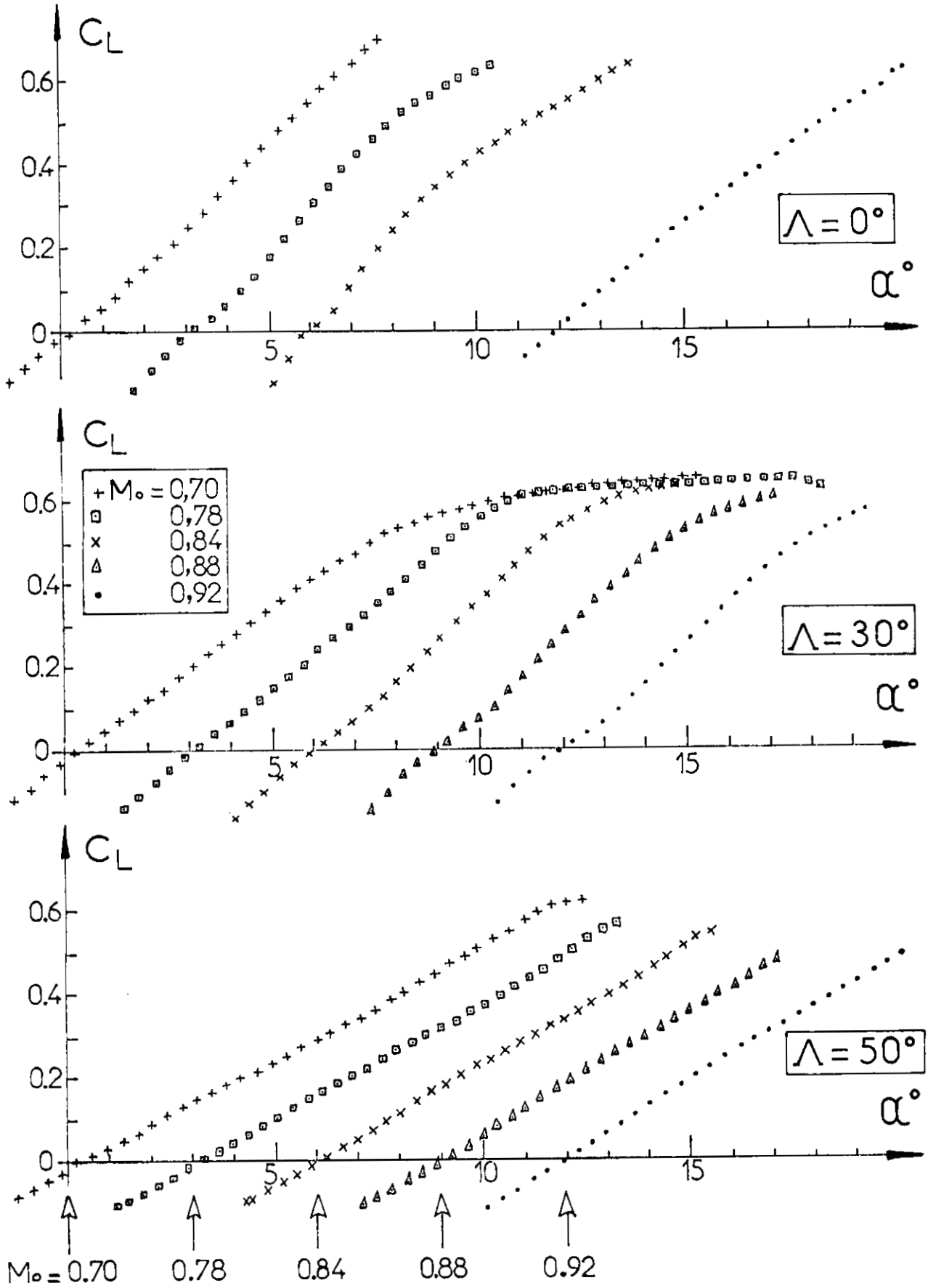


FIG 4

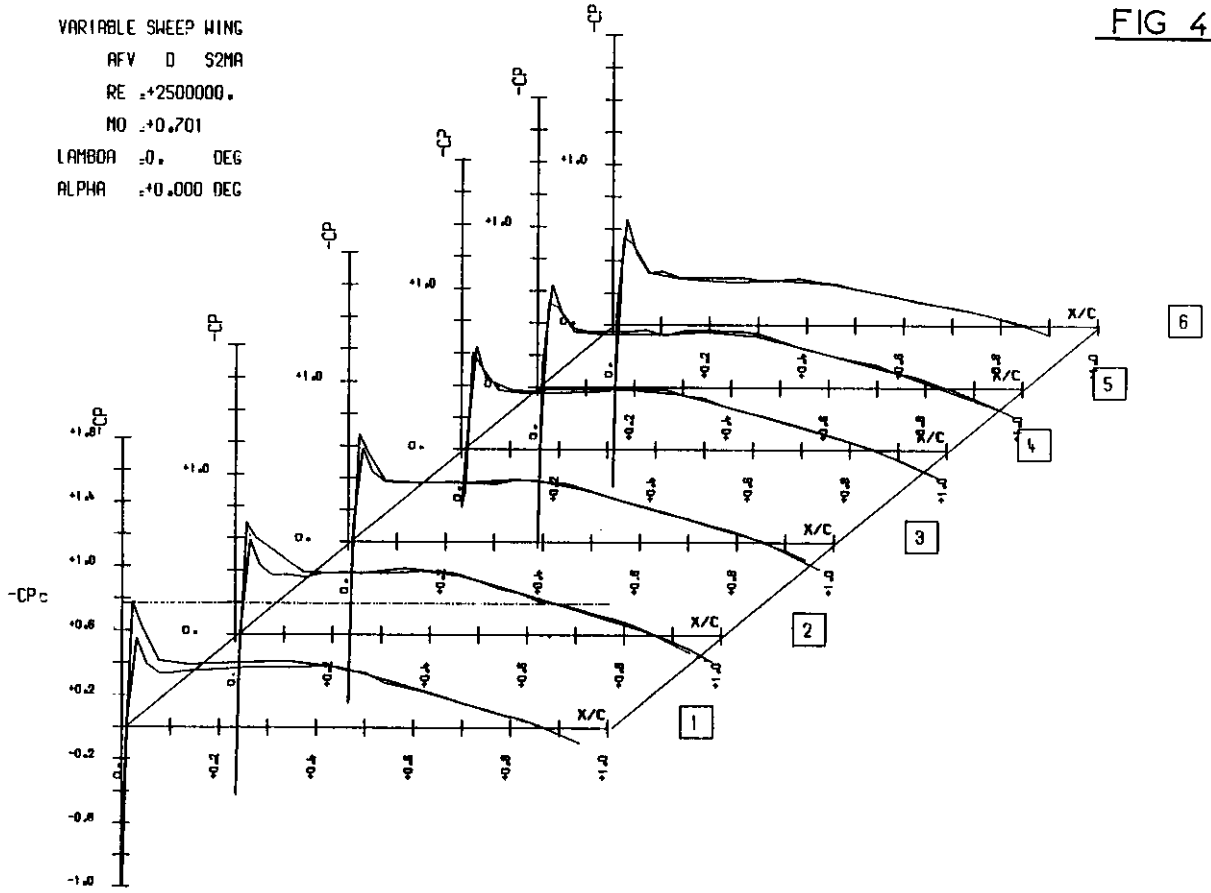

VARIABLE SWEEP WING
AFV 0 S2MA
RE =+2500000.
MO =+0.701
LAMBDA =0. DEG
ALPHA =+0.000 DEG
-CPc
X/C
1
2
3
4
5
6

FIG 5

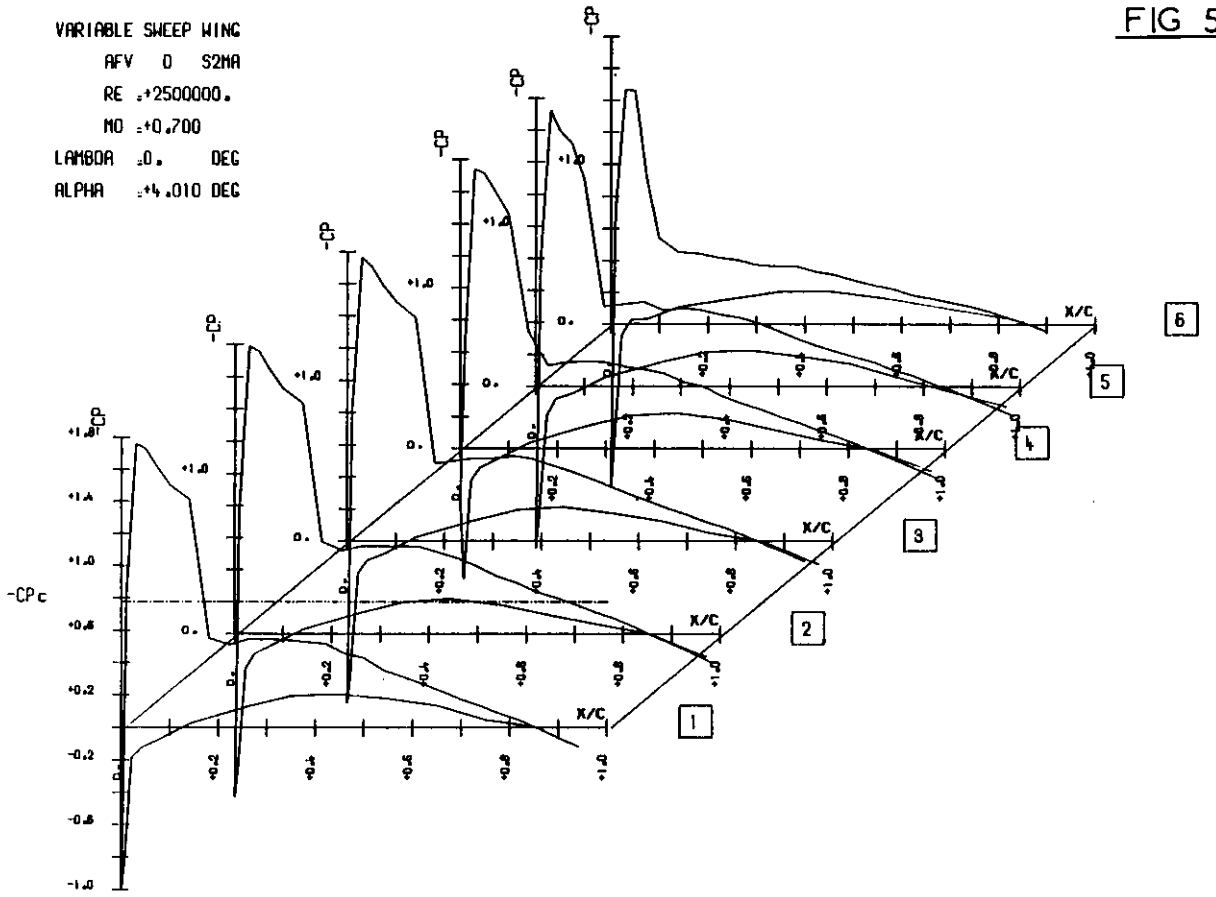

VARIABLE SWEEP WING
AFV 0 S2MA
RE =+2500000.
MO =+0.700
LAMBDA =0. DEG
ALPHA =+4.010 DEG
-CPc
X/C
1
2
3
4
5
6

FIG 6

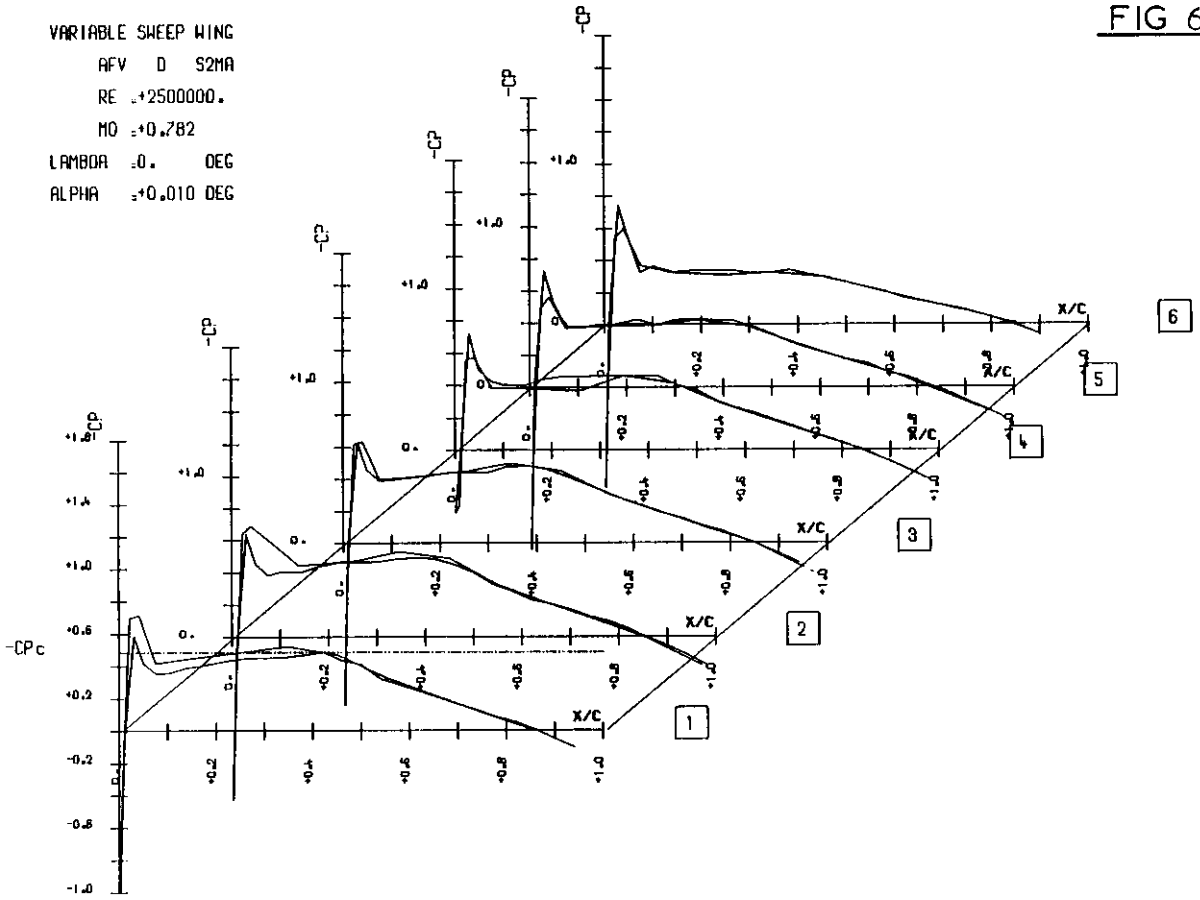

VARIABLE SWEEP WING
AFV D S2MA
RE =+2500000.
MO =+0.782
LAMBDA =0. DEG
ALPHA =+0.010 DEG
-CPc
X/C
1
2
3
4
5
6

FIG 7

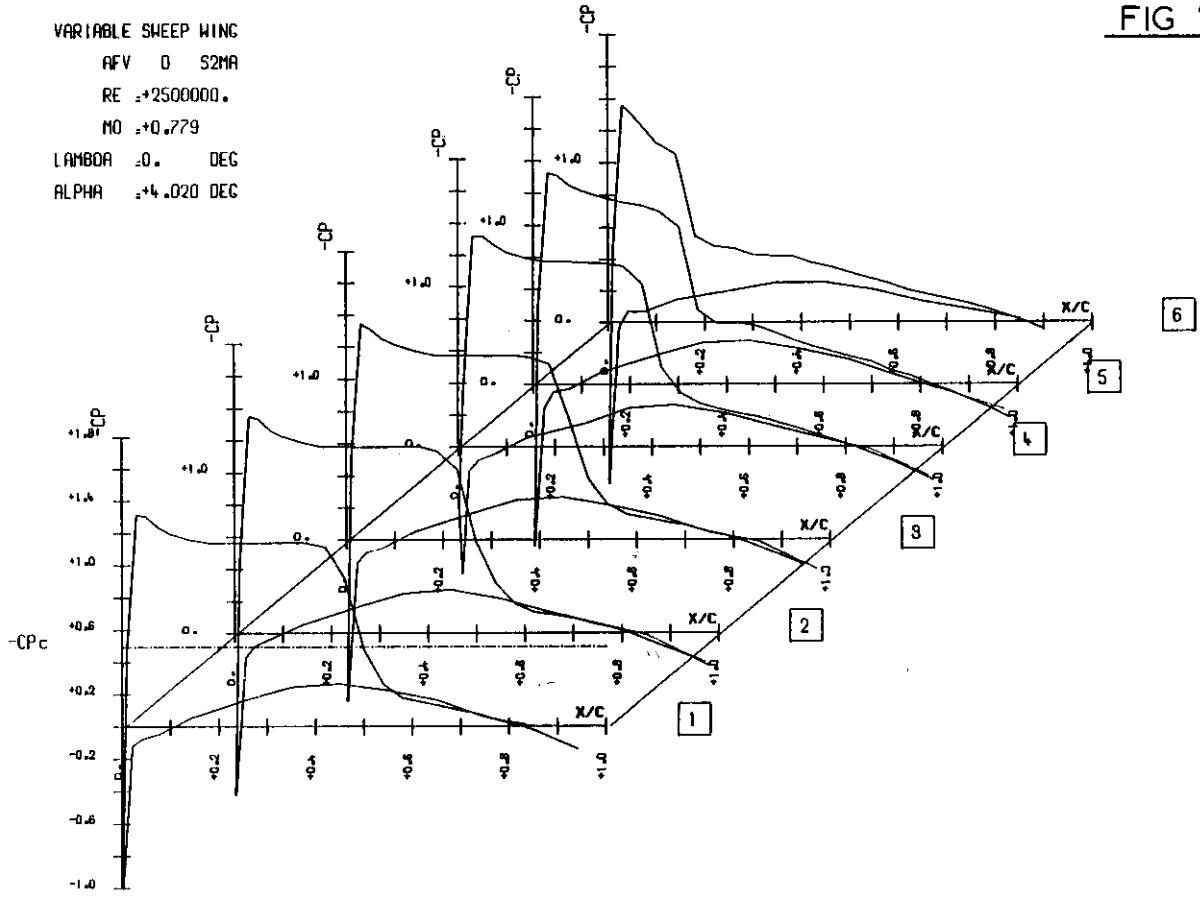

VARIABLE SWEEP WING
AFV D S2MA
RE =+2500000.
MO =+0.779
LAMBDA =0. DEG
ALPHA =+4.020 DEG
-CPc
X/C
1
2
3
4
5
6

FIG 8

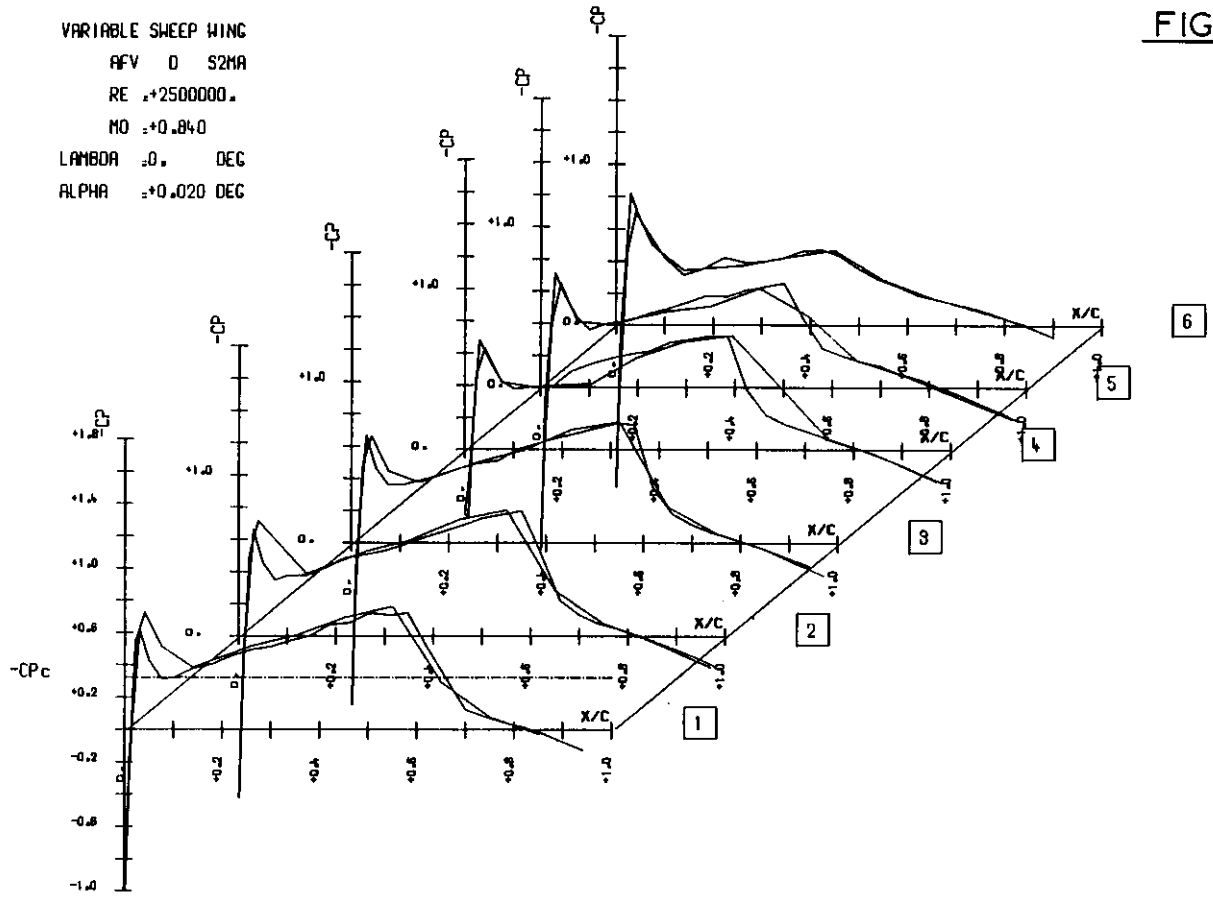

VARIABLE SWEEP WING
AFV 0 S2MA
RE =+2500000.
MO =+0.840
LAMBDA =0. DEG
ALPHA =+0.020 DEG
-CPc
X/C
1
2
3
4
5
6

FIG 9

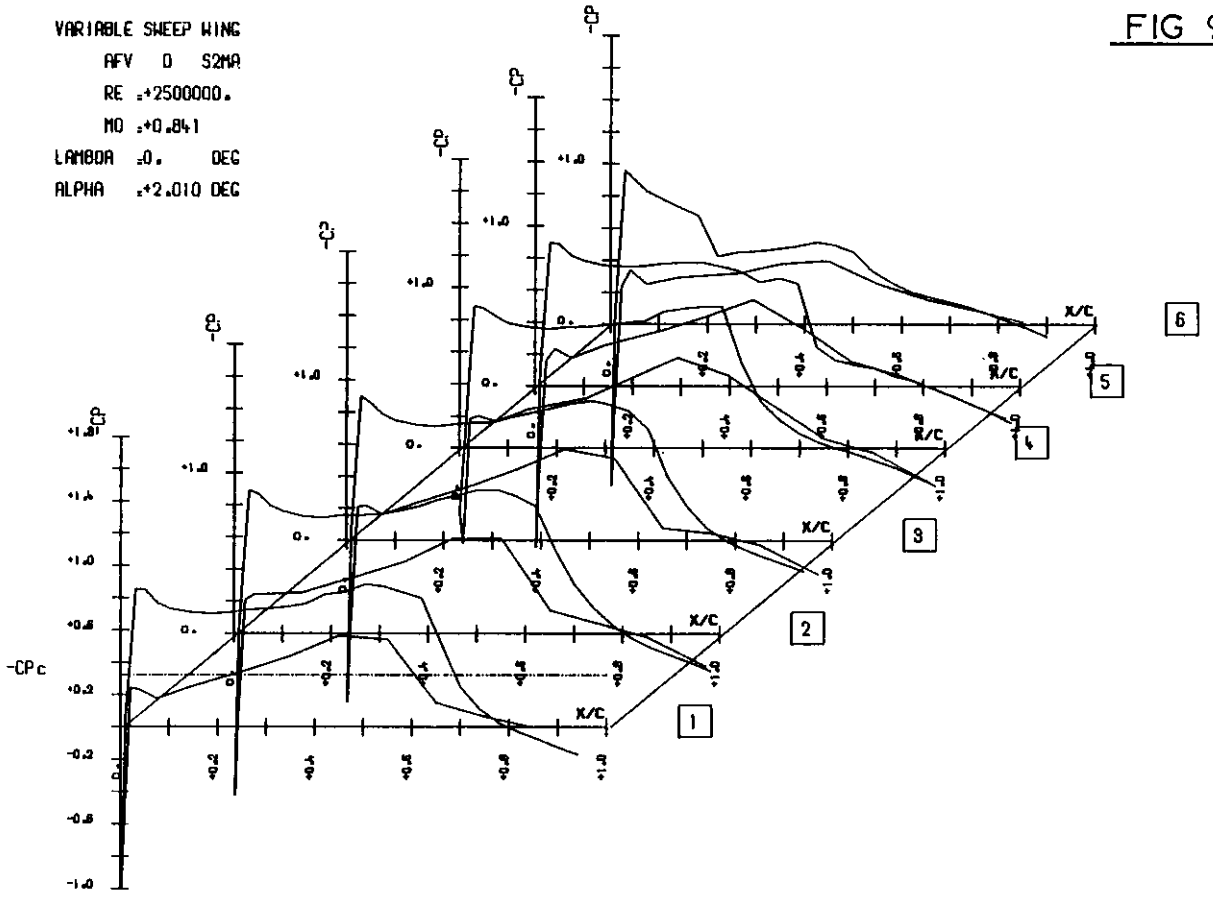

VARIABLE SWEEP WING
AFV 0 S2MA
RE =+2500000.
MO =+0.841
LAMBDA =0. DEG
ALPHA =+2.010 DEG
-CPc
X/C
1
2
3
4
5
6

FIG 10

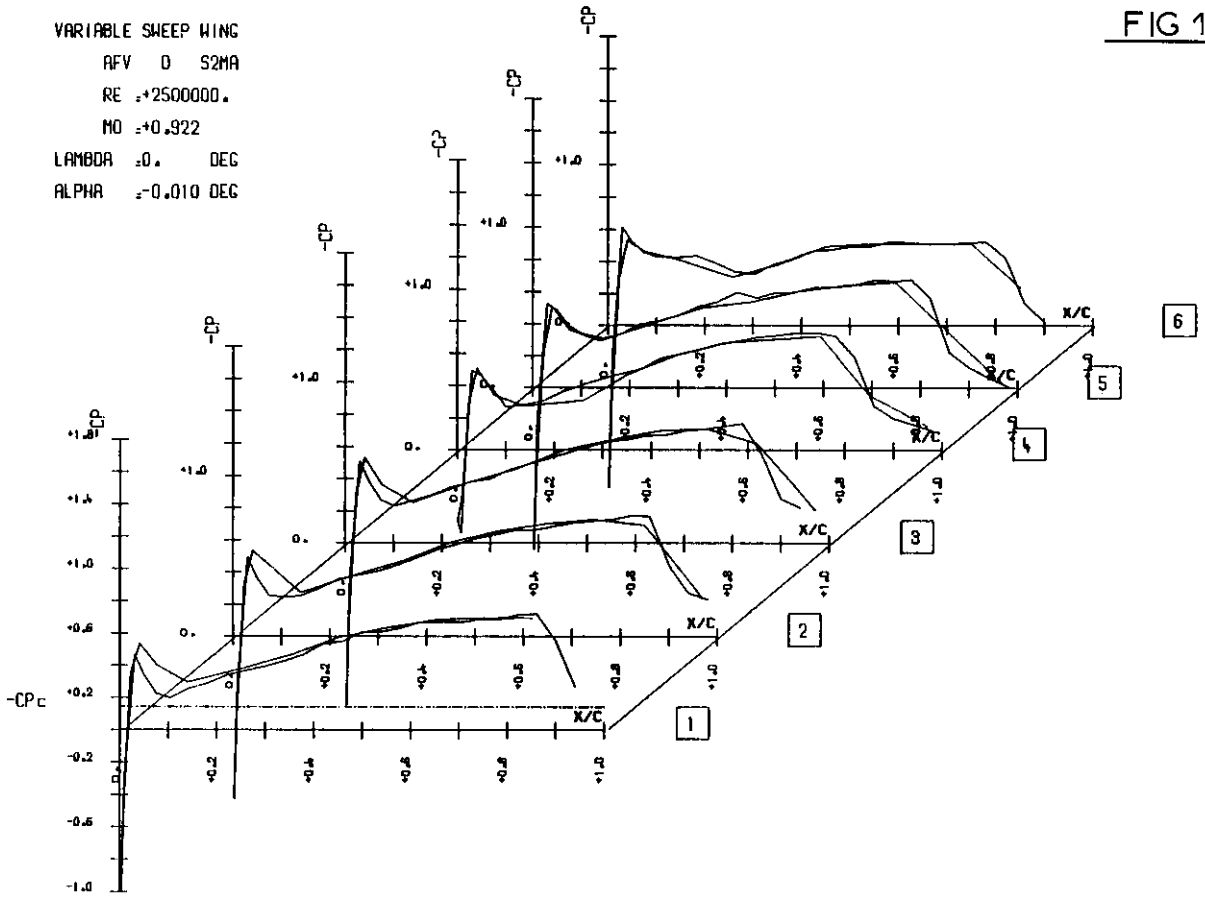

VARIABLE SWEEP WING
AFV 0 S2MA
RE =+2500000.
MO =+0.922
LAMBDA =0. DEG
ALPHA =-0.010 DEG
-CP
X/C
-CPc
1
2
3
4
5
6

FIG 11

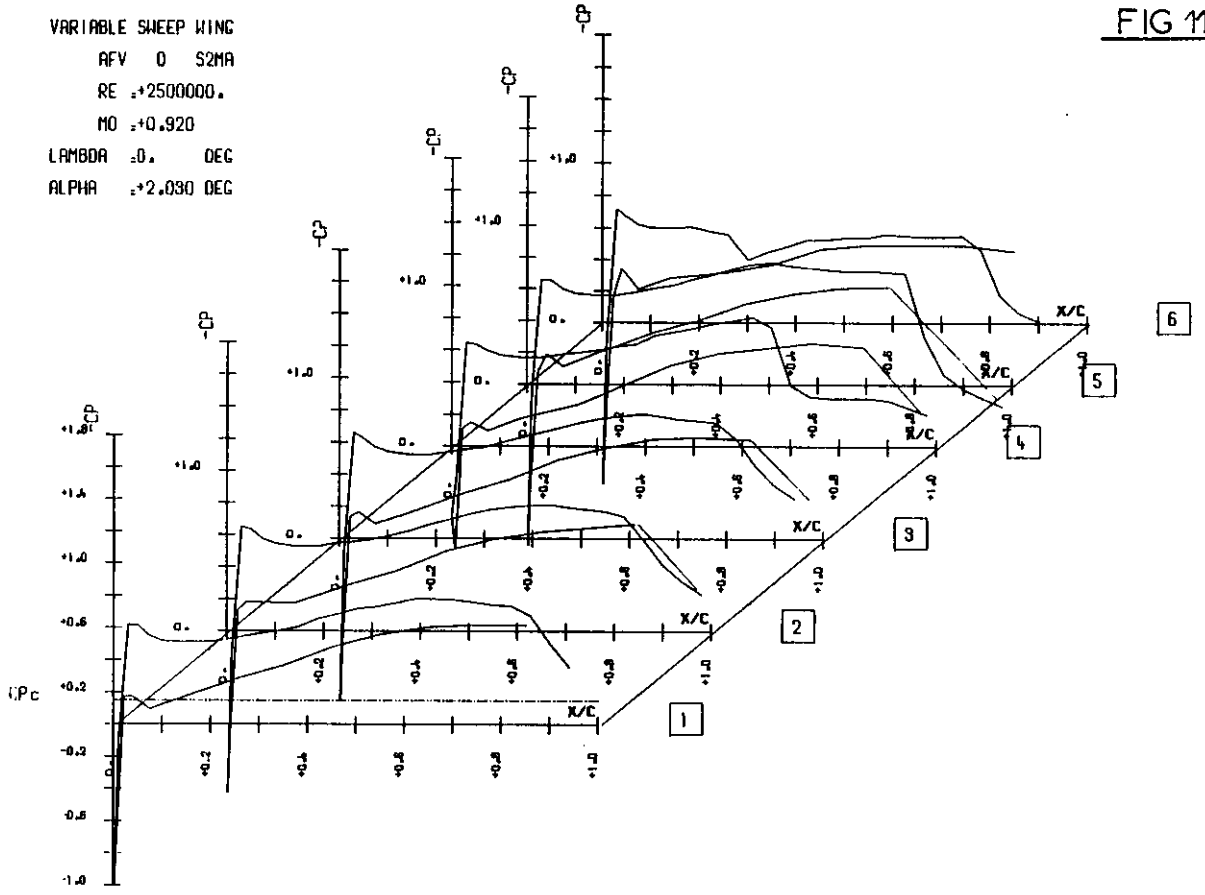

VARIABLE SWEEP WING
AFV 0 S2MA
RE =+2500000.
MO =+0.920
LAMBDA =0. DEG
ALPHA =+2.030 DEG
-CP
X/C
-CPc
1
2
3
4
5
6

FIG 12

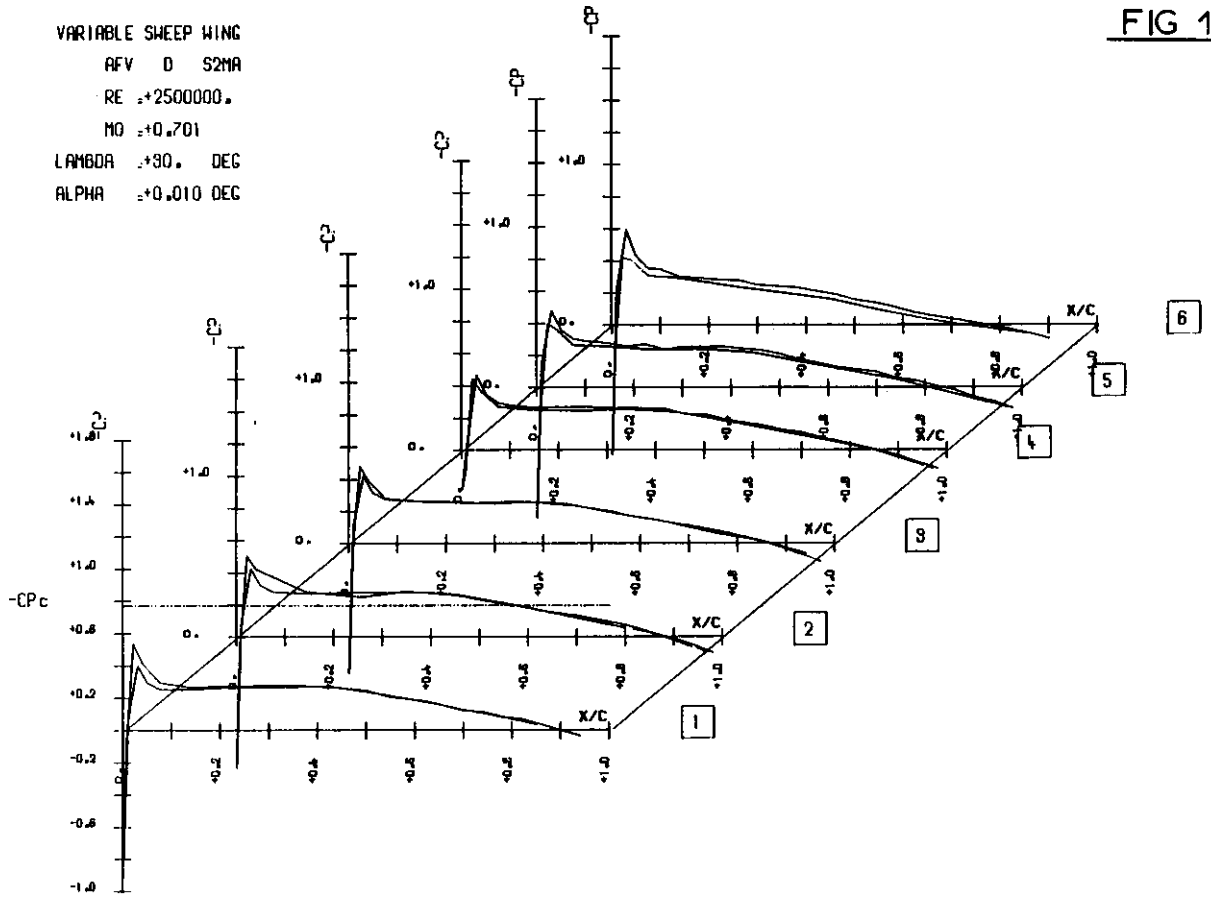

VARIABLE SWEEP WING
AFV D S2MA
RE =+2500000.
MO =+0.701
LAMBDA =+30. DEG
ALPHA =+0.010 DEG
-CPc
X/C
1
2
3
4
5
6

FIG 13

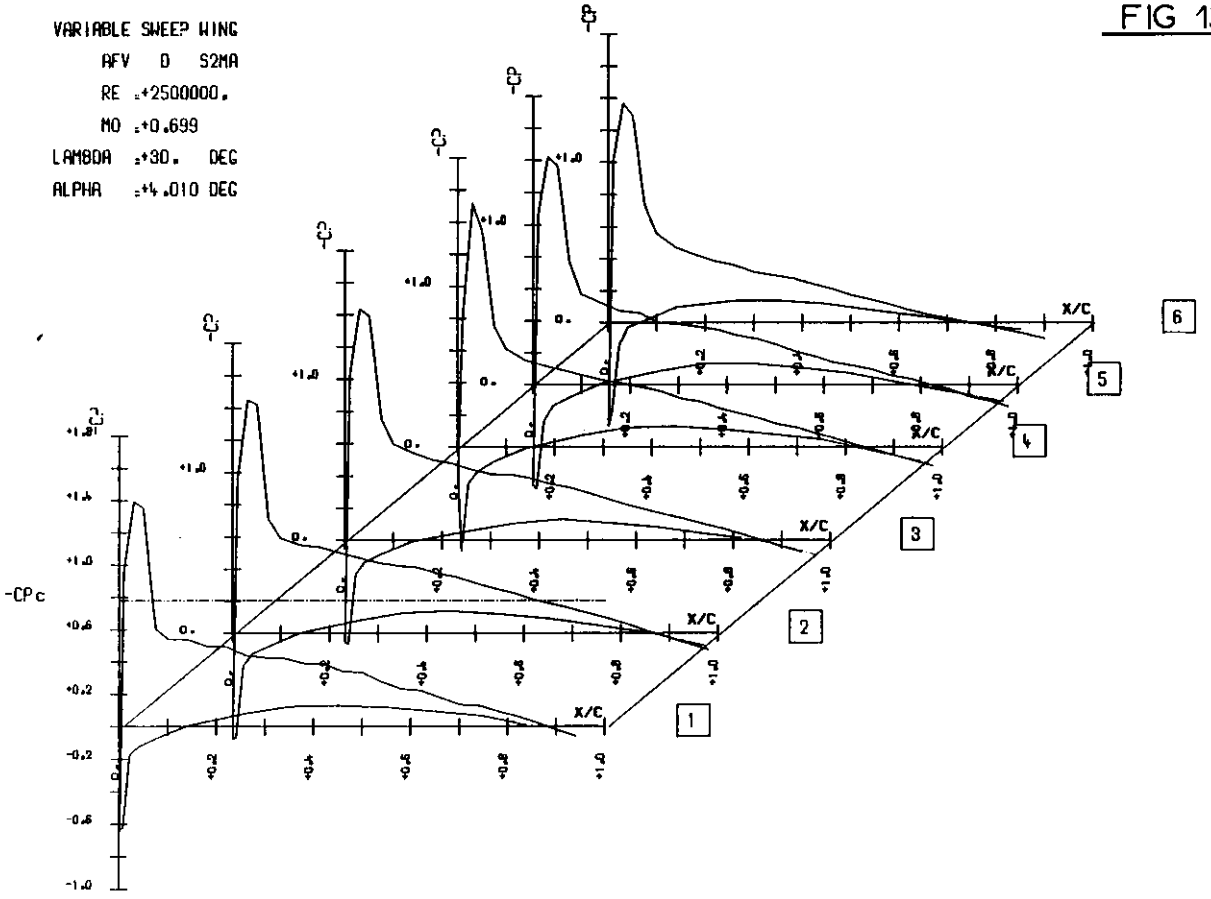

VARIABLE SWEEP WING
AFV D S2MA
RE =+2500000.
MO =+0.699
LAMBDA =+30. DEG
ALPHA =+4.010 DEG
-CPc
X/C
1
2
3
4
5
6

FIG 14

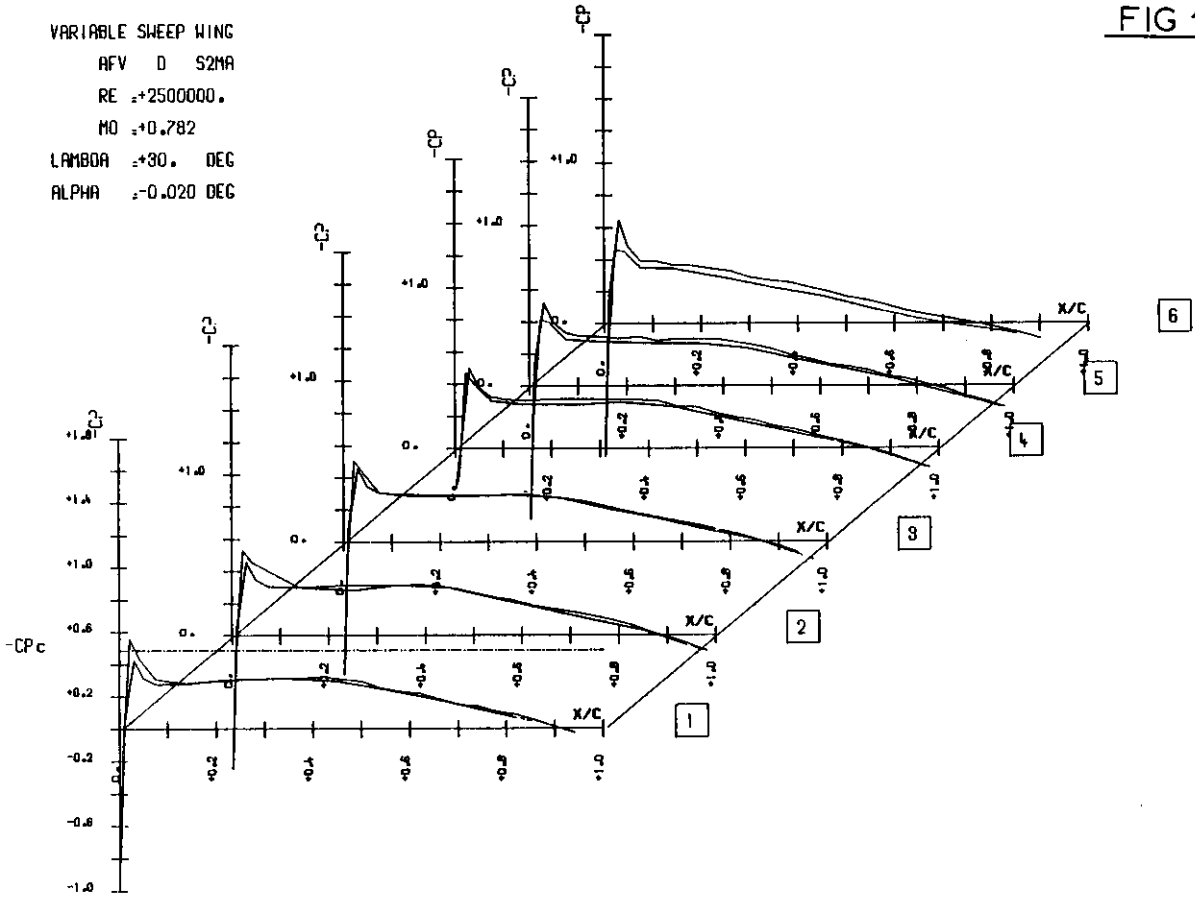

VARIABLE SWEEP WING
AFV D S2MA
RE =+2500000.
MO =+0.782
LAMBDA =+30. DEG
ALPHA =-0.020 DEG
-CPc
-CP
X/C
1
2
3
4
5
6

FIG 15

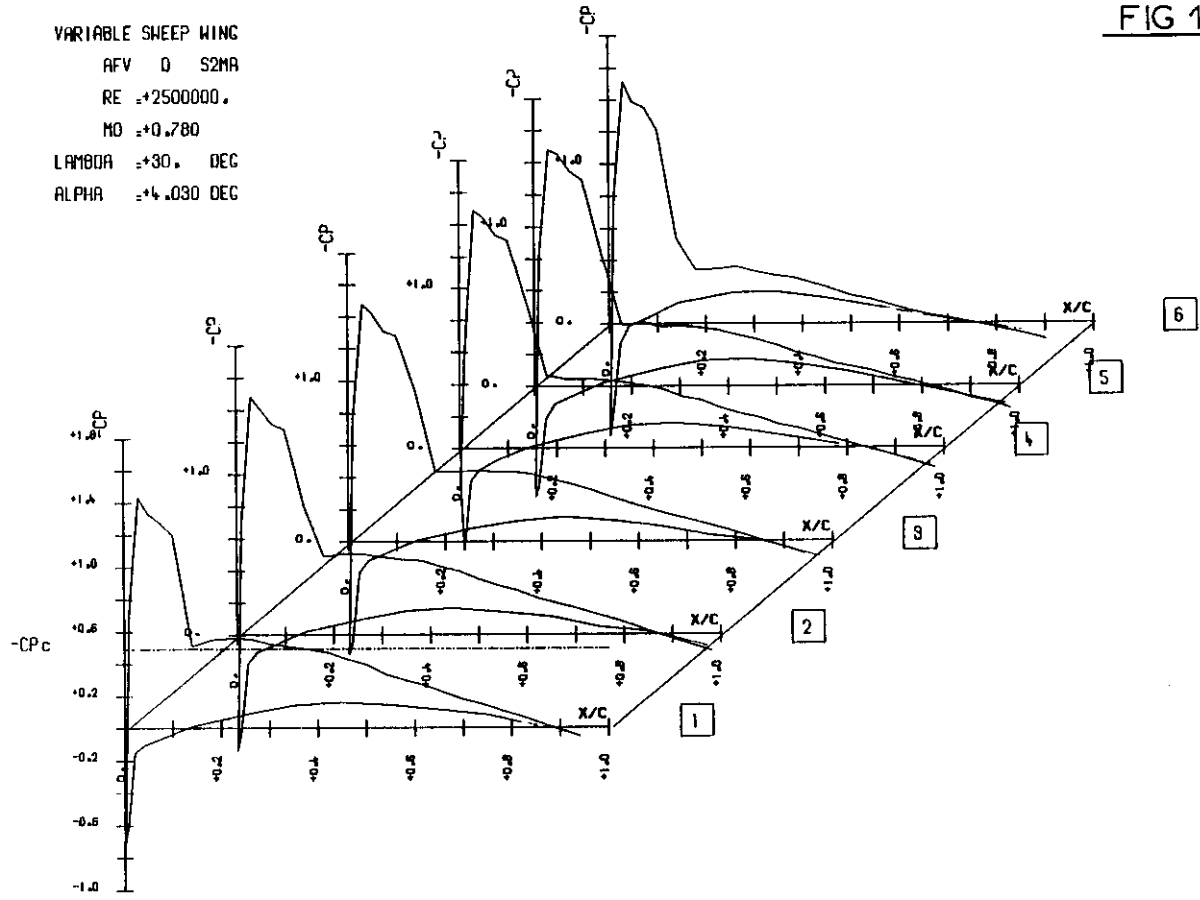

VARIABLE SWEEP WING
AFV D S2MA
RE =+2500000.
MO =+0.780
LAMBDA =+30. DEG
ALPHA =+4.030 DEG
-CPc
-CP
X/C
1
2
3
4
5
6

FIG 16

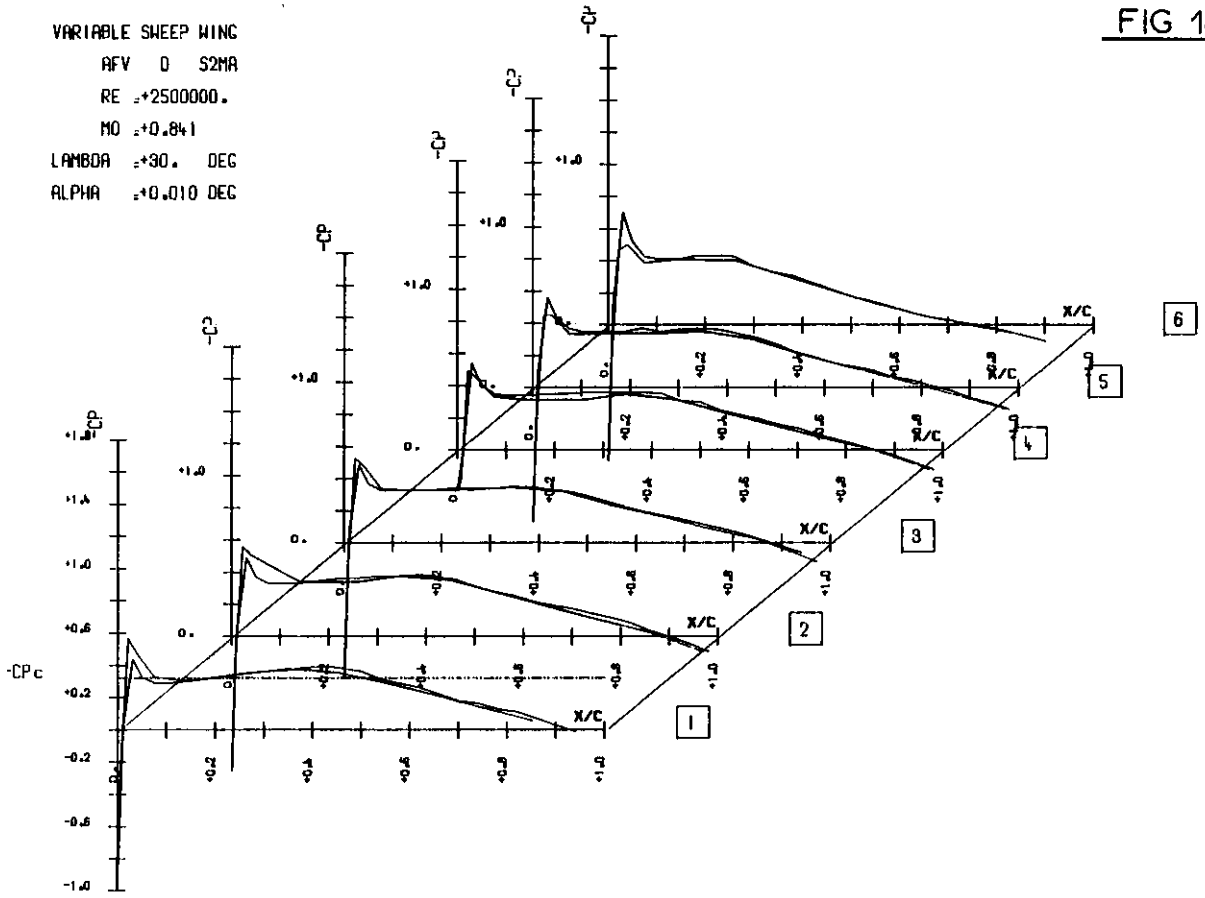

VARIABLE SWEEP WING
AFV 0 S2MA
RE =+2500000.
MO =+0.841
LAMBDA =+30. DEG
ALPHA =+0.010 DEG
-CPc
X/C
1
2
3
4
5
6

FIG 17

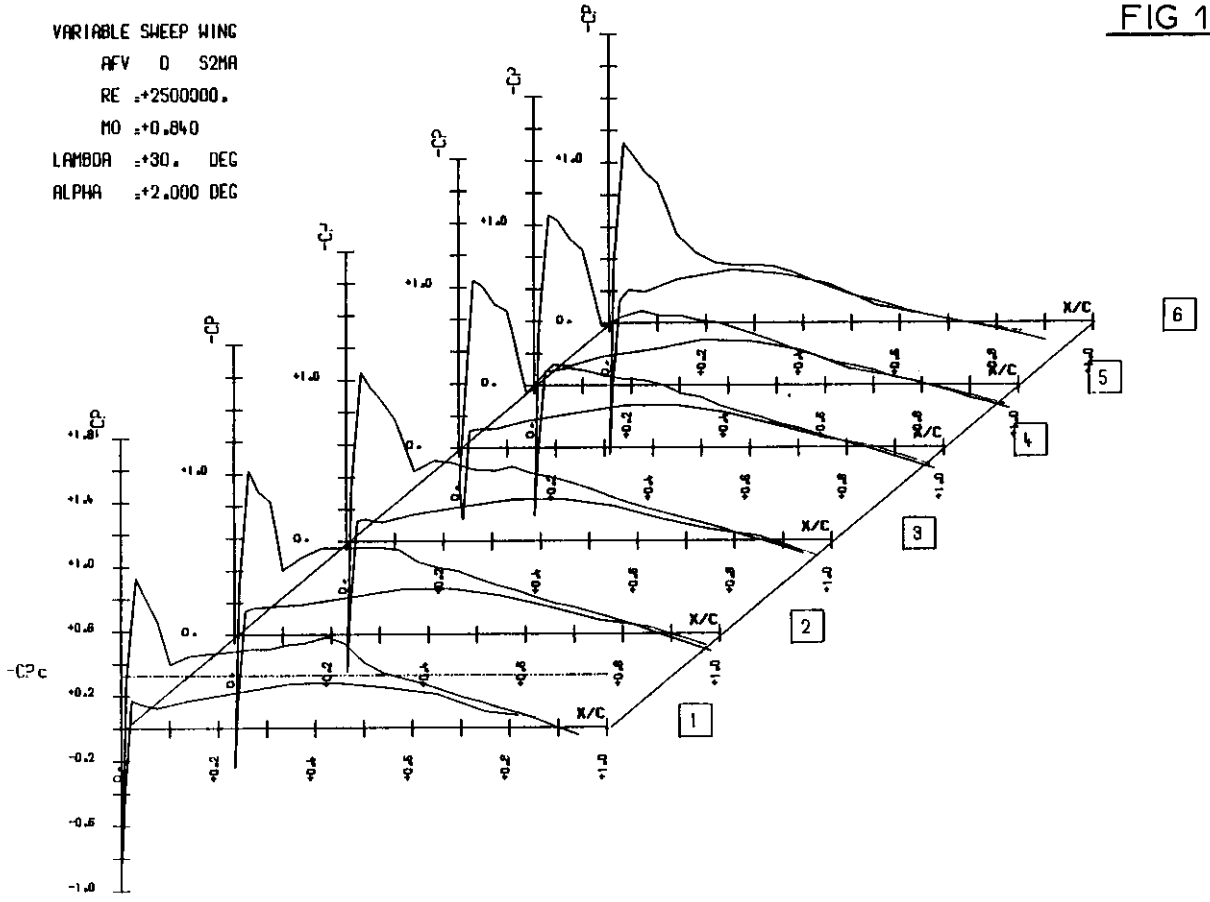

VARIABLE SWEEP WING
AFV 0 S2MA
RE =+2500000.
MO =+0.840
LAMBDA =+30. DEG
ALPHA =+2.000 DEG
-CPc
X/C
1
2
3
4
5
6

FIG 18

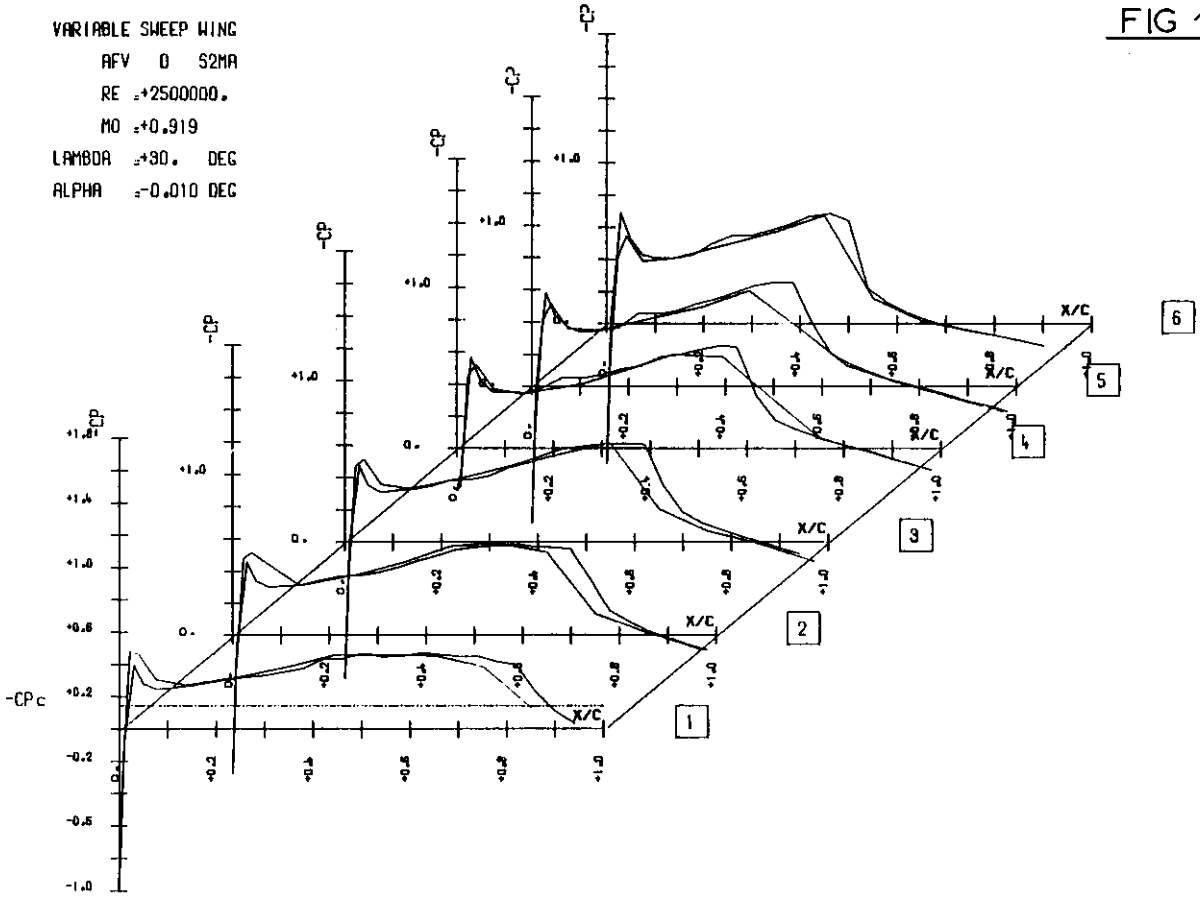

VARIABLE SWEEP WING
AFV 0 S2MA
RE =+2500000.
MO =+0.919
LAMBDA =+30. DEG
ALPHA =-0.010 DEG
-CP
-CP c
X/C
1
2
3
4
5
6

FIG 19

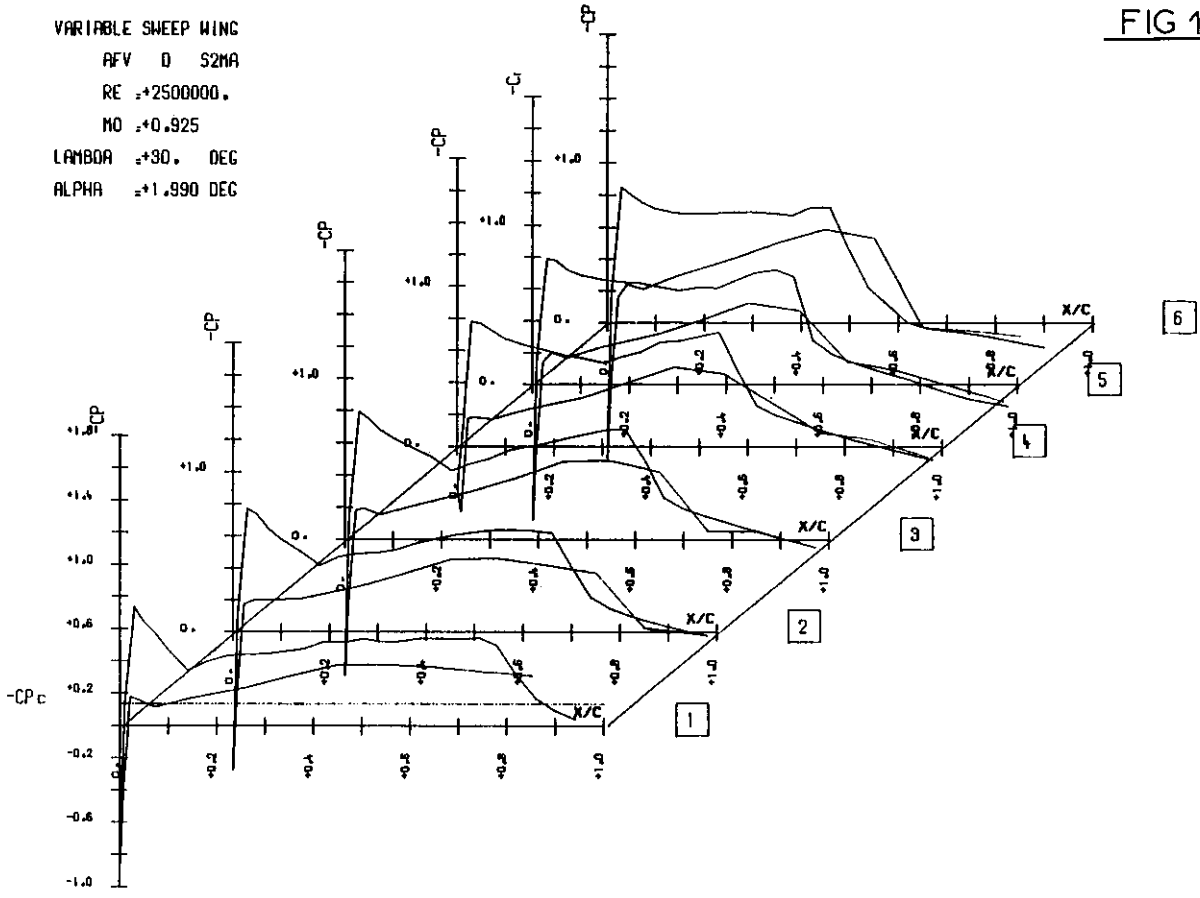

VARIABLE SWEEP WING
AFV 0 S2MA
RE =+2500000.
MO =+0.925
LAMBDA =+30. DEG
ALPHA =+1.990 DEG
-CP
-CP c
X/C
1
2
3
4
5
6

FIG 20

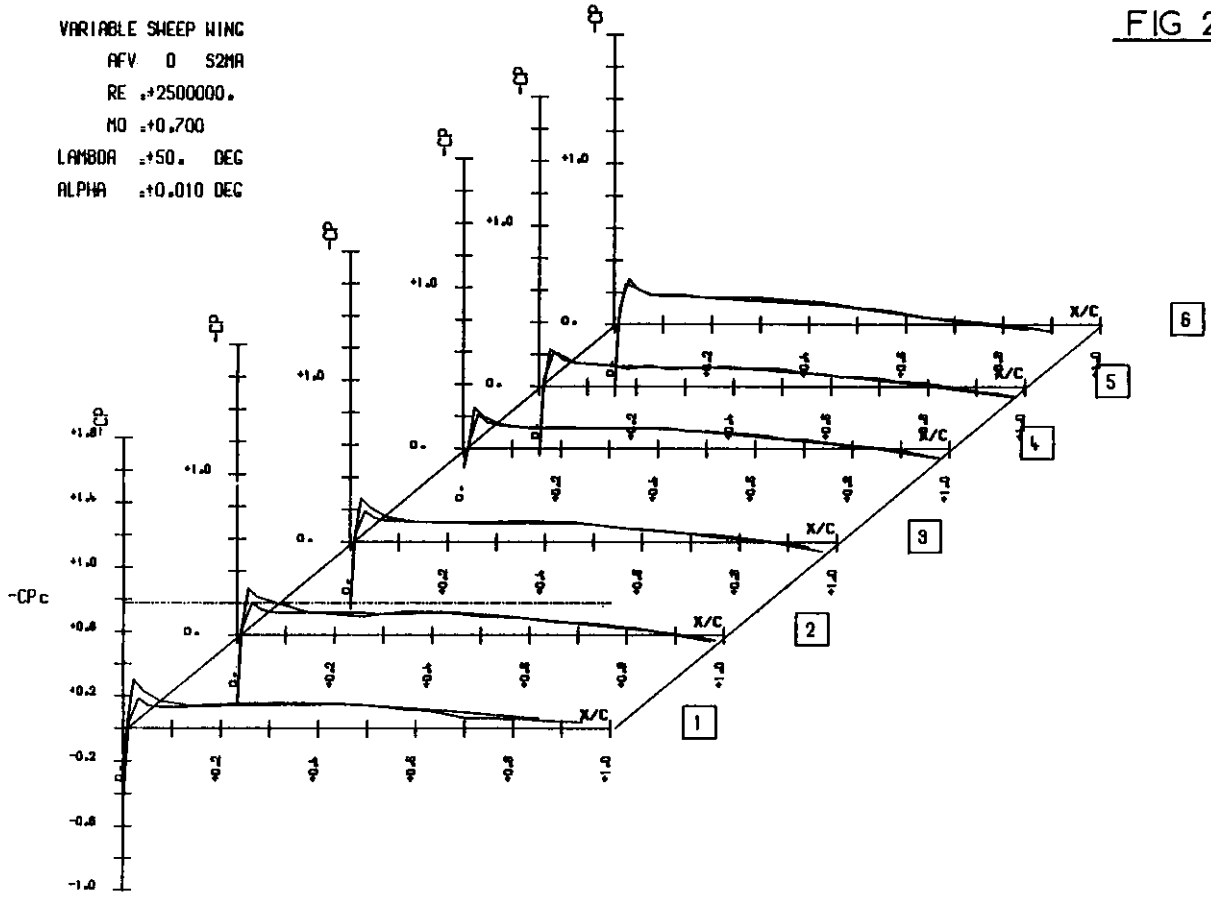

VARIABLE SWEEP WING
AFV 0 S2MA
RE =+2500000.
MO =+0.700
LAMBDA =+50. DEG
ALPHA =+0.010 DEG
-CP
-CPc
X/C
1
2
3
4
5
6

FIG 21

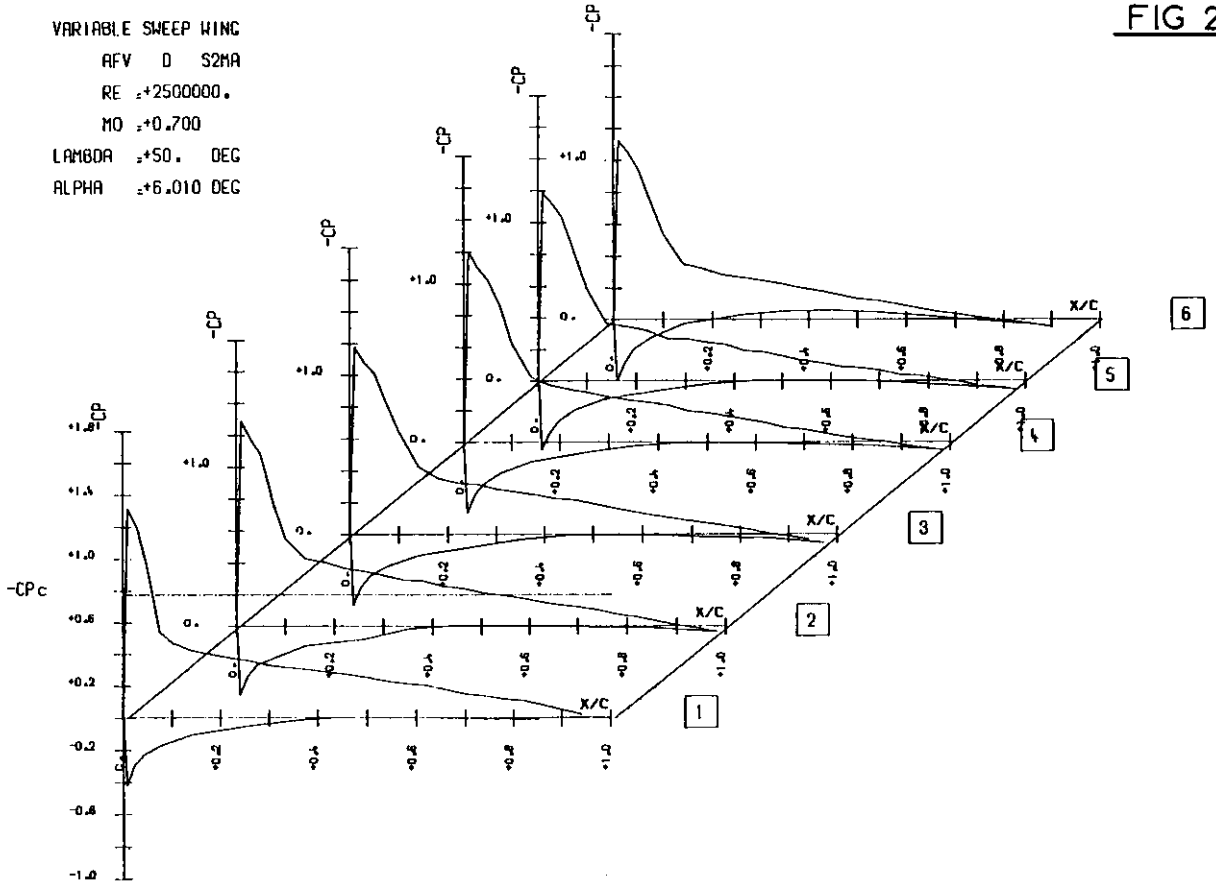

VARIABLE SWEEP WING
AFV 0 S2MA
RE =+2500000.
MO =+0.700
LAMBDA =+50. DEG
ALPHA =+6.010 DEG
-CP
-CPc
X/C
1
2
3
4
5
6

FIG 22

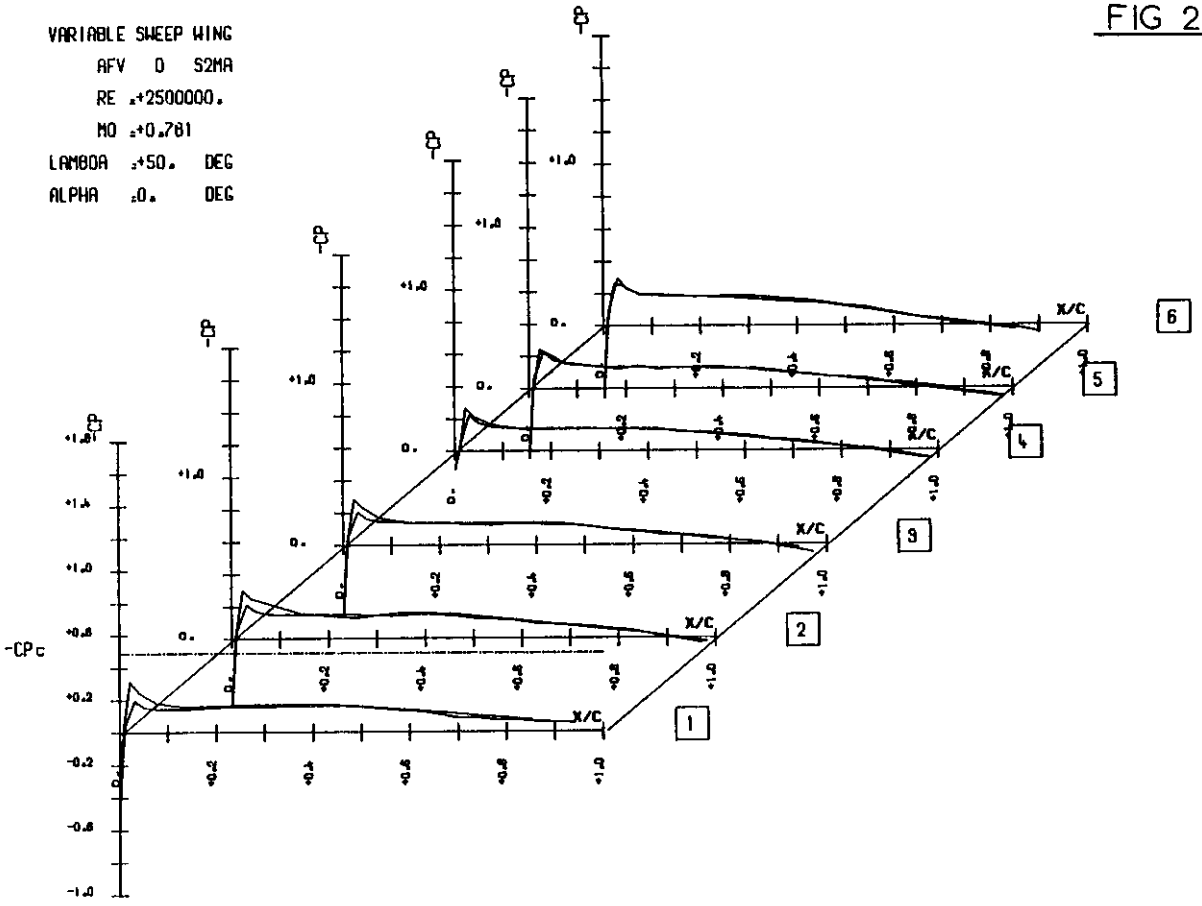

VARIABLE SWEEP WING
AFV D S2MA
RE =+2500000.
MO =+0.781
LAMBDA =+50. DEG
ALPHA =0. DEG
-CPc
X/C
1
2
3
4
5
6

FIG 23

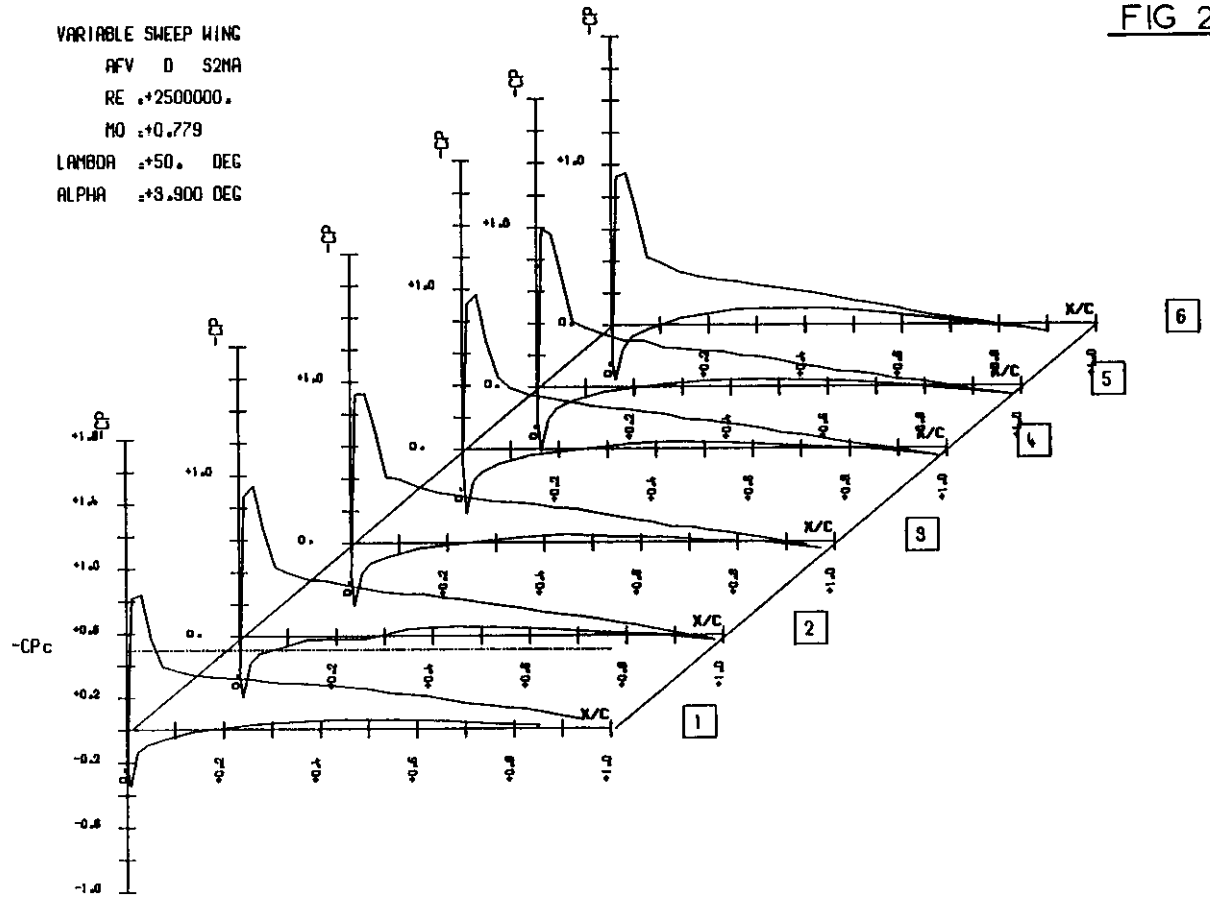

VARIABLE SWEEP WING
AFV D S2MA
RE =+2500000.
MO =+0.779
LAMBDA =+50. DEG
ALPHA =+3.900 DEG
-CPc
X/C
1
2
3
4
5
6

FIG 24

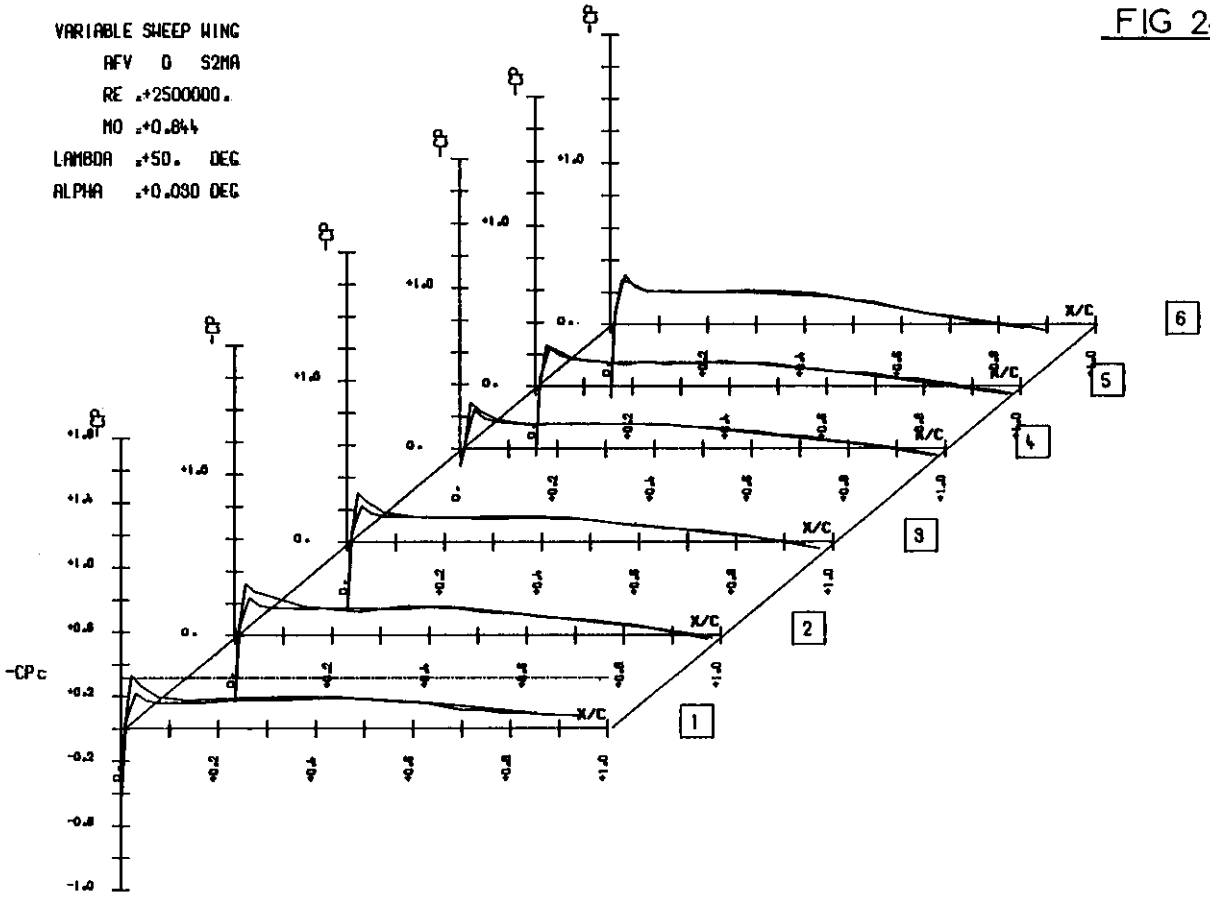

VARIABLE SWEEP WING
AFV 0 S2MA
RE .+2500000.
MO .+0.844
LAMBDA .+50. DEG
ALPHA .+0.030 DEG
-CPc
X/C
1
2
3
4
5
6

FIG 25

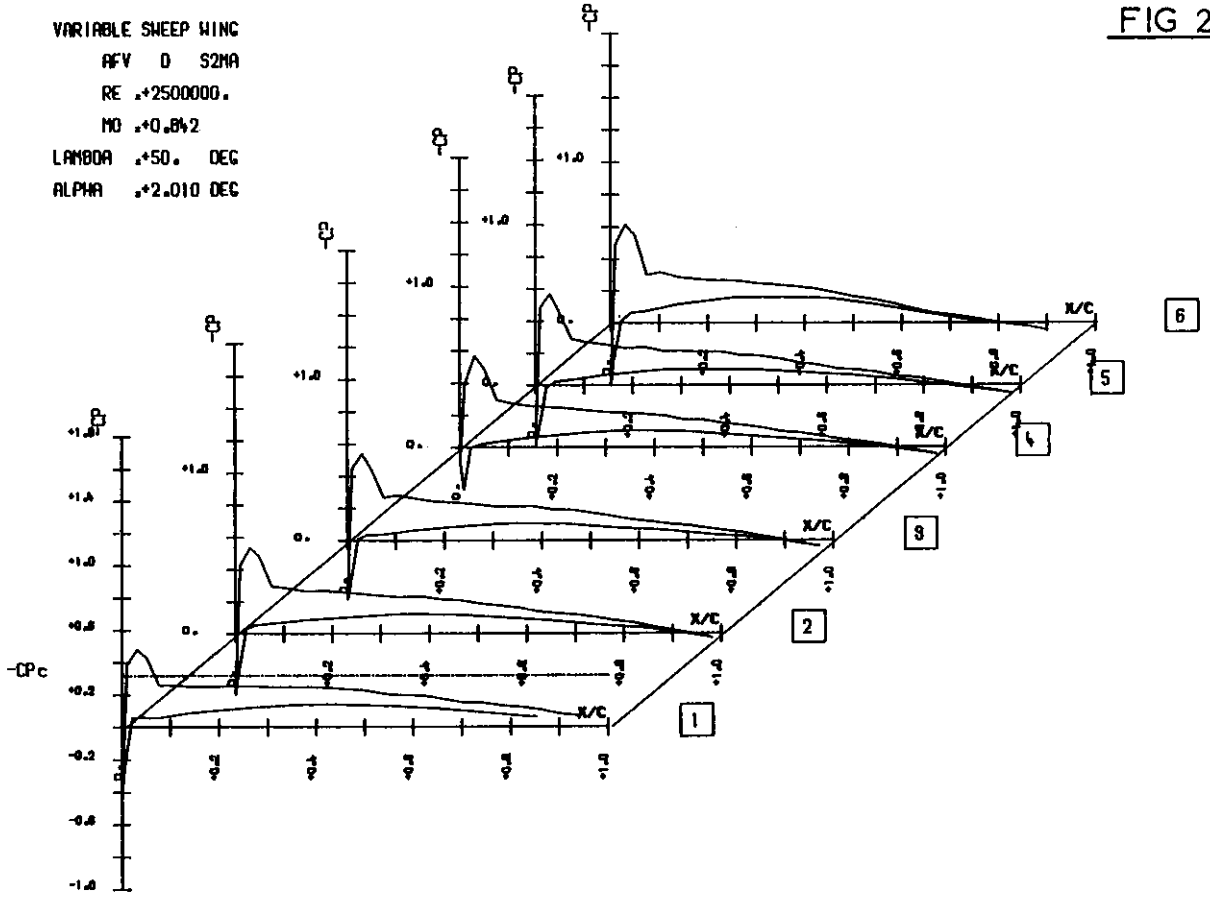

VARIABLE SWEEP WING
AFV 0 S2MA
RE .+2500000.
MO .+0.842
LAMBDA .+50. DEG
ALPHA .+2.010 DEG
-CPc
X/C
1
2
3
4
5
6

FIG 26

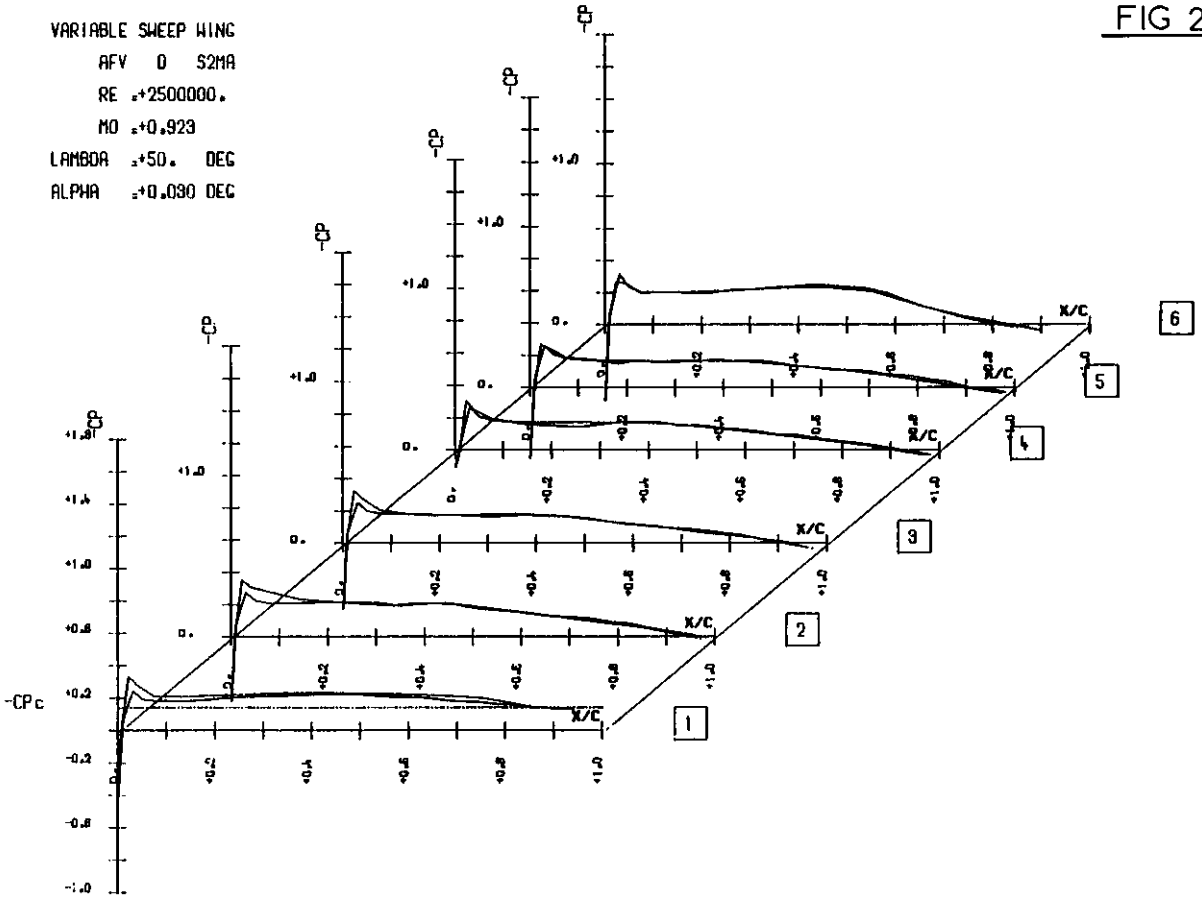
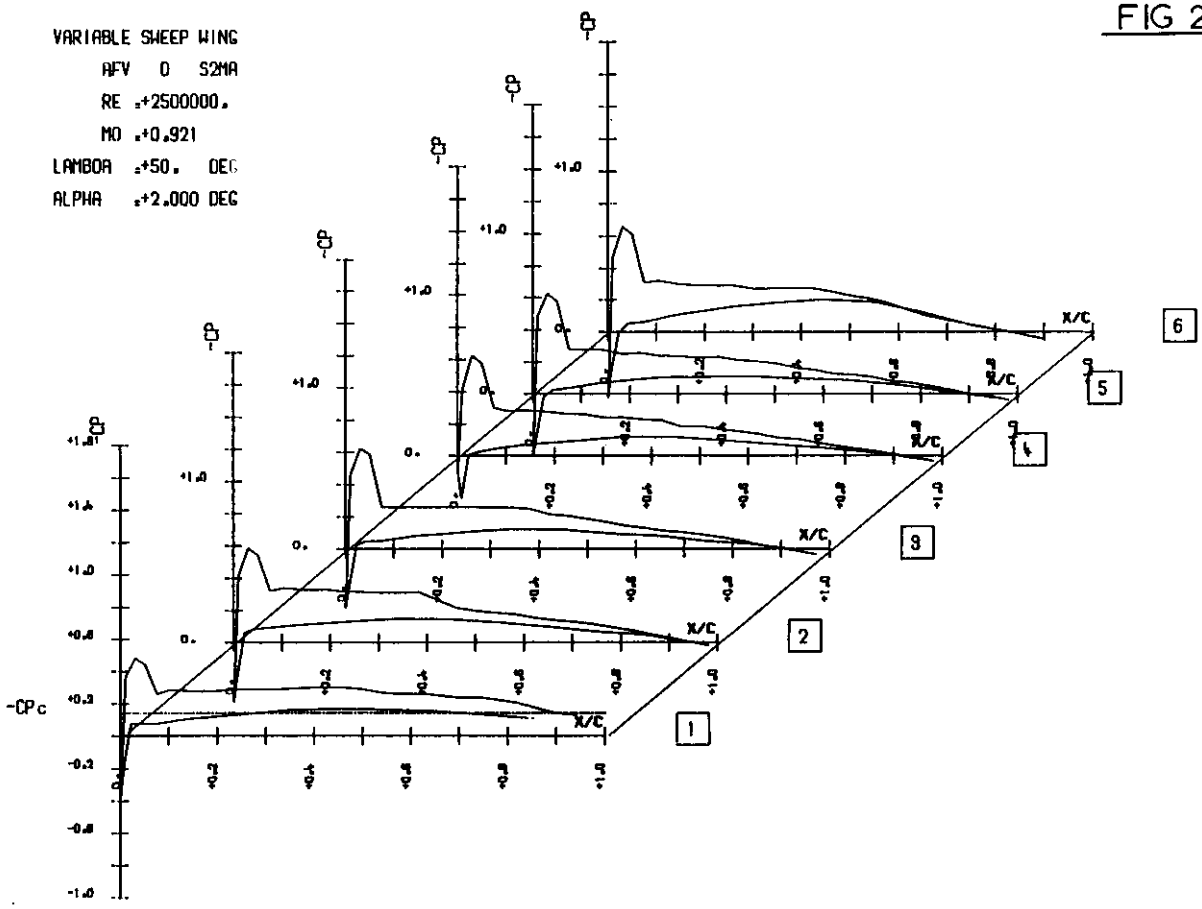

VARIABLE SWEEP WING
AFV 0 S2MA
RE =+2500000.
MO =+0.923
LAMBDA =+50. DEG
ALPHA =+0.030 DEG
-CPc
X/C
1
2
3
4
5
6

FIG 27


VARIABLE SWEEP WING
AFV 0 S2MA
RE =+2500000.
MO =+0.921
LAMBDA =+50. DEG
ALPHA =+2.000 DEG
-CPc
X/C
1
2
3
4
5
6

AR 138

3. MBB-AVA Pilot-Model with Supercritical Wing - Surface Pressure and Force Measurements

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Deutsche Forschungs- und Versuchsanstalt für Luft- und Raumfahrt E.V.

and

A. Eberle

Messerschmitt-Bölkow-Blohm GmbH, München

3.1 Introduction

These data contain pressure and force measurements on the MBB-AVA Pilot-Model which is a fighter type wing-body combination with a supercritical wing. The airfoil, incorporated in this wing is MBB-A3, an airfoil designed by the Eberle hodograph-method. Selected experimental results of this airfoil are given in contribution A8.

The measurements have been performed in the DFVLR 1x1 m Transonic Wind-Tunnel Göttingen.

The selected pressure data for this model contain an α sweep at $M = 0.8$ and a Mach number sweep for $\alpha = 2^{\circ}$. This gives a certain range of different supercritical flow types on the wing, including flows with extensive rear separations. Tests have shown that separation always begins at the trailing edge and first occurs at the wing tip. Leading edge vortex shedding has not been observed.

3.2 Data

1. General Description

1.1 Model Designation or Name	MBB-AVA Pilot-Model with Supercritical Wing
1.2 Model Type (e.g., Full Span Wing-Body, Semi-Span Wing)	Full span wing-body
1.3 Design Requirements/Conditions	Fighter-type wing-body combination with supercritical wing
1.4 Additional Remarks	Airfoil section perpendicular to leading edge is MBB-A3

2. Model Geometry

2.1 Wing Data	See fig. 3.1
2.1.1 Wing Planform	Swept wing (see fig. 3.1)
2.1.2 Aspect Ratio	4.5
2.1.3 Leading-Edge Sweep	35°
2.1.4 Trailing-Edge Sweep	14.25°
2.1.5 Taper Ratio	0.33
2.1.6 Twist	-3°
2.1.7 Mean Aerodynamic Chord	0.11875 m
2.1.8 Span or Semispan	0.4915 m (span)
2.1.9 Number of Airfoil Sections Used to Define Wing	1
2.1.10 Spanwise Location of Reference Section and Section Coordinates (Note if Ordinates are Design or Actual Measured Values)	The same airfoil section is used over the whole wing, coordinates table 3.1, measured coordinates of wing table 3.2
2.1.11 Lofting Procedure Between Reference Sections	Straight generators
2.1.12 Form of Wing-Body Fillet, Strakes	-
2.1.13 Form of Wing Tip	See fig. 3.1

2.2 Body Data (Detail Description of Body Geometry)	See fig. 3.1 and 3.2, table 3.3
2.3 Wing-Body Combination	
2.3.1 Relative Body Diameter (Average Body Diameter at Wing Location Divided by Wing Span)	≅ 0.1
2.3.2 Relative Vertical Location of Wing (Height Above or Below Axis Divided by Average Body Radius at Wing Location)	≅ 0.5
2.3.3 Wing Setting Angle	2° (see fig. 3.1)
2.3.4 Dihedral	0°
2.4 Cross Sectional Area Development	
2.5 Fabrication Tolerances/Waviness	≤ 0.15 mm, measured coordinates are given in table 3.2

3. Wind Tunnel

3.1 Designation	DFVLR 1x1 Meter Transonic Tunnel
3.2 Type of Tunnel	
3.2.1 Continuous or Blowdown. Indicate Minimum Run Time if Applicable	Continuous, closed circuit
3.2.2 Stagnation Pressure	Variable between 0.4 and 1.6 bar
3.2.3 Stagnation Temperature	≈ 305 K
3.3 Test Section	
3.3.1 Shape of Test Section	Square
3.3.2 Size of Test Section (Width, Height, Length)	1m x 1m with usable length of 1.5 m
3.3.3 Type of Test Section Walls Closed, Open, Slotted, Perforated)	Perforated
Open Area Ratio (Give Range if Variable)	6 % fixed porosity
Slot/Hole Geometry (e.g., 30-Degree Slanted Holes)	30° slanted holes
Treatment of Side Wall Boundary Layer	
Full span models Half-model testing	None
3.4 Flow Field (Empty Test Section)	
3.4.1 Reference Static Pressure	Plenum chamber pressure
3.4.2 Flow Angularity	$\pm 0.05^{\circ}$
3.4.3 Mach Number Distribution	
3.4.4 Pressure Gradient	
3.4.5 Turbulence/Noise Level	Low noise level ($\sqrt{n \cdot F(n)} < 0.001$). Measured on body of revolution NACA RM 12. Low turbulence level (measurements are in progress).
3.5 Freestream Mach Number (or Velocity)	-
3.5.1 Range	Transonic: M = 0.5 - 1.2 Supersonic: M = 1.33 - 2.2
3.5.2 Pressure Used to Determine Mach Number (e.g., Settling Chamber Total Pressure and Plenum Chamber Pressure)	Transonic range: settling chamber total pressure/ plenum chamber pressure
3.5.3 Accuracy of Mach Number Determination (ΔM)	ΔM = 0.003
3.5.4 Maximum Mach Number Variation During a Run	± 0.001

M	0.5	0.8	1.0	1.2
in x: ΔM	0.005	0.003	0.006	0.015
in z: ΔM		0.003		
∂M/∂(x/c)	0.0037			

3.6	Reynolds Number Range	
3.6.1	Unit Reynolds Number Range (Give Range at Representative Mach Numbers; 1/m)	$Re = 5\text{-}25 \cdot 10^6\ m^{-1}$ for $M \geq 0.6$
3.6.2	Means of Varying Reynolds Number (e.g., by Pressurization)	Pressurization
3.7	Temperature Range and Dewpoint, Can Temperature be Controlled?	Depends on ambient temperature, 243 °K no
3.8	Model Attitudes	
3.8.1	Angle of Attack,	360°
3.8.2	Accuracy in Determining Angles	± 16° / +1° to 11° / 360° ± 0.02/ ± 0.1° / ±0.1°
3.9	Organization Operating the Tunnel and Location of Tunnel	DFVLR-AVA, Bunsenstraße 10 D-3400 Göttingen Germany (FRG)
3.10	Who is to be Contacted for Additional Information	Dr.-Ing. W. Lorenz-Meyer Bunsenstraße 10, D-3400 Göttingen
3.11	Literature Concerning this Facility	|1|, |2|, |3|
3.12	Additional Remarks	

4. Tests

4.1	Type of Tests	Force, static pressure on wing
4.2	Wing Span or Semispan to Tunnel Width	0.4915
4.3	Test Conditions	
4.3.1	Angle of Attack	$-2° \leq \alpha \leq 8°$
4.3.2	Mach Number	$0.65 \leq M \leq 0.92$
4.3.3	Dynamic Pressure	Stagnation pressure const. ≈ 0.794 bar for all Mach numbers
4.3.4	Reynolds Number	M = 0.65 Re = $1.12 \cdot 10^6$ M = 0.8 Re = $1.26 \cdot 10^6$ M = 0.88 Re = $1.32 \cdot 10^6$ M = 0.92 Re = $1.34 \cdot 10^6$
4.3.5	Stagnation Temperature	≈ 305 K
4.4	Transition	
4.4.1	Free or Fixed	Free
4.4.2	Position of Free Transition	Not determined
4.4.3	Position of Fixed Transition, Width of Strips, Size and Type of Roughness Elements	
4.4.4	Were Checks Made to Determine if Transition Occured at Trip Locations?	
4.5	Bending or Torsion Under Load	
4.5.1	Describe Any Aeroelastic Measurements Made During Tests	
4.5.2	Describe Results of Any Bench Calibrations	
4.6	Were Different Sized Models Used in Wind-Tunnel Investigation? If so, Indicate Sizes	
4.7	Areas and Length Used to Form Coefficients	Wing area 537.5 cm^2 Mean aerodynamic chord 11.88 cm
4.8	References on Tests	|4|, |5|
4.9	Related Reports	

5. Instrumentation

5.1 Surface Pressure Measurements

5.1.1	Pressure Orifices in Wing. Location and Number on Upper and Lower Surfaces	8 sections, 14 orifices for each section on upper side, 10 orifices on lower side (see fig.3.1, table 3.4)
5.1.2	Pressure Orifices on Fuselage. Location and Number	
5.1.3	Pressure Orifices on Components, Give Component and Orifice Location	
5.1.4	Geometry of Orifices	Circular, 0.3 mm diameter, some 0.5 mm
5.1.5	Type of Pressure Transducer and Scanning Devices Used. Indicate Range and Accuracy	CEC 4-312 - 0002 Scanivalve Types d; J; S ±5 psi, ±0.4 %, Total arrangement ±0.7 %

5.2 Force Measurements

5.2.1	Type and Location of Balance	Task 1.5"C, internal balance
5.2.2	Forces and Moments that Can be Measured. Maximum Loads and Accuracy	N = 2000 ℓb X = 130 ℓb Y = 900 ℓb ±0.65 %, total arrangement ±1.0 %
5.2.3	Forces and Moments on Components Type and Location of Balance Maximum Loads and Accuracy	-

6. Data

6.1 Accuracy

6.1.1	Pressure Coefficients	±1% assuming the worst possible combination of errors including an error of $\Delta M = \pm 0.002$ evaluated at maximum $\lvert c_p \rvert$
6.1.2	Aerodynamic Coefficients	0.5 %
6.1.3	Boundary Layer and Wake Quantities	- -
6.1.4	Repeatability	within 1 %
6.1.5	Additional Remarks	-

6.2 Wall Interference Corrections

No corrections, see |6|

6.3 Data Presentation

6.3.1	Aerodynamic Coefficients	Table 3.14 Figure 3.12
6.3.2	Surface Pressure Coefficients	Tables 3.5 - 3.13 Figures 3.3 - 3.11
6.3.3	Flow Conditions for	
	- Aerodynamic coefficient data	polars for M = 0.8
	- Pressure data	

M	0.8					
α	-2°	0°	2°	4°	6°	8°

M	0.65	0.88	0.92
α	2°		

6.3.4	Boundary Layer and/or Wake Data	-
6.3.5	Flow Conditions for Boundary Layer and/or Wake Data	-
6.3.6	Wall Interference Corrections Included?	No
6.3.7	Aeroelastic Corrections Included?	No
6.3.8	Other Corrections?	No
6.3.9	Additional Remarks	-

6.4 Were Tests Carried Out in Different Facilities on the Current Model? If so, What Facilities. Are Data Included in Present Data Base? — No

7. References

|1| Ludwieg, H., Lorenz-Meyer, W., Schneider, W. — Der Transsonische Windkanal der Aerodynamischen Versuchsanstalt Göttingen. Jahrbuch der WGLR 1966, pp. 145-244.

|2| Hottner, Th., Lorenz-Meyer, W. — Der Transsonische Windkanal der Aerodynamischen Versuchsanstalt Göttingen (2. Ausbaustufe). Jahrbuch der DGLR 1968, pp. 235-244.

|3| Lorenz-Meyer, W. — Test facilities of the DFVLR in the transonic and hypersonic speed range and main activities. DLR-FB 71-86, 1971.

|4| Eberle, A. — Experimentelle Untersuchungen überkritischer Profile und Tragflügel im Hochgeschwindigkeitsbereich. MBB-Rep. UFE 1153 (1975) and UFE 1153A (1976).

|5| Lorenz-Meyer, W., Heddergott, A. — Druckverteilungs- und 3-Komponentenmessungen an dem AVA-Transsonik-Modell mit überkritischem Tragflügelprofil. DFVLR IB 251-76A19 (1976).

|6| Lorenz-Meyer, W. — Kanalkorrekturen für den Transsonischen Windkanal der Aerodynamischen Versuchsanstalt Göttingen bei Messungen an 3-dim. Modellen. ZFW 19 (1971), pp. 454-461.

8. List of Symbols

x, y, z	coordinates (fig. 3.1)
x', z'	coordinates adjusted to chord line
c	chord length
α	angle of attack (versus fuselage center line)
α_{TW}	angle of attack of section (versus fuselage center line)
M	free-stream Mach number
ML	local Mach number
Re	Reynolds number (based on mean aerodynamic chord)
C_p	pressure coefficient
C_p^*	pressure coefficient at ML = 1
C_L	lift coefficient
C_D	drag coefficient
C_M	pitching moment coefficient
F(n)	frequency function
n	reduced frequency
HS, S1 ... S7	designation of sections on wing
R1 ... R21	designation of sections on fuselage

Subscripts

u	upper side
ℓ	lower side

x'/c	z'_u/c	z'_ℓ/c	x'/c	z'_u/c	z'_ℓ/c
0.0	0.0	0.0			
0.00250000	0.00982777	-0.00381661	0.46764994	0.05168439	-0.02804276
0.00750000	0.01565005	-0.00595551	0.49289989	0.05071530	-0.02692189
0.01250000	0.01924124	-0.00724055	0.51819992	0.04953286	-0.02552682
0.01750000	0.02197274	-0.00830524	0.54094982	0.04828609	-0.02407820
0.02250000	0.02418222	-0.00916079	0.56139994	0.04701714	-0.02266148
0.02750000	0.02603555	-0.00988014	0.57984984	0.04575074	-0.02132278
0.03250000	0.02763603	-0.01051012	0.59639996	0.04451726	-0.02009462
0.03750000	0.02905858	-0.01107267	0.61134994	0.04332332	-0.01897731
0.04250000	0.03034812	-0.01158552	0.62500000	0.04216964	-0.01795656
0.04799999	0.03165161	-0.01211079	0.63684994	0.04111803	-0.01707330
0.05404999	0.03297216	-0.01266547	0.64774990	0.04010996	-0.01626466
0.06070000	0.03430759	-0.01326836	0.65754986	0.03917050	-0.01554247
0.06804997	0.03566648	-0.01392980	0.66729993	0.03820658	-0.01483070
0.07609999	0.03703678	-0.01464810	0.67809993	0.03710360	-0.01405105
0.08494997	0.03840749	-0.01542814	0.68994993	0.03585198	-0.01321070
0.09469998	0.03979396	-0.01627368	0.70294994	0.03443204	-0.01231219
0.10539997	0.04118749	-0.01718441	0.71729994	0.03280832	-0.01135277
0.11719996	0.04258029	-0.01816545	0.73304987	0.03096390	-0.01034154
0.13014996	0.04396465	-0.01920807	0.75039989	0.02886695	-0.00928134
0.14439994	0.04532958	-0.02031292	0.76949996	0.02649507	-0.00818220
0.16009992	0.04666926	-0.02147442	0.79049987	0.02383909	-0.00705677
0.17734981	0.04795947	-0.02267816	0.81354994	0.02091323	-0.00591856
0.19634992	0.04918690	-0.02391202	0.83894986	0.01773962	-0.00477579
0.21719980	0.05032904	-0.02514784	0.86434996	0.01468950	-0.00374426
0.23999995	0.05135601	-0.02634904	0.88719982	0.01204593	-0.00291268
0.26544994	0.05225340	-0.02749516	0.90779996	0.00973445	-0.00224648
0.29074997	0.05290646	-0.02841986	0.92629987	0.00770964	-0.00171418
0.31599987	0.05333761	-0.02911612	0.94204986	0.00601928	-0.00130371
0.34129989	0.05355927	-0.02957801	0.95539993	0.00460874	-0.00098079
0.36654997	0.05357844	-0.02979353	0.96674985	0.00342286	-0.00072021
0.39184994	0.05339843	-0.02975516	0.97809994	0.00224680	-0.00046829
0.41709989	0.05302519	-0.02945522	0.98944992	0.00107884	-0.00022414
0.44239986	0.05245347	-0.02888565	1.00000000	0.0	0.0

Table 3.1: Basic airfoil section (streamwise)

x' |mm|	z' |mm|	x' |mm|	z' |mm|	x' |mm|	z' |mm|
1.888	2.865	109.950	4.808	103.480	-2.172
4.121	3.914	115.422	4.174	97.156	-2.669
6.355	4.625	122.042	3.456	91.700	-3.108
9.082	5.254	129.682	2.724	86.976	-3.471
12.724	5.863	133.107	2.332	77.725	-4.064
15.797	6.253	136.195	1.996	73.929	-4.272
19.513	6.642	138.969	1.696	66.350	-4.556
24.003	7.076	143.330	1.220	62.554	-4.629
26.588	7.300	146.728	0.814	58.764	-4.660
32.565	7.687	146.676	0.095	51.180	-4.590
35.985	7.847	144.973	0.087	47.379	-4.489
43,599	8.068	143.270	0.072	39.806	-4.181
47.386	8.122	138.905	-0.030	35.990	-3.972
54.969	8.158	136.130	-0.138	29.446	-3.574
58.764	8.142	133.042	-0.290	24.010	-3.204
66.348	8.030	129.617	-0.445	17.575	-2.741
70.136	7.928	125.814	-0.786	12.734	-2.372
81.133	7.408	122.009	-1.037	9.096	-2.066
86.966	7.006	118.556	-1.247	5.619	-1.730
93.739	6.457	112.545	-1.604	2.613	-1.301
100.084	5.873	107.581	-1.902		

Table 3.2a: Measured wing contour, left-hand side in flight direction, section HS (α_{TW} = 1.88°), see figure 3.1.

x' |mm|	z' |mm|	x' |mm|	z' |mm|	x' |mm|	z' |mm|
106.518	-0.397	15.723	-2.226	39.917	6.007
105.281	-0.399	12.763	-1.978	42.673	5.989
100.876	-0.423	10.312	-1.770	45.423	5.954
96.618	-0.491	7.410	-1.519	50.932	5.825
91.364	-0.668	5.227	-1.318	56.440	5.603
86.090	-0.929	2.995	-1.075	63.157	5.181
81.725	-1.183	1.924	2.356	68.075	4.771
76.558	-1.492	4.085	3.162	73.860	4.215
72.678	-1.783	6.608	3.748	78.130	3.748
66.589	-2.286	9.247	4.206	83.818	3.070
61.149	-2.681	11.474	4.516	86.106	2.786
53.684	-3.141	14.169	4.827	88.617	2.476
48.181	-3.356	17.430	5.136	94.143	1.788
42.672	-3.432	21.377	5.440	96.631	1.478
37.164	-3.399	26.130	5.719	98.871	1.202
31.657	-3.213	28.902	5.835	102.594	0.745
23.649	-2.791	31.658	5.819	105.279	0.400
19.311	-2.497	34.409	5.974		

Table 3.2b: Measured wing contour, left-hand side in flight direction, section S4 (α_{TW} = 1.26°)

x' [mm]	z' [mm]	x' [mm]	z' [mm]	x' [mm]	z' [mm]
2.050	1.627	36.085	2.969	49.187	-0.534
3.374	2.001	38.895	2.725	46.693	-0.677
5.291	2.349	41.526	2.471	43.743	-0.887
6.562	2.534	45.621	2.034	40.921	-1.102
8.101	2.707	47.892	1.773	37.117	-1.397
9.962	2.890	50.634	1.446	32.249	-1.726
11.034	2.984	53.795	1.064	27.529	-1.940
13.512	3.170	56.494	0.729	22.806	-1.990
16.513	3.329	59.447	0.339	18.086	-1.905
21.234	3.454	60.154	-0.305	12.208	-1.619
22.806	3.461	59.448	-0.311	8.976	-1.376
25.954	3.435	57.537	-0.224	5.278	-1.044
30.673	3.298	55.204	-0.334	2.637	-0.791
32.248	3.223	52.202	-0.403	1.088	-0.509

Table 3.2c: Measured wing contour, left-hand side in flight direction, section S7 ($\alpha_{TW} = -0.26^{o}$)

x' [mm]	z' [mm]	x' [mm]	z' [mm]	x' [mm]	z' [mm]
0.272	1.539	89.453	6.870	122.006	-0.977
1.084	2.390	91.696	6.697	118.551	-1.150
1.867	2.897	95.523	6.374	115.402	-1.325
3.368	3.610	100.090	5.934	109.936	-1.652
4.866	4.119	103.487	5.563	105.425	-1.956
8.102	4.962	107.589	5.100	98.616	-2.434
10.197	5.396	112.553	4.501	93.734	-2.787
12.728	5.833	118.567	3.743	89.444	-3.088
15.797	6.253	122.023	3.301	84.192	-3.447
17.571	6.427	125.830	2.816	81.126	-3.651
21.650	6.855	129.637	2.337	73.919	-4.086
24.003	7.078	133.059	1.910	66.345	-4.363
29.436	7.534	136.148	1.567	58.763	-4.467
32.562	7.748	138.922	1.262	54.969	-4.481
35.982	7.917	143.283	0.766	47.387	-4.390
39.801	8.050	144.982	0.565	39.807	-4.153
43.598	8.141	148.379	0.142	35.990	-3.975
47.385	8.213	146.683	-0.258	29.444	-3.598
51.181	8.269	144.981	-0.275	24.007	-3.243
54.970	8.291	143.278	-0.292	21.653	-3.074
58.766	8.276	141.276	-0.319	17.572	-2.768
62.555	8.215	138.914	-0.366	14.197	-2.494
66.351	8.114	136.139	-0.439	10.200	-2.149
70.138	7.974	133.051	-0.540	5.622	-1.697
73.925	7.804	129.625	-0.665	3.372	-1.385
77.720	7.611	125.815	-0.815	1.882	-1.117
84.201	7.232				

Table 3.2d: Measured wing contour, right-hand side in flight direction, section HS ($\alpha_{TW} = 1.91^{o}$)

x' [mm]	z' [mm]	x' [mm]	z' [mm]	x' [mm]	z' [mm]
1.927	2.351	64.959	5.028	91.359	-0.554
3.563	2.931	68.074	4.764	88.594	-0.682
5.234	3.417	71.620	4.425	81.719	-1.083
7.407	3.917	75.148	4.053	75.137	-1.507
9.240	4.253	78.127	3.721	68.064	-2.017
10.300	4.418	81.734	3.300	61.136	-2.497
14.158	4.932	86.100	2.735	56.430	-2.797
17.420	5.256	88.603	2.367	50.926	-3.084
19.300	5.408	94.145	1.788	45.421	-3.248
23.641	5.703	96.635	1.510	39.916	-3.289
26.125	5.830	98.875	1.244	34.410	-3.218
31.655	6.018	100.889	1.017	28.904	-3.043
37.165	6.102	102.602	0.824	23.649	-2.793
39.917	6.106	105.290	0.507	19.309	-2.530
42.674	6.085	106.521	0.356	12.756	-2.061
48.181	5.962	107.749	-0.159	9.245	-1.753
50.933	5.862	105.277	-0.220	6.606	-1.491
53.683	5.742	102.588	-0.258	3.541	-1.129
58.919	5.455	100.873	-0.283	1.374	-0.734
61.147	5.311	96.614	-0.374		

Table 3.2e: Measured wing contour, right-hand side in flight direction, section S4 ($\alpha_{TW} = 1.30^{o}$)

x' [mm]	z' [mm]	x' [mm]	z' [mm]	x' [mm]	z' [mm]
1.435	1.419	42.195	2.368	38.039	-1.228
2.666	1.798	44.636	2.113	34.932	-1.458
4.736	2.295	47.890	1.762	32.244	-1.644
6.556	2.577	52.219	1.282	29.099	-1.830
8.976	2.913	55.221	0.942	25.953	-1.959
11.024	3.121	58.630	0.553	22.805	-2.023
13.506	3.291	60.151	-0.186	19.656	-2.013
16.510	3.426	58.614	-0.219	14.920	-1.876
19.659	3.501	56.484	-0.256	12.200	-1.743
22.807	3.520	53.780	-0.310	11.016	-1.673
25.955	3.496	50.618	-0.416	7.269	-1.416
29.102	3.403	47.878	-0.548	4.208	-1.154
32.250	3.255	44.630	-0.743	2.310	-0.902
36.086	2.984	40.304	-1.059	0.765	-0.504
38.895	2.724				

Table 3.2f: Measured wing contour, right-hand side in flight direction, section S7 ($\alpha_{TW} = -0.18^{o}$)

z [mm]	y [mm]
-19.408	0.974
-19.779	2.318
-20.586	3.653
-21.722	4.678
-22.940	5.286
-24.329	5.571
-25.910	5.444
-27.387	4.858
-28.723	3.753
-29.668	2.187
-29.912	1.343
-29.986	-0.225
-29.781	-1.225
-28.783	-3.095
-27.233	-4.346
-25.755	-4.877
-24.153	-4.959
-22.773	-4.637
-21.916	-4.218
-20.975	-3.502
-20.119	-2.431
-19.623	-1.370

Section R1

z [mm]	y [mm]
-10.636	0.553
-10.887	2.532
-11.626	4.693
-12.439	6.168
-13.602	7.825
-15.084	8.915
-16.164	9.603
-18.312	10.515
-20.454	10.928
-23.133	10.838
-24.981	10.378
-27.166	9.337
-29.745	7.089
-31.076	5.059
-31.763	3.314
-32-180	0.995
-32.092	-1.306
-31.594	-3.284
-30.878	-4.875
-29.792	-6.476
-27.842	-8.327
-26.096	-9.379
-23.799	-10.173
-20.574	-10.405
-18.225	-9.957
-16.618	-9.316
-15.018	-8.345
-13.269	-6.739
-12.049	-5.019
-11.253	-3.288
-10.795	-1.560

Section R2

z [mm]	y [mm]
-2.568	0.251
-2.803	2.824
-3.407	5.217
-4.481	7.639
-6.636	9.450
-7.940	11.941
-9.582	13.182
-11.921	14.452
-14.745	15.379
-16.978	15.716
-19.502	15.712
-21.779	15.356
-23.680	14.789
-25.329	14.065
-26.932	13.129
-29.147	11.333
-31.086	9.051
-32.279	7.017
-33.169	4.746
-33.802	1.278
-33.714	-1.690
-33.443	-3.231
-32.570	-5.892
-31.085	-8.559
-29.134	-10.859
-26.580	-12.874
-23.387	-14.414
-20.432	-15.137
-16.723	-15.227
-13.156	-14.465
-10.493	-13.276
-8.481	-11.928
-6.388	-9.932
-4.649	-7.491
-3.490	-5.008
-2.779	-2.302

Section R3

Table 3.3: Measured fuselage contour, see figure 3.2.

z [mm]	y [mm]	z [mm]	y [mm]
5.013	1.850	-35.067	0.032
4.482	5.094	-34.659	-3.751
3.193	8.653	-33.518	-7.455
1.688	11.307	-31.740	-10.763
-1.059	14.574	-29.393	-13.655
-3.314	16.443	-26.694	-16.000
-5.876	17.993	-22.855	-18.160
-7.518	18.738	-18.998	-19.357
-10.217	19.599	-16.121	-19.735
-13.659	20.121	-12.270	-19.577
-16.195	20.123	-8.471	-18.676
-20.067	19.505	-5.316	-17.312
-23.210	18.415	-2.705	-15.594
-26.091	16.833	-0.749	-13.831
-28.499	14.955	1.501	-11.074
-30.800	12.485	2.855	-8.838
-32.636	9.598	3.894	-6.501
-34.002	6.610	4.664	-3.840
-34.790	3.492	5.089	-0.615

Section R4

z [mm]	y [mm]	z [mm]	y [mm]
20.575	1.674	-35.354	4.052
20.266	3.993	-35.641	0.387
19.526	6.684	-35.248	-4.094
18.039	9.897	-34.424	-7.255
16.072	12.936	-32.866	-10.915
13.548	15.659	-28.824	-16.395
10.260	18.227	-26.247	-18.578
7.155	20.039	-22.440	-20.782
4.332	21.276	-18.349	-22.163
1.165	22.234	-14.346	-22.721
-2.302	22.827	-9.005	-22.848
-6.172	23.074	-4.400	-22.785
-9.912	23.098	0.508	-22.254
-14.321	22.986	4.721	-21.017
-17.899	22.651	7.973	-19.459
-21.654	21.436	11.376	-17.248
-24.694	19.909	14.828	-14.130
-28.126	17.385	17.566	-10.531
-30.851	14.478	19.359	-6.894
-33.010	11.016	20.341	-3.261
-34.457	7.622		

Section R5

z [mm]	y [mm]	z [mm]	y [mm]
36.285	1.386	-35.680	-0.576
35.758	4.537	-35.355	-4.042
34.870	7.280	-34.733	-6.886
33.568	10.022	-33.466	-10.420
31.432	13.285	-31.253	-14.345
28.988	15.983	-27.850	-18.203
26.146	18.293	-24.831	-20.562
23.216	20.082	-20.927	-22.588
19.921	21.582	-16.885	-23.692
16.954	22.575	-11.970	-24.143
13.313	23.410	-8.326	-24.240
9.542	23.910	-4.446	-24.293
4.933	24.193	0.328	-24.281
-0.149	24.324	5.225	-24.122
-5.167	24.369	9.838	-23.763
-9.461	24.336	14.142	-23.176
-14.394	24.091	18.882	-21.912
-18.832	23.332	22.181	-20.552
-23.139	21.683	25.126	-18.901
-26.738	19.356	27.187	-17.439
-29.352	16.922	29.870	-15.037
-32.334	12.878	31.952	-12.584
-34.204	8.939	34.213	-8.837
-35.165	5.675	35.764	-4.652
-35.604	2.698	36.314	-1.204

Section R6

z [mm]	y [mm]	z [mm]	y [mm]
46.011	3.208	-35.774	0.835
44.928	7.869	-35.553	-3.751
43.167	11.815	-34.869	-7.325
40.725	15.342	-33.189	-11.746
36.879	18.978	-31.383	-14.751
34.055	20.812	-28.559	-18.033
32.569	21.559	-25.042	-20.892
29.417	22.756	-21.324	-22.839
25.252	23.722	-17.235	-24.000
21.271	24.194	-12.121	-24.437
16.767	24.433	-7.671	-24.490
11.287	24.507	-2.835	-24.491
6.632	24.515	2.952	-24.479
1.269	24.530	8.839	-24.463
-4.219	24.540	13.369	-24.449
-9.976	24.519	18.714	-24.350
-14.207	24.376	24.657	-23.635
-18.542	23.730	28.964	-22.851
-21.456	22.746	32.766	-21.340
-24.838	20.953	36.317	-19.204
-27.914	18.598	39.671	-16.246
-30.643	15.676	41.773	-13.682
-32.535	12.879	44.061	-9.783
-33.825	10.324	45.449	-6.020
-35.085	6.636	46.177	-1.419

Section R7

z [mm]	y [mm]	z [mm]	y [mm]
48.396	4.210	-35.165	-7.102
47.798	8.025	-33.968	-10.704
46.516	12.226	-32.241	-13.922
44.612	16.053	-29.203	-17.718
41.204	20.113	-25.355	-20.888
38.540	22.040	-21.040	-23.067
31.620	24.237	-16.578	-24.143
25.920	24.542	-11.811	-24.434
20.625	24.559	-6.361	-24.467
14.802	24.535	0.112	-24.465
8.070	24.533	5.629	-24.457
2.568	24.537	10.730	-24.458
-2.237	24.536	16.544	-24.463
-7.714	24.531	23.192	-24.454
-13.590	24.439	28.860	-24.330
-19.061	23.666	35.049	-23.469
-23.393	21.956	39.586	-21.204
-27.668	19.071	43.276	-17.735
-31.446	14.974	45.905	-13.632
-33.942	10.584	47.418	-9.816
-35.409	5.948	48.310	-5.670
-35.815	1.788	48.613	-0.980
-35.767	-2.380		

Section R8

z [mm]	y [mm]	z [mm]	y [mm]
47.137	1.652	-35.860	2.814
46.951	6.245	-35.865	-0.008
46.196	10.277	-35.844	-3.399
44.163	15.747	-35.574	-6.133
41.673	19.370	-34.745	-9.239
38.376	22.124	-33.393	-12.363
37.490	22.637	-30.935	-16.122
34.524	23.853	-28.542	-18.653
30.751	24.491	-23.309	-22.192
26.199	24.554	-18.567	-23.916
22.265	24.557	-13.484	-24.458
17.871	24.556	-8.301	-24.457
12.921	24.554	-2.973	-24.457
7.739	24.553	3.749	-24.456
2.246	24.553	9.493	-24.455
-2.917	24.553	15.961	-24.455
-8.610	24.549	22.250	-24.452
-13.150	24.537	28.367	-24.443
-16.995	24.253	33.590	-24.040
-22.564	22.580	37.486	-22.605
-26.158	20.550	41.073	-19.961
-29.322	17.914	43.480	-16.927
-32.321	14.201	45.368	-12.997
-34.233	10.549	46.600	-8.588
-35.334	7.260	47.122	-3.957

Section R9

Table 3.3 continued: Measured fuselage contour

z [mm]	y [mm]	z [mm]	y [mm]
45.587	6.094	-35.787	-4.242
44.950	9.682	-34.571	-10.340
42.843	15.521	-32.007	-15.098
38.870	20.670	-28.883	-18.728
35.430	22.893	-24.988	-21.591
34.320	23.357	-20.854	-23.437
29.579	24.423	-16.122	-24.426
25.606	24.473	-11.111	-24.476
20.941	24.485	-6.139	-24.477
14.957	24.523	-0.481	-24.473
8.459	24.520	5.944	-24.472
1.974	24.519	11.713	-24.473
-4.130	24.519	17.580	-24.472
-10.188	24.518	23.915	-24.472
-16.158	24.415	30.002	-24.422
-21.624	23.188	35.709	-22.894
-29.367	18.292	39.656	-20.005
-32.930	13.660	43.167	-15.068
-34.878	9.409	44.860	-10.249
-35.725	5.337	45.713	-4.944
-35.796	1.696	45.773	-0.121

Section R10

z [mm]	y [mm]	z [mm]	y [mm]
44.406	2.439	-35.689	0.358
44.212	6.409	-35.737	-4.160
43.372	10.582	-35.034	-9.290
41.790	14.967	-32.933	-14.081
39.615	18.510	-30.062	-17.933
35.715	21.972	-26.758	-20.807
32.927	23.363	-22.104	-23.219
28.870	24.337	-16.673	-24.464
22.880	24.446	-8.803	-24.500
17.325	24.496	-1.963	-24.497
11.532	24.495	4.432	-24.492
5.016	24.495	11.247	-24.490
-0.954	24.494	17.040	-24.490
-7.232	24.493	23.292	-24.517
-13.689	24.493	28.487	-24.475
-19.501	23.971	32.507	-23.667
-24.524	22.137	36.517	-21.647
-28.287	19.630	38.734	-19.711
-31.029	16.808	41.117	-16.498
-33.618	12.867	43.003	-12.115
-34.996	9.530	44.132	-7.355
-35.675	6.015	44.408	-2.85[illegible]

Section R11

z [mm]	y [mm]	z [mm]	y [mm]
43.054	2.599	-35.664	-2.792
42.562	8.188	-35.412	-8.025
41.196	13.232	-33.080	-14.275
39.048	17.480	-29.953	-18.450
35.961	20.887	-26.378	-21.374
32.576	23.000	-21.966	-23.461
31.304	23.519	-17.354	-24.478
25.833	24.446	-11.273	-24.524
19.496	24.483	-5.496	-24.524
13.512	24.482	1.952	-24.521
5.072	24.481	9.169	-24.518
-1.462	24.482	15.909	-24.516
-7.798	24.478	22.814	-24.505
-13.861	24.477	27.716	-24.376
-19.308	24.093	31.602	-23.500
-23.539	22.828	34.740	-21.850
-27.162	20.821	37.303	-19.694
-31.898	16.053	40.029	-15.922
-34.192	12.054	41.796	-11.540
-35.462	7.857	42.868	-6.451
-35.653	2.989	43.052	-2.229

Section R12

z [mm]	y [mm]	z [mm]	y [mm]
41.424	2.288	-35.752	4.507
41.195	5.876	-35.756	1.530
40.610	9.425	-35.960	-1.918
39.745	12.796	-35.763	-5.362
38.649	15.441	-35.261	-9.836
37.360	17.679	-34.371	-12.430
35.[illegible]59	19.951	-33.270	-14.643
33.488	21.612	-31.584	-17.128
30.938	23.055	-29.699	-19.210
27.854	24.125	-26.857	-21.463
24.840	24.478	-23.510	-23.165
20.569	24.507	-19.626	-24.268
14.911	24.505	-16.212	-24.500
10.162	24.504	-11.778	-24.498
6.745	24.504	-5.956	-24.501
1.938	24.505	-0.743	-24.501
-2.105	24.505	4.562	-24.500
-7.306	24.502	9.553	-24.498
-13.739	24.498	14.088	-24.498
-18.632	24.356	17.699	-24.496
-23.856	23.024	22.311	-24.499
-27.970	20.714	26.783	-24.287
-31.323	17.450	30.917	-23.128
-33.180	14.811	34.063	-21.202
-34.469	12.282	36.930	-18.325
-35.297	9.821	38.561	-15.733
-35.715	7.175	40.045	-12.282

Section R13

z [mm]	y [mm]	z [mm]	y [mm]
37.060	3.305	-35.586	-4.203
36.906	6.166	-35.465	-9.270
36.349	9.346	-34.754	-12.725
35.619	11.979	-33.669	-15.265
34.411	14.898	-31.987	-17.929
33.108	17.344	-29.335	-20.698
31.425	19.464	-26.827	-22.393
29.432	21.247	-23.491	-23.797
26.882	22.817	-20.361	-24.445
22.927	24.202	-16.761	-24.498
20.058	24.478	-12.344	-24.500
17.489	24.489	-7.145	-24.499
14.356	24.506	-1.296	-24.500
10.861	24.499	4.361	-24.500
6.262	24.499	9.444	-24.499
0.738	24.497	13.938	-24.498
-3.377	24.498	19.411	-24.471
-8.734	24.496	23.239	-24.403
-14.417	24.492	26.430	-23.355
-18.737	24.488	29.042	-21.741
-23.713	23.713	31.804	-19.269
-28.432	21.413	34.006	-16.084
-31.281	18.757	35.511	-12.559
-33.269	15.952	36.453	-9.155
-35.176	11.253	36.967	-5.962
-35.473	7.914	37.051	-2.257
-35.481	4.028		

Section R14

z [mm]	y [mm]	z [mm]	y [mm]
35.671	0.490	-35.404	-1.562
35.656	4.107	-35.409	-5.848
35.303	8.015	-35.374	-10.114
34.500	11.329	-34.412	-14.092
33.518	14.102	-33.094	-16.701
32.282	16.587	-31.069	-19.407
30.701	18.845	-28.794	-21.431
28.852	20.700	-25.952	-23.065
26.127	22.529	-23.273	-24.021
22.335	24.070	-19.775	-24.503
18.965	24.479	-15.600	-24.499
15.184	24.502	-11.482	-24.499
10.731	24.501	-7.259	-24.501
6.216	24.502	-2.673	-24.500
1.845	24.500	3.468	-24.500
-2.411	24.493	7.169	-24.499
-7.202	24.498	11.241	-24.498
-13.550	24.494	15.382	-24.495
-18.222	24.495	19.806	-24.454
-22.613	24.149	24.116	-23.537
-26.816	22.666	27.580	-21.718
-30.424	20.056	30.520	-19.093
-33.265	16.349	32.590	-16.068
-34.583	13.636	33.871	-13.196
-35.311	10.531	34.893	-9.898
-35.392	6.959	35.450	-7.123
-35.399	2.842	35.669	-3.648

Section R15

Table 3.3 continued: Measured fuselage contour

z [mm]	y [mm]	z [mm]	y [mm]
34.353	2.742	-35.332	-7.942
34.116	6.982	-35.035	-12.568
33.321	10.792	-33.250	-16.332
31.967	14.581	-31.817	-18.904
30.008	18.003	-29.697	-21.040
27.916	20.345	-27.347	-22.595
25.558	22.138	-24.288	-23.878
22.932	23.450	-20.913	-24.489
19.531	24.331	-16.882	-24.498
14.454	24.502	-12.808	-24.497
9.821	24.501	-8.157	-24.498
5.006	24.500	-3.900	-24.498
1.211	24.496	0.515	-24.497
-3.979	24.500	5.601	-24.496
-8.567	24.498	9.956	-24.495
-13.832	24.495	14.708	-24.493
-19.789	24.492	19.209	-24.368
-24.485	23.811	23.391	-23.276
-27.823	22.379	27.237	-20.979
-30.828	20.006	30.370	-17.522
-33.460	16.383	32.323	-13.760
-35.068	12.253	33.628	-9.618
-35.309	7.650	34.251	-5.254
-35.313	2.248	34.347	-1.556
-35.317	-2.765		

Section R16

z [mm]	y [mm]	z [mm]	y [mm]
33.007	3.331	-35.241	-0.986
32.733	7.429	-35.249	-6.792
31.891	11.033	-35.130	-12.150
30.656	14.463	-34.021	-15.728
29.317	17.065	-32.295	-18.663
27.802	19.106	-29.600	-21.438
25.230	21.475	-25.386	-23.687
22.460	23.088	-22.318	-24.408
19.430	24.102	-18.112	-24.497
15.308	24.501	-13.570	-24.497
10.344	24.503	-9.432	-24.498
5.459	24.502	-4.972	-24.498
1.238	24.498	-0.524	-24.498
-2.991	24.502	4.236	-24.497
-7.099	24.500	9.515	-24.495
-11.178	24.497	15.055	-24.496
-15.860	24.496	19.703	-24.064
-19.682	24.495	23.545	-22.583
-24.299	24.018	26.869	-20.123
-28.539	22.232	29.172	-17.335
-30.990	20.188	31.282	-12.954
-33.151	17.318	32.524	-8.536
-34.762	13.728	32.991	-5.255
-35.229	9.255	33.006	-0.955
-35.226	4.523		

Section R17

z [mm]	y [mm]	z [mm]	y [mm]
30.955	7.717	-34.006	16.296
30.708	8.890	-34.926	13.494
30.320	10.420	-35.134	10.606
29.975	11.547	-35.145	6.412
29.389	13.084	-35.144	1.007
28.499	15.229	-35.160	-6.415
27.559	16.980	-35.161	-11.122
26.492	18.512	-34.586	-14.988
24.944	20.215	-33.631	-17.108
23.194	21.659	-31.025	-20.658
20.457	23.194	-28.186	-22.757
17.841	24.075	-25.413	-23.905
14.261	24.501	-22.338	-24.476
10.308	24.507	-17.665	-24.495
4.683	24.506	-12.260	-24.495
.0.205	24.505	-6.979	-24.495
-4.722	24.504	-0.427	-24.495
-10.324	24.502	6.546	-24.492
-14.939	24.500	20.359	-23.236
-20.171	24.501	23.759	-21.243
-23.639	24.323	26.421	-18.622
-26.940	23.407	28.082	-16.104
-29.995	21.608	29.390	-13.159
-32.622	18.697	30.397	-10.381

Section R18

z [mm]	y [mm]
27.305	13.875
26.795	15.032
25.926	16.704
24.641	18.576
23.620	19.737
21.044	21.903
19.276	22.901
16.639	23.888
13.739	24.426
10.730	24.506
7.022	24.507
1.259	24.503
-5.570	24.501
-10.801	24.501
-22.648	24.507
-27.764	23.329
-32.977	18.690
-34.734	14.744
-35.039	11.145
-35.047	6.730
-35.061	0.941
-35.062	-5.298
-35.074	-12.043
-33.582	-17.781
-30.112	-21.876
-27.275	-23.472

Section R19

z [mm]	y [mm]
25.393	14.221
24.763	15.503
23.563	17.458
22.450	18.902
20.608	20.768
18.577	22.276
16.016	23.682
13.142	24.316
9.248	24.389
4.114	24.501
-1.215	24.478
-11.093	24.497
-22.442	24.483
-26.424	23.713
-30.029	21.697
-32.889	18.271
-34.269	14.443
-34.445	9.313
-34.433	4.485
-34.417	-0.832
-34.425	-6.165
-34.420	-11.416
-33.934	-15.883
-32.058	-19.662
-29.769	-21.996
-26.536	-23.767

Section R20

z [mm]	y [mm]
23.855	12.257
23.348	13.450
22.749	14.690
22.144	15.789
21.124	17.311
19.851	18.852
18.185	20.417
15.833	22.036
13.551	23.130
10.165	24.145
7.328	24.430
4.040	24.452
0.372	24.458
-3.974	24.466
-8.941	24.461
-12.154	24.144
-18.956	21.608
-21.754	19.538

Section R21

Table 3.3 continued: Measured fuselage contour

Spanwise position of pressure orifices

Designation	y/s (s = halfspan)
H5	0,133
H1	0,198
H2	0,262
H3	0,375
H4	0,505
H5	0,648
H6	0,786
H7	0,928

Chordwise position of pressure orifices

x/c
0+
0,025
0,05
0,075
0,1
0,15
0,2
0,3*
0,4
0,5
0,6
0,7#
0,8
0,9
0,98#

+ only on lower side
# only on upper side

Note:
The orifices on the upper side are located on the right wing side in flight direction.
the orifices on the lower side on the left one.

Table 3.4: Location of pressure orifices

NR	SECTION H5 X/C	CP	ML	SECTION 1 X/C	CP	ML	SECTION 2 X/C	CP	ML	SECTION 3 X/C	CP	ML
UPPER SIDE												
1	0.0	0.8375	0.3867	0.0	0.7581	0.4340	0.0	0.7330	0.4448	0.0	0.6914	0.4710
2	0.0250	0.0446	0.7807	0.0250	-0.0771	0.8357	0.0250	-0.0222	0.8107	0.0250	-0.0357	0.8184
3	0.0500	-0.1707	0.8602	0.0500	-0.2221	0.9015	0.0500	-0.2080	0.8949	0.0500	-0.2109	0.8957
4	0.0750	-0.1671	0.8769	0.0750	-0.2234	0.9036	0.0750	-0.2664	0.9214	0.0750	-0.2173	0.9454
5	0.1000	-0.1611	0.8739	0.1000	-0.2051	0.8934	0.1000	-0.2460	0.9102	0.1000	-0.2769	0.9270
6	0.1500	-0.1552	0.8708	0.1500	-0.1675	0.8901	0.1500	-0.2409	0.9102	0.1500	-0.2835	0.9332
7	0.2000	-0.2104	0.8960	0.2000	-0.2648	0.9209	0.2000	-0.2847	0.9304	0.2000	-0.3261	0.9503
8	0.3000	-0.2395	0.9056	0.3000	-0.3470	0.9354	0.3000	-0.3247	0.9488	0.3000	-0.3671	0.9691
9	0.4000	-0.3162	0.9317	0.4000	-0.2585	0.9361	0.4000	-0.3376	0.9544	0.4000	-0.3636	0.9670
10	0.5000	-0.3058	0.9402	0.5000	-0.3312	0.9515	0.5000	-0.3587	0.9645	0.5000	-0.3714	0.9705
11	0.6000	-0.2707	0.9243	0.6000	-0.2965	0.9353	0.6000	-0.3186	0.9463	0.6000	-0.3301	0.9515
12	0.7000	-0.2173	0.9039	0.7000	-0.2337	0.9062	0.7000	-0.2512	0.9146	0.7000	-0.2678	0.9224
13	0.8000	-0.1114	0.8512	0.8000	-0.0684	0.8408	0.8000	-0.0515	0.8437	0.8000	-0.0499	0.8232
14	0.9000	-0.0118	0.8067	0.9000	0.0125	0.7952	0.9000	0.0258	0.7848	0.9000	0.0257	0.7893
15	1.0000	0.0477	0.7608	1.0000	0.1134	0.7493	1.0000	0.1031	0.7539	1.0000	0.1014	0.7547
LOWER SIDE												
1	0.0	0.8375	0.3847	0.0	0.7581	0.4340	0.0	0.7390	0.4448	0.0	0.6914	0.4710
2	0.0500	-0.0061	0.8031	0.0500	-0.1240	0.8570	0.0500	-0.1839	0.8835	0.0500	-0.2204	0.9006
3	0.1000	-0.0959	0.8077	0.1000	-0.0759	0.8345	0.1000	-0.1080	0.8492	0.1000	-0.1660	0.8761
4	0.1500	-0.0552	0.8253	0.1500	-0.1024	0.8470	0.1500	-0.1218	0.8556	0.1500	-0.1849	0.8849
5	0.2000	-0.0772	0.8149	0.2000	-0.1234	0.8543	0.2000	-0.1481	0.8674	0.2000	-0.2036	0.8555
6	0.4000	-0.2315	0.9306	0.4000	-0.2787	0.9271	0.4000	-0.2833	0.9296	0.4000	-0.2867	0.9315
7	0.5000	-0.2317	0.9052	0.5000	-0.2274	0.9036	0.5000	-0.2161	0.8986	0.5000	-0.2103	0.8960
8	0.6000	-0.1322	0.8660	0.6000	-0.1088	0.8495	0.6000	-0.0924	0.8423	0.6000	-0.0758	0.8366
9	0.8000	0.0481	0.7793	0.8000	0.0666	0.7706	0.8000	0.0868	0.7613	0.8000	0.0982	0.7563
10	0.9000	0.0419	0.7593	0.9000	0.1157	0.7482	0.9000	0.1332	0.7399	0.9000	0.1335	0.7402
11	1.0000	0.0477	0.7608	1.0000	0.1134	0.7493	1.0000	0.1031	0.7539	1.0000	0.1014	0.7547

NR	SECTION 4 X/C	CP	ML	SECTION 5 X/C	CP	ML	SECTION 6 X/C	CP	ML	SECTION 7 X/C	CP	ML
UPPER SIDE												
1	0.0	0.7025	0.4650	0.0	0.6899	0.4715	0.0	0.6168	0.5103	0.0	0.5834	0.5376
2	0.0250	-0.0189	0.8139	0.0250	0.0550	0.7760	0.0500	-0.2246	0.9025	0.0500	-0.1500	0.8696
3	0.0500	-0.2109	0.8964	0.0500	-0.1559	0.8997	0.1000	-0.2908	0.9331	0.1000	-0.2805	0.9293
4	0.0750	-0.2740	0.9255	0.0750	-0.2432	0.9212	0.1500	-0.3015	0.9391	0.1500	-0.2952	0.9353
5	0.1000	-0.3017	0.9385	0.1000	-0.3008	0.9379	0.2000	-0.3369	0.9545	0.2000	-0.3477	0.9602
6	0.1500	-0.3599	0.9421	0.1500	-0.3102	0.9420	0.3000	-0.3836	0.9759	0.3000	-0.3773	0.9737
7	0.2000	-0.3196	0.9558	0.2000	-0.3430	0.9556	0.4000	-0.3590	0.9837	0.4000	-0.3480	0.9601
8	0.3000	-0.3454	0.9771	0.3000	-0.3818	0.9754	0.5000	-0.3791	0.9748	0.5000	-0.3231	0.9583
9	0.4000	-0.3820	0.9757	0.4000	-0.3908	0.9801	0.6000	-0.3293	0.9515	0.6000	-0.2487	0.9138
10	0.5000	-0.3773	0.9733	0.5000	-0.3897	0.9795	0.7000	-0.2311	0.9062	0.7000	-0.1238	0.8569
11	0.6000	-0.3371	0.9540	0.6000	-0.3338	0.9531	0.8000	-0.0510	0.8234	0.8000	-0.0279	0.8132
12	0.7000	-0.2705	0.9231	0.7000	-0.2287	0.9040	0.9000	0.0577	0.7744	0.9000	0.0271	0.7883
13	0.8000	-0.0474	0.8716	0.8000	-0.0612	0.8280	1.0000	0.1664	0.7253	1.0000	0.0820	0.7635
14	0.9000	0.0259	0.7665	0.9000	0.0197	0.7316	0.0	0.0	0.0	0.0	0.0	0.0
15	1.0000	0.0992	0.7557	1.0000	0.1007	0.7550	0.0	0.0	0.0	0.0	0.0	0.0
LOWER SIDE												
1	0.0	0.7025	0.4650	0.0	0.6899	0.4715	0.0	0.6168	0.5103	0.0	0.5834	0.5376
2	0.0500	-0.2920	0.9292	0.0500	-0.3201	0.9465	0.0500	-0.4420	1.0044	0.0500	-0.5685	1.0652
3	0.1000	-0.2124	0.8975	0.1000	-0.2239	0.9022	0.1000	-0.3118	0.9430	0.1000	-0.3233	0.9480
4	0.1500	-0.1060	0.8896	0.1500	-0.2273	0.9336	0.1500	-0.2777	0.9272	0.1500	-0.3551	0.9537
5	0.2000	-0.1867	0.8901	0.2000	-0.2325	0.9047	0.2000	-0.2796	0.9276	0.2000	-0.3139	0.9436
6	0.4000	-0.2267	0.9267	0.4000	-0.2758	0.9255	0.4000	-0.2880	0.9314	0.4000	-0.2582	0.9180
7	0.5000	-0.2015	0.8921	0.5000	-0.1695	0.8856	0.5000	-0.1763	0.8894	0.5000	-0.1434	0.8654
8	0.6000	-0.0697	0.8323	0.6000	-0.0581	0.8264	0.6000	-0.0586	0.8271	0.6000	-0.0124	0.8061
9	0.8000	0.1101	0.7509	0.8000	0.1119	0.7495	0.8000	0.1195	0.7466	0.8000	0.1328	0.7414
10	0.9000	0.1433	0.7357	0.9000	0.1443	0.7335	0.9000	0.1508	0.7323	0.9000	0.1203	0.7421
11	1.0000	0.0992	0.7557	1.0000	0.1007	0.7550	1.0000	0.1664	0.7253	1.0000	0.0820	0.7635

Table 3.5: Pressure data (M = 0.8 $\alpha = -2^{o}$)

NR	SECTION H5 X/C	CP	ML	SECTION 1 X/C	CP	ML	SECTION 2 X/C	CP	ML	SECTION 3 X/C	CP	ML
UPPER SIDE												
1	0.0	0.0443	0.3825	0.0	0.7674	0.4281	0.0	0.7382	0.4451	0.0	0.6907	0.4709
2	0.0250	-0.1907	0.8870	0.0250	-0.3650	0.9661	0.0250	-0.3193	0.9463	0.0250	-0.3831	0.9768
3	0.0500	-0.3410	0.9564	0.0500	-0.4713	1.0165	0.0500	-0.4606	1.0129	0.0500	-0.5267	1.0433
4	0.0750	-0.3448	0.9540	0.0750	-0.4325	0.9984	0.0750	-0.4966	1.0305	0.0750	-0.5440	1.0746
5	0.1000	-0.3076	0.9435	0.1000	-0.3794	0.9737	0.1000	-0.4501	1.0081	0.1000	-0.5113	1.0376
6	0.1500	-0.2676	0.9222	0.1500	-0.3313	0.9511	0.1500	-0.3991	0.9836	0.1500	-0.4669	1.0151
7	0.2000	-0.3219	0.9473	0.2000	-0.3869	0.9772	0.2000	-0.4255	0.9963	0.2000	-0.4837	1.0240
8	0.3000	-0.3323	0.9520	0.3000	-0.4037	0.9853	0.3000	-0.4432	1.0050	0.3000	-0.4973	1.0304
9	0.4000	-0.3413	0.9554	0.4000	-0.3917	0.9797	0.4000	-0.4344	1.0008	0.4000	-0.4820	1.0223
10	0.5000	-0.3892	0.9789	0.5000	-0.4178	0.9911	0.5000	-0.4457	1.0064	0.5000	-0.4405	1.0129
11	0.6000	-0.3365	0.9537	0.6000	-0.3527	0.9610	0.6000	-0.3719	0.9715	0.6000	-0.3579	0.9576
12	0.7000	-0.2695	0.9227	0.7000	-0.2652	0.9208	0.7000	-0.2368	0.9081	0.7000	-0.2181	0.8994
13	0.8000	-0.1322	0.8599	0.8000	-0.1079	0.8495	0.8000	-0.0845	0.8385	0.8000	-0.0682	0.8311
14	0.9000	-0.0206	0.8093	0.9000	0.0082	0.7969	0.9000	0.0195	0.7911	0.9000	0.0283	0.7873
15	1.0000	0.0911	0.7592	1.0000	0.1244	0.7440	1.0000	0.1235	0.7444	1.0000	0.1248	0.7438
LOWER SIDE												
1	0.0	0.0443	0.3825	0.0	0.7674	0.4281	0.0	0.7382	0.4451	0.0	0.6907	0.4709
2	0.0500	0.1160	0.7475	0.0500	0.0528	0.7769	0.0500	0.0205	0.7914	0.0500	0.0169	0.7939
3	0.1000	0.0995	0.7550	0.1000	0.0522	0.7769	0.1000	0.0342	0.7846	0.1000	-0.0082	0.8033
4	0.1500	0.0567	0.7743	0.1500	0.0119	0.7951	0.1500	0.0052	0.7986	0.1500	-0.0616	0.8193
5	0.2000	0.0242	0.7891	0.2000	-0.0280	0.8130	0.2000	-0.0353	0.8165	0.2000	-0.0914	0.8371
6	0.4000	-0.1217	0.8551	0.4000	-0.1793	0.8818	0.4000	-0.1868	0.8850	0.4000	-0.1884	0.8856
7	0.5000	-0.1570	0.8706	0.5000	-0.1660	0.8757	0.5000	-0.1579	0.8713	0.5000	-0.1507	0.8686
8	0.6000	-0.0791	0.8354	0.6000	-0.0596	0.8273	0.6000	-0.0524	0.8235	0.6000	-0.0389	0.8179
9	0.8000	0.0754	0.7662	0.8000	0.0897	0.7600	0.8000	0.1061	0.7515	0.8000	0.1280	0.7424
10	0.9000	0.1098	0.7511	0.9000	0.1300	0.7419	0.9000	0.1431	0.7347	0.9000	0.1463	0.7342
11	1.0000	0.0911	0.7592	1.0000	0.1244	0.7440	1.0000	0.1235	0.7444	1.0000	0.1248	0.7438

NR	SECTION 4 X/C	CP	ML	SECTION 5 X/C	CP	ML	SECTION 6 X/C	CP	ML	SECTION 7 X/C	CP	ML
UPPER SIDE												
1	0.0	0.6891	0.4719	0.0	0.6634	0.4964	0.0	0.6785	0.4779	0.0	0.6776	0.4783
2	0.0250	-0.4204	0.9933	0.0250	-0.4697	0.9607	0.0500	-0.7134	1.1390	0.0500	-0.8397	1.1039
3	0.0500	-0.5838	1.0726	0.0500	-0.6781	1.0807	0.1000	-0.6171	1.0990	0.1000	-0.6029	1.0826
4	0.0750	-0.5782	1.0696	0.0750	-0.6254	1.0542	0.1500	-0.5204	1.0657	0.1500	-0.5881	1.0599
5	0.1000	-0.5741	1.0666	0.1000	-0.5892	1.0460	0.2000	-0.5659	1.0628	0.2000	-0.5463	1.0540
6	0.1500	-0.5325	1.0461	0.1500	-0.5607	1.0616	0.3000	-0.5527	1.0560	0.3000	-0.4952	1.0232
7	0.2000	-0.5316	1.0462	0.2000	-0.5497	1.0565	0.4000	-0.5204	1.0423	0.4000	-0.4194	0.9928
8	0.3000	-0.5343	1.0480	0.3000	-0.5450	1.0541	0.5000	-0.4693	1.0173	0.5000	-0.3415	0.9655
9	0.4000	-0.5060	1.0332	0.4000	-0.5189	1.0411	0.6000	-0.3875	0.9783	0.6000	-0.2688	0.9179
10	0.5000	-0.4702	1.0169	0.5000	-0.4815	1.0232	0.7000	-0.1678	0.8769	0.7000	-0.1323	0.8590
11	0.6000	-0.4124	0.9875	0.6000	-0.3917	0.9805	0.8000	-0.0549	0.8250	0.8000	-0.0473	0.8206
12	0.7000	-0.1867	0.8846	0.7000	-0.1936	0.8885	0.9000	0.0570	0.7746	0.9000	0.0198	0.7907
13	0.8000	-0.0708	0.8315	0.8000	-0.0644	0.8301	1.0000	0.1693	0.7238	1.0000	0.0868	0.7610
14	0.9000	0.0261	0.7880	0.9000	0.0245	0.7899	0.0	0.0	0.0	0.0	0.0	0.0
15	1.0000	0.1230	0.7446	1.0000	0.1133	0.7490	0.0	0.0	0.0	0.0	0.0	0.0
LOWER SIDE												
1	0.0	0.6891	0.4719	0.0	0.6634	0.4964	0.0	0.6785	0.4779	0.0	0.6774	0.4793
2	0.0500	0.0128	0.7946	0.0500	0.0102	0.7953	0.0500	-0.0506	0.8235	0.0500	-0.1422	0.8653
3	0.1000	-0.0273	0.8123	0.1000	-0.0299	0.8134	0.1000	-0.0700	0.8321	0.1000	-0.1110	0.8512
4	0.1500	-0.0463	0.8209	0.1500	-0.0645	0.8290	0.1500	-0.0900	0.8412	0.1500	-0.1498	0.8588
5	0.2000	-0.0742	0.8335	0.2000	-0.0920	0.8416	0.2000	-0.1209	0.8550	0.2000	-0.1751	0.8799
6	0.4000	-0.1804	0.8818	0.4000	-0.1772	0.8803	0.4000	-0.1917	0.8875	0.4000	-0.2144	0.8977
7	0.5000	-0.1422	0.8642	0.5000	-0.1243	0.8557	0.5000	-0.1345	0.8614	0.5000	-0.1496	0.8676
8	0.6000	-0.0422	0.8183	0.6000	-0.0320	0.8142	0.6000	-0.1005	0.8458	0.6000	-0.0556	0.8250
9	0.8000	0.1295	0.7408	0.8000	0.1264	0.7431	0.8000	0.1311	0.7412	0.8000	0.1305	0.7405
10	0.9000	0.1518	0.7310	0.9000	0.1576	0.7294	0.9000	0.1536	0.7312	0.9000	0.1189	0.7456
11	1.0000	0.1230	0.7446	1.0000	0.1133	0.7490	1.0000	0.1690	0.7238	1.0000	0.0868	0.7610

Table 3.6: Pressure data (M = 0.8 $\alpha = 0^{o}$)

NR	SECTION HS X/C	CP	ML	SECTION 1 X/C	CP	ML	SECTION 2 X/C	CP	ML	SECTION 3 X/C	CP	ML
UPPER SIDE												
1	0.0	0.7887	0.4164	0.0	0.7075	0.4624	0.0	0.6565	0.4897	0.0	0.6018	0.5187
2	0.0250	-0.4648	1.0160	0.0250	-0.7004	1.1333	0.0250	-0.7073	1.1361	0.0250	-0.7799	1.1757
3	0.0500	-0.5870	1.0756	0.0500	-0.7312	1.1491	0.0500	-0.7526	1.1604	0.0500	-0.8074	1.2408
4	0.0750	-0.5227	1.0495	0.0750	-0.6526	1.1087	0.0750	-0.7590	1.1641	0.0750	-0.8153	1.2521
5	0.1000	-0.4739	1.0197	0.1000	-0.5740	1.0687	0.1000	-0.6829	1.1245	0.1000	-0.8132	1.1935
6	0.1500	-0.3931	0.9818	0.1500	-0.4938	1.0296	0.1500	-0.5933	1.0787	0.1500	-0.7719	1.1427
7	0.2000	-0.4373	1.0026	0.2000	-0.5169	1.0410	0.2000	-0.5707	1.0674	0.2000	-0.6587	1.1116
8	0.2000	-0.4402	1.0037	0.2000	-0.5305	1.0477	0.3000	-0.5594	1.0617	0.3000	-0.6439	1.1039
9	0.4000	-0.4563	1.0121	0.4000	-0.5029	1.0340	0.4000	-0.5443	1.0564	0.4000	-0.5784	1.0716
10	0.5000	-0.4935	1.0299	0.5000	-0.5135	1.0374	0.5000	-0.5228	1.0439	0.5000	-0.5188	1.0420
11	0.6000	-0.3998	0.9853	0.6000	-0.4056	0.9875	0.6000	-0.4007	0.9852	0.6000	-0.3759	0.9732
12	0.7000	-0.2062	0.9347	0.7000	-0.2854	0.9305	0.7000	-0.2538	0.9163	0.7000	-0.2412	0.9104
13	0.8000	-0.1546	0.8714	0.8000	-0.1194	0.8549	0.8000	-0.0985	0.8454	0.8000	-0.0881	0.8410
14	0.9000	-0.0306	0.8150	0.9000	0.0017	0.8002	0.9000	0.0149	0.7941	0.9000	0.0201	0.7923
15	1.0000	0.0933	0.7585	1.0000	0.1228	0.7454	1.0000	0.1283	0.7429	1.0000	0.1282	0.7429
LOWER SIDE												
1	0.0	0.7887	0.4164	0.0	0.7075	0.4624	0.0	0.6565	0.4897	0.0	0.6018	0.5187
2	0.0500	0.2615	0.6819	0.0500	0.2202	0.7011	0.0500	0.1934	0.7134	0.0500	0.1915	0.7142
3	0.1000	0.2185	0.7018	0.1000	0.1773	0.7204	0.1000	0.1653	0.7262	0.1000	0.1320	0.7414
4	0.1500	0.1619	0.7277	0.1500	0.1226	0.7452	0.1500	0.1068	0.7527	0.1500	0.0779	0.7657
5	0.2000	0.1131	0.7498	0.2000	0.0771	0.7660	0.2000	0.0609	0.7733	0.2000	0.0271	0.7885
6	0.4000	-0.0477	0.8223	0.4000	-0.1027	0.8474	0.4000	-0.1130	0.8520	0.4000	-0.1191	0.8546
7	0.5000	-0.0820	0.8391	0.5000	-0.0944	0.8438	0.5000	-0.0925	0.8426	0.5000	-0.0867	0.8403
8	0.6000	-0.0292	0.8138	0.6000	-0.0297	0.8144	0.6000	-0.0105	0.8060	0.6000	-0.0106	0.8058
9	0.8000	0.1027	0.7541	0.8000	0.1160	0.7484	0.8000	0.1359	0.7398	0.8000	0.1418	0.7367
10	0.9000	0.1253	0.7442	0.9000	0.1440	0.7357	0.9000	0.1591	0.7292	0.9000	0.1487	0.7334
11	1.0000	0.0933	0.7585	1.0000	0.1228	0.7454	1.0000	0.1283	0.7429	1.0000	0.1282	0.7429

NR	SECTION 4 X/C	CP	ML	SECTION 5 X/C	CP	ML	SECTION 6 X/C	CP	ML	SECTION 7 X/C	CP	ML
UPPER SIDE												
1	0.0	0.5726	0.5337	0.0	0.4296	0.6031	0.0	0.5965	0.5211	0.0	0.5998	0.5195
2	0.0250	-0.8479	1.2128	0.0250	-0.7742	1.1719	0.0500	-1.1168	1.3719	0.0500	-1.0369	1.3217
3	0.0500	-1.0313	1.3189	0.0500	-1.0817	1.3495	0.1000	-1.1888	1.4195	0.1000	-1.1323	1.3692
4	0.0750	-1.0234	1.3135	0.0750	-1.1282	1.3789	0.1500	-1.0701	1.3433	0.1500	-1.0754	1.3154
5	0.1000	-0.9838	1.2665	0.1000	-1.1064	1.3645	0.2000	-1.0289	1.3178	0.2000	-1.0364	1.3228
6	0.1500	-0.8514	1.2138	0.1500	-0.9981	1.2982	0.3000	-0.9062	1.2455	0.3000	-0.9813	1.0735
7	0.2000	-0.7767	1.1735	0.2000	-0.9205	1.2531	0.4000	-0.8131	0.9910	0.4000	-0.8294	0.9492
8	0.3000	-0.6952	1.1301	0.3000	-0.7424	1.1505	0.5000	-0.4047	0.9873	0.5000	-0.3735	0.9521
9	0.4000	-0.5592	1.0815	0.4000	-0.5374	1.0511	0.6000	-0.3177	0.9461	0.6000	-0.2504	0.9148
10	0.5000	-0.4925	1.0292	0.5000	-0.4664	1.0163	0.7000	-0.1958	0.8897	0.7000	-0.1543	0.8709
11	0.6000	-0.3602	0.9660	0.6000	-0.3425	0.9575	0.8000	-0.0685	0.8316	0.8000	-0.0454	0.8322
12	0.7000	-0.2174	0.8976	0.7000	-0.2070	0.8950	0.9000	0.0459	0.7804	0.9000	0.0013	0.8003
13	0.8000	-0.0812	0.8377	0.8000	-0.0715	0.8333	1.0000	0.1403	0.7284	1.0000	0.0720	0.7484
14	0.9000	0.0260	0.7889	0.9000	0.0239	0.7901	0.0	0.0	0.0	0.0	0.0	0.0
15	1.0000	0.1332	0.7407	1.0000	0.1194	0.7469	0.0	0.0	0.0	0.0	0.0	0.0
LOWER SIDE												
1	0.0	0.5726	0.5337	0.0	0.4296	0.6031	0.0	0.5965	0.5211	0.0	0.5998	0.5195
2	0.0500	0.2107	0.7056	0.0500	0.2265	0.6780	0.0500	0.1966	0.7165	0.0500	0.1701	0.7466
3	0.1000	0.1151	0.7493	0.1000	0.1274	0.7432	0.1000	0.1043	0.7535	0.1000	0.0340	0.7956
4	0.1500	0.0877	0.7617	0.1500	0.0723	0.7683	0.1500	0.0526	0.7768	0.1500	-0.0115	0.8061
5	0.2000	0.0542	0.7767	0.2000	0.0281	0.7883	0.2000	0.0078	0.7973	0.2000	-0.0443	0.8299
6	0.4000	-0.1008	0.8468	0.4000	-0.1026	0.8472	0.4000	-0.1128	0.8520	0.4000	-0.1754	0.8803
7	0.5000	-0.0730	0.8339	0.5000	-0.0728	0.8339	0.5000	-0.0765	0.8357	0.5000	-0.1292	0.8593
8	0.6000	0.0046	0.7989	0.6000	-0.0077	0.8041	0.6000	-0.0299	0.8145	0.6000	-0.0435	0.8239
9	0.8000	0.1422	0.7365	0.8000	0.1407	0.7369	0.8000	0.1383	0.7383	0.8000	0.1177	0.7480
10	0.9000	0.1542	0.7312	0.9000	0.1607	0.7281	0.9000	0.1484	0.7337	0.9000	0.1005	0.7558
11	1.0000	0.1332	0.7407	1.0000	0.1194	0.7469	1.0000	0.1603	0.7284	1.0000	0.0720	0.7694

Table 3.7: Pressure data (M = 0.8 $\alpha = 2^{\circ}$)

NR	SECTION HS X/C	CP	ML	SECTION 1 X/C	CP	ML	SECTION 2 X/C	CP	ML	SECTION 3 X/C	CP	ML
UPPER SIDE												
1	0.0	0.6758	0.4792	0.0	0.5839	0.5274	0.0	0.4820	0.5780	0.0	0.4369	0.5997
2	0.0250	-0.7803	1.1740	0.0250	-0.9841	1.2891	0.0250	-1.0263	1.3145	0.0250	-1.0893	1.3532
3	0.0500	-0.8303	1.2011	0.0500	-1.0477	1.3276	0.0500	-1.0920	1.3552	0.0500	-1.2456	1.4572
4	0.0750	-0.7613	1.1641	0.0750	-0.9394	1.2624	0.0750	-1.0678	1.3400	0.0750	-1.2621	1.4590
5	0.1000	-0.7136	1.1398	0.1000	-0.9313	1.2577	0.1000	-1.0447	1.3285	0.1000	-1.1856	1.4157
6	0.1500	-0.4969	1.0308	0.1500	-0.5336	1.0483	0.1500	-0.7227	1.1441	0.1500	-1.1665	1.4029
7	0.2000	-0.5207	1.0420	0.2000	-0.6550	1.1092	0.2000	-0.7120	1.1385	0.2000	-0.9348	1.2600
8	0.3000	-0.5363	1.0494	0.3000	-0.6623	1.1129	0.3000	-0.7191	1.1417	0.3000	-0.8227	1.1759
9	0.4000	-0.5646	1.0628	0.4000	-0.6334	1.0982	0.4000	-0.6890	1.1261	0.4000	-0.7614	1.1448
10	0.5000	-0.6410	1.1015	0.5000	-0.6878	1.1260	0.5000	-0.6865	1.1250	0.5000	-0.5496	1.0581
11	0.6000	-0.4670	1.0153	0.6000	-0.4367	1.0017	0.6000	-0.4052	0.9857	0.6000	-0.3530	0.9617
12	0.7000	-0.3129	0.9431	0.7000	-0.2844	0.9297	0.7000	-0.2493	0.9137	0.7000	-0.2227	0.9009
13	0.8000	-0.1582	0.8722	0.8000	-0.1212	0.8552	0.8000	-0.0999	0.8453	0.8000	-0.0816	0.8370
14	0.9000	-0.0372	0.8173	0.9000	-0.0044	0.8025	0.9000	0.0101	0.7955	0.9000	0.0231	0.7894
15	1.0000	0.0839	0.7626	1.0000	0.1125	0.7495	1.0000	0.1202	0.7461	1.0000	0.1278	0.7426
LOWER SIDE												
1	0.0	0.6758	0.4792	0.0	0.5839	0.5274	0.0	0.4820	0.5780	0.0	0.4369	0.5997
2	0.0500	0.3875	0.6729	0.0500	0.3619	0.6352	0.0500	0.3366	0.6468	0.0500	0.3288	0.6658
3	0.1000	0.3252	0.6522	0.1000	0.2907	0.6684	0.1000	0.2785	0.6738	0.1000	0.2558	0.6862
4	0.1500	0.2612	0.6819	0.1500	0.2268	0.6977	0.1500	0.2140	0.7035	0.1500	0.1880	0.7191
5	0.2000	0.2091	0.7058	0.2000	0.1738	0.7218	0.2000	0.1589	0.7285	0.2000	0.1331	0.7492
6	0.4000	0.0277	0.7880	0.4000	-0.0253	0.8119	0.4000	-0.0329	0.8150	0.4000	-0.0352	0.8161
7	0.5000	-0.0166	0.8079	0.5000	-0.0359	0.8165	0.5000	-0.0317	0.8145	0.5000	-0.0291	0.8120
8	0.6000	0.0248	0.7893	0.6000	0.0302	0.7868	0.6000	0.0354	0.7845	0.6000	0.0335	0.7852
9	0.8000	0.1278	0.7425	0.8000	0.1312	0.7412	0.8000	0.1462	0.7342	0.8000	0.1629	0.7266
10	0.9000	0.1382	0.7379	0.9000	0.1500	0.7324	0.9000	0.1620	0.7270	0.9000	0.1594	0.7279
11	1.0000	0.0839	0.7626	1.0000	0.1125	0.7495	1.0000	0.1202	0.7461	1.0000	0.1278	0.7426

NR	SECTION 4 X/C	CP	ML	SECTION 5 X/C	CP	ML	SECTION 6 X/C	CP	ML	SECTION 7 X/C	CP	ML
UPPER SIDE												
1	0.0	0.3703	0.6311	0.0	0.0992	0.7554	0.0	0.4127	0.6111	0.0	0.4395	0.5983
2	0.0250	-1.1168	1.3711	0.0250	-1.0613	1.3356	0.0500	-1.3556	1.5390	0.0500	-1.0305	1.3163
3	0.0500	-1.3276	1.5194	0.0500	-1.3405	1.5282	0.1000	-1.2901	1.4893	0.1000	-0.8997	1.2971
4	0.0750	-1.3555	1.5433	0.0750	-1.3835	1.5627	0.1500	-1.2642	1.4714	0.1500	-0.9282	1.2559
5	0.1000	-1.3439	1.5355	0.1000	-1.3892	1.5668	0.2000	-1.2474	1.4590	0.2000	-0.7804	1.1735
6	0.1500	-1.2499	1.4612	0.1500	-1.3479	1.5340	0.3000	-0.9127	1.2470	0.3000	-0.5365	1.0995
7	0.2000	-1.2234	1.4416	0.2000	-1.2649	1.4719	0.4000	-0.6809	1.1219	0.4000	-0.5322	1.0678
8	0.3000	-1.1102	1.3661	0.3000	-1.2354	1.4505	0.5000	-0.5468	1.0546	0.5000	-0.4343	1.0035
9	0.4000	-0.7805	1.1744	0.4000	-0.7937	1.1918	0.6000	-0.4246	0.9955	0.6000	-0.3938	0.9533
10	0.5000	-0.3997	0.9841	0.5000	-0.4126	0.9902	0.7000	-0.3064	0.9401	0.7000	-0.2652	0.9212
11	0.6000	-0.3176	0.9455	0.6000	-0.2980	0.9360	0.8000	-0.2124	0.8966	0.8000	-0.1914	0.8873
12	0.7000	-0.1943	0.8887	0.7000	-0.2082	0.8947	0.9000	-0.1149	0.8525	0.9000	-0.1245	0.8555
13	0.8000	-0.0742	0.8340	0.8000	-0.1025	0.8467	1.0000	-0.0173	0.8082	1.0000	-0.0576	0.8263
14	0.9000	0.0302	0.7869	0.9000	-0.0061	0.8032	0.0	0.0	0.0	0.0	0.0	0.0
15	1.0000	0.1346	0.7395	1.0000	0.0903	0.7596	0.0	0.0	0.0	0.0	0.0	0.0
LOWER SIDE												
1	0.0	0.3703	0.6311	0.0	0.0992	0.7554	0.0	0.4127	0.6111	0.0	0.4395	0.5983
2	0.0500	0.3601	0.6358	0.0500	0.3807	0.6261	0.0500	0.3420	0.6445	0.0500	0.2901	0.6730
3	0.1000	0.2367	0.6927	0.1000	0.2482	0.6878	0.1000	0.2312	0.6958	0.1000	0.1279	0.7426
4	0.1500	0.1986	0.7104	0.1500	0.1871	0.7158	0.1500	0.1637	0.7265	0.1500	0.0861	0.7616
5	0.2000	0.1528	0.7314	0.2000	0.1339	0.7400	0.2000	0.1085	0.7515	0.2000	0.0704	0.7711
6	0.4000	-0.0200	0.8035	0.4000	-0.0292	0.8137	0.4000	-0.0525	0.8242	0.4000	-0.1193	0.8722
7	0.5000	-0.0132	0.8066	0.5000	-0.0167	0.8080	0.5000	-0.0394	0.8181	0.5000	-0.1355	0.8615
8	0.6000	0.0489	0.7784	0.6000	0.0362	0.7842	0.6000	0.0031	0.7991	0.6000	-0.0644	0.8296
9	0.8000	0.1563	0.7298	0.8000	0.1478	0.7334	0.8000	0.1114	0.7502	0.8000	0.0575	0.7744
10	0.9000	0.1617	0.7271	0.9000	0.1572	0.7292	0.9000	0.1021	0.7541	0.9000	0.0246	0.7891
11	1.0000	0.1346	0.7395	1.0000	0.0903	0.7596	1.0000	-0.0173	0.8082	1.0000	-0.0576	0.8263

Table 3.8: Pressure data (M = 0.8 $\alpha = 4^{\circ}$)

NR	SECTION HS X/C	CP	ML	SECTION 1 X/C	CP	ML	SECTION 2 X/C	CP	ML	SECTION 3 X/C	CP	ML
UPPER SIDE												
1	0.0	0.5166	0.5608	0.0	0.4374	0.5993	0.0	0.2992	0.6644	0.0	0.2627	0.6813
2	0.0250	-1.0615	1.3358	0.0250	-1.1883	1.4180	0.0250	-1.2361	1.4519	0.0250	-1.2832	1.4847
3	0.0500	-1.0622	1.3362	0.0500	-1.3223	1.5143	0.0500	-1.2998	1.4970	0.0500	-1.4343	1.5041
4	0.0750	-1.0056	1.3016	0.0750	-1.2140	1.4746	0.0750	-1.2880	1.4888	0.0750	-1.5098	1.6697
5	0.1000	-0.9768	1.2852	0.1000	-1.2180	1.4387	0.1000	-1.2672	1.4740	0.1000	-1.4111	1.5941
6	0.1500	-0.5717	1.0676	0.1500	-0.7223	1.1442	0.1500	-1.1125	1.3683	0.1500	-1.3864	1.5639
7	0.2000	-0.5360	1.0497	0.2000	-0.7010	1.1328	0.2000	-0.8620	1.2188	0.2000	-1.3768	1.5562
8	0.3000	-0.6455	1.1043	0.3000	-0.7504	1.1797	0.3000	-0.8616	1.2186	0.3000	-0.9347	1.2518
9	0.4000	-0.6635	1.1135	0.4000	-0.7302	1.1480	0.4000	-0.8056	1.1879	0.4000	-0.6712	1.1177
10	0.5000	-0.7483	1.1578	0.5000	-0.7939	1.1770	0.5000	-0.6454	1.1043	0.5000	-0.6018	1.0782
11	0.6000	-0.4588	1.0123	0.6000	-0.7920	0.9806	0.6000	-0.3903	0.9798	0.6000	-0.4245	0.9059
12	0.7000	-0.3144	0.9440	0.7000	-0.2081	0.9316	0.7000	-0.2761	0.9261	0.7000	-0.2952	0.9356
13	0.8000	-0.1778	0.8811	0.8000	-0.1397	0.8634	0.8000	-0.1204	0.8592	0.8000	-0.1544	0.8776
14	0.9000	-0.0592	0.8274	0.9000	-0.0303	0.8140	0.9000	-0.0213	0.8100	0.9000	-0.0377	0.8175
15	1.0000	0.0593	0.7738	1.0000	0.0790	0.7648	1.0000	0.0867	0.7613	1.0000	0.0791	0.7647
LOWER SIDE												
1	0.0	0.5166	0.5608	0.0	0.4374	0.5993	0.0	0.2992	0.6644	0.0	0.2627	0.6813
2	0.0500	0.4993	0.5695	0.0500	0.4757	0.5808	0.0500	0.4478	0.5943	0.0500	0.4447	0.5997
3	0.1000	0.4215	0.6072	0.1000	0.3827	0.6254	0.1000	0.3696	0.6316	0.1000	0.3446	0.6432
4	0.1500	0.3476	0.6419	0.1500	0.3127	0.6580	0.1500	0.3010	0.6637	0.1500	0.2737	0.6761
5	0.2000	0.2926	0.6673	0.2000	0.2533	0.6854	0.2000	0.2359	0.6934	0.2000	0.2110	0.7048
6	0.4000	0.0925	0.7587	0.4000	0.0383	0.7832	0.4000	0.0270	0.7885	0.4000	0.0220	0.7907
7	0.5000	0.0360	0.7845	0.5000	0.0153	0.7937	0.5000	0.0118	0.7950	0.5000	0.0133	0.7946
8	0.6000	0.0646	0.7715	0.6000	0.0637	0.7717	0.6000	0.0611	0.7729	0.6000	0.0623	0.7723
9	0.8000	0.1441	0.7352	0.8000	0.1449	0.7349	0.8000	0.1579	0.7290	0.8000	0.1652	0.7258
10	0.9000	0.1420	0.7360	0.9000	0.1519	0.7317	0.9000	0.1628	0.7269	0.9000	0.1475	0.7338
11	1.0000	0.0593	0.7738	1.0000	0.0790	0.7648	1.0000	0.0867	0.7613	1.0000	0.0791	0.7647

NR	SECTION 4 X/C	CP	ML	SECTION 5 X/C	CP	ML	SECTION 6 X/C	CP	ML	SECTION 7 X/C	CP	ML
UPPER SIDE												
1	0.0	0.1554	0.7302	0.0	-0.2037	0.8928	0.0	0.2592	0.6827	0.0	0.2844	0.6713
2	0.0250	-1.3157	1.5094	0.0250	-1.1233	1.3745	0.0500	-0.8202	1.1964	0.0500	-0.5706	1.0658
3	0.0500	-1.4861	1.6499	0.0500	-1.0543	1.3313	0.1000	-0.8016	1.1857	0.1000	-0.5550	1.0501
4	0.0750	-1.4191	1.5908	0.0750	-1.0588	1.3344	0.1500	-0.7998	1.1850	0.1500	-0.5514	1.0575
5	0.1000	-1.4069	1.5806	0.1000	-1.0651	1.3381	0.2000	-0.7602	1.1636	0.2000	-0.5272	1.0454
6	0.1500	-1.3711	1.5522	0.1500	-0.9574	1.2967	0.3000	-0.6963	1.1304	0.3000	-0.4902	1.0274
7	0.2000	-1.2420	1.4542	0.2000	-0.9369	1.2616	0.4000	-0.6287	1.0953	0.4000	-0.4658	1.0156
8	0.3000	-0.9895	1.2924	0.3000	-0.8425	1.2086	0.5000	-0.5706	1.0665	0.5000	-0.4375	1.0022
9	0.4000	-0.8589	1.2177	0.4000	-0.7558	1.1615	0.6000	-0.5090	1.0363	0.6000	-0.4103	0.9889
10	0.5000	-0.7077	1.1363	0.5000	-0.6639	1.1134	0.7000	-0.4554	1.0104	0.7000	-0.3810	0.9750
11	0.6000	-0.5537	1.0582	0.6000	-0.5713	1.0669	0.8000	-0.3994	0.9841	0.8000	-0.3498	0.9606
12	0.7000	-0.4256	0.9964	0.7000	-0.4890	1.0266	0.9000	-0.3612	0.9661	0.9000	-0.3109	0.9418
13	0.8000	-0.3132	0.9438	0.8000	-0.4024	0.9853	1.0000	-0.3230	0.9480	1.0000	-0.2721	0.9244
14	0.9000	-0.1677	0.8767	0.9000	-0.3263	0.9498	0.0	0.0	0.0	0.0	0.0	0.0
15	1.0000	-0.0223	0.8105	1.0000	-0.2502	0.9143	0.0	0.0	0.0	0.0	0.0	0.0
LOWER SIDE												
1	0.0	0.1554	0.7302	0.0	-0.2037	0.8928	0.0	0.2592	0.6827	0.0	0.2844	0.6713
2	0.0500	0.4597	0.5888	0.0500	0.4766	0.5806	0.0500	0.4342	0.6009	0.0500	0.3651	0.6776
3	0.1000	0.3306	0.6498	0.1000	0.3376	0.6467	0.1000	0.3103	0.6592	0.1000	0.1903	0.7144
4	0.1500	0.2733	0.6764	0.1500	0.2629	0.6812	0.1500	0.2326	0.6949	0.1500	0.1433	0.7359
5	0.2000	0.2191	0.7012	0.2000	0.2053	0.7074	0.2000	0.1708	0.7231	0.2000	0.0706	0.7695
6	0.4000	0.0290	0.7876	0.4000	0.0247	0.7894	0.4000	-0.0216	0.8103	0.4000	-0.1488	0.8640
7	0.5000	0.0192	0.7917	0.5000	0.0210	0.7913	0.5000	-0.0330	0.8155	0.5000	-0.1645	0.8658
8	0.6000	0.0680	0.7697	0.6000	0.0508	0.7777	0.6000	-0.0116	0.8057	0.6000	-0.0877	0.8401
9	0.8000	0.1402	0.7371	0.8000	0.0977	0.7562	0.8000	0.0404	0.7821	0.8000	0.0194	0.7916
10	0.9000	0.1191	0.7463	0.9000	0.0581	0.7740	0.9000	0.0173	0.7925	0.9000	-0.0125	0.8062
11	1.0000	-0.0223	0.8105	1.0000	-0.2502	0.9143	1.0000	-0.3230	0.9480	1.0000	-0.2721	0.9244

Table 3.9: Pressure data (M = 0.8 $\alpha = 6^{\circ}$)

NR	SECTION HS X/C	CP	ML	SECTION 1 X/C	CP	ML	SECTION 2 X/C	CP	ML	SECTION 3 X/C	CP	ML
UPPER SIDE												
1	0.0	0.3444	0.6433	0.0	0.2865	0.6701	0.0	0.1300	0.7416	0.0	0.1093	0.7508
2	0.0250	-1.2681	1.4738	0.0250	-1.3606	1.5439	0.0250	-1.4009	1.5763	0.0250	-1.3724	1.5538
3	0.0500	-1.2682	1.4743	0.0500	-1.5032	1.6650	0.0500	-1.4157	1.5891	0.0500	-1.2773	1.4823
4	0.0750	-1.2665	1.4717	0.0750	-1.3934	1.5702	0.0750	-1.4130	1.5857	0.0750	-1.7444	1.4968
5	0.1000	-1.1299	1.3795	0.1000	-1.3739	1.5540	0.1000	-1.4017	1.5780	0.1000	-1.2536	1.4633
6	0.1500	-0.7624	1.1648	0.1500	-1.1369	1.3845	0.1500	-1.3891	1.5666	0.1500	-1.1669	1.4039
7	0.2000	-0.6447	1.1042	0.2000	-0.8546	1.2150	0.2000	-1.2324	1.4495	0.2000	-1.1329	1.3678
8	0.3000	-0.7272	1.1464	0.3000	-0.8445	1.2099	0.3000	-0.8479	1.2094	0.3000	-0.9889	1.2930
9	0.4000	-0.6900	1.1274	0.4000	-0.6566	1.1102	0.4000	-0.7017	1.1336	0.4000	-0.8574	1.2163
10	0.5000	-0.5809	1.0721	0.5000	-0.6646	1.1141	0.5000	-0.7001	1.1321	0.5000	-0.7656	1.1566
11	0.6000	-0.5520	1.0580	0.6000	-0.5457	1.0542	0.6000	-0.5469	1.0551	0.6000	-0.6471	1.1026
12	0.7000	-0.4238	0.9957	0.7000	-0.3934	0.9807	0.7000	-0.4161	0.9914	0.7000	-0.5358	1.0498
13	0.8000	-0.2704	0.9234	0.8000	-0.2264	0.9031	0.8000	-0.2533	0.9153	0.8000	-0.4252	0.9966
14	0.9000	-0.1357	0.8621	0.9000	-0.1084	0.8494	0.9000	-0.1230	0.8560	0.9000	-0.2996	0.9367
15	1.0000	-0.0010	0.8008	1.0000	0.0099	0.7960	1.0000	0.0072	0.7972	1.0000	-0.1671	0.8739
LOWER SIDE												
1	0.0	0.3444	0.6433	0.0	0.2865	0.6701	0.0	0.1300	0.7416	0.0	0.1093	0.7508
2	0.0500	0.5965	0.5208	0.0500	0.5693	0.5346	0.0500	0.5427	0.5481	0.0500	0.5252	0.5556
3	0.1000	0.5046	0.5671	0.1000	0.4657	0.5857	0.1000	0.4493	0.5936	0.1000	0.4168	0.6091
4	0.1500	0.4282	0.6039	0.1500	0.3897	0.6225	0.1500	0.3741	0.6295	0.1500	0.3381	0.6467
5	0.2000	0.3645	0.6338	0.2000	0.3205	0.6547	0.2000	0.3024	0.6627	0.2000	0.2701	0.6774
6	0.4000	0.1461	0.7346	0.4000	0.0903	0.7596	0.4000	0.0746	0.7665	0.4000	0.0609	0.7730
7	0.5000	0.0804	0.7642	0.5000	0.0579	0.7742	0.5000	0.0498	0.7778	0.5000	0.0410	0.7819
8	0.6000	0.0963	0.7569	0.6000	0.0908	0.7595	0.6000	0.0843	0.7621	0.6000	0.0740	0.7672
9	0.8000	0.1486	0.7330	0.8000	0.1438	0.7358	0.8000	0.1474	0.7340	0.8000	0.1400	0.7372
10	0.9000	0.1265	0.7430	0.9000	0.1312	0.7416	0.9000	0.1308	0.7418	0.9000	0.0844	0.7625
11	1.0000	-0.0010	0.8008	1.0000	0.0099	0.7960	1.0000	0.0072	0.7972	1.0000	-0.1671	0.8739

NR	SECTION 4 X/C	CP	ML	SECTION 5 X/C	CP	ML	SECTION 6 X/C	CP	ML	SECTION 7 X/C	CP	ML
UPPER SIDE												
1	0.0	-0.0474	0.8221	0.0	-0.4630	1.0138	0.0	0.1393	0.7373	0.0	0.1659	0.7256
2	0.0250	-1.0485	1.3277	0.0250	-0.8357	1.2060	0.0500	-0.5913	1.0766	0.0500	-0.4589	1.0139
3	0.0500	-0.9905	1.2933	0.0500	-0.8122	1.1915	0.1000	-0.5796	1.0710	0.1000	-0.4488	1.0091
4	0.0750	-0.9952	1.2955	0.0750	-0.8050	1.1876	0.1500	-0.5746	1.0683	0.1500	-0.4358	1.0015
5	0.1000	-1.0004	1.2989	0.1000	-0.7953	1.1826	0.2000	-0.5676	1.0655	0.2000	-0.4261	0.9970
6	0.1500	-0.9776	1.2853	0.1500	-0.7708	1.1698	0.3000	-0.5585	1.0615	0.3000	-0.4159	0.9920
7	0.2000	-0.9468	1.2673	0.2000	-0.7609	1.1639	0.4000	-0.5369	1.0499	0.4000	-0.4032	0.9855
8	0.3000	-0.8704	1.2235	0.3000	-0.7207	1.1425	0.5000	-0.5165	1.0399	0.5000	-0.4048	0.9867
9	0.4000	-0.8011	1.1863	0.4000	-0.6721	1.1179	0.6000	-0.4915	1.0280	0.6000	-0.4002	0.9841
10	0.5000	-0.7294	1.1476	0.5000	-0.6251	1.0945	0.7000	-0.4751	1.0194	0.7000	-0.4024	0.9856
11	0.6000	-0.6444	1.1033	0.6000	-0.5818	1.0730	0.8000	-0.4490	1.0075	0.8000	-0.3937	0.9812
12	0.7000	-0.5632	1.0633	0.7000	-0.5331	1.0485	0.9000	-0.4287	0.9976	0.9000	-0.3639	0.9672
13	0.8000	-0.4920	1.0282	0.8000	-0.4939	1.0290	1.0000	-0.4084	0.9882	1.0000	-0.3341	0.9532
14	0.9000	-0.4071	0.9874	0.9000	-0.4514	1.0087	0.0	0.0	0.0	0.0	0.0	0.0
15	1.0000	-0.3222	0.9477	1.0000	-0.4090	0.9884	0.0	0.0	0.0	0.0	0.0	0.0
LOWER SIDE												
1	0.0	-0.0474	0.8221	0.0	-0.4630	1.0138	0.0	0.1393	0.7373	0.0	0.1659	0.7256
2	0.0500	0.5345	0.5522	0.0500	0.5427	0.5479	0.0500	0.4969	0.5705	0.0500	0.4222	0.5058
3	0.1000	0.4017	0.6167	0.1000	0.3998	0.6176	0.1000	0.3620	0.6350	0.1000	0.2414	0.6939
4	0.1500	0.3331	0.6488	0.1500	0.3183	0.6555	0.1500	0.2849	0.6710	0.1500	0.1910	0.7140
5	0.2000	0.2709	0.6773	0.2000	0.2525	0.6857	0.2000	0.2149	0.7033	0.2000	0.1132	0.7491
6	0.4000	0.0564	0.7752	0.4000	0.0453	0.7802	0.4000	0.0039	0.7986	0.4000	-0.1345	0.8410
7	0.5000	0.0331	0.7856	0.5000	0.0241	0.7896	0.5000	-0.0287	0.8133	0.5000	-0.1431	0.8551
8	0.6000	0.0590	0.7738	0.6000	0.0408	0.7819	0.6000	-0.0210	0.8100	0.6000	-0.1084	0.8496
9	0.8000	0.1028	0.7540	0.8000	0.0585	0.7738	0.8000	0.0083	0.7970	0.8000	-0.0133	0.8066
10	0.9000	0.0383	0.7832	0.9000	0.0078	0.7967	0.9000	-0.0391	0.8186	0.9000	-0.0626	0.8292
11	1.0000	-0.3222	0.9477	1.0000	-0.4090	0.9884	1.0000	-0.4084	0.9882	1.0000	-0.3341	0.9532

Table 3.10: Pressure data (M = 0.8 $\alpha = 8^{\circ}$)

NR	SECTION HS X/C	CP	ML	SECTION 1 X/C	CP	ML	SECTION 2 X/C	CP	ML	SECTION 3 X/C	CP	ML
UPPER SIDE												
1	0.0	0.6100	0.3775	0.0	0.6182	0.4107	0.0	0.5471	0.4419	0.0	0.4556	0.4618
2	0.0250	-0.5756	0.8330	0.0250	-0.7479	0.9221	0.0250	-0.7810	0.9200	0.0250	-0.8833	0.9550
3	0.0500	-0.6380	0.8703	0.0500	-0.7368	0.9040	0.0500	-0.7360	0.9043	0.0500	-0.8547	0.9456
4	0.0750	-0.6351	0.8447	0.0750	-0.6581	0.8701	0.0750	-0.7031	0.8629	0.0750	-0.7831	0.9237
5	0.1000	-0.4092	0.8348	0.1000	-0.5578	0.8425	0.1000	-0.6324	0.8684	0.1000	-0.6862	0.8870
6	0.1500	-0.3656	0.7765	0.1500	-0.4376	0.8011	0.1500	-0.4999	0.8226	0.1500	-0.5786	0.8499
7	0.2000	-0.3984	0.7845	0.2000	-0.4545	0.8071	0.2000	-0.4890	0.8187	0.2000	-0.5553	0.8348
8	0.3000	-0.3515	0.7719	0.3000	-0.4268	0.7974	0.3000	-0.4432	0.8034	0.3000	-0.4665	0.8139
9	0.4000	-0.3336	0.7657	0.4000	-0.3737	0.7764	0.4000	-0.4039	0.7898	0.4000	-0.4304	0.7906
10	0.5000	-0.3336	0.7675	0.5000	-0.3154	0.7768	0.5000	-0.3840	0.7830	0.5000	-0.3647	0.7829
11	0.6000	-0.2957	0.7692	0.6000	-0.2597	0.7540	0.6000	-0.3139	0.7590	0.6000	-0.3133	0.7588
12	0.7000	-0.2681	0.7799	0.7000	-0.2260	0.7202	0.7000	-0.2265	0.7250	0.7000	-0.2202	0.7208
13	0.8000	-0.1240	0.6338	0.8000	-0.1003	0.6857	0.8000	-0.0781	0.6844	0.8000	-0.0647	0.6845
14	0.9000	-0.0343	0.6606	0.9000	-0.0020	0.6513	0.9000	-0.0039	0.6506	0.9000	0.0039	0.6494
15	1.0000	0.0273	0.6266	1.0000	0.0963	0.6161	1.0000	0.0964	0.6161	1.0000	0.1044	0.6132
LOWER SIDE												
1	0.0	0.6930	0.3775	0.0	0.6182	0.4107	0.0	0.5471	0.4419	0.0	0.4556	0.4618
2	0.0500	0.2455	0.5615	0.0500	0.2103	0.5748	0.0500	0.1912	0.5816	0.0500	0.2020	0.5777
3	0.1000	0.1991	0.5785	0.1000	0.1660	0.5909	0.1000	0.1555	0.5946	0.1000	0.1418	0.5998
4	0.1500	0.1461	0.5982	0.1500	0.1119	0.6106	0.1500	0.1026	0.6137	0.1500	0.0861	0.6158
5	0.2000	0.1102	0.6145	0.2000	0.0693	0.6258	0.2000	0.0545	0.6309	0.2000	0.0423	0.6353
6	0.3000	-0.0144	0.6634	0.3000	-0.0784	0.6775	0.3000	-0.0894	0.6814	0.3000	-0.0831	0.6796
7	0.4000	-0.0625	0.6724	0.4000	-0.0727	0.6759	0.4000	-0.0740	0.6762	0.4000	-0.0655	0.6731
8	0.5000	-0.0151	0.6567	0.5000	-0.0178	0.6565	0.5000	-0.0181	0.6567	0.5000	-0.0067	0.6526
9	0.6000	0.0565	0.6163	0.6000	0.1085	0.6115	0.6000	0.1201	0.6076	0.6000	0.1331	0.6028
10	0.7000	0.1240	0.6099	0.7000	0.1289	0.6044	0.7000	0.1401	0.6002	0.7000	0.1375	0.6012
11	1.0000	0.0673	0.6266	1.0000	0.0963	0.6161	1.0000	0.0964	0.6161	1.0000	0.1044	0.6132

NR	SECTION 4 X/C	CP	ML	SECTION 5 X/C	CP	ML	SECTION 6 X/C	CP	ML	SECTION 7 X/C	CP	ML
UPPER SIDE												
1	0.0	0.4674	0.4754	0.0	0.2722	0.5517	0.0	0.5098	0.4576	0.0	0.5652	0.4340
2	0.0250	-0.9909	0.9500	0.0250	-0.9516	0.9813	0.0500	-1.0597	1.0188	0.0500	-0.9922	0.9946
3	0.0500	-0.8780	0.9722	0.0500	-0.9681	0.9865	0.1000	-0.8204	0.9335	0.1000	-0.7750	0.9140
4	0.0750	-0.8172	0.9326	0.0750	-0.9656	0.9497	0.1500	-0.7182	0.8978	0.1500	-0.6381	0.8734
5	0.1000	-0.7625	0.9054	0.1000	-0.7976	0.9258	0.2000	-0.5628	0.8445	0.2000	-0.5303	0.8317
6	0.1500	-0.6343	0.8635	0.1500	-0.6751	0.8831	0.3000	-0.5100	0.8261	0.3000	-0.4558	0.8080
7	0.2000	-0.5704	0.8448	0.2000	-0.5557	0.8547	0.4000	-0.4665	0.8114	0.4000	-0.3860	0.7839
8	0.3000	-0.5067	0.8245	0.3000	-0.5158	0.8283	0.5000	-0.4087	0.7916	0.5000	-0.3529	0.7728
9	0.4000	-0.4600	0.8087	0.4000	-0.4588	0.8046	0.6000	-0.3207	0.7615	0.6000	-0.2666	0.7430
10	0.5000	-0.4107	0.7931	0.5000	-0.4225	0.7955	0.7000	-0.2163	0.7255	0.7000	-0.1648	0.7077
11	0.6000	-0.3257	0.7678	0.6000	-0.3275	0.7638	0.8000	-0.0959	0.6840	0.8000	-0.0622	0.6795
12	0.7000	-0.2144	0.7362	0.7000	-0.2218	0.7274	0.9000	0.0253	0.6412	0.9000	-0.0106	0.6540
13	0.8000	-0.1031	0.6855	0.8000	-0.1076	0.6862	1.0000	0.1463	0.5980	1.0000	0.0611	0.6287
14	0.9000	0.0024	0.6454	0.9000	-0.0053	0.6521	0.0	0.0	0.0	0.0	0.0	0.0
15	1.0000	0.1358	0.6127	1.0000	0.0970	0.6176	0.0	0.0	0.0	0.0	0.0	0.0
LOWER SIDE												
1	0.0	0.4674	0.4754	0.0	0.2722	0.5517	0.0	0.5098	0.4576	0.0	0.5652	0.4340
2	0.0500	0.2047	0.5655	0.0500	0.2407	0.5632	0.0500	0.1931	0.5750	0.0500	0.1281	0.6046
3	0.1000	0.1326	0.6041	0.1000	0.1364	0.6014	0.1000	0.1154	0.6053	0.1000	0.0394	0.6363
4	0.1500	0.0948	0.6169	0.1500	0.0837	0.6205	0.1500	0.0632	0.6280	0.1500	0.0062	0.6481
5	0.2000	0.0549	0.6274	0.2000	0.0412	0.6355	0.2000	0.0215	0.6428	0.2000	-0.0365	0.6631
6	0.4000	-0.0678	0.6744	0.4000	-0.0809	0.6796	0.4000	-0.0904	0.6821	0.4000	-0.1358	0.6989
7	0.5000	-0.0541	0.6694	0.5000	-0.0577	0.6707	0.5000	-0.0618	0.6721	0.5000	-0.1029	0.6863
8	0.6000	0.0123	0.6459	0.6000	0.0092	0.6486	0.6000	-0.0098	0.6537	0.6000	-0.0380	0.6616
9	0.8000	0.1067	0.6049	0.8000	0.1252	0.6059	0.8000	0.1259	0.6092	0.8000	0.1002	0.6148
10	0.9000	0.1391	0.6009	0.9000	0.1422	0.5998	0.9000	0.1332	0.6029	0.9000	0.0857	0.6184
11	1.0000	0.1358	0.6127	1.0000	0.0970	0.6176	1.0000	0.1463	0.5980	1.0000	0.0611	0.6287

Table 3.11: Pressure data (M = 0.65 $\alpha = 2^{o}$)

NR	SECTION HS X/C	CP	ML	SECTION 1 X/C	CP	ML	SECTION 2 X/C	CP	ML	SECTION 3 X/C	CP	ML
UPPER SIDE												
1	0.0	1.2174	0.0	0.0	1.1399	0.1809	0.0	1.0566	0.2713	0.0	1.0001	0.3197
2	0.0250	-0.4793	1.1370	0.0250	-0.7508	1.3054	0.0250	-0.7334	1.2939	0.0250	-0.7820	1.3266
3	0.0500	-0.7119	1.2757	0.0500	-0.8834	1.3997	0.0500	-0.9668	1.4626	0.0500	-1.0266	1.5131
4	0.0750	-0.6533	1.2420	0.0750	-0.8813	1.3972	0.0750	-1.0414	1.5240	0.0750	-1.2079	1.6807
5	0.1000	-0.5756	1.1740	0.1000	-0.7452	1.3151	0.1000	-0.9442	1.4448	0.1000	-1.1156	1.5937
6	0.1500	-0.5092	1.1544	0.1500	-0.6777	1.2576	0.1500	-0.7877	1.3805	0.1500	-0.9757	1.4729
7	0.2000	-0.5492	1.1781	0.2000	-0.6981	1.2737	0.2000	-0.7778	1.3737	0.2000	-0.9304	1.4341
8	0.3000	-0.6307	1.2278	0.3000	-0.7537	1.3074	0.3000	-0.8306	1.3605	0.3000	-0.9611	1.4580
9	0.4000	-0.6479	1.2336	0.4000	-0.7290	1.2909	0.4000	-0.8049	1.3423	0.4000	-0.8968	1.4087
10	0.5000	-0.7815	1.3262	0.5000	-0.8693	1.3874	0.5000	-0.9207	1.4267	0.5000	-0.9869	1.4787
11	0.6000	-0.8378	1.3656	0.6000	-0.9205	1.4265	0.6000	-1.0258	1.5107	0.6000	-1.1325	1.6062
12	0.7000	-0.9927	1.4057	0.7000	-0.9764	1.4702	0.7000	-1.0309	1.5151	0.7000	-0.8454	1.3739
13	0.8000	-0.5293	1.2461	0.8000	-0.3527	1.0655	0.8000	-0.2632	1.0169	0.8000	-0.2155	0.9915
14	0.9000	-0.1182	0.9406	0.9000	-0.0609	0.9111	0.9000	-0.0494	0.9052	0.9000	-0.0435	0.9022
15	1.0000	0.2926	0.7328	1.0000	0.2309	0.7636	1.0000	0.1645	0.7970	1.0000	0.1286	0.8151
LOWER SIDE												
1	0.0	1.2174	0.0	0.0	1.1399	0.1809	0.0	1.0566	0.2713	0.0	1.0001	0.3197
2	0.0500	0.3833	0.6864	0.0500	0.3012	0.7291	0.0500	0.2570	0.7504	0.0500	0.2376	0.7602
3	0.1000	0.3214	0.7179	0.1000	0.2586	0.7496	0.1000	0.2270	0.7656	0.1000	0.1602	0.7992
4	0.1500	0.2442	0.7569	0.1500	0.1799	0.7893	0.1500	0.1420	0.8093	0.1500	0.0754	0.8359
5	0.2000	0.1827	0.7878	0.2000	0.0951	0.8319	0.2000	0.0597	0.8498	0.2000	0.0027	0.8786
6	0.4000	-0.1157	0.9393	0.4000	-0.2101	0.9886	0.4000	-0.2404	1.0047	0.4000	-0.2516	1.0107
7	0.5000	-0.2389	0.9880	0.5000	-0.3251	0.9965	0.5000	-0.2160	0.9918	0.5000	-0.2053	0.9861
8	0.6000	-0.1979	0.9301	0.6000	-0.0699	0.9260	0.6000	-0.0756	0.9186	0.6000	-0.0537	0.9074
9	0.8000	0.1361	0.8113	0.8000	0.1392	0.8097	0.8000	0.1713	0.7935	0.8000	0.1895	0.7844
10	0.9000	0.1693	0.7946	0.9000	0.1864	0.7860	0.9000	0.2089	0.7747	0.9000	0.1983	0.7800
11	1.0000	0.297	0.7328	1.0000	0.2309	0.7636	1.0000	0.1645	0.7970	1.0000	0.1286	0.8151

NR	SECTION 4 X/C	CP	ML	SECTION 5 X/C	CP	ML	SECTION 6 X/C	CP	ML	SECTION 7 X/C	CP	ML
UPPER SIDE												
1	0.0	0.9694	0.3436	0.0	0.8400	0.4328	0.0	0.9997	0.3200	0.0	0.9756	0.3358
2	0.0250	-0.8203	1.3536	0.0250	-0.6564	1.2696	0.0500	-1.2194	1.6928	0.0500	-1.1263	1.5959
3	0.0500	-1.1486	1.6212	0.0500	-1.1892	1.6524	0.1000	-1.3693	1.8725	0.1000	-1.3809	1.8856
4	0.0750	-1.2147	1.6978	0.0750	-1.2735	1.7527	0.1500	-1.3265	1.8164	0.1500	-1.3702	1.8738
5	0.1000	-1.2358	1.7135	0.1000	-1.3077	1.7931	0.2000	-1.3170	1.8036	0.2000	-1.2523	1.7742
6	0.1500	-1.1919	1.6540	0.1500	-1.2926	1.7631	0.3000	-1.3151	1.8022	0.3000	-1.2202	1.6937
7	0.2000	-1.0772	1.5551	0.2000	-1.2493	1.7259	0.4000	-1.2010	1.6736	0.4000	-1.1048	1.5801
8	0.3000	-1.0670	1.5461	0.3000	-1.1854	1.6576	0.5000	-1.2246	1.6994	0.5000	-0.6506	1.2403
9	0.4000	-1.0899	1.5665	0.4000	-1.2047	1.6774	0.6000	-0.8063	1.3434	0.6000	-0.4772	1.1357
10	0.5000	-1.1088	1.5837	0.5000	-1.1984	1.6709	0.7000	-0.4752	1.1346	0.7000	-0.3323	1.0543
11	0.6000	-1.2199	1.6933	0.6000	-1.1429	1.6158	0.8000	-0.2818	1.0269	0.8000	-0.2036	0.9852
12	0.7000	-0.6354	1.2122	0.7000	-0.7962	1.3295	0.9000	-0.1055	0.9340	0.9000	-0.1103	0.9365
13	0.8000	-0.2278	1.0033	0.8000	-0.2064	0.9867	1.0000	0.0708	0.8442	1.0000	-0.0170	0.8897
14	0.9000	0.0342	0.8626	0.9000	0.0564	0.8514	0.0	0.0	0.0	0.0	0.0	0.0
15	1.0000	0.3062	0.7256	1.0000	0.3192	0.7190	0.0	0.0	0.0	0.0	0.0	0.0
LOWER SIDE												
1	0.0	0.9694	0.3436	0.0	0.8400	0.4328	0.0	0.9997	0.3200	0.0	0.9756	0.3358
2	0.0500	0.2503	0.7538	0.0500	0.2394	0.7598	0.0500	0.1596	0.7994	0.0500	0.0232	0.8682
3	0.1000	0.1502	0.8041	0.1000	0.1167	0.8210	0.1000	0.0690	0.8451	0.1000	-0.0506	0.9058
4	0.1500	0.0837	0.8376	0.1500	0.0354	0.8620	0.1500	-0.0060	0.8830	0.1500	-0.1158	0.9393
5	0.2000	0.0110	0.8744	0.2000	-0.0281	0.8943	0.2000	-0.0802	0.9210	0.2000	-0.2119	0.9896
6	0.4000	-0.2346	1.0016	0.4000	-0.2471	1.0052	0.4000	-0.2825	1.0273	0.4000	-0.4333	1.1106
7	0.5000	-0.1874	0.9767	0.5000	-0.1925	0.9793	0.5000	-0.2164	0.9919	0.5000	-0.3256	1.0506
8	0.6000	-0.0424	0.9016	0.6000	-0.0820	0.9219	0.6000	-0.1660	0.9654	0.6000	-0.2671	1.0193
9	0.8000	0.1917	0.7833	0.8000	0.1751	0.7917	0.8000	0.1357	0.8115	0.8000	0.1168	0.8210
10	0.9000	0.2157	0.7712	0.9000	0.2018	0.7782	0.9000	0.1218	0.8184	0.9000	0.0435	0.8580
11	1.0000	0.3062	0.7256	1.0000	0.3192	0.7190	1.0000	0.0708	0.8442	1.0000	-0.0170	0.8887

Table 3.12: Pressure data (M = 0.88 $\alpha = 2^{o}$)

NR	SECTION HS X/C	CP	ML	SECTION 1 X/C	CP	ML	SECTION 2 X/C	CP	ML	SECTION 3 X/C	CP	ML
UPPER SIDE												
1	0.0	1.2735	0.0	0.0	1.1889	0.1403	0.0	1.1108	0.2431	0.0	1.0540	0.2983
2	0.0250	-0.3019	1.0865	0.0250	-0.5957	1.2719	0.0250	-0.5849	1.2628	0.0250	-0.6341	1.2967
3	0.0500	-0.4879	1.1594	0.0500	-0.7412	1.3740	0.0500	-0.8350	1.4471	0.0500	-0.8823	1.4853
4	0.0750	-0.4956	1.2049	0.0750	-0.8034	1.4272	0.0750	-0.9720	1.5668	0.0750	-1.0760	1.5724
5	0.1000	-0.5617	1.2480	0.1000	-0.8416	1.3919	0.1000	-0.8791	1.4842	0.1000	-1.0506	1.6952
6	0.1500	-0.5387	1.2332	0.1500	-0.6141	1.2829	0.1500	-0.7376	1.3729	0.1500	-0.9024	1.5038
7	0.2000	-0.5148	1.2172	0.2000	-0.6137	1.2867	0.2000	-0.6855	1.3345	0.2000	-0.8451	1.4593
8	0.3000	-0.5604	1.2477	0.3000	-0.6851	1.3328	0.3000	-0.7660	1.3938	0.3000	-0.8817	1.4867
9	0.4000	-0.5719	1.2556	0.4000	-0.6610	1.3156	0.4000	-0.7332	1.3680	0.4000	-0.8607	1.4698
10	0.5000	-0.7310	1.3455	0.5000	-0.7915	1.4140	0.5000	-0.8444	1.4569	0.5000	-0.9209	1.5239
11	0.6000	-0.7701	1.3963	0.6000	-0.8549	1.4641	0.6000	-0.9463	1.5447	0.6000	-1.0383	1.6342
12	0.7000	-0.8256	1.4411	0.7000	-0.9162	1.5159	0.7000	-0.9803	1.5764	0.7000	-1.1075	1.7089
13	0.8000	-0.7827	1.4068	0.8000	-0.8494	1.4633	0.8000	-0.9510	1.4442	0.8000	-0.4123	1.1534
14	0.9000	-0.4023	1.1466	0.9000	-0.2498	1.0582	0.9000	-0.1967	1.0263	0.9000	-0.1756	1.0146
15	1.0000	-0.0218	0.9303	1.0000	0.3498	0.7338	1.0000	0.4376	0.6872	1.0000	0.0611	0.8860
LOWER SIDE												
1	0.0	1.2735	0.0	0.0	1.1889	0.1403	0.0	1.1108	0.2431	0.0	1.0540	0.2983
2	0.0500	0.4084	0.7026	0.0500	0.4163	0.7512	0.0500	0.2661	0.7777	0.0500	0.2352	0.7541
3	0.1000	0.3472	0.7350	0.1000	0.2792	0.7708	0.1000	0.2416	0.7912	0.1000	0.1575	0.8348
4	0.1500	0.2695	0.7759	0.1500	0.1958	0.8145	0.1500	0.1580	0.8349	0.1500	0.0727	0.8795
5	0.2000	0.2039	0.8104	0.2000	0.1068	0.8614	0.2000	0.0834	0.8744	0.2000	-0.0102	0.9240
6	0.4000	-0.1251	0.9864	0.4000	-0.2384	1.0497	0.4000	-0.2966	1.0335	0.4000	-0.3213	1.0981
7	0.5000	-0.2793	1.0742	0.5000	-0.3339	1.0977	0.5000	-0.2927	1.0812	0.5000	-0.2817	1.0754
8	0.6000	-0.1592	1.0054	0.6000	-0.1410	0.9965	0.6000	-0.1180	0.9825	0.6000	-0.1168	0.9820
9	0.8000	0.0994	0.8653	0.8000	0.1086	0.8613	0.8000	0.1313	0.8486	0.8000	0.3469	0.8410
10	0.9000	0.1189	0.8556	0.9000	0.1395	0.8447	0.9000	0.1541	0.8360	0.9000	0.1441	0.8424
11	1.0000	-0.0218	0.9303	1.0000	0.3498	0.7338	1.0000	0.4376	0.6872	1.0000	0.0611	0.8860

NR	SECTION 4 X/C	CP	ML	SECTION 5 X/C	CP	ML	SECTION 6 X/C	CP	ML	SECTION 7 X/C	CP	ML
UPPER SIDE												
1	0.0	1.0215	0.3265	0.0	1.0332	0.3974	0.0	1.0332	0.3192	0.0	1.0215	0.3262
2	0.0250	-0.6537	1.3113	0.0250	-0.5101	1.2166	0.0500	-1.0204	1.6142	0.0500	-0.9131	1.5152
3	0.0500	-0.9854	1.5804	0.0500	-0.9895	1.5835	0.1000	-1.1634	1.7728	0.1000	-1.1670	1.7797
4	0.0750	-1.0568	1.6505	0.0750	-1.0939	1.6894	0.1500	-1.1430	1.7479	0.1500	-1.1795	1.7955
5	0.1000	-1.0821	1.6916	0.1000	-1.1263	1.7276	0.2000	-1.1504	1.7568	0.2000	-1.1551	1.7631
6	0.1500	-1.0845	1.6811	0.1500	-1.1247	1.7258	0.3000	-1.1958	1.8113	0.3000	-1.0857	1.6846
7	0.2000	-1.0029	1.5974	0.2000	-1.1222	1.7229	0.4000	-1.0988	1.6974	0.4000	-1.0571	1.6533
8	0.3000	-0.9835	1.5781	0.3000	-1.1310	1.7337	0.5000	-1.1126	1.7124	0.5000	-0.7152	1.3550
9	0.4000	-1.0164	1.6102	0.4000	-1.1248	1.7293	0.6000	-0.9077	1.5102	0.6000	-0.5330	1.2282
10	0.5000	-1.0484	1.6427	0.5000	-1.1595	1.7709	0.7000	-0.6099	1.2803	0.7000	-0.4778	1.1947
11	0.6000	-1.1369	1.7406	0.6000	-1.0870	1.6854	0.8000	-0.4751	1.1918	0.8000	-0.4099	1.1510
12	0.7000	-1.0707	1.6662	0.7000	-1.0423	1.6364	0.9000	-0.3657	1.1249	0.9000	-0.3239	1.0937
13	0.8000	-0.8708	1.4786	0.8000	-0.6122	1.2830	1.0000	-0.2563	1.0604	1.0000	-0.2380	1.0499
14	0.9000	-0.1238	0.9859	0.9000	-0.2836	1.0747	0.0	0.0	0.0	0.0	0.0	0.0
15	1.0000	0.6231	0.5859	1.0000	0.0510	0.8913	0.0	0.0	0.0	0.0	0.0	0.0
LOWER SIDE												
1	0.0	1.0215	0.3265	0.0	0.9274	0.3974	0.0	1.0302	0.3192	0.0	1.0215	0.3262
2	0.0500	0.2185	0.8033	0.0500	0.1972	0.8139	0.0500	0.0831	0.8739	0.0500	-0.0629	0.9523
3	0.1000	0.1351	0.8467	0.1000	0.0830	0.8741	0.1000	0.0060	0.9146	0.1000	-0.1089	0.9783
4	0.1500	0.0582	0.8879	0.1500	-0.0071	0.9222	0.1500	-0.0574	0.9492	0.1500	-0.1534	1.0026
5	0.2000	-0.0209	0.9301	0.2000	-0.0761	0.9595	0.2000	-0.1350	0.9917	0.2000	-0.2487	1.0564
6	0.4000	-0.3122	1.0928	0.4000	-0.3324	1.1044	0.4000	-0.3933	1.1407	0.4000	-0.6876	1.3346
7	0.5000	-0.2748	1.0764	0.5000	-0.2817	1.0756	0.5000	-0.3311	1.1037	0.5000	-0.5564	1.2441
8	0.6000	-0.0287	0.9729	0.6000	-0.1453	0.9977	0.6000	-0.2723	1.0704	0.6000	-0.4499	1.1757
9	0.8000	0.1438	0.8420	0.8000	0.1203	0.8543	0.8000	0.0671	0.8833	0.8000	0.0976	0.8664
10	0.9000	0.1450	0.8415	0.9000	0.1185	0.8558	0.9000	0.0361	0.8995	0.9000	0.0014	0.9170
11	1.0000	0.6231	0.5859	1.0000	0.0510	0.8913	1.0000	-0.2563	1.0604	1.0000	-0.2380	1.0499

Table 3.13: Pressure data (M = 0.92; $\alpha = 2^{\circ}$)

M	α	C_L	C_M	C_D
0.800	-0.90	0.15984	-0.03969	0.01207
0.801	0.17	0.24408	-0.03442	0.01479
0.800	1.25	0.32807	-0.02913	0.01912
0.800	1.26	0.32871	-0.02879	0.01918
0.800	2.28	0.41169	-0.02271	0.02497
0.800	3.34	0.50299	-0.01772	0.03384
0.800	4.40	0.58418	-0.01214	0.04702
0.800	0.16	0.24388	-0.03478	0.01465

Table 3.14: Force data (M = 0.8)

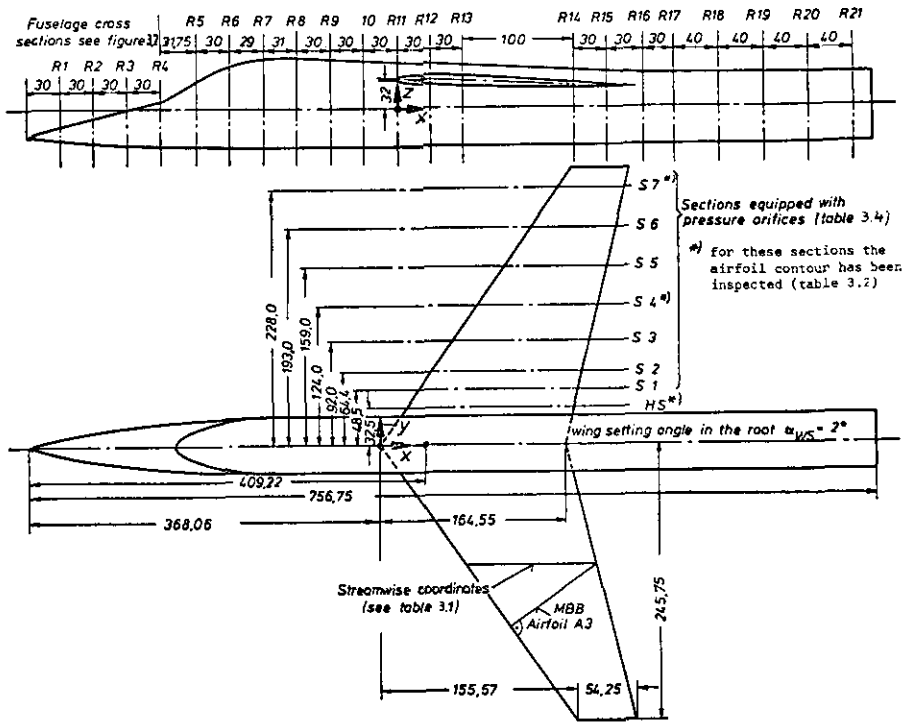


Fig. 3.1: MBB-AVA-Pilot model with supercritical wing

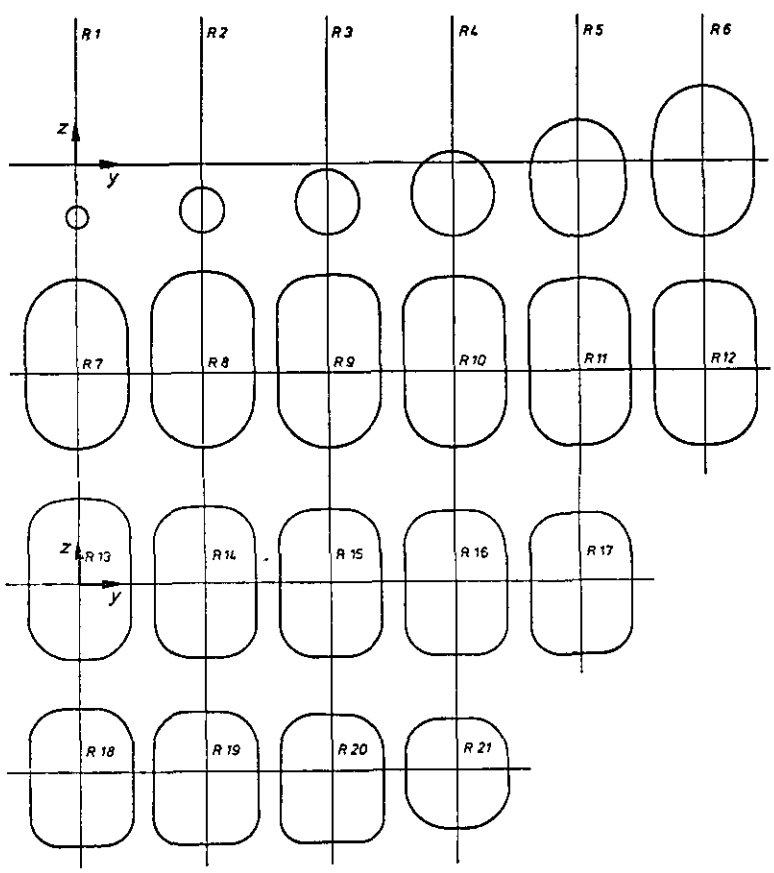


Fig. 3.2: Cross sections of the fuselage

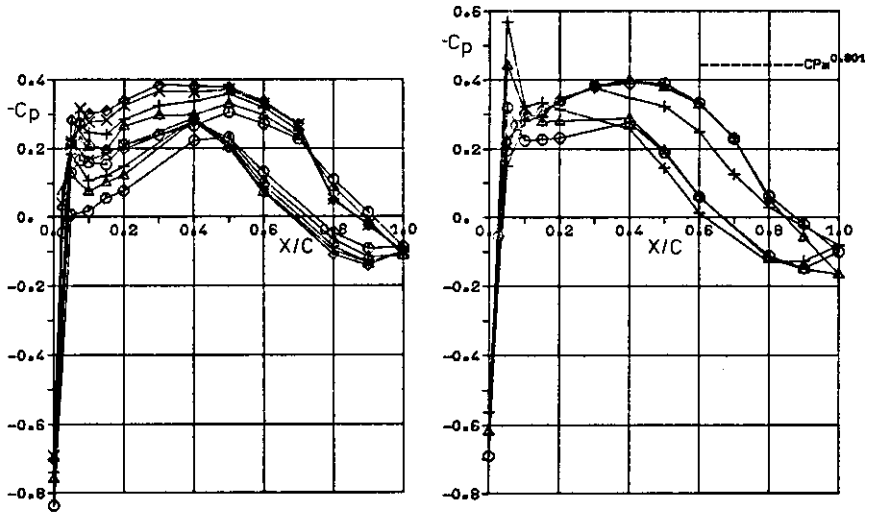


Fig. 3.3: Pressure distribution on the wing ($M = 0.8$; $\alpha = -2^{o}$)

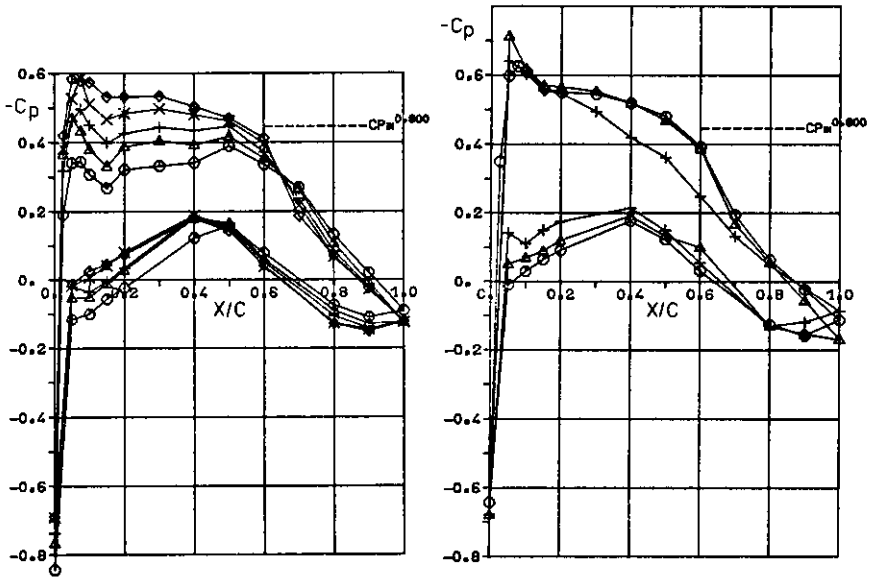


Fig. 3.4: Pressure distribution on the wing ($M = 0.8$; $\alpha = 0^{o}$)

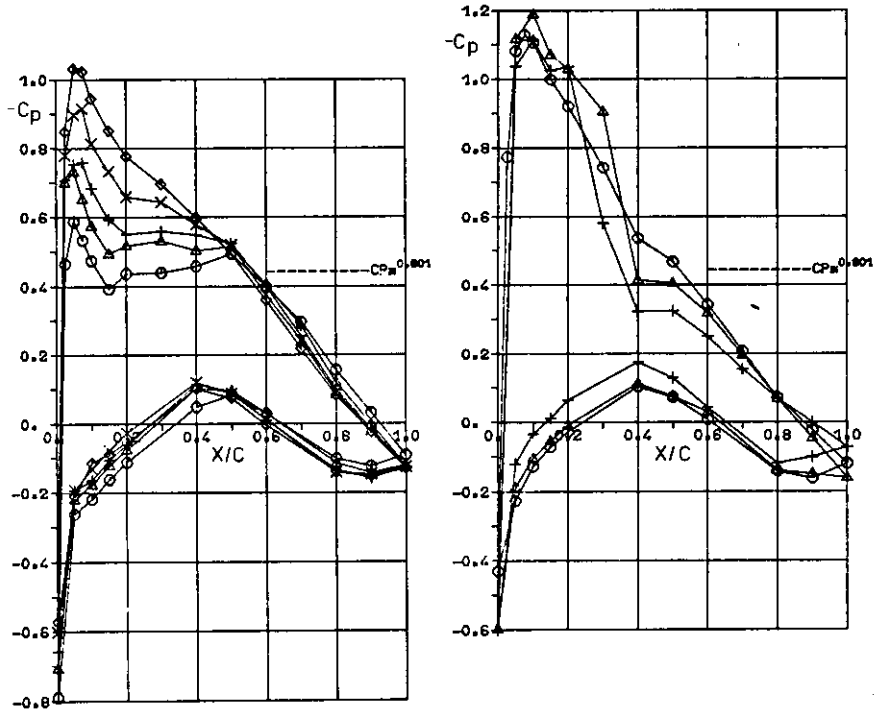


Fig. 3.5: Pressure distribution on the wing ($M = 0.8$; $\alpha = 2^{o}$)

Symbols

left diagram		right diagram	
○	HS	○	S5
△	S1	△	S6
+	S2	+	S7
×	S3		
◇	S4		

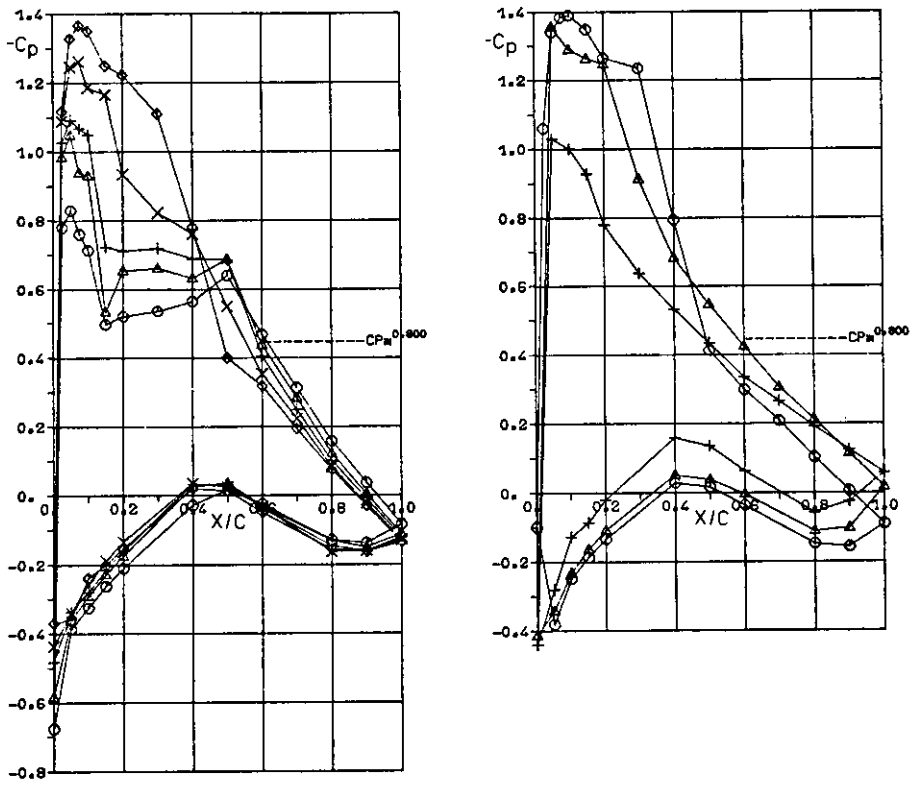
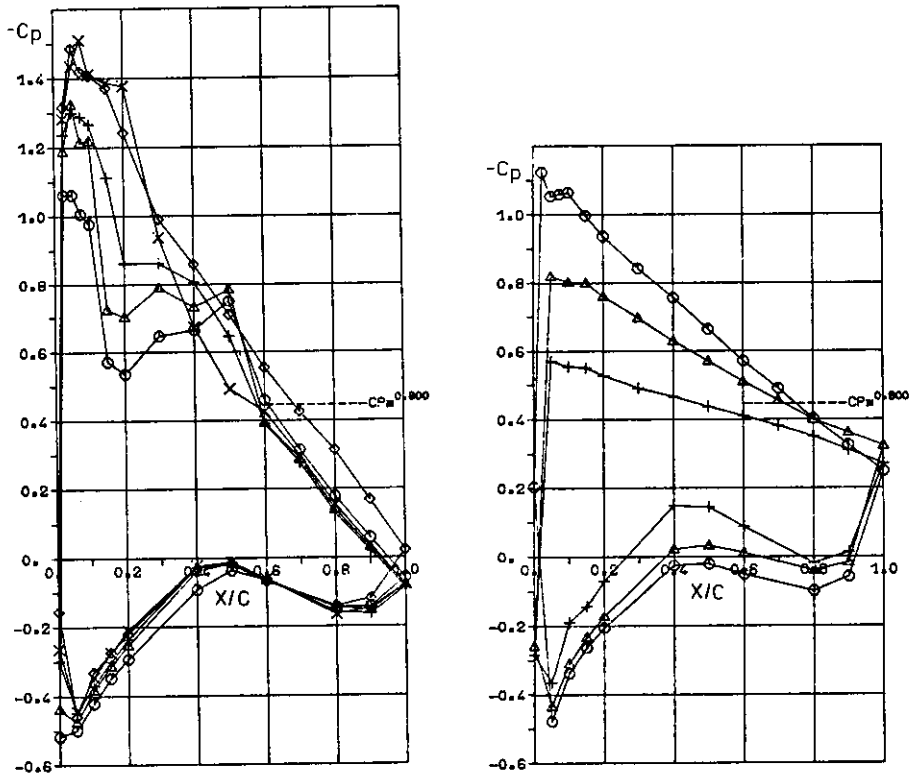


Fig. 3.6: Pressure distribution on the wing (M = 0.8; $\alpha = 4^{o}$)



Symbols

left diagram		right diagram	
○	HS	○	S5
△	S1	△	S6
+	S2	+	S7
×	S3		
◇	S4		

Fig. 3.7: Pressure distribution on the wing (M = 0.8; $\alpha = 6^{o}$)

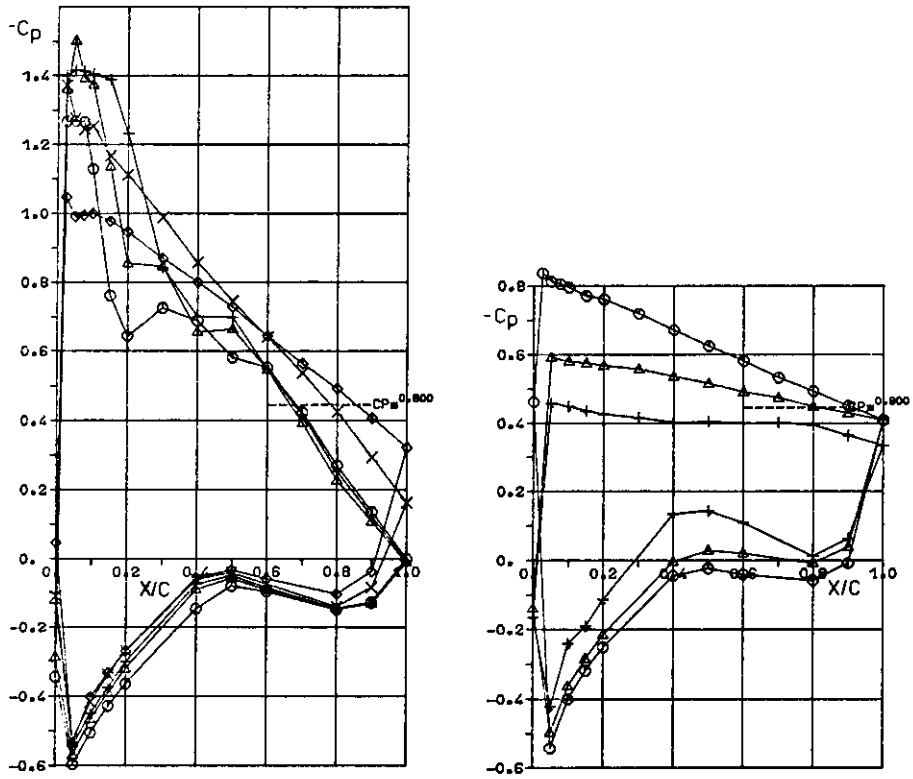


Fig. 3.8: Pressure distribution on the wing (M = 0.8; $\alpha = 8^{\circ}$)

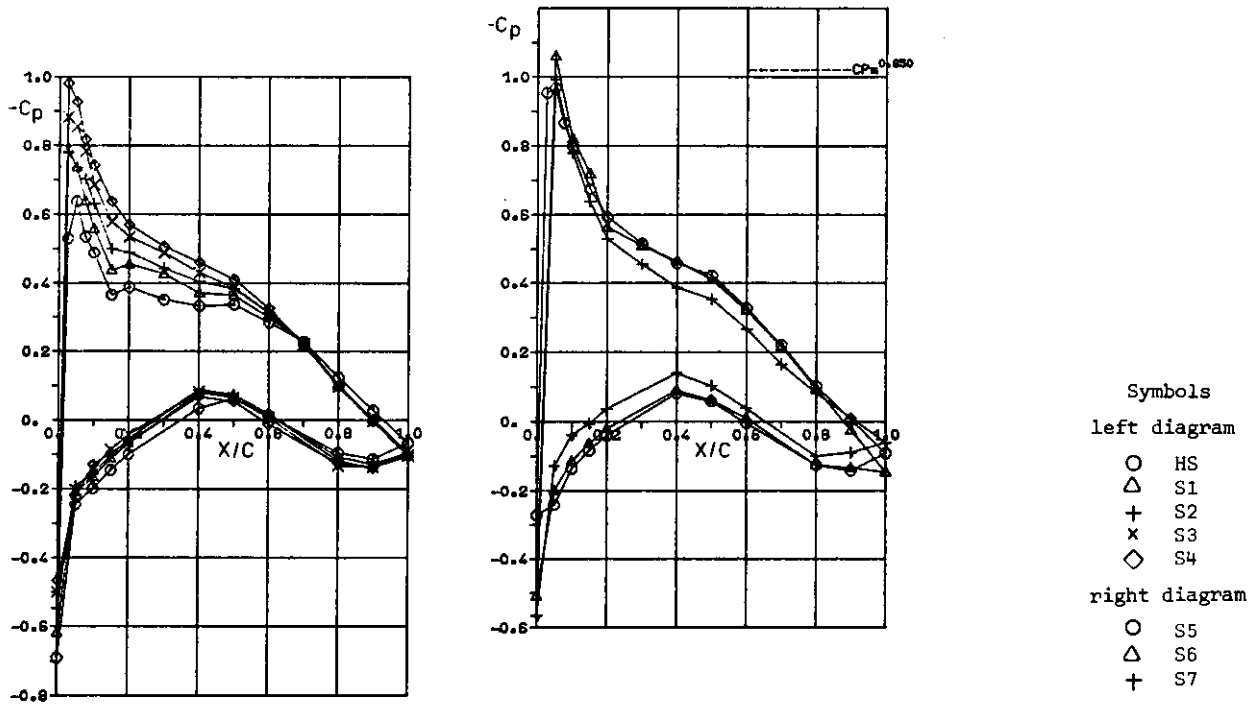


Fig. 3.9: Pressure distribution on the wing (M = 0.65; $\alpha = 2^{\circ}$)

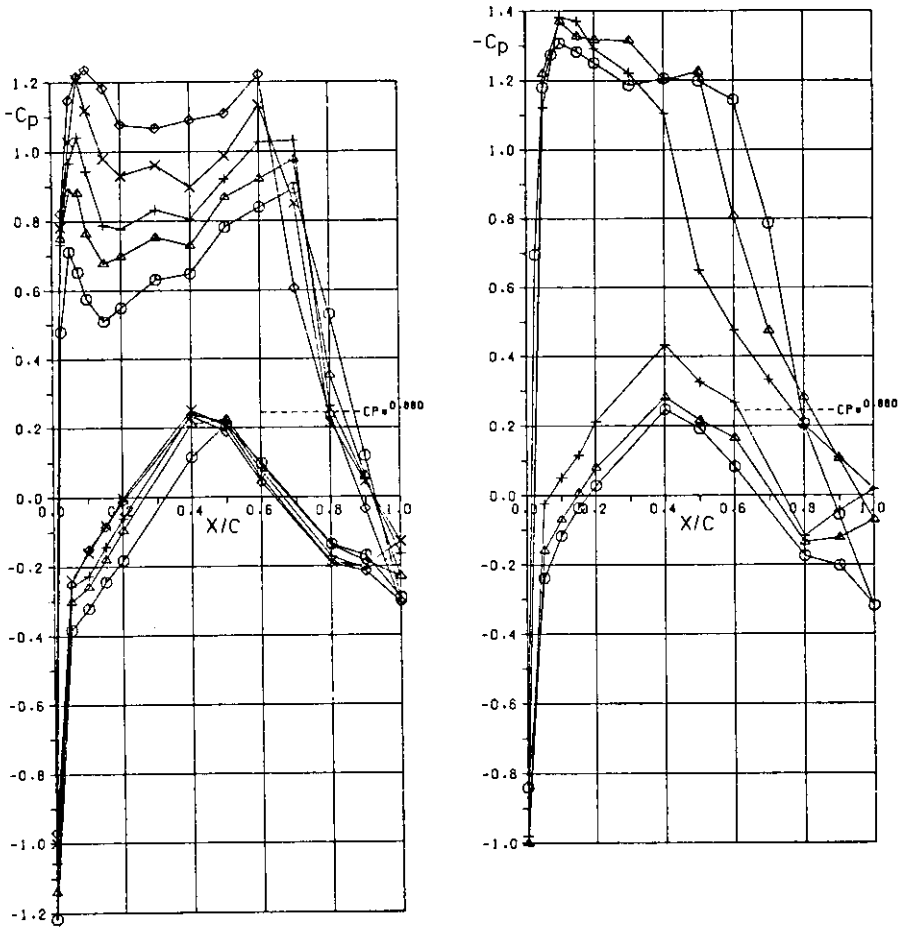


Fig. 3.10: Pressure distribution on the wing (M = 0.88; $\alpha = 2^{\circ}$)

Symbols

left diagram

○ HS
△ S1
+ S2
× S3
◇ S4

right diagram

○ S5
△ S6
+ S7

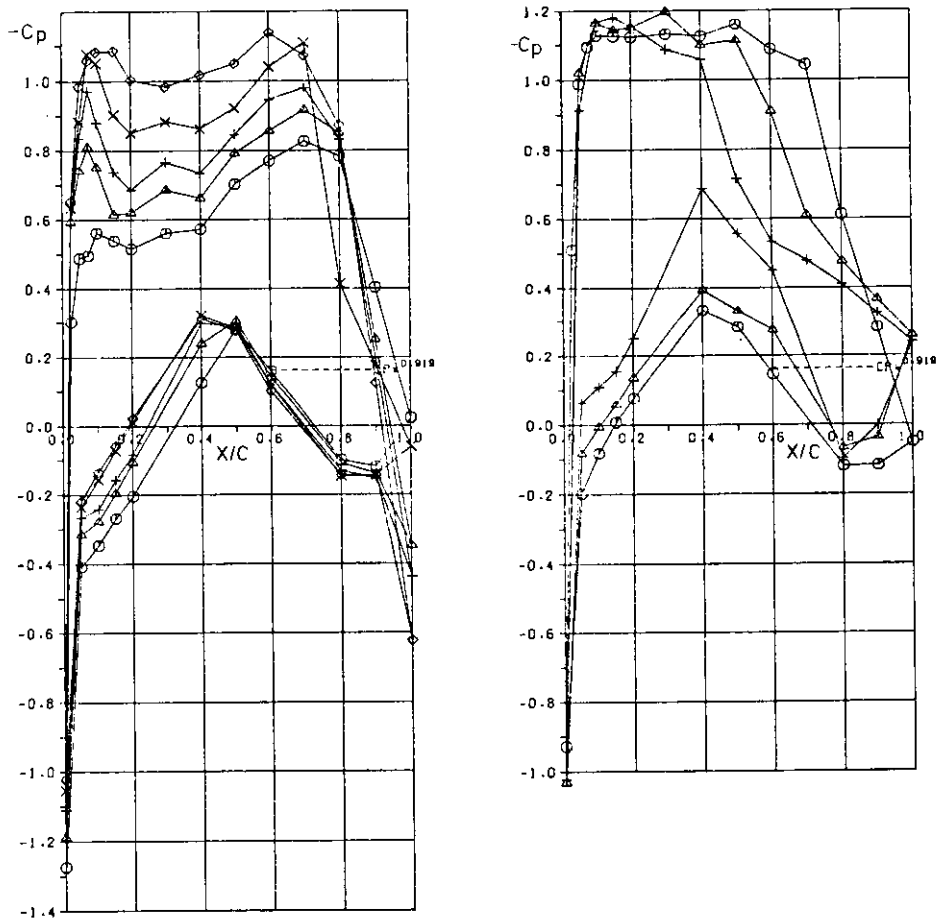


Fig. 3.11: Pressure distribution on the wing (M = 0.92; $\alpha = 2^{\circ}$)

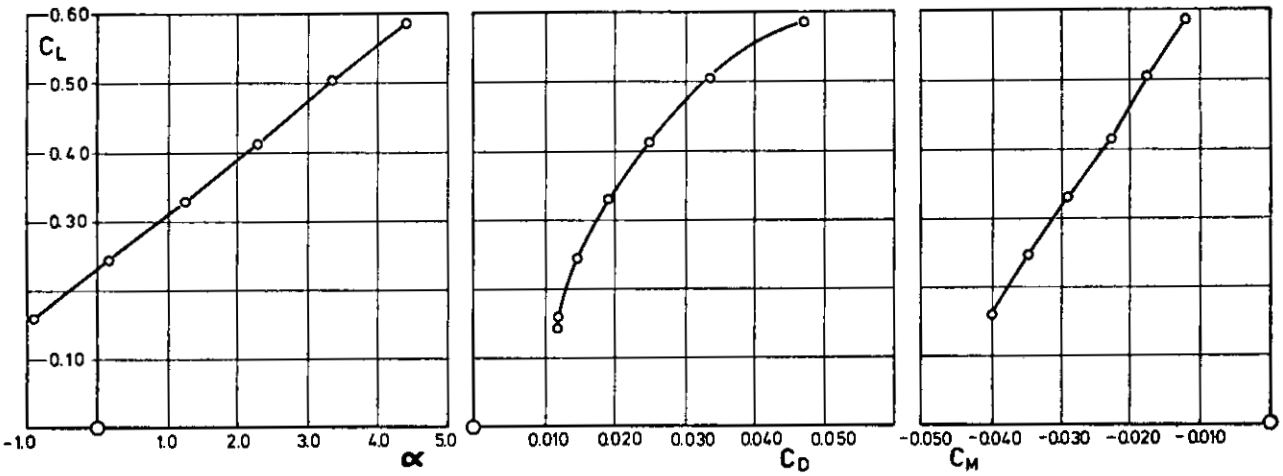


Fig. 3.12: Polars (M = 0.8)

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4. PRESSURE DISTRIBUTION MEASURED IN THE RAE 8ft × 6ft TRANSONIC WIND TUNNEL ON RAE WING 'A' IN COMBINATION WITH AN AXI-SYMMETRIC BODY AT MACH NUMBERS OF 0.4, 0.8 AND 0.9

by

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1. INTRODUCTION

This contribution contains selected data from measurements of surface pressure distributions made in the RAE 8ft × 6ft transonic wind tunnel on RAE research wing 'A' in combination with an axisymmetric body. Wing A is a wing of simple planform without dihedral or twist and is based on a uncambered RAE 101 aerofoil section. The tests were made on a complete model of a size that renders the tunnel wall interference relatively small. Although the test Reynolds number (one million based on the geometric mean chord) is low, it raises no particular problems for the cases presented here, since the adverse pressure gradients are mild and boundary-layer transition was controlled.

Tables and graphs of the pressure distribution on the wing and body are given for the conditions given below:

Case number	Mach number	Angle of incidence
1	0.4	0
2	0.8	0
3	0.9	0
4	0.4	2°
5	0.8	2°
6	0.9	1°

2. DATA SET

1. General description

1.1	Model designation or name	RAE Wing A mounted symmetrically on the cylindrical body B_2 $(W_A B_2(0)0)$
1.2	Model type (*eg* full span wing-body, semi-span wing)	Full-span wing-body model
1.3	Design requirements/conditions	Wing body model of simple geometric form
1.4	Additional remarks	

2. Model geometry

2.1	Wing data	See Fig 4.1
2.1.1	Wing planform	Swept wing with straight leading and trailing edges
2.1.2	Aspect ratio	Gross aspect ratio 6 (gross planform defined by the straight line extension of the leading and trailing edges to the body centre-line)
2.1.3	Leading-edge sweep	36.65^{o}
2.1.4	Trailing-edge sweep	22.34^{o}
2.1.5	Taper ratio	1/3
2.1.6	Twist	Zero
2.1.7	Mean aerodynamic chord	152.4 mm (0.5 ft)
2.1.8	Span or semispan	914.4 mm (3.00 ft) span
2.1.9	Number of airfoil sections used to define wing	One
2.1.10	Spanwise location of reference section and section coordinates (Note if ordinates are design or actual measured values)	Root and tip RAE 101 section thickness/chord ratio 9% See Table 4.1
2.1.11	Lofting procedure between reference sections	Straight lines between root and tip stations at constant x/c
2.1.12	Form of wing-body fillet, strakes	No fillets or strakes fitted
2.1.13	Form of wing tip	Cross-section formed by a radius of half local wing thickness (see Fig 4.1)

2.2 Body data (detail description of body geometry)

Axisymmetric body with a nose profile given by

$$\frac{R\left(\frac{x'}{\ell'}\right)}{R_0\,(1)} = \frac{\ell'}{R_0}\left\{\frac{1}{2}\frac{x'}{\ell'} - \frac{3}{8}\left(\frac{x'}{\ell'}\right)^2 + \frac{1}{16}\left(\frac{x'}{\ell'}\right)^4\right\} ,$$

$$\frac{\ell'}{R_0} = 5.33 , \qquad 0 < \frac{x'}{\ell'} < 1$$

See Fig 4.1

2.3 Wing-body combination

2.3.1 Relative body diameter (average body diameter at wing location divided by wing span) — 1/6

2.3.2 Relative vertical location of wing (height above or below body axis divided by average body radius at wing location) — Aligned with the axis of symmetry of the body

2.3.3 Wing setting angle — Zero

2.3.4 Dihedral — Zero

2.4 Cross sectional area development — No 'area-rule' development - simple wing with a cylindrical body

2.5 Fabrication tolerances/waviness — In general the wing is within the specified manufacturing tolerance of ±0.05 mm for the wing ordinates and the limit on waviness of 0.05 mm/25 mm. An inspection report is available on request

2.6 Additional remarks

3. Wind tunnel

3.1 Designation — RAE 8ft × 6ft transonic wind tunnel

3.2 Type of tunnel

3.2.1 Continuous or blowdown — Continuous, closed circuit

3.2.2 Stagnation pressure — 10 to 355 kN/m^2 pumping and pressure shell limitation; for operational limits due to power of main drive see section 3.6.1

3.2.3 Stagnation temperature — 290 K to 323 K

3.3 Test section

3.3.1 Shape of test section — Rectangular with corner fillets (160.5 mm × 160.5 mm × 45°)

3.3.2 Size of test section (width, height, length) — 2.43 m wide, 1.83 m high, 2.8 m long

3.3.3 Type of test section walls closed, open, slotted, perforated — Slots in all four walls for three dimensional complete model tests.

Open area ratio (give range if variable) — 11%

Slot/hole geometry (*eg* 30-degree slanted holes) treatment of side wall boundary layer — Sharp edged slots: six slots in both roof and floor and five slots in each side wall. All are vented to a common plenum chamber of large volume

Full span models — None

Half-model testing — -

3.4 Flow field (empty test section)

3.4.1 Reference static pressure — Plenum chamber

3.4.2 Flow angularity

M	0.4	0.8	0.9
flow angularity	±0.13°	±0.13°	±0.07°

3.4.3	Mach number distribution	ΔM ±0.002 ±0.002 ±0.003
3.4.4	Pressure gradient	
3.4.5	Turbulence/noise level	See Fig 3 of Ref 1 reproduced as Fig 6.3 in Data Set A6.
3.4.6	Side wall boundary layer	-
3.5	Freestream Mach number (or velocity)	
3.5.1	Range	Mach number 0.40-1.24
3.5.2	Pressures used to determine Mach number (*eg* settling chamber total pressure and plenum chamber pressure)	A total head measured in the maximum section of the tunnel circuit and a static pressure measured in the plenum chamber
3.5.3	Accuracy of Mach number determination (ΔM)	±0.001
3.5.4	Maximum Mach number variation in x, y, z-direction (empty tunnel; specify at what Mach number)	See section 3.4
	Maximum variation of flow direction	See section 3.4
	Maximum Mach number variation during a run	±0.001
3.6	Reynolds number range	
3.6.1	Unit Reynolds number range. (Give range at representative Mach numbers; 1/m)	M: 0.4, 0.6, 0.8, 1.0, 1.2 $\frac{R_e}{m} \times 10^{-6}$: 25-0.85, 17-1.1, 10-1.3, 10-1.3, 10-1.3
3.6.2	Means of varying Reynolds number (*eg* by pressurisation)	Pressurisation
3.7	Temperature range and dewpoint. Can temperature be controlled?	290 K to 323 K. Absolute humidity <0.003 . Temperature can be controlled manually
3.8	Model attitudes	
3.8.1	Angle of attack, yaw, roll	Calibrated differential screw-jacks giving a range of incidence from -4° to $+22^{\circ}$. The sting mounting may be rolled through $\pm 180^{\circ}$
3.8.2	Accuracy in determining angles	Angle of attack $\pm 0.01^{\circ}$. Roll angle $\pm 0.10^{\circ}$
3.9	Organization operating the tunnel and location of tunnel	The Royal Aircraft Establishment, Farnborough, Hants, England
3.10	Who is to be contacted for additional information	Mr D. Pierce, Aerodynamics Department
3.11	Literature concerning this facility	-
3.12	Additional remarks	-

4. Tests

4.1	Type of tests	Surface pressure measurements
4.2	Wing span of semispan to tunnel width	Span/tunnel width = 0.375
4.3	Test conditions	
4.3.1	Angle of attack	0, 1° and 2°
4.3.2	Mach number	0.40, 0.80, 0.90
4.3.3	Dynamic pressure	Dependent on Mach number and temperature to give a constant Reynolds number
4.3.4	Reynolds number	1.0×10^{6} based on the geometric mean chord of the gross wing
4.3.5	Stagnation temperature	≈320 K

4.4 Transition

4.4.1 Free or fixed	Fixed
4.4.2 Position of free transition	-
4.4.3 Position of fixed transition, width of strips, size and type of roughness elements	12.5%C and on the body nose Ballotini 120 grade 0.13 mm to 0.16 mm (0.005 in to 0.0064 in) diameter in a band 2.5 mm (0.1 in) wide
4.4.4 Were checks made to determine if transition occurred at trip locations?	Yes. Acenaphthene sublimation

4.5 Bending or torsion under load

4.5.1 Describe any aeroelastic measurements made during tests	None made
4.5.2 Describe results of any bench calibrations	Bench tests were made and a stiffness matrix determined - see additional remarks under section 6.2.6
4.6 Were different sized models used in wind-tunnel investigation? If so, indicate sizes	No
4.7 Areas and lengths used to form coefficients	Local chord. (The root chord in the case of the body junction.) Local pitching moments are quoted about the local leading edge
4.8 References on tests	-
4.9 Related reports	-

5. Instrumentation

5.1 Surface pressure measurements

5.1.1 Pressure orifices in wing. Location and number on upper and lower surfaces	206 (see Fig 4.1 and Table 4.2a)
5.1.2 Pressure orifices on fuselage. Location and number	213 (see Fig 4.1 and Table 4.2b)
5.1.3 Pressure orifices on components, give component and orifice location	-

5.1.4 Geometry of orifices

Hole diameter	Depth/ diameter	Location
0.34 mm (0.0135 in)	1.5	to x/c of 0.1
0.34 mm (0.0135 in)	3.0	from x/c 0.15 to 0.90
0.25 mm (0.0100 in)	1.0	for x/c 0.95 and 0.975

5.1.5 Type of pressure transducer and scanning devices used. Indicate range and accuracy	Midwood self-balancing capsule manometer 0-1.0 atmosphere. Accuracy ±0.03% of full scale

5.2 Force measurements

5.2.1 Type and location of balance	No balance measurements made
5.2.2 Forces and moments that can be measured. Maximum loads and accuracy	
5.2.3 Forces and moments on components	
Type and location of balance	
Maximum load and accuracy	

5.3 Boundary layer and flow-field measurements

5.3.1 Boundary-layer probe, type, position, and drive mechanism	No boundary-layer or flow-field measurements made
5.3.2 Probe dimension relative to boundary-layer thickness	
5.3.3 Laser-Doppler velocimeter. Give description of apparatus and accuracy	
5.3.4 Method and/or instrument used to determine boundary-layer transition	
5.3.5 *Describe any downstream rakes* or probes used. Reason for use.	
5.4 Surface flow visualization	
5.4.1 Indicate method used to determine	
- Streamline pattern	Oil flow
- Boundary-layer transition	Acenaphthene sublimation tests made in a few cases
5.4.2 Accuracy of method	
5.5 Skin friction measurements	
5.5.1 Type of instrument	No measurements made
5.5.2 Geometry and accuracy of instrument	
5.5.3 Locations where probe used	
5.6 Simulation of exhaust jet	-
5.6.1 Describe ducting of air	-
5.7 Additional remarks	
6. Data	
6.1 Accuracy	
6.1.1 Pressure coefficients	±0.01 in general (see section 6.1.5)
6.1.2 Aerodynamic coefficients	
6.1.3 Boundary layer and wake quantities	(a) Because of the high sensitivity of the pressure to position near the leading edge and to the non-uniformity of the tunnel airstream, there are apparent errors for the nominal x/c = 0 tappings that are in excess of the tolerance quoted in section 6.1.1
6.1.4 Repeatability	
6.1.5 Additional remarks	(b) Spurious values of the pressure coefficients given at some points on the body should be ignored. These are the result of some malfunctioning of the digitising equipment during the tests
6.2 Wall interference corrections	
6.2.1 Solid and wake blockage. Give procedures and equations	*None applied*
6.2.2 Give blockage factors as functions of Mach number	None applied
6.2.3 Downwash, streamline curvature and lift interference. Give procedure and equations	Corrections for flow angularity in the tunnel have been made by appeal to model symmetry. Details of constraint and aeroelastic correction are given in section 6.2.6
6.2.4 Give lift interference parameters as function of Mach number	See section 6.2.6

6.2.5	Reference on wall-interference corrections	See Ref 2
6.2.6	Additional remarks	The corrections required for aeroelastic distortion of the model and for the effects of tunnel wall constraint are of a similar order of magnitude. A matrix of influence coefficients defining the structural stiffness has been derived from the measurement of deflection under known static loads. The aeroelastic distortion has then been calculated using the stiffness matrix, together with the aerodynamic loading obtained by integrating the measured pressure distribution. Correction for tunnel wall constraint has been derived by interpolation with respect to open area ratio $1/(1 + F)$, between solutions of the linearised formulation for the velocity induced in the given test section according to the assumption of (a) fully open, and (b) fully closed, wall boundary conditions[2]. Computation of the incremental loading arising from distortion and constraint confirmed that only spanwise variation was significant and therefore a local correction to the nominal incidence of an 'equivalent flat wing' was obtained as indicated in Table 4.3a and 4.3b. The adjustments to the measured data have been made by curve-fitting the variation of static pressure coefficient at each orifice with incidence, and interpolating to a corrected nominal incidence
6.3	Data presentation	
6.3.1	Aerodynamic coefficients	Tables 4.7 to 4.9 give local normal force C_N and pitching moment coefficient C_M
6.3.2	Surface pressure coefficients	Tables 4.4 to 4.9 Figs 4.2 to 4.7 give pressure coefficients for the wing and body
6.3.3	Flow conditions for	
	- Aerodynamic coefficient data	Mach numbers 0.4, 0.6 and 0.8 for R_e 1.0×10^6
	- Pressure data	
6.3.4	Boundary layer and/or wake data	No measurements made
6.3.5	Flow conditions for boundary layer and/or wake data	-
6.3.6	Wall interference corrections included?	See Table 4.3a
6.3.7	Aeroelastic corrections included?	See section 6.2.6 and Table 4.3b
6.3.8	Other corrections?	-
6.3.9	Additional remarks	-
6.4	Were tests carried out in different facilities on the current model? If so, what facilities. Are data included in present data base?	No
6.5	Were tests carried out in different facilities on the current model? If so, what facilities. Are data included in present data base?	No

7. References

1 D.G. Mabey — Boundary-layer transition measurements on the AEDC 10° cone in three RAE wind tunnels and their implications. RAE Technical Report 76077 (1976)

2 H.C. Garner, E.W.E. Rogers, W.E.A. Acum, E.C. Maskell — Subsonic wind tunnel wall corrections. AGARDograph 109 (1966)

8. List of Symbols

c	local chord
$\bar{c}$	geometric mean chord of the gross wing
C_M	local pitching moment coefficient about the leading edge $= \dfrac{\text{local pitching moment}}{\frac{1}{2}\rho V^2 c^2}$
C_N	local normal force coefficient $= \dfrac{\text{local normal force}}{\frac{1}{2}\rho V^2 c}$
C_p	pressure coefficient $= \dfrac{p - p_\infty}{\frac{1}{2}\rho V^2}$
F	non-dimensional slotted wall parameter $= \dfrac{d}{\sqrt{\pi bh}} \log_e \operatorname{cosec} \dfrac{\pi a}{2d}$, (see Ref 2)
L	length of the body
M	Mach number
R	local body cross-section radius
R_e	Reynolds number based on $\bar{c}$
R_0	radius of the cylindrical section of the body
S	semi-span of the gross wing (excluding tip fairing)
V	free stream velocity
X	distance measured along the chord from the leading-edge of the wing section
X'	distance measured from the extended nose of the body
Y	distance measured spanwise
Z	distance from the plane of the wing
a	width of the slots in the tunnel walls
b	breadth of the tunnel working section
d	periodic spacing of the slots in the tunnel wall
h	height of the tunnel working section
ℓ'	length of the profiled portion of the body
p	local static pressure
p_∞	free stream static pressure
α	angle of incidence
$\Delta_c\alpha$	correction applied to the local angle of incidence for wind tunnel wall constraint
$\Delta_e\alpha$	correction applied to the local angle of incidence for aeroelastic distortion of the model and deflection of the sting support
η	Y/S non-dimensional spanwise location
ρ	density of the free stream
ϕ	median angle measured from the plane of the wing

Table 4.1

CO-ORDINATES OF RAE 101 T/C = 0.09 SECTION

X	100Y	X	100Y
0.0	0.0	0.35	4.4582
0.001	0.3515	0.36	4.4376
0.002	0.4966	0.38	4.3855
0.003	0.6078	0.4	4.3205
0.004	0.7013	0.42	4.2438
0.005	0.7835	0.44	4.1565
0.006	0.8576	0.45	4.1091
0.007	0.9256	0.46	4.0595
0.0075	0.9578	0.48	3.9539
0.008	0.9888	0.5	3.8403
0.009	1.0480	0.52	3.7196
0.01	1.1039	0.54	3.5924
0.012	1.2074	0.55	3.5265
0.0125	1.2318	0.56	3.4592
0.014	1.3022	0.58	3.3209
0.016	1.3901	0.6	3.1779
0.018	1.4721	0.62	3.0308
0.02	1.5494	0.64	2.8803
0.025	1.7257	0.65	2.8039
0.03	1.8832	0.66	2.7267
0.035	2.0262	0.68	2.5707
0.04	2.1577	0.7	2.4126
0.05	2.3903	0.72	2.2531
0.06	2.6008	0.74	2.0926
0.07	2.7863	0.75	2.0121
0.075	2.8722	0.76	1.9317
0.08	2.9540	0.78	1.7707
0.09	3.1067	0.8	1.6097
0.1	3.2466	0.82	1.4487
0.12	3.4938	0.84	1.2878
0.14	3.7046	0.85	1.2073
0.15	3.7982	0.86	1.1268
0.16	3.8847	0.88	0.9658
0.18	4.0380	0.9	0.8049
0.2	4.1674	0.92	0.6439
0.22	4.2746	0.925	0.6036
0.24	4.3610	0.94	0.4829
0.25	4.3966	0.95	0.4024
0.26	4.4271	0.96	0.3219
0.28	4.4730	0.975	0.2012
0.3	4.4972	0.98	0.1610
0.32	4.4960	0.9875	0.1006
0.34	4.4752	1.0	0.0

Table 4.2

(a) Location of the pressure tappings in the wing

Nominal X/C	η = Y/S					
	0.25	0.40	0.60	0.75	0.85	0.925
0.005	0.005	0.005	-	-	-	-
0.010	0.010	0.010	0.010	0.010	0.011	0.011
0.025	0.025	0.025	0.026	0.025	0.026	0.026
0.050	0.051	0.050	0.051	0.050	0.052	0.051
0.075	0.075	0.075	0.076	0.075	0.076	0.076
0.100	0.100	0.100	0.100	0.100	0.101	0.101
0.150	0.151	0.150	0.150	0.150	0.150	0.150
0.200	0.201	0.200	0.200	0.200	0.201	0.200
0.300	0.301	0.300	0.300	0.301	0.301	0.301
0.400	0.401	0.400	0.400	0.401	0.401	0.400
0.500	0.501	0.500	0.500	0.501	0.501	0.500
0.600	0.601	0.600	0.601	0.601	0.600	0.601
0.700	0.701	0.700	0.701	0.701	0.701	0.700
0.800	0.801	0.800	0.801	0.801	0.800	0.800
0.900	0.900	0.899	0.899	0.899	0.899	0.899
0.950	0.950	0.949	0.949	0.950	0.949	0.949
0.975	0.976	0.974	-	-	-	-

(b) Location of the pressure tappings in the wing-body junction

X/C*	-0.013	0.010	0.025	0.050	0.075	0.100	0.150
X'/L	0.4817	0.4856	0.4881	0.4924	0.4968	0.5011	0.5097
Z/L	0	0.00277	0.00392	0.00509	0.00585	0.00664	0.00756
X/C*	0.200	0.250	0.300	0.400	0.500	0.600	0.700
X'/L	0.5184	0.5271	0.5358	0.5532	0.5707	0.5882	0.6056
Z/L	0.00822	0.00860	0.00876	0.00840	0.00759	0.00639	0.00517
X/C*	0.800	0.900					
X'/L	0.6231	0.6405					
Z/L	0.00356	0.00226					

* X and C appropriate to the normal projection onto the gross wing defined by the straight extension of the leading- and trailing-edges to the centre-line of the body.

Table 4.3

(a) Corrections applied to the local angle of incidence for tunnel wall constraint

$$\Delta_c\alpha = \Delta_c\alpha(0) + \Delta_c\alpha(\eta)/\text{per degree}$$

M	$\Delta_c\alpha(0)$	$\Delta_c\alpha(\eta)$						
		$\eta \leqslant 0.167$	$\eta = 0.25$	$\eta = 0.40$	$\eta = 0.60$	$\eta = 0.75$	$\eta = 0.85$	$\eta = 0.925$
0.40	-0.0223	0.00000	-0.00040	-0.00063	-0.00088	-0.00097	-0.00111	-0.00114
0.80	-0.0220	0.00000	-0.00101	-0.00130	-0.00189	-0.00230	-0.00249	-0.00263
0.90	-0.0218	0.00000	-0.00158	-0.00219	-0.00313	-0.00390	-0.00431	-0.00461

(b) Corrections applied to the local angle of incidence for the aero-elastic deformation of the wing and the deflection of the sting support

$$\Delta_e\alpha = \Delta_e\alpha\ (0) + \Delta_e\alpha(\eta)/\text{per degree at Re } 1.0 \times 10^6$$

M	$\Delta_e\alpha(0)$	$\Delta_e\alpha(\eta)$						
		$\eta \leqslant 0.167$	$\eta = 0.25$	$\eta = 0.40$	$\eta = 0.60$	$\eta = 0.75$	$\eta = 0.85$	$\eta = 0.925$
0.40	0.0262	0.00000	-0.0034	-0.0050	-0.0060	-0.0080	-0.0095	-0.0104
0.80	0.0643	0.00000	-0.0091	-0.0128	-0.0154	-0.0198	-0.0230	-0.0252
0.90	0.0768	0.00000	-0.0114	-0.0156	-0.0183	-0.0237	-0.0277	-0.0301

Table 4.4

TABULATED DATA

Case No.1 : Mach number 0.40 Angle of incidence 0

Upper/lower surface

Pressures on the wing and at the wing/body junction

η	0.167*	0.250	0.400	0.600	0.750	0.850	0.925
CN=	-	-	-	-	-	-	-
CM=	-	-	-	-	-	-	-
X/C	CP	CP	CP	CP	CP	CP	CP
0.000		0.651	0.636	0.639	0.643	0.622	0.634
0.005		0.205	0.174				
0.010	0.222	0.057	0.016	0.031	0.050	0.030	0.031
0.025	0.140	-0.102	-0.118	-0.137	-0.120	-0.137	-0.144
0.050	0.043	-0.147	-0.206	-0.206	-0.209	-0.210	-0.219
0.075	-0.019	-0.197	-0.238	-0.246	-0.225	-0.244	-0.235
0.100	-0.053	-0.197	-0.244	-0.253	-0.244	-0.254	-0.240
0.150	-0.112	*****	*****	*****	*****	*****	*****
0.200	-0.132	-0.223	-0.269	-0.271	-0.289	-0.259	-0.270
0.300	-0.184	-0.250	-0.277	-0.269	-0.278	-0.273	-0.262
0.400	-0.187	-0.211	-0.229	-0.228	-0.239	-0.222	-0.220
0.500	-0.166	-0.173	-0.179	-0.176	-0.174	-0.168	-0.165
0.600	-0.136	-0.129	-0.129	-0.124	-0.126	-0.114	*****
0.700	-0.103	-0.085	-0.078	-0.074	-0.073	-0.065	-0.060
0.800	-0.068	-0.042	-0.028	-0.027	-0.029	-0.021	-0.014
0.900	-0.033	0.004	0.019	*****	0.022	0.025	0.035
0.950		0.043	0.057	0.056	0.055	0.061	0.062
0.975		0.068	0.076				

* Nominal value for body/wing junction
NB Pressure measured on body, see Table 4.2

Pressures on the body

φ DEG	0*	± 15	± 30	±45	± 60	±75	±90
X'/L	CP	CP	CP	CP	CP	CP	CP
0.268	-0.124	-0.128	-0.126	-0.126	-0.125	-0.128	-0.125
0.307	-0.087	-0.090	-0.088	-0.088	-0.087	-0.088	-0.089
0.366	-0.039	-0.040	-0.044	-0.044	-0.048	-0.050	-0.046
0.385	-0.033	-0.031	-0.036	-0.036	-0.037	-0.042	-0.036
0.405	-0.021	-0.020	-0.023	-0.026	-0.033	-0.033	-0.034
0.424	-0.007	-0.010	-0.013	-0.021	-0.030	-0.030	-0.032
0.444	0.011	-0.003	-0.007	-0.019	-0.021	-0.034	-0.032
0.463	0.063	0.038	0.005	-0.015	-0.024	-0.031	-0.026
0.482	0.290	0.063	0.002	-0.019	-0.027	-0.031	-0.034
0.492	0.043	0.024	-0.011	-0.027	-0.032	-0.033	-0.034
0.501	-0.054	-0.032	-0.029	-0.031	-0.033	-0.038	-0.037
0.510	-0.112	-0.076	-0.046	-0.039	-0.032	-0.043	-0.035
0.518	-0.133	-0.109	-0.071	-0.050	-0.042	-0.041	-0.039
0.527	-0.170	-0.132	-0.082	-0.058	-0.046	-0.051	-0.043
0.571	-0.166	-0.138	-0.102	-0.073	-0.059	-0.051	-0.050
0.588	-0.137	-0.122	-0.094	-0.064	-0.052	-0.046	-0.049
0.606	-0.104	-0.096	-0.069	-0.062	-0.054	-0.042	-0.044
0.623	-0.069	-0.067	-0.059	-0.051	-0.046	-0.037	-0.036
0.641	-0.033	-0.034	-0.043	-0.039	-0.040	-0.037	-0.037
0.660	0.073	-0.001	-0.026	-0.030	-0.032	-0.032	-0.029
0.671	0.038	0.012	-0.016	-0.025	-0.030	-0.031	-0.033
0.691	0.018	0.004	-0.010	-0.023	-0.025	-0.024	-0.028
0.730	-0.004	-0.011	-0.010	-0.022	-0.021	-0.030	-0.027
0.750	-0.018	0.003	-0.017	-0.033	-0.024	-0.027	-0.025
0.769	-0.013	-0.025	-0.023	-0.027	-0.026	-0.025	-0.026
0.789	-0.014	-0.017	-0.018	-0.019	-0.030	-0.029	-0.027
0.808	-0.022	-0.024	-0.021	-0.033	-0.026	-0.027	-0.031
0.828	-0.028	-0.039	-0.030	-0.026	-0.028	-0.035	-0.024

Table 4.5

TABULATED DATA

Case No.2 : Mach number 0.80 Angle of incidence 0

Upper/lower surface

Pressures on the wing and at the wing/body junction

η	0.167*	0.250	0.400	0.600	0.750	0.850	0.925
CN=	-	-	-	-	-	-	-
CM=	-	-	-	-	-	-	-
X/C	CP	CP	CP	CP	CP	CP	CP
0.000		0.729	0.688	0.691	0.691	0.666	0.682
0.005		0.309	0.252				
0.010	0.305	0.154	0.083	0.095	0.110	0.088	0.074
0.025	0.236	-0.033	-0.084	-0.112	-0.099	-0.117	-0.134
0.050	0.132	-0.126	-0.204	-0.217	-0.228	-0.224	-0.254
0.075	0.050	-0.172	-0.255	-0.271	-0.258	-0.273	-0.283
0.100	-0.001	-0.190	-0.269	-0.294	-0.292	-0.303	-0.308
0.150	*****	*****	*****	*****	*****	*****	*****
0.200	-0.128	-0.251	-0.330	-0.338	-0.378	-0.343	-0.388
0.300	-0.218	-0.304	-0.352	-0.360	-0.368	-0.359	-0.362
0.400	-0.238	-0.269	-0.297	-0.286	-0.302	-0.283	-0.284
0.500	-0.220	-0.218	-0.223	-0.210	-0.211	-0.198	-0.189
0.600	-0.182	-0.159	-0.151	-0.133	-0.138	-0.120	-0.101
0.700	-0.142	-0.100	-0.081	-0.066	-0.066	-0.053	-0.039
0.800	-0.086	-0.041	-0.013	-0.004	-0.008	0.007	0.016
0.900	-0.030	0.023	0.048	0.075	0.059	0.067	0.074
0.950		0.062	0.087	0.097	0.094	0.102	0.103
0.975		0.092	0.110				

* Nominal value for body/wing junction
NB Pressure measured on body, see Table 4.2

Pressures on the body

φ DEG	0*	±15	±30	±45	±60	±75	±90
X'/L	CP	CP	CP	CP	CP	CP	CP
0.268	-0.147	-0.148	-0.148	-0.145	-0.145	-0.147	-0.147
0.307	-0.095	-0.098	-0.097	-0.098	-0.098	-0.097	-0.098
0.366	-0.025	-0.027	-0.025	-0.039	-0.031	-0.028	-0.028
0.385	-0.015	-0.013	-0.017	-0.017	-0.021	-0.021	-0.020
0.405	-0.001	-0.004	-0.003	-0.006	-0.010	-0.011	-0.011
0.424	0.085	0.014	0.010	0.006	-0.003	-0.003	-0.006
0.444	0.039	0.033	0.024	0.013	0.008	-0.003	0.001
0.463	0.106	0.082	0.046	0.024	0.007	0.001	-0.002
0.482	0.342	0.134	0.055	0.020	0.006	-0.004	-0.007
0.492	0.132	0.084	0.036	0.010	-0.002	-0.009	-0.011
0.501	-0.001	0.009	0.005	-0.004	-0.011	-0.024	-0.017
0.510	-0.089	-0.055	-0.028	-0.022	-0.021	-0.031	-0.021
0.518	-0.126	-0.101	-0.062	-0.040	-0.032	-0.038	-0.031
0.527	-0.179	-0.141	-0.090	-0.058	-0.045	-0.047	-0.038
0.536	-0.218	-0.167	-0.113	-0.074	-0.056	-0.060	-0.044
0.553	-0.238	-0.195	-0.139	-0.094	-0.073	-0.069	-0.058
0.571	-0.220	-0.188	-0.143	-0.104	-0.082	-0.068	-0.064
0.588	-0.182	-0.161	-0.128	-0.093	-0.079	-0.060	-0.063
0.606	-0.142	-0.069	-0.106	-0.084	-0.071	-0.050	-0.059
0.623	-0.086	-0.082	-0.077	-0.064	-0.058	-0.039	-0.048
0.641	-0.030	-0.033	-0.042	-0.041	-0.041	-0.028	-0.039
0.660	0.097	0.021	-0.008	-0.018	-0.024	-0.017	-0.022
0.671	0.070	0.033	0.004	-0.009	-0.015	-0.015	-0.020
0.691	0.046	0.028	0.014	-0.001	-0.008	-0.002	-0.013
0.730	0.018	0.012	0.008	0.002	-0.004	-0.007	-0.007
0.750	0.009	0.007	-0.031	-0.002	-0.002	-0.004	-0.004
0.769	0.005	0.003	-0.002	-0.003	-0.003	-0.006	-0.004
0.789	0.004	-0.000	-0.001	-0.002	-0.003	-0.008	-0.007
0.808	-0.003	-0.004	-0.004	-0.004	-0.007	-0.009	-0.011
0.828	-0.002	-0.031	-0.008	-0.009	-0.009	-0.011	-0.009

Table 4.6

TABULATED DATA

Case No.3 : Mach number 0.90 Angle of incidence 0

Upper/lower surface

Pressures on the wing and at the wing/body junction

η	0.167*	0.250	0.400	0.600	0.750	0.850	0.925
CN=	-	-	-	-	-	-	-
CM=	-	-	-	-	-	-	-
X/C	CP	CP	CP	CP	CP	CP	CP
0.000		0.766	0.714	0.699	0.706	0.674	0.702
0.005		0.360	0.295				
0.010	0.357	0.207	0.133	0.118	0.120	0.110	-0.149
0.025	0.299	0.017	-0.042	-0.097	-0.097	-0.105	-0.106
0.050	0.201	-0.081	-0.174	-0.219	-0.241	-0.231	-0.244
0.075	0.119	-0.134	-0.235	-0.289	-0.278	-0.292	-0.283
0.100	0.066	-0.156	-0.255	-0.323	-0.309	-0.334	-0.316
0.150	*****	*****	*****	*****	*****	*****	*****
0.200	-0.078	-0.246	-0.355	-0.431	-0.480	-0.442	-0.480
0.300	-0.194	-0.341	-0.457	-0.535	-0.535	-0.493	-0.509
0.400	-0.258	-0.338	-0.455	-0.409	-0.358	-0.333	-0.409
0.500	-0.278	-0.329	-0.310	-0.212	-0.218	-0.217	-0.152
0.600	-0.260	-0.244	-0.164	-0.130	-0.132	-0.117	-0.048
0.700	-0.197	-0.135	-0.075	-0.052	-0.051	-0.033	0.008
0.800	-0.107	-0.052	0.004	0.017	0.015	0.036	0.062
0.900	-0.032	0.029	0.072	*****	0.087	0.099	0.117
0.950		0.061	0.114	0.123	0.122	0.138	0.156
0.975		0.113	0.138				

* Nominal value for body/wing junction
NB Pressure measured on body, see Table 4.2

Pressures on the body

φ DEG	0*	±15	±30	±45	±60	±75	±90
X/L	CP	CP	CP	CP	CP	CP	CP
0.268	-0.162	-0.165	-0.164	-0.167	-0.153	-0.162	-0.164
0.307	-0.096	-0.096	-0.097	-0.093	-0.097	-0.113	-0.093
0.366	-0.014	-0.014	-0.013	-0.015	-0.016	-0.019	-0.018
0.385	-0.001	0.002	-0.002	-0.003	-0.003	-0.004	-0.001
0.405	0.016	0.014	0.014	0.012	0.009	0.007	0.008
0.424	0.176	0.035	0.030	0.028	0.019	0.020	0.017
0.444	0.060	0.055	0.048	0.035	0.037	0.022	0.025
0.463	0.139	0.117	0.081	0.057	0.040	0.030	0.029
0.482	0.374	0.180	0.099	0.058	0.039	0.028	0.026
0.492	0.202	0.135	0.084	0.048	0.032	0.021	0.018
0.501	0.066	0.057	0.051	0.033	0.021	-0.000	0.009
0.510	-0.032	-0.012	0.014	0.010	0.006	-0.013	0.002
0.518	-0.078	-0.068	-0.022	-0.014	-0.010	-0.026	-0.012
0.527	-0.142	-0.116	-0.063	-0.043	-0.030	-0.044	-0.026
0.536	-0.194	-0.154	-0.100	-0.067	-0.049	-0.074	-0.041
0.553	-0.258	-0.219	-0.153	-0.110	-0.086	-0.101	-0.070
0.571	-0.278	-0.247	-0.191	-0.147	-0.116	-0.111	-0.095
0.588	-0.260	-0.237	-0.195	-0.151	-0.124	-0.099	-0.107
0.606	-0.197	-0.185	-0.160	-0.134	-0.111	-0.076	-0.096
0.623	-0.107	-0.111	-0.104	-0.091	-0.084	-0.051	-0.073
0.641	-0.032	-0.037	-0.051	-0.050	-0.051	-0.023	-0.051
0.660	0.111	0.033	0.001	-0.011	-0.020	-0.013	-0.022
0.671	0.092	0.052	0.020	0.004	-0.007	-0.002	-0.013
0.691	0.071	0.049	0.035	0.017	0.008	0.004	0.001
0.730	0.042	-0.000	0.027	0.021	0.017	0.015	0.011
0.750	0.030	0.029	0.024	0.016	0.020	0.014	0.014
0.769	0.025	0.022	0.017	0.017	0.014	0.014	0.017
0.789	0.025	0.019	0.018	0.017	0.013	0.007	0.009
0.808	0.014	0.013	0.016	0.011	0.012	0.006	0.007
0.828	0.012	-0.012	0.006	0.008	0.006	0.005	0.008

Table 4.7

TABULATED DATA

Case No.4 : Mach number 0.40 Angle of incidence 2.0°

Upper surface

Pressures on the wing and at the wing/body junction

η	0.167*	0.250	0.400	0.600	0.750	0.850	0.925
CN=	0.138	0.162	0.172	0.186	0.191	0.183	0.165
CM=	-0.043	-0.042	-0.042	-0.046	-0.047	-0.041	-0.034
X/C	CP	CP	CP	CP	CP	CP	CP
0.000		0.515	0.458	0.457	0.444	0.406	0.415
0.005		-0.311	-0.449				
0.010	0.046	-0.415	-0.525	-0.554	-0.553	-0.578	-0.574
0.025	-0.048	-0.463	-0.525	-0.577	-0.576	-0.596	-0.598
0.050	-0.143	-0.436	-0.511	-0.536	-0.550	-0.554	-0.558
0.075	-0.189	-0.417	-0.486	-0.509	-0.502	-0.522	-0.507
0.100	-0.209	-0.389	-0.456	-0.481	-0.478	-0.496	-0.476
0.150	-0.248	*****	*****	*****	*****	*****	*****
0.200	-0.253	-0.347	-0.405	-0.415	-0.443	-0.404	-0.402
0.300	-0.277	-0.344	-0.374	-0.378	-0.392	-0.378	-0.354
0.400	-0.251	-0.284	-0.306	-0.310	-0.321	-0.304	-0.285
0.500	-0.225	-0.229	-0.236	-0.235	-0.236	-0.226	-0.207
0.600	-0.182	-0.171	-0.172	-0.167	-0.171	-0.153	*****
0.700	-0.139	-0.117	-0.107	-0.106	-0.104	-0.094	-0.076
0.800	-0.094	-0.065	-0.046	-0.048	-0.050	-0.037	-0.024
0.900	-0.046	-0.007	0.010	*****	0.013	0.017	0.031
0.950		0.035	0.051	0.046	0.050	0.069	0.060
0.975		0.062	0.076				

* Nominal value for body/wing junction
NB Pressure measured on body, see Table 4.2

Pressures on the body

φ DEG	0*	15	30	45	60	75	90
X/L	CP	CP	CP	CP	CP	CP	CP
0.268	-0.126	-0.134	-0.136	-0.134	-0.137	-0.136	-0.136
0.307	-0.093	-0.095	-0.097	-0.096	-0.097	-0.098	-0.095
0.366	-0.051	-0.052	-0.057	-0.052	-0.058	-0.060	-0.055
0.385	-0.041	-0.039	-0.046	-0.049	-0.050	-0.052	-0.050
0.405	-0.029	-0.032	-0.036	-0.042	-0.046	-0.047	-0.047
0.424	-0.014	-0.021	-0.031	-0.037	-0.041	-0.043	-0.044
0.444	0.004	-0.016	-0.029	-0.036	-0.045	-0.049	-0.046
0.463	0.054	0.007	-0.030	-0.044	-0.048	-0.049	-0.049
0.482	0.262	-0.009	-0.049	-0.056	-0.056	-0.056	-0.056
0.492	-0.144	-0.082	-0.075	-0.070	-0.064	-0.059	-0.059
0.501	-0.210	-0.145	-0.096	-0.076	-0.068	-0.068	-0.063
0.510	-0.248	-0.186	-0.116	-0.090	-0.070	-0.072	-0.063
0.518	-0.253	-0.207	-0.140	-0.100	-0.079	-0.072	-0.068
0.527	-0.274	-0.223	-0.150	-0.108	-0.084	-0.082	-0.072
0.571	-0.225	-0.197	-0.151	-0.113	-0.093	-0.078	-0.077
0.588	-0.183	-0.170	-0.135	-0.100	-0.083	-0.072	-0.077
0.606	-0.140	-0.132	-0.106	-0.092	-0.080	-0.064	-0.068
0.623	-0.094	-0.095	-0.087	-0.077	-0.071	-0.057	-0.057
0.641	-0.047	-0.054	-0.063	-0.060	-0.061	-0.054	-0.054
0.660	0.072	-0.011	-0.039	-0.047	-0.051	-0.048	-0.044
0.671	0.040	-0.002	-0.029	-0.041	-0.045	-0.044	-0.047
0.691	0.019	-0.001	-0.021	-0.034	-0.039	-0.032	-0.041
0.730	-0.007	-0.015	-0.016	-0.029	-0.031	-0.039	-0.036
0.750	-0.016	0.002	-0.020	-0.030	-0.034	-0.034	-0.033
0.769	-0.016	-0.021	-0.028	-0.031	-0.031	-0.031	-0.036
0.789	-0.018	-0.019	-0.024	-0.028	-0.037	-0.033	-0.034
0.808	-0.023	-0.024	-0.032	-0.032	-0.034	-0.028	-0.036
0.828	-0.032	-0.068	-0.032	-0.033	-0.031	-0.035	-0.031

Table 4.7 (continued)

TABULATED DATA

Case No.4 : Mach number 0.40 Angle of incidence 2.0°

Lower surface

Pressures on the wing and at the wing/body junction

η	0.167*	0.250	0.400	0.600	0.750	0.850	0.925
CN=	0.138	0.162	0.172	0.186	0.191	0.183	0.165
CM=	-0.043	-0.042	-0.042	-0.046	-0.047	-0.041	-0.034
X/C	CP	CP	CP	CP	CP	CP	CP
0.000		0.500	0.474	0.460	0.466	0.450	0.520
0.005		0.517	0.525				
0.010	0.332	0.382	0.377	0.415	0.433	0.419	0.414
0.025	0.287	0.181	0.169	0.202	0.221	0.209	0.197
0.050	0.201	0.054	0.043	0.062	0.072	0.068	0.053
0.075	0.129	-0.003	-0.028	-0.011	0.011	-0.007	-0.005
0.100	0.086	-0.030	-0.059	-0.047	-0.036	-0.041	-0.047
0.150	0.012	*****	*****	*****	*****	*****	*****
0.200	-0.024	-0.109	-0.141	-0.132	-0.142	-0.121	-0.142
0.300	-0.096	-0.157	-0.179	-0.169	-0.169	-0.168	-0.167
0.400	-0.119	-0.139	-0.154	-0.146	-0.155	-0.144	-0.154
0.500	-0.108	-0.117	-0.119	-0.113	-0.111	-0.111	-0.121
0.600	-0.091	-0.085	-0.086	-0.076	-0.079	-0.072	*****
0.700	-0.067	-0.050	-0.046	-0.040	-0.038	*****	-0.041
0.800	-0.040	-0.018	-0.009	-0.003	-0.008	-0.003	-0.002
0.900	-0.016	0.018	0.031	*****	0.033	0.035	0.039
0.950		0.045	0.062	0.065	0.060	0.059	0.060
0.975		0.070	0.080				

* Nominal value for body/wing junction
NB Pressure measured on body, see Table 4.2

Pressures on the body

Φ DEG	0*	-15	-30	-45	-60	-75	-90
X/L	CP	CP	CP	CP	CP	CP	CP
0.268	-0.129	-0.126	-0.125	-0.119	-0.116	-0.115	-0.115
0.307	-0.093	-0.089	-0.088	-0.076	-0.084	-0.079	-0.079
0.366	-0.043	-0.043	-0.037	-0.040	-0.033	-0.032	-0.036
0.385	-0.035	-0.030	-0.029	-0.029	-0.026	-0.024	-0.023
0.405	-0.026	-0.019	-0.017	-0.017	-0.020	-0.018	-0.018
0.424	-0.008	-0.004	-0.002	-0.005	-0.009	-0.010	-0.011
0.444	0.004	0.007	0.006	-0.002	-0.007	-0.012	-0.013
0.463	0.058	0.056	0.025	0.009	-0.000	-0.010	-0.005
0.482	0.271	0.124	0.043	0.015	0.001	-0.003	-0.006
0.492	0.201	0.117	0.040	0.014	-0.001	-0.003	-0.007
0.501	0.086	0.069	0.029	0.009	0.001	-0.006	-0.007
0.510	0.011	0.022	0.014	0.004	-0.002	-0.009	-0.006
0.518	-0.025	-0.017	-0.005	-0.004	-0.004	-0.009	-0.008
0.527	-0.072	-0.049	-0.021	-0.011	-0.009	-0.020	-0.011
0.571	-0.108	-0.081	-0.057	-0.031	-0.025	-0.021	-0.018
0.588	-0.092	-0.074	-0.050	-0.025	-0.020	-0.020	-0.021
0.606	-0.068	-0.055	-0.040	-0.030	-0.024	-0.016	-0.018
0.623	-0.041	-0.037	-0.032	-0.022	-0.021	-0.013	-0.011
0.641	-0.017	-0.013	-0.019	-0.019	-0.017	-0.015	-0.013
0.660	0.071	0.010	-0.007	-0.010	-0.014	-0.014	-0.005
0.671	0.040	0.012	-0.003	-0.008	-0.012	-0.015	-0.012
0.691	0.019	0.006	0.005	-0.008	-0.010	-0.011	-0.010
0.730	-0.005	-0.007	-0.003	-0.011	-0.009	-0.011	-0.013
0.750	-0.015	-0.011	-0.014	-0.024	-0.016	-0.018	-0.016
0.769	-0.014	-0.015	-0.020	-0.014	-0.017	-0.018	-0.020
0.789	-0.019	-0.016	-0.021	-0.017	-0.019	-0.022	-0.028
0.808	-0.022	-0.026	-0.026	-0.026	-0.023	-0.018	-0.022
0.828	-0.026	-0.008	-0.024	-0.020	-0.015	-0.035	-0.019

Table 4.8

TABULATED DATA

Case No.5 : Mach number 0.80 Angle of incidence 2.0°

Upper surface

Pressures on the wing and at the wing/body junction

η	0.167*	0.250	0.400	0.600	0.750	0.850	0.925
CN=	0.177	0.184	0.206	0.224	0.229	0.230	0.201
CM=	-0.062	-0.051	-0.052	-0.052	-0.051	-0.047	-0.032
X/C	CP	CP	CP	CP	CP	CP	CP
0.000		0.662	0.578	0.573	0.565	0.513	0.520
0.005		-0.093	-0.256				
0.010	0.171	-0.244	-0.400	-0.472	-0.476	-0.519	-0.541
0.025	0.076	-0.386	-0.499	-0.624	-0.619	-0.663	-0.707
0.050	-0.044	-0.406	-0.555	-0.645	-0.681	-0.705	-0.753
0.075	-0.125	-0.416	-0.557	-0.644	-0.638	-0.690	-0.705
0.100	-0.170	-0.407	-0.536	-0.624	-0.616	-0.670	-0.675
0.150	*****	*****	*****	*****	*****	*****	*****
0.200	-0.271	-0.426	-0.518	-0.592	-0.603	-0.624	-0.652
0.300	-0.350	-0.444	-0.514	-0.519	-0.524	-0.520	-0.466
0.400	-0.355	-0.379	-0.407	-0.399	-0.406	-0.371	-0.323
0.500	-0.313	-0.302	-0.299	-0.282	-0.275	-0.254	-0.212
0.600	-0.254	-0.220	-0.204	-0.182	-0.177	-0.148	-0.113
0.700	-0.193	-0.144	-0.116	-0.098	-0.090	-0.071	-0.045
0.800	-0.119	-0.068	-0.034	-0.022	-0.020	0.002	0.014
0.900	-0.048	0.010	0.038	0.083	0.056	0.064	0.073
0.950		0.058	0.085	0.083	0.094	0.105	0.103
0.975		0.092	0.109				

* Nominal value for body/wing junction
NB Pressure measured on body, see Table 4.2

Pressures on the body

φ DEG	0*	15	30	45	60	75	90
X'/L	CP	CP	CP	CP	CP	CP	CP
0.268	-0.146	-0.154	-0.153	-0.151	-0.151	-0.154	-0.157
0.307	-0.098	-0.101	-0.102	-0.096	-0.100	-0.099	-0.100
0.366	-0.031	-0.032	-0.031	-0.029	-0.036	-0.031	-0.035
0.385	-0.018	-0.018	-0.024	-0.025	-0.025	-0.025	-0.024
0.405	-0.006	-0.008	-0.011	-0.013	-0.017	-0.017	-0.018
0.424	0.051	0.007	-0.001	-0.007	-0.013	-0.014	-0.015
0.444	0.034	0.023	0.010	-0.007	-0.012	-0.019	-0.017
0.463	0.102	0.063	0.019	-0.002	-0.017	-0.023	-0.021
0.482	0.321	0.070	-0.001	-0.024	-0.032	-0.034	-0.040
0.492	-0.044	-0.024	-0.038	-0.044	-0.045	-0.046	-0.046
0.501	-0.170	-0.116	-0.083	-0.065	-0.057	-0.067	-0.056
0.510	-0.248	-0.181	-0.121	-0.089	-0.075	-0.079	-0.063
0.518	-0.271	-0.210	-0.162	-0.113	-0.088	-0.089	-0.076
0.527	-0.318	-0.262	-0.192	-0.130	-0.104	-0.101	-0.087
0.536	-0.350	-0.282	-0.213	-0.150	-0.116	-0.114	-0.095
0.553	-0.356	-0.300	-0.232	-0.165	-0.133	-0.121	-0.109
0.571	-0.313	-0.273	-0.226	-0.169	-0.140	-0.115	-0.113
0.588	-0.254	-0.232	-0.190	-0.148	-0.131	-0.100	-0.112
0.606	-0.193	-0.175	-0.156	-0.131	-0.113	-0.085	-0.097
0.623	-0.120	-0.120	-0.112	-0.100	-0.092	-0.064	-0.080
0.641	-0.048	-0.055	-0.070	-0.070	-0.068	-0.052	-0.066
0.660	0.094	0.010	-0.025	-0.039	-0.046	-0.039	-0.045
0.671	0.071	0.026	-0.008	-0.027	-0.034	-0.029	-0.039
0.691	0.049	0.020	0.004	-0.014	-0.021	-0.010	-0.027
0.730	0.022	0.012	0.004	-0.004	-0.015	-0.012	-0.016
0.750	0.010	0.007	0.034	-0.010	-0.006	-0.011	-0.011
0.769	0.006	0.002	-0.005	-0.006	-0.008	-0.009	-0.013
0.789	0.008	-0.002	-0.003	-0.007	-0.003	-0.014	-0.012
0.808	-0.001	0.003	-0.009	-0.008	-0.010	-0.015	-0.015
0.828	-0.004	-0.076	-0.013	-0.011	-0.010	-0.011	-0.012

Table 4.8 (continued)

TABULATED DATA

Case No.5 : Mach number 0.80 Angle of incidence 2.0°

Lower surface

Pressures on the wing and at the wing/body junction

η	0.167*	0.250	0.400	0.600	0.750	0.850	0.925
CN=	0.177	0.184	0.206	0.224	0.229	0.230	0.201
CM=	-0.062	-0.051	-0.052	-0.052	-0.051	-0.047	-0.032
X/C	CP	CP	CP	CP	CP	CP	CP
0.000		0.647	0.582	0.572	0.568	0.541	0.596
0.005		0.548	0.549				
0.010	0.389	0.414	0.400	0.426	0.466	0.452	0.450
0.025	0.358	0.209	0.208	0.208	0.250	0.241	0.234
0.050	0.280	0.071	0.052	0.061	0.086	0.089	0.072
0.075	0.204	0.009	-0.028	-0.023	0.017	-0.003	0.001
0.100	0.150	-0.025	-0.066	-0.070	-0.042	-0.044	-0.050
0.150	*****	*****	*****	*****	*****	*****	*****
0.200	0.005	-0.125	-0.173	-0.174	-0.178	-0.147	-0.190
0.300	-0.098	-0.198	-0.225	-0.230	-0.217	-0.212	-0.235
0.400	-0.132	-0.184	-0.198	-0.190	-0.194	-0.185	-0.213
0.500	-0.133	-0.153	-0.150	-0.145	-0.137	-0.137	-0.152
0.600	-0.112	-0.110	-0.103	-0.088	-0.091	-0.082	-0.084
0.700	-0.086	-0.066	-0.047	-0.037	-0.037	-0.033	-0.034
0.800	-0.044	-0.020	0.006	0.013	0.008	0.015	0.014
0.900	-0.005	0.031	0.056	0.078	0.062	0.065	0.067
0.950		0.067	0.090	0.102	0.092	0.103	0.097
0.975		0.092	0.111				

* Nominal value for body/wing junction
NB Pressure measured on body, see Table 4.2

Pressures on the body

φ DEG	0*	-15	-30	-45	-60	-75	-90
X'/L	CP	CP	CP	CP	CP	CP	CP
0.268	-0.145	-0.149	-0.144	-0.142	-0.126	-0.138	-0.136
0.307	-0.097	-0.098	-0.095	-0.088	-0.092	-0.090	-0.089
0.366	-0.029	-0.026	-0.025	-0.043	-0.026	-0.022	-0.023
0.385	-0.018	-0.013	-0.015	-0.012	-0.013	-0.011	-0.010
0.405	-0.004	-0.002	-0.000	-0.001	-0.001	-0.002	-0.001
0.424	0.070	0.017	0.015	0.016	0.011	0.012	0.009
0.444	0.035	0.036	0.031	0.024	0.021	0.013	0.015
0.463	0.107	0.097	0.067	0.046	0.029	0.024	0.021
0.482	0.332	0.189	0.098	0.056	0.039	0.026	0.023
0.492	0.280	0.177	0.097	0.057	0.034	0.025	0.021
0.501	0.150	0.117	0.079	0.051	0.031	0.017	0.018
0.510	0.056	0.056	0.054	0.037	0.025	0.012	0.019
0.518	0.006	0.003	0.027	0.024	0.016	0.007	0.010
0.527	-0.055	-0.037	-0.002	0.007	0.006	-0.001	0.005
0.536	-0.098	-0.064	-0.026	-0.007	-0.002	-0.011	-0.000
0.553	-0.132	-0.102	-0.056	-0.030	-0.018	-0.021	-0.011
0.571	-0.133	-0.106	-0.071	-0.044	-0.029	-0.023	-0.018
0.588	-0.111	-0.094	-0.070	-0.041	-0.031	-0.020	-0.022
0.606	-0.086	-0.071	-0.057	-0.038	-0.030	-0.016	-0.020
0.623	-0.044	-0.041	-0.040	-0.027	-0.024	-0.010	-0.017
0.641	-0.005	-0.006	-0.017	-0.011	-0.014	-0.005	-0.012
0.660	0.099	0.033	0.008	0.004	-0.003	-0.001	-0.001
0.671	0.074	0.038	0.017	0.009	0.002	0.002	-0.000
0.691	0.050	0.033	0.023	0.013	0.006	0.011	0.003
0.730	0.019	0.017	0.018	0.012	0.007	-0.000	0.005
0.750	0.010	0.012	-0.009	0.005	0.007	0.004	0.005
0.769	0.009	0.006	0.004	0.005	0.003	0.006	0.003
0.789	0.009	0.007	0.006	0.009	-0.000	0.001	0.007
0.808	0.001	0.018	0.001	0.002	0.002	-0.004	-0.000
0.828	-0.009	0.010	-0.004	-0.005	-0.003	-0.011	-0.003

Table 4.9

TABULATED DATA

Case No.6 : Mach number 0.90 Angle of incidence 1.0°

Upper surface

Pressures on the wing and at the wing/body junction

η	0.167*	0.250	0.400	0.600	0.750	0.850	0.925
CN=	0.127	0.139	0.149	0.174	0.185	0.178	0.150
CM=	-0.055	-0.050	-0.047	-0.047	-0.045	-0.037	-0.024
X/C	CP	CP	CP	CP	CP	CP	CP
0.000		0.751	0.688	0.680	0.674	0.634	0.653
0.005		0.184	0.089				
0.010	0.289	0.027	-0.063	-0.104	-0.127	-0.153	-0.143
0.025	0.219	-0.146	-0.216	-0.304	-0.327	-0.355	-0.374
0.050	0.116	-0.215	-0.327	-0.397	-0.458	-0.460	-0.497
0.075	0.036	-0.253	-0.370	-0.443	-0.471	-0.494	-0.507
0.100	-0.018	-0.261	-0.373	-0.456	-0.464	-0.514	-0.509
0.150	*****	*****	*****	*****	*****	*****	*****
0.200	-0.152	-0.331	-0.452	-0.614	-0.700	-0.684	-0.700
0.300	-0.264	-0.419	-0.555	-0.655	-0.728	-0.769	-0.788
0.400	-0.328	-0.421	-0.575	-0.753	-0.836	-0.717	-0.607
0.500	-0.358	-0.404	-0.540	-0.310	-0.244	-0.191	-0.167
0.600	-0.353	-0.381	-0.219	-0.126	-0.114	-0.079	-0.027
0.700	-0.307	-0.197	-0.090	-0.045	-0.036	-0.003	0.032
0.800	-0.158	-0.075	-0.001	0.021	0.027	0.054	0.076
0.900	-0.052	0.020	0.071	*****	0.094	0.107	0.122
0.950		0.081	0.113	0.118	0.128	0.137	0.158
0.975		0.113	0.134				

* Nominal value for body/wing junction
NB Pressure measured on body, see Table 4.2

Pressures on the body

φ DEG	0*	15	30	45	60	75	90
X/L	CP	CP	CP	CP	CP	CP	CP
0.268	-0.167	-0.171	-0.166	-0.175	-0.133	-0.166	-0.166
0.307	-0.096	-0.099	-0.097	-0.096	-0.096	-0.159	-0.095
0.366	0.043	*****	*****	-0.015	*****	*****	*****
0.385	-0.003	0.053	-0.005	*****	-0.008	-0.008	-0.005
0.405	0.012	0.010	0.012	0.008	0.004	0.002	0.003
0.424	0.213	0.031	0.026	0.025	0.014	0.015	0.012
0.444	*****	*****	0.042	*****	0.030	*****	*****
0.463	0.138	0.107	0.070	0.045	0.027	0.019	0.017
0.482	0.355	0.148	0.075	0.036	0.020	0.011	-0.002
0.492	0.116	0.079	0.048	0.018	0.008	0.001	-0.002
0.501	-0.018	0.051	0.008	-0.003	-0.007	-0.027	-0.015
0.510	-0.113	-0.080	-0.035	-0.029	-0.025	-0.044	-0.022
0.518	-0.152	-0.136	-0.091	-0.059	-0.045	-0.060	-0.042
0.527	-0.212	-0.180	-0.119	-0.092	-0.067	-0.024	-0.060
0.536	-0.264	-0.217	-0.155	-0.116	-0.090	-0.118	-0.076
0.553	-0.326	-0.289	-0.213	-0.165	-0.135	-0.156	-0.113
0.571	-0.357	-0.319	-0.259	-0.213	-0.176	-0.176	-0.148
0.588	-0.353	-0.340	-0.284	-0.226	-0.196	-0.165	-0.167
0.606	-0.307	-0.292	-0.261	-0.216	-0.130	-0.125	-0.159
0.623	-0.158	-0.163	-0.163	-0.145	-0.136	-0.081	-0.117
0.641	-0.051	-0.062	-0.079	-0.081	-0.083	-0.046	-0.084
0.660	0.105	0.023	-0.013	-0.030	-0.040	-0.029	-0.040
0.671	0.148	*****	0.009	-0.010	-0.023	-0.014	-0.030
0.691	0.070	-0.028	0.027	0.006	-0.005	0.020	-0.011
0.730	*****	0.032	-0.026	0.016	-6.225	-0.027	*****
0.750	*****	*****	-0.028	-0.029	*****	*****	2.253
0.769	0.020	*****	*****	*****	0.050	0.009	*****
0.789	0.025	0.014	0.013	0.014	0.009	0.004	0.004
0.808	0.014	0.014	0.011	0.003	0.010	-0.002	0.003
0.828	0.011	-0.042	0.004	0.005	0.008	0.005	0.006

Table 4.9 (continued)

TABULATED DATA

Case No.6 : Mach number 0.90 Angle of incidence 1.0°

Lower surface

Pressures on the wing and at the wing/body junction

η	0.167*	0.250	0.400	0.600	0.750	0.850	0.925
CN=	0.127	0.139	0.149	0.174	0.185	0.178	0.150
CM=	-0.055	-0.050	-0.047	-0.047	-0.045	-0.037	-0.024
X/C	CP	CP	CP	CP	CP	CP	CP
0.000		0.742	0.693	0.678	0.686	0.654	0.686
0.005		0.499	0.450				
0.010	0.394	0.355	0.291	0.296	0.306	0.313	0.291
0.025	0.357	0.157	0.105	0.077	0.088	0.096	0.092
0.050	0.279	0.037	-0.042	-0.060	-0.066	-0.045	-0.058
0.075	0.198	-0.026	-0.115	-0.140	-0.123	-0.119	-0.117
0.100	0.146	-0.061	-0.148	-0.183	-0.182	-0.165	-0.163
0.150	*****	*****	*****	*****	*****	*****	*****
0.200	-0.009	-0.161	-0.263	-0.289	-0.327	-0.273	-0.321
0.300	-0.127	-0.262	-0.351	-0.358	-0.355	-0.342	-0.371
0.400	-0.188	-0.266	-0.321	-0.273	-0.285	-0.267	-0.361
0.500	-0.205	-0.215	-0.223	-0.191	-0.193	-0.194	-0.180
0.600	-0.183	-0.170	-0.136	-0.110	-0.116	-0.113	-0.063
0.700	-0.140	-0.102	-0.061	-0.039	-0.040	-0.034	-0.003
0.800	-0.075	-0.035	0.010	0.024	0.019	0.033	0.053
0.900	-0.020	0.035	0.073	*****	0.087	0.094	0.110
0.950		0.081	0.115	0.127	0.122	0.144	0.138
0.975		0.110	0.137				

* Nominal value for body/wing junction
NB Pressure measured on body, see Table 4.2

Pressures on the body

φ DEG	0*	-15	-30	-45	-60	-75	-90
X/L	CP	CP	CP	CP	CP	CP	CP
0.268	-0.163	-0.165	-0.163	-0.162	-0.141	-0.161	-0.161
0.307	-0.096	-0.098	-0.097	-0.093	-0.096	-0.121	-0.094
0.366	-0.012	-0.015	-0.011	-0.014	-0.013	-0.017	-0.016
0.385	-0.003	0.002	-0.001	-0.001	-0.001	-0.000	0.001
0.405	0.016	0.014	0.015	0.014	0.012	0.011	0.011
0.424	0.167	0.036	0.034	0.032	0.026	0.026	0.023
0.444	0.061	0.056	0.054	0.042	0.044	0.031	0.033
0.463	0.140	0.124	0.091	0.068	0.051	0.042	0.039
0.482	0.366	0.205	0.122	0.076	0.056	0.044	0.038
0.492	0.279	0.180	0.117	0.072	0.053	0.040	0.037
0.501	0.146	0.112	0.090	0.061	0.046	0.025	0.031
0.510	0.043	0.045	0.059	0.042	0.034	0.014	0.027
0.518	-0.009	-0.014	0.026	0.021	0.021	0.003	0.014
0.527	-0.074	-0.058	-0.014	-0.009	0.004	-0.010	0.004
0.536	-0.126	-0.096	-0.046	-0.026	-0.011	-0.035	-0.008
0.553	-0.187	-0.158	-0.097	-0.065	-0.043	-0.056	-0.032
0.571	-0.204	-0.181	-0.125	-0.094	-0.067	-0.063	-0.050
0.588	-0.182	-0.164	-0.128	-0.096	-0.074	-0.057	-0.063
0.606	-0.140	-0.128	-0.105	-0.086	-0.068	-0.045	-0.054
0.623	-0.075	-0.078	-0.071	-0.060	-0.052	-0.026	-0.042
0.641	-0.020	-0.021	-0.031	-0.030	-0.029	-0.008	-0.027
0.660	0.107	0.039	0.011	0.002	-0.005	-0.000	-0.006
0.671	0.093	0.053	0.027	0.013	0.007	0.010	-0.000
0.691	0.072	0.052	0.042	0.024	0.017	0.023	0.011
0.730	0.041	0.037	0.031	0.028	0.022	-0.006	0.018
0.750	0.029	0.030	0.027	0.021	0.023	0.018	0.018
0.769	0.025	0.023	0.021	0.020	0.019	0.016	0.017
0.789	0.024	0.020	0.019	0.019	0.016	0.011	0.014
0.808	0.016	0.014	0.016	0.011	0.015	0.014	0.012
0.828	0.014	0.014	0.011	0.010	0.012	0.005	0.012

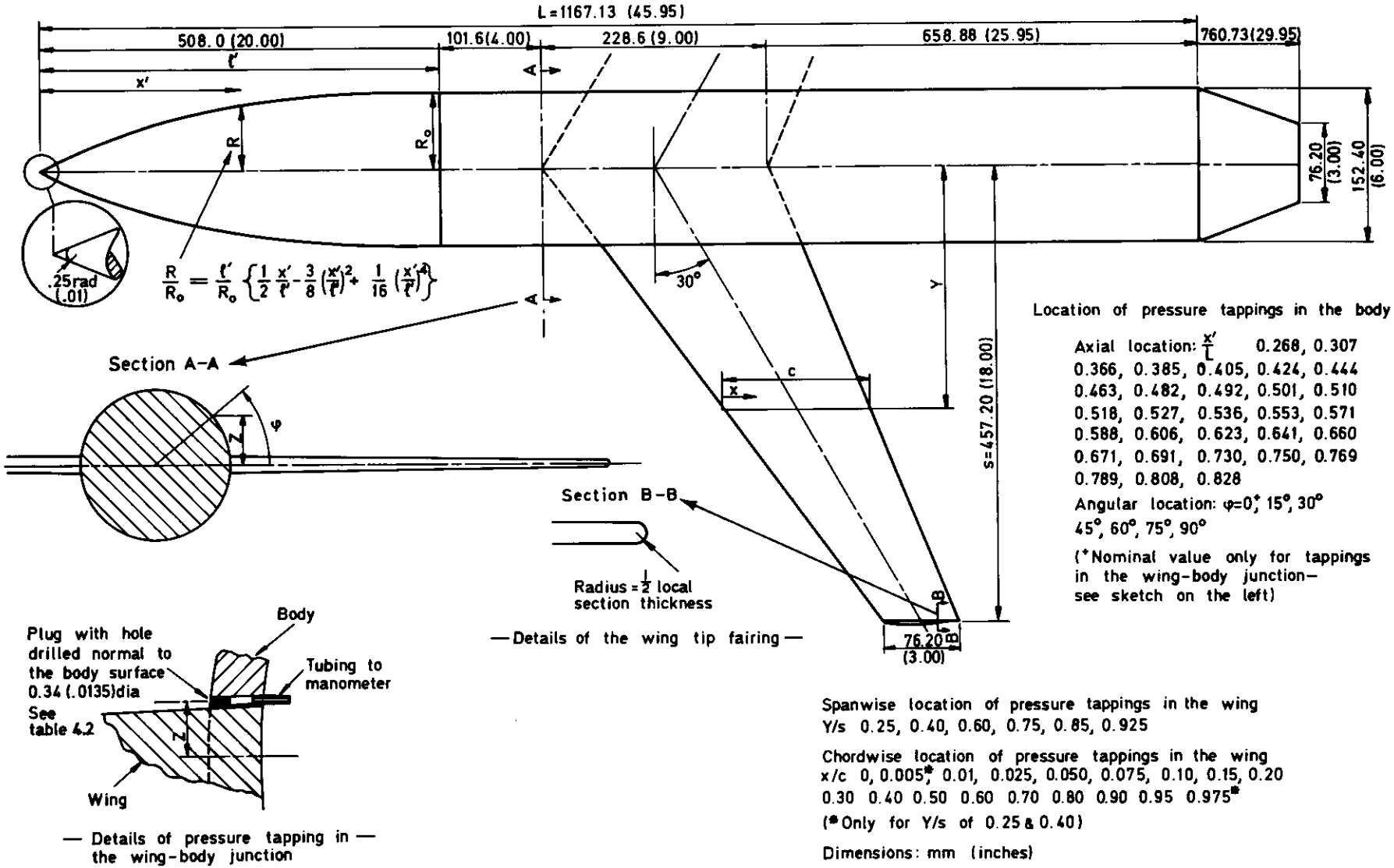


Fig 4.1 Sketch of wing A mounted on body B_2 : Configuration $W_A B_2 (0) 0$

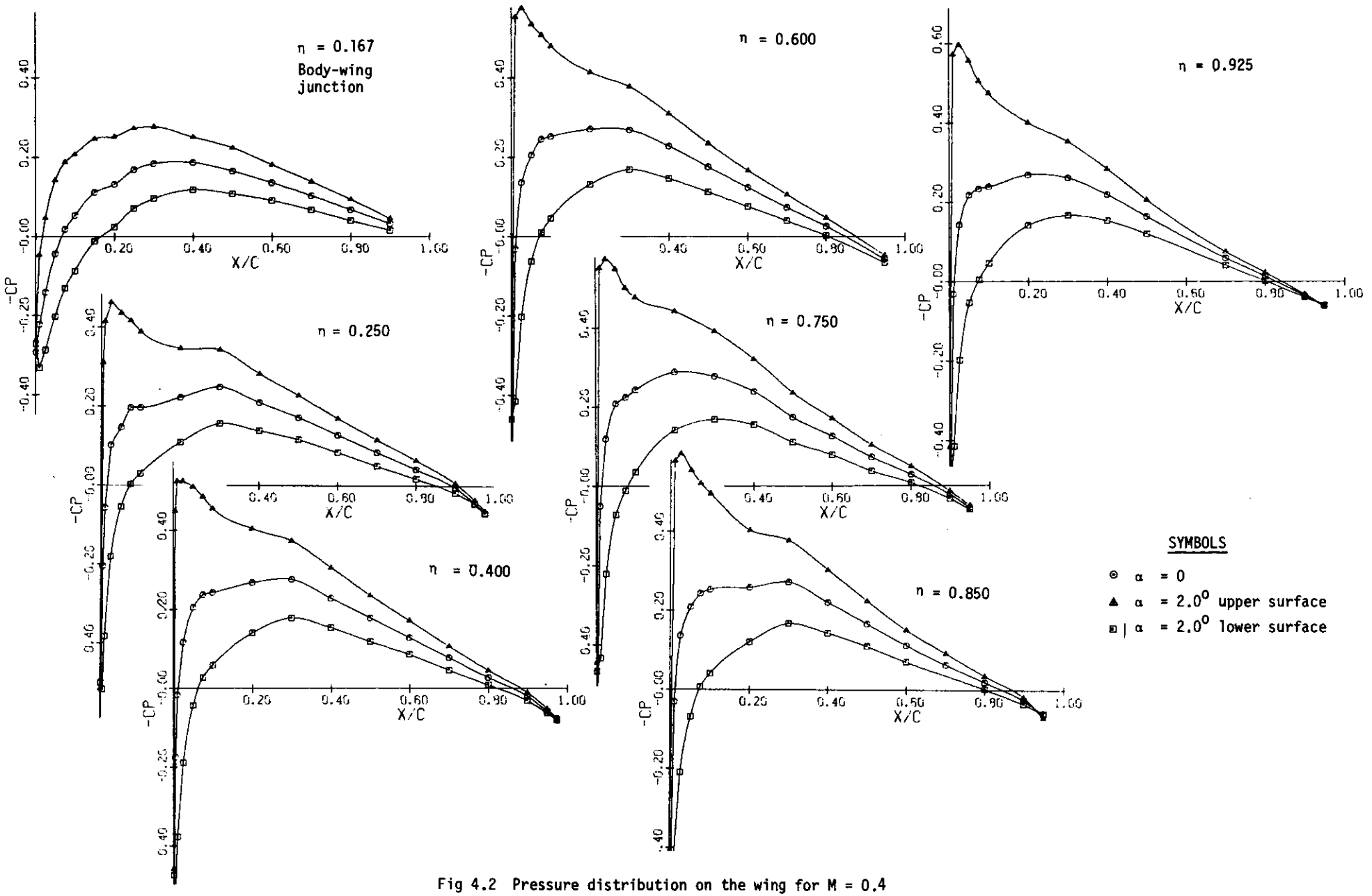


Fig 4.2 Pressure distribution on the wing for M = 0.4

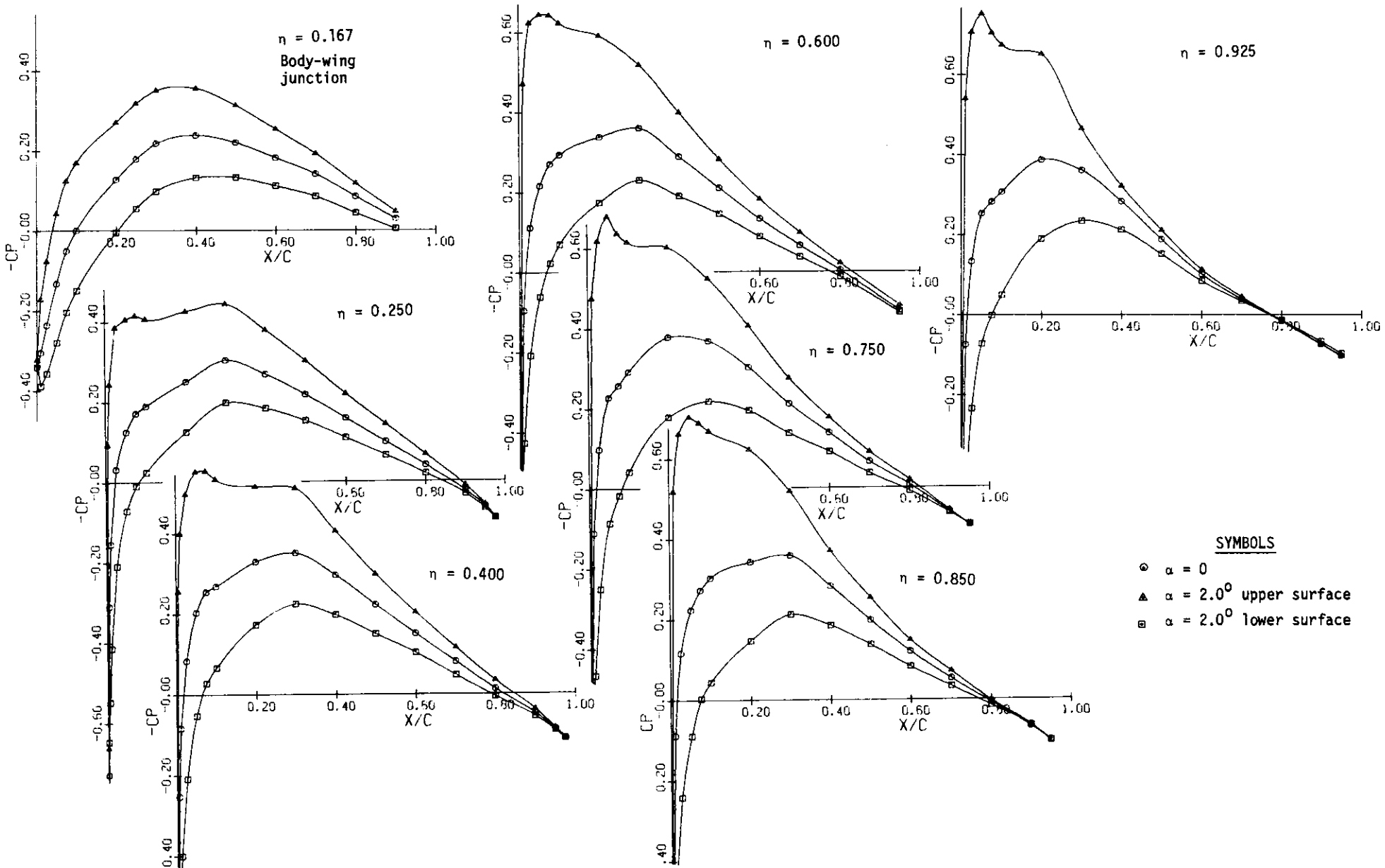


Fig 4.3 Pressure distribution on the wing for M = 0.8

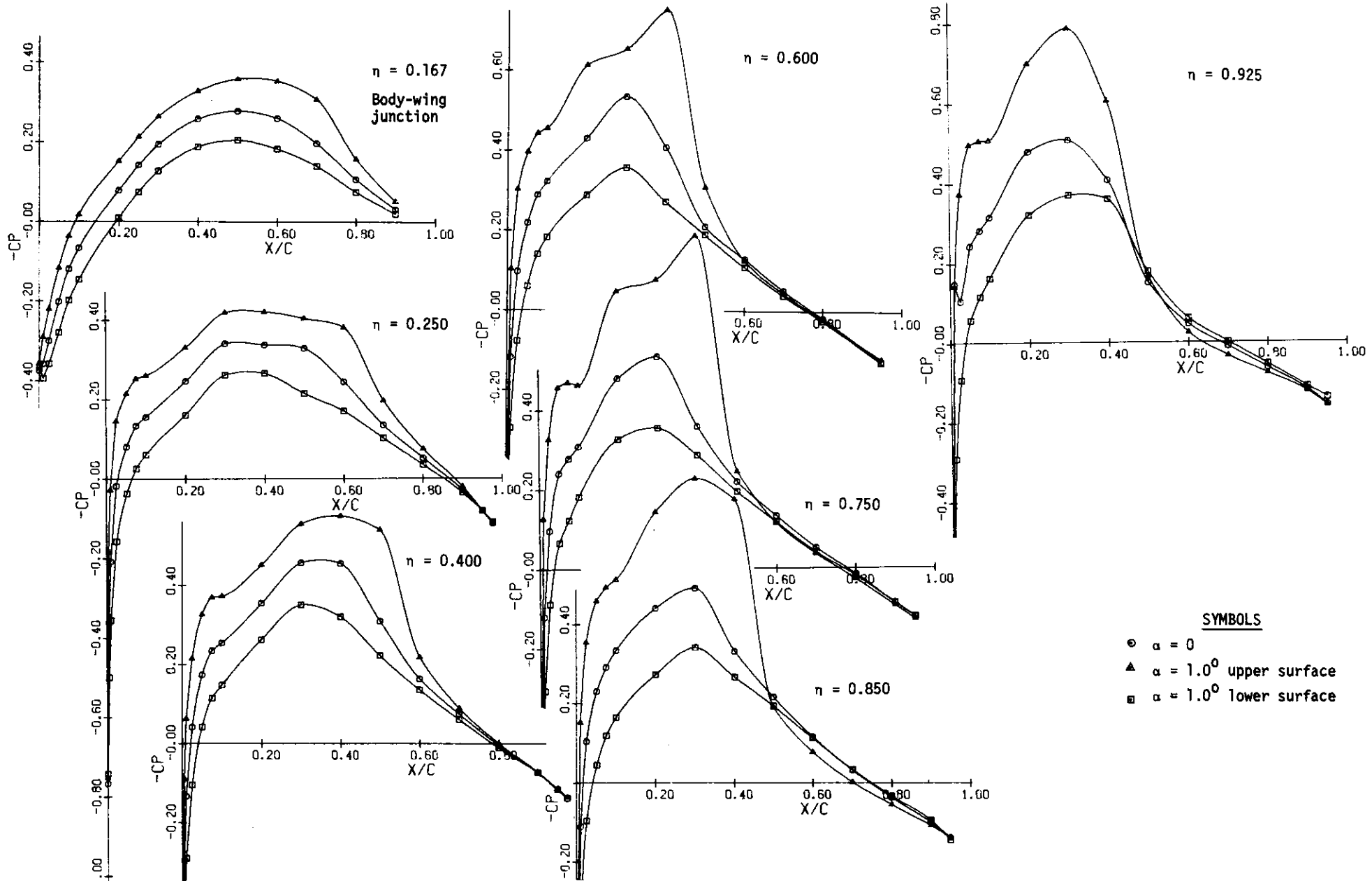


Fig 4.4 Pressure distribution on the wing for M = 0.9

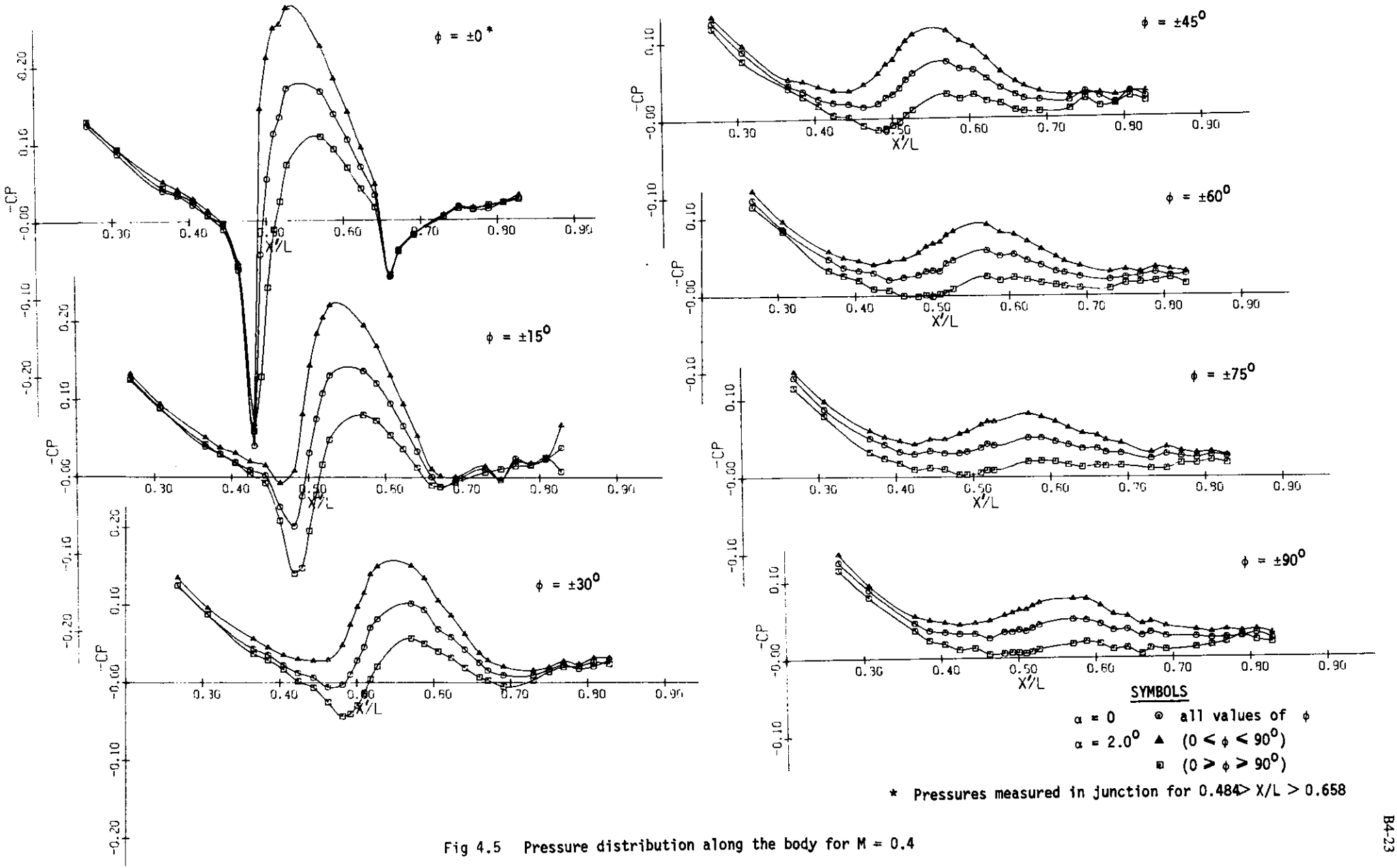


Fig 4.5 Pressure distribution along the body for M = 0.4

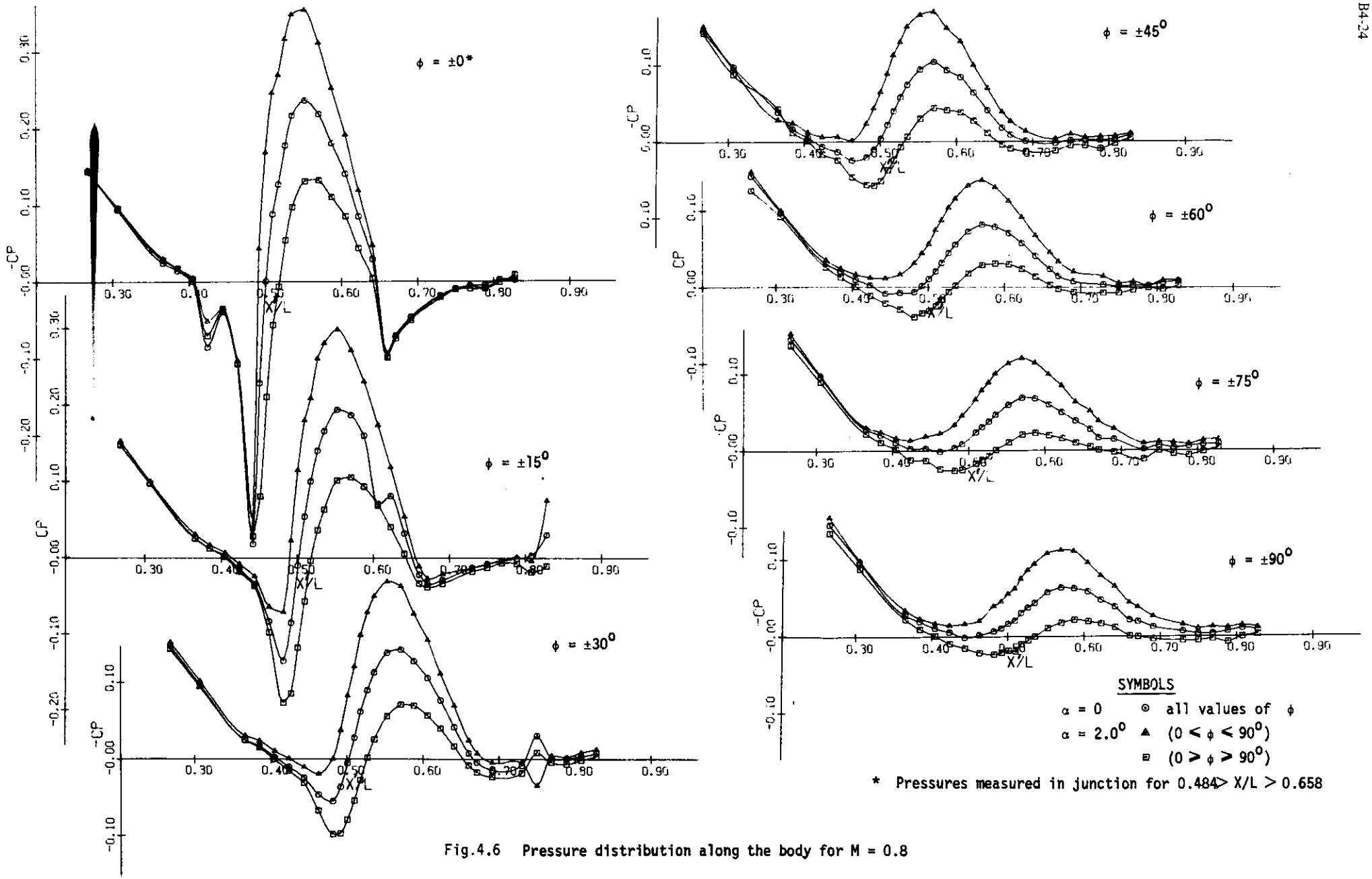
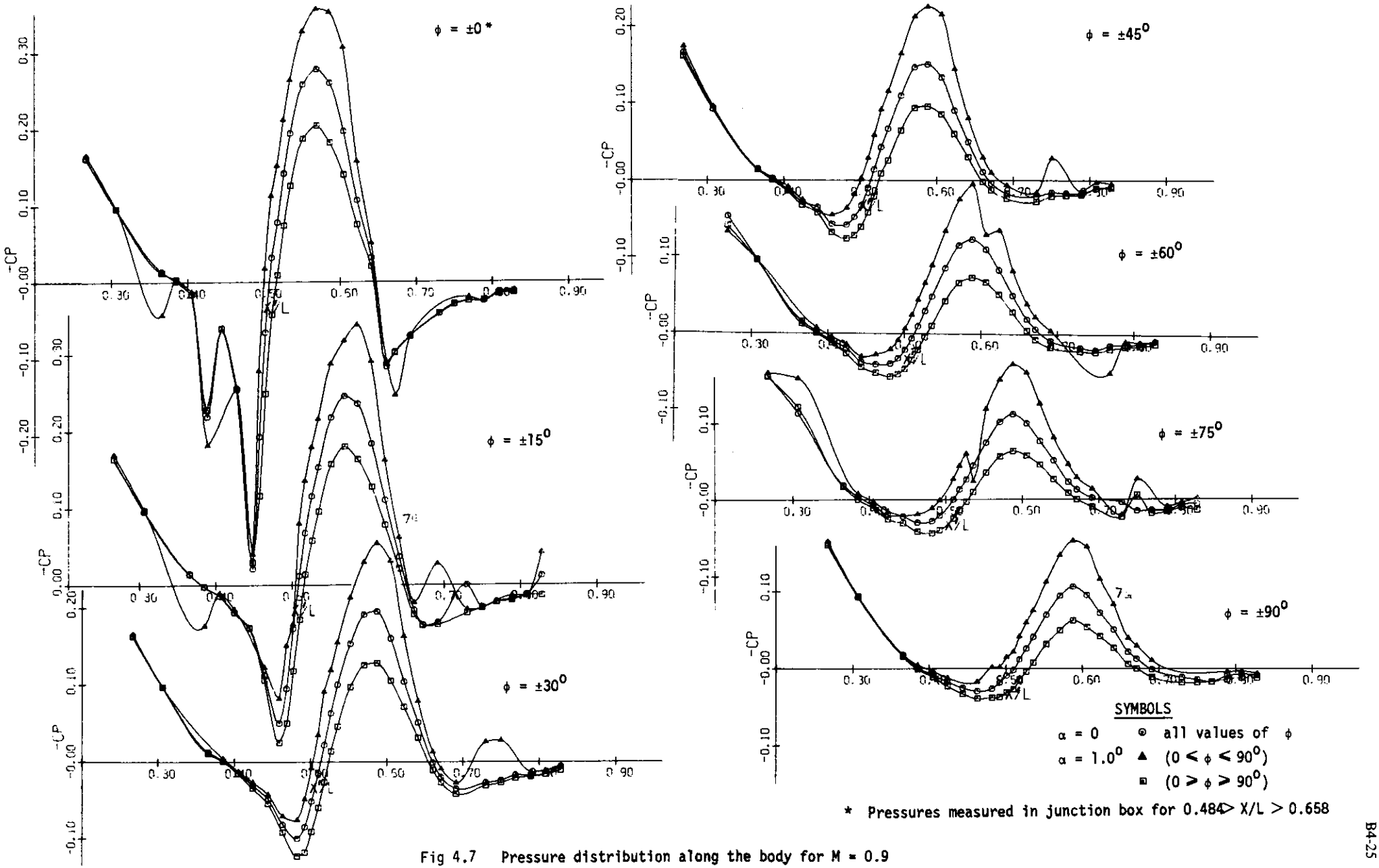


Fig.4.6 Pressure distribution along the body for M = 0.8



* Pressures measured in junction box for 0.484 > X/L > 0.658

Fig 4.7 Pressure distribution along the body for M = 0.9

5. PRESSURE DISTRIBUTIONS MEASURED ON AN NASA SUPERCRITICAL-WING RESEARCH AIRPLANE MODEL

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5.1 INTRODUCTION

The data presented in this contribution were obtained in the NASA Langley 8-Foot Transonic Pressure Tunnel on a supercritical-wing research airplane to provide a smooth area distribution and consequently a high drag-rise Mach number. Measurements were made with and without area-rule additions; only data for the former are included in this compilation. Tabulated data is given for 5 Mach numbers ranging from 0.50 to 0.99 and for four or five angles of attack at each Mach number.

5.2 DATA SET

1. General Description

1.1	Model Designation or Name	TF-8A Supercritical Wing Research Airplane Model
1.2	Model Type (e.g., Full Span Wing-Body, Semi-Span Wing)	Full span wing-body-tail
1.3	Design Requirements/ Conditions	Basic model: $M = 1.00$, $C_L = 0.4$, $\left.\frac{\partial C_D}{\partial M}\right\|_{M \sim 1} = 0.1$
1.4	Additional Remarks	Investigation includes measurements with and without area rule additions to sides of fuselage. Only data with area rule additions are included in the present compilation.

2. Model Geometry

2.1 Wing Data

2.1.1	Wing Planform	See figure 5.1.
2.1.2	Aspect Ratio	6.8 for basic wing (dashed line) - excludes L.E. glove, T. E. extension, and tip rounding.
2.1.3	Leading-Edge Sweep	44.34° } quarter chord 42.24°
2.1.4	Trailing-Edge Sweep	35.10° } quarter chord 42.24°
2.1.5	Taper Ratio	0.36
2.1.6	Twist	$\sim 5^\circ$ root to tip, unloaded. (Included in ordinates of Table I.)
2.1.7	Mean Aerodynamic Chord	0.1809 m (for basic wing planform)
2.1.8	Span or Semispan	0.5715 m semispan
2.1.9	Number of Airfoil Sections Used to Define Wing	17
2.1.10	Spanwise Location of Reference Section and Section Coordinates (Note if Ordinates are Design or Actual Measured Values)	See Table I. Values given are actual measured values.
2.1.11	Lofting Procedure Between Reference Sections	Unknown.
2.1.12	Form of Wing-Body Fillet, Strakes	See figure 5.2.
2.1.13	Form of Wing Tip	See figure 5.2.

2.2	Body Data (Detail Description of Body Geometry)	See figures 5.1 and 5.3.
2.3	Wing-Body Combination	
2.3.1	Relative Body Diameter (Average Body Diameter at Wing Location Divided by Wing Span)	~0.12 (irregular body).
2.3.2	Relative Vertical Location of Wing (Height Above or Below Body Axis Divided by Average Body Radius at Wing Location)	~1, high wing.
2.3.3	Wing Setting Angle	1.5^{o} (included in ordinates of Table I).
2.3.4	Dihedral	0°
2.4	Cross Sectional Area Development	See figure 5.4
2.5	Fabrication Tolerances/ Waviness	Waviness not determined. Values given in Table I are actual measured values.
2.6	Additional Remarks	Additional details of aileron fairings and vortex generators shown in figure 5.1 are given in figure 5.5.

3. Wind Tunnel

3.1	Designation	8-Foot Transonic Pressure Tunnel
3.2	Type of Tunnel	
3.2.1	Continuous or Blowdown. Indicate Minimum Run Time if Applicable	Continuous
3.2.2	Stagnation Pressure	Varies from approximately 15 to 68 k N/m^2 depending on Mach number and Reynolds number
3.2.3	Stagnation Temperature	Generally kept at 322 K.
3.3	Test Section	
3.3.1	Shape of Test Section	Square
3.3.2	Size of Test Section (Width, Height, Length)	2.2 m x 2.2 m x 4.3 m
3.3.3	Type of Test Section Closed, Open, Slotted, Perforated Open Area Ratio (Give Range if Variable) Slot/Hole Geometry (e.g., 30-Degree Slanted Holes)	Slotted top and bottom, solid sides. Slotted walls approximately 6% open. Four identical slots of longitudinally varying width in top and bottom walls. See figure 5.6 and 5.7.
	Treatment of Sidewall Boundary Layer	Nothing done to sidewall boundary layer.
	Full span models Half-model testing	Tunnel has capability for full and half span model testing

3.4	Flow Field (Empty Test Section)	
3.4.1	Reference Static Pressure	Plenum chamber.
3.4.2	Flow Angularity	Generally less than 0.1° but may go as high as 0.25° near slots.
3.4.3	Mach Number Distribution	ΔM ± 0.002
3.4.4	Pressure Gradient	
3.4.5	Turbulence/Noise Level	Lateral fluctuating velocity components $\tilde{v}/U_\infty$ and $\tilde{w}/U_\infty$ have not been measured. $\tilde{u}/U_\infty$ varies from 0.002 at M = 0.2 to about 0.02 at high Mach numbers.
3.4.6	Sidewall Boundary Layer	—
3.5	Freestream Mach Number (or Velocity)	
3.5.1	Range	0.2 to 1.3.
3.5.2	Pressures Used to Determine Mach Number (e.g., Settling Chamber Total Pressure and Plenum Chamber Pressure)	Settling chamber total pressure and plenum chamber pressure.
3.5.3	Accuracy of Mach Number Determination (ΔM)	$\Delta M = \pm 0.003$.
3.5.4	Maximum Mach Number Variation in x, y, z - Direction (Empty Tunnel; Specify at What Mach Number)	Streamwise variations of approximately ± 0.002 over the Mach number range.
	Maximum Variation of Flow Direction	
	Maximum Mach Number Variation During a Run	± 0.002.
3.6	Reynolds Number Range	
3.6.1	Unit Reynolds Number Range. (Give Range at Representative Mach Numbers; 1/m)	Generally about 2 million/m to 18 million/m at most Mach numbers.
3.6.2	Means of Varying Reynolds Number (e.g., by Pressurization)	Pressurization
3.7	Temperature Range and Dewpoint. Can Temperature be Controlled?	Most runs made at 322 K stagnation temperature. Temperature and dewpoint both controlled.
3.8	Model Attitudes	
3.8.1	Angle of Attack, Yaw, Roll	$\alpha = -15^{\circ}$ to 25, yaw $\pm 7^{\circ}$, roll 360°
3.8.2	Accuracy in Determining Angles	α $\pm 0.1^{\circ}$ at max lift $\pm 0.05^{\circ}$ near cruise
3.9	Organization Operating the Tunnel and Location of Tunnel	Transonic Aerodynamics Branch of the Subsonic-Transonic Aerodynamics Division, NASA Langley Research Center

3.10	Who is to be Contacted for Additional Information	Head, Transonic Aerodynamics Branch, NASA Langley Research Center
3.11	Literature Concerning this Facility	"A Description of the NASA-Langley 8-Foot Transonic Pressure Tunnel" can be obtained from the above organization.
3.12	Additional Remarks	

4. Tests

4.1	Type of Tests	Surface pressures and force and moment measurements
4.2	Wing Span or Semispan to Tunnel Width	$\frac{\text{wing span}}{\text{Tunnel width}} = .52$
4.3	Test Conditions	
4.3.1	Angle of Attack	Varies approximately -5° to $+12^{\circ}$.
4.3.2	Mach Number	0.25 to 1.0
4.3.3	Dynamic Pressure	See Table II for conditions at which current tests were run.
4.3.4	Reynolds Number	
4.3.5	Stagnation Temperature	322 K (120 F)
4.4	Transition	
4.4.1	Free or Fixed	Fixed.
4.4.2	Position of Free Transition	
4.4.3	Position of Fixed Transition, Width of Strips, Size and Type of Roughness Elements	See figure 5.8 for positions on wing. Strips located at 5% local chord on horizontal and vertical tail, 2.54 cm aft of nose on fuselage. Width of all strips was 0.127 cm. Size and type of roughness elements are given on figure 5.6. Note that No. 100 and 120 carborundum grains average 0.005 in. (0.127 mm) and 0.004 in. (0.102 mm) respectively.
4.4.4	Were Checks Made to Determine if Transition Occurred at Trip Locations?	No.
4.5	Bending or Torsion Under Load	
4.5.1	Describe Any Aero-Elastic Measurements Made During Tests	None.
4.5.2	Describe Results of Any Bench Calibrations	See figure 5.9 for deflections at pressure stations for cruise conditions.
4.6	Were Different Sized Models Used in Wind-Tunnel Investigations? If so, Indicate Sizes.	No. But full-scale vehicle was flight tested. See reference list.
4.7	Areas and Lengths Used to Form Coefficients	All coefficients based on basic wing panel geometry which does <u>not</u> include L. E. glove nor T. E. extension. Moments referenced to 1/4 chord of mean geometric chord (max) of basic wing panel. See figure 5.1. Area: $S = 0.193\ m^2$ MAC: $\bar{c} = 0.1809$ m
4.8	References on Tests	See references 1, 2, and3.
4.9	Related Reports	See references 4 and 5.

5. Instrumentation

5.1 Surface Pressure Measurements

5.1.1	Pressure Orifices in Wing. Location and Number on Upper and Lower Surfaces	See Table III.
5.1.2	Pressure Orifices on Fuselage. Location and Number.	See Table IV. Total of 67 orifices.
5.1.3	Pressure Orifices on *Components, Give* Component and Orifice Location	No.
5.1.4	Geometry of Orifices	Round holes ~0.076 cm I.D.
5.1.5	Type of Pressure Transducer and Scanning Devices Used. Indidate Range and Accuracy	Electronically actuated differential modular scanivalve in model nose. Upper surface: 103.4 kN/m^{2}max; $\pm$1% max. Lower surface: 82.7 kN/m^{2}max; $\pm$1% max. Fuselage: 17.2 kN/m^{2}max; $\pm$1% max.

5.2 Force Measurements

5.2.1	Type and Location of Balance	Internal strain-gage balance.
5.2.2	Forces and Moments that Can be Measured. Maximum Loads and Accuracy	6 component force and moment. Normal force: 11 kN; $\pm$55.6N Axial force: 890 N; $\pm$4.4N Pitching moment: 390 m-N; $\pm$2 m-N
5.2.3	Forces and Moments on Components	None.
	Type and Location of Balance	
	Maximum Loads and Accuracy.	

5.3 Boundary Layer and Flow-Field Measurements

5.3.1	Boundary-Layer Probe Type, Position, and Drive Mechanism	No
5.3.2	Probe Dimension Relative to Boundary-Layer Thickness	
5.3.3	Laser-Doppler Velocimeter. Give Description of Apparatus and Accuracy	No.
5.3.4	Method and/or Instrument Used to Determine Boundary-Layer Transition	
5.3.5	Describe any Downstream Rakes or Probes Used. Reason for Use.	

5.4	Surface Flow Visualization	
5.4.1	Indicate Method Used to Determine	
	- Streamline pattern	Not in present experiments. Photographs of fluorescent oil film given for present configuration in references 4 and 5.
	- Boundary-layer transition	Carborundum transition strips.
5.4.2	Accuracy of Method	
5.5	Skin Friction Measurements	
5.5.1	Type of Instrument	
5.5.2	Geometry and Accuracy of Instrument	
5.5.3	Locations Where Probe Used	
5.6	Simulation of Exhaust Jet	No.
5.6.1	Describe Ducting of Air	There was internal flow through the model which simulated the mass flow ratio of the full-scale airplane.
5.7	Additional Remarks	

6. Data

6.1	Accuracy	
6.1.1	Pressure Coefficients	Variable but < or > 2% of maximum and minimum values, respectively.
6.1.2	Aerodynamic Coefficients	Variable but < or > 2% of maximum and minimum values, respectively.
6.1.3	Boundary Layer and Wake Quantities	
6.1.4	Repeatability	Unknown.
6.1.5	Additional Remarks	
6.2	Wall Interference Corrections	
6.2.1	Solid and Wake Blockage. Give Procedures and Equations	None made. Test section sidewall inserts were added and indented in region of model to account for 40% of model cross-sectional area. (See figure 5.7).
6.2.2	Give Blockage Factors as Functions of Mach Number	An assessment of blockage factors (for fineness ratio 8.2) can perhaps be made from the data contained in: 1. Couch, L. M.; and Brooks, C. W., Jr.: Effect of Blockage Ratio on Drag and Pressure Distributions for Bodies of Revolution at Transonic Speeds. NASA TN D-7331, Nov. 1973. 2. Usry, J. W.; and Wallace, J. W.: Drag of a Supercritical Body of Revolution in Free Flight at Transonic Speeds and Comparison With Wind-Tunnel Data. NASA TN D-6580, 1971.
6.2.3	Downwash, Streamline Curvature and Lift Interference. Give Procedure and Equations.	Measured α corrected for induced upwash using procedure outlined in NASA TR R-241 by R. H. Wright and R. L. Barger.

6.2.4	Give Lift Interference Parameters as Function of Mach Number	
6.2.5	Reference on Wall-Interference Corrections	
6.2.6	Additional Remarks	
6.3	Data Presentation	
6.3.1	Aerodynamic Coefficients	C_L, C_D and C_m for wing body, figure 5.10 for conditions given in Table V. Local CN and CM, Table VI.
6.3.2	Surface Pressure	Wing and body C_p distributions, Tables VI, VII and VIII and figure 5.11.
6.3.3	Flow conditions for	
	- Aerodynamic coefficient data	C_L, C_D, and C_m plots given for Mach numbers listed in Table V.
	Pressure data	Tabulated in Table V.
6.3.4	Boundary Layer and/or Wake Data	None.
6.3.5	Flow Conditions for Boundary Layer and/or Wake Data	
6.3.6	Wall Interference Corrections Included?	No.
6.3.7	Aeroelastic Corrections Included?	No. See 4.5.2.
6.3.8	Other Corrections?	
6.3.9	Additional Remarks	
6.4	Were Tests Carried Out in Different Facilities on the Current Model? If so, What Facilities. Are Data Included in Present Data Base?	Yes. Langley 16-Foot Transonic Tunnel. See reference 4.

7. References

1. Harris, C. D.; and Bartlett, D. W.: Tabulated Pressure Measurements on an NASA Supercritical-Wing Research Airplane Model With and Without Fuselage Area-Rule Additions at Mach 0.25 to 1.00. NASA TM X-2634, Dec. 1972.

2. Bartlett, D. W.; and Harris, C. D.: Aerodynamic Characteristics of an NASA Supercritical-Wing Research Airplane Model With and Without Fuselage Area-Rule Additions at Mach 0.25 to 1.00. NASA TM X-2633, Dec. 1972.

3. Harris, C. D.: Wind-Tunnel Measurements of Aerodynamic Load Distribution on an NASA Supercritical-Research Airplane Configuration. NASA TM X-2469, Feb. 1972.

4. Bartlett, Dennis W. and Re, Richard, J.: Wind-Tunnel Investigation of Basic Aerodynamic Characteristics of a Supercritical-Wing Research Airplane Configuration. NASA TM X-2470, Feb. 1972.

5. Kelly, T. C.; and Whitcomb, R. T.: Evolution of the F-8 Supercritical Wing Configuration. Supercritical Wing Technology, A Progress Report on Flight Evaluations. NASA SP-301, pp. 35-47, 1972.

6. Montoya, L. C.; and Banner, R. D.: F-8 Supercritical Wing Flight Pressure, Boundary Layer and Wake Measurements and Comparison With Wind Tunnel Data. NASA TM X-3544, June 1977.

7. Pyle, J. S.; and Steers, L. L.: Flight Determined Lift and Drag Characteristics of an F-8 Airplane Modified With a Supercritical Wing With Comparisons to Wind Tunnel Results. NASA TM X-3250, June 1975.

8. List of Symbols

A	aspect ratio
b	wing span
$b'/2$	unsupported semispan (distance from outer face of wing mounting)
c	airfoil section chord of basic wing panel, measured parallel to plane of symmetry.
c'	local streamwise chord of total wing planform which includes leading-edge glove and trailing-edge extension
$\bar{c}$	wing mean aerodynamic chord
c_m	wing section pitching-moment coefficient about 0.25c, $\int_0^1 \left(C_{p,L} - C_{p,U}\right)\left(0.25 - \frac{x}{c}\right) d\left(\frac{x}{c}\right)$
c_n	wing section normal-force coefficient, $\int_0^1 \left(C_{p,L} - C_{p,U}\right) d\left(\frac{x}{c}\right)$
C_p	pressure coefficient
$C_{p,sonic}$	pressure coefficient corresponding to local Mach number of 1.0
C_L	lift coefficient, $\frac{\text{Lift}}{qS}$
C_D	drag coefficient, $\frac{\text{Drag}}{qS}$
C_m	pitching-moment coefficient, $\frac{\text{Pitching moment about } \bar{c}/4}{qS\bar{c}}$
C_N	normal-force coefficient, $\frac{\text{Normal force}}{qs}$
C_A	axial-force coefficient, $\frac{\text{Axial force}}{qS}$
D	diameter
l	body length
M	Mach number
q	free-stream dynamic pressure
R	Reynolds number based on $\bar{c}$
S	total wing area
$\tilde{u}$, $\tilde{v}$, $\tilde{w}$	fluctuating velocity components
U_∞	free stream velocity
x	distance measured from leading edge of wing or from nose of body, positive rearward
x'	streamwise distance measured from leading edge of total wing planform
y	spanwise distance measured from body centerline
y'	spanwise distance measured from outer face of wing mounting block
z'	vertical distance measured from model reference water line 26.205 cm (10.317in.)

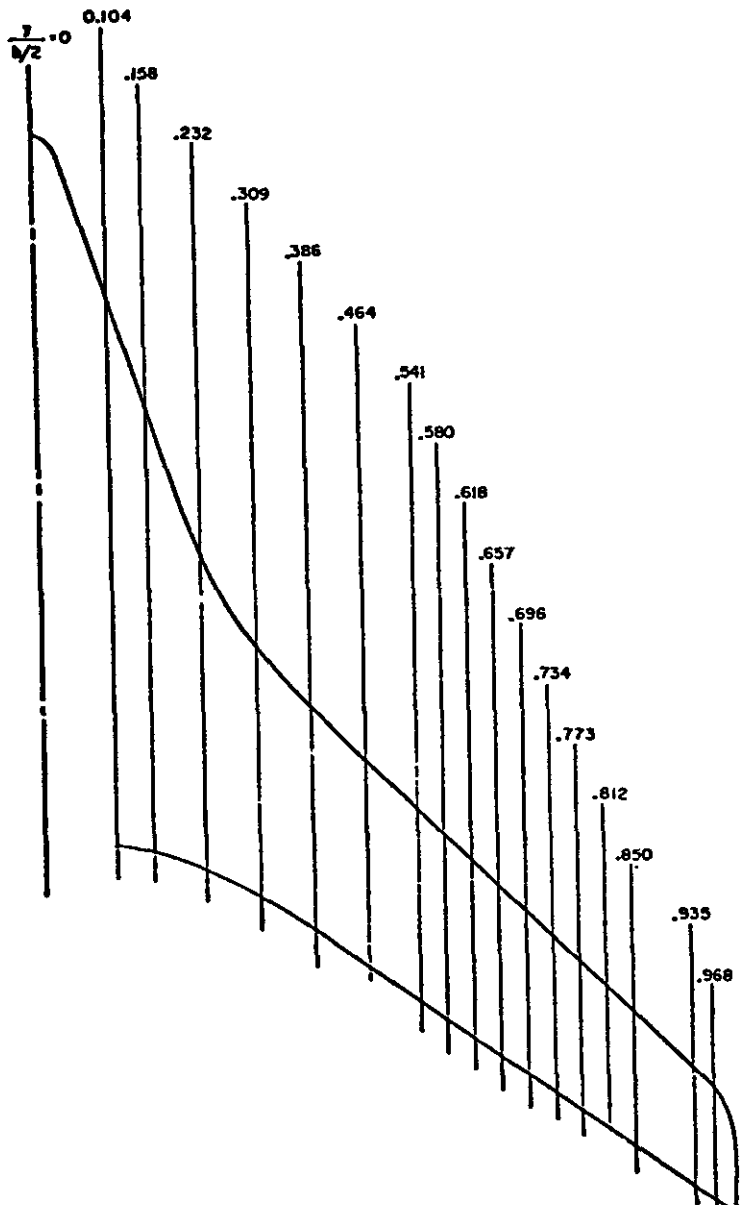
$\frac{\partial \Delta\alpha}{\partial n}$	wing-twist influence coefficient due to normal load at c/4 point
$\frac{\partial \Delta\alpha}{\partial m}$	wing-twist influence coefficient due to moment about c/4 point
α	angle of attack of wing-body centerline
$\Delta\alpha$	angle of attack of wing station minus angle of attack of wing-body centerline
δ	vertical wing deflection under load
δ_h	horizontal-tail deflection angle referred to a model water line, positive when trailing edge down, deg
θ	circumferential location of pressure orifices on rear of fuselage, deg
ϕ	built-in twist angle

Subscripts:

L	lower surface
U	upper surface

TABLE I.- WING COORDINATES ALONG STREAMWISE CHORDS

(a) Wing planform coordinate layout



(b) $\frac{y}{b/2} = 0.104$; c' = 45.839 cm (18.047 in.)

x'/c'	z'/c' Upper surface	z'/c' Lower surface	x'/c'	z'/c' Upper surface	z'/c' Lower surface	x'/c'	z'/c' Upper surface	z'/c' Lower surface
0	0.0379	0.0379	0.0240	0.0608	0.0133	0.0958	0.0777	-0.0057
.00001	.0384	.0373	.0250	.0613	.0128	.0979	.0781	-.0061
.00004	.0389	.0368	.0261	.0617	.0123	.1000	.0784	-.0064
.00010	.0395	.0362	.0272	.0621	.0118	.1022	.0787	-.0068
.0002	.0400	.0357	.0283	.0625	.0114	.1043	.0790	-.0071
.0003	.0406	.0351	.0294	.0629	.0109	.1065	.0793	-.0075
.0004	.0411	.0345	.0306	.0633	.0104	.1087	.0797	-.0078
.0006	.0417	.0340	.0318	.0637	.0100	.1110	.0800	-.0081
.0007	.0422	.0334	.0330	.0641	.0095	.1132	.0803	-.0085
.0009	.0428	.0329	.0342	.0645	.0091	.1155	.0806	-.0088
.0011	.0433	.0323	.0355	.0649	.0086	.1178	.0809	-.0091
.0014	.0438	.0318	.0368	.0653	.0082	.1201	.0812	-.0094
.0016	.0444	.0312	.0381	.0657	.0078	.1224	.0815	-.0097
.0019	.0449	.0307	.0394	.0661	.0073	.1248	.0818	-.0100
.0022	.0454	.0301	.0408	.0665	.0069	.1272	.0821	-.0103
.0025	.0460	.0296	.0421	.0669	.0065	.1296	.0824	-.0107
.0029	.0465	.0290	.0435	.0673	.0061	.1321	.0827	-.0110
.0033	.0470	.0285	.0449	.0677	.0056	.1345	.0829	-.0113
.0037	.0475	.0279	.0464	.0681	.0052	.1370	.0832	-.0116
.0041	.0481	.0274	.0478	.0685	.0048	.1395	.0835	-.0119
.0045	.0486	.0268	.0493	.0688	.0044	.1420	.0838	-.0122
.0050	.0491	.0263	.0508	.0692	.0040	.1446	.0840	-.0125
.0055	.0496	.0257	.0523	.0696	.0036	.1471	.0843	-.0128
.0060	.0501	.0252	.0539	.0700	.0032	.1497	.0845	-.0131
.0065	.0506	.0246	.0555	.0703	.0027	.1523	.0848	-.0134
.0071	.0511	.0241	.0571	.0707	.0024	.1550	.0851	-.0136
.0077	.0516	.0236	.0587	.0710	.0020	.1576	.0853	-.0139
.0083	.0521	.0230	.0603	.0713	.0016	.1603	.0855	-.0142
.0089	.0526	.0225	.0620	.0717	.0012	.1630	.0858	-.0145
.0095	.0531	.0220	.0637	.0720	.0008	.1658	.0860	-.0148
.0102	.0536	.0214	.0654	.0723	.0004	.1685	.0863	-.0150
.0109	.0541	.0209	.0671	.0727	0	.1713	.0865	-.0153
.0116	.0546	.0204	.0689	.0730	-.0004	.1741	.0868	-.0156
.0123	.0550	.0198	.0707	.0733	-.0007	.1769	.0870	-.0158
.0131	.0555	.0193	.0725	.0736	-.0011	.1797	.0872	-.0161
.0139	.0560	.0188	.0743	.0740	-.0015	.1826	.0874	-.0163
.0147	.0565	.0183	.0761	.0743	-.0019	.1855	.0877	-.0166
.0155	.0569	.0178	.0780	.0747	-.0023	.1884	.0879	-.0168
.0163	.0574	.0172	.0799	.0750	-.0026	.1913	.0881	-.0171
.0172	.0578	.0167	.0818	.0754	-.0030	.1943	.0883	-.0173
.0181	.0583	.0162	.0837	.0757	-.0034	.1973	.0885	-.0175
.0190	.0587	.0157	.0857	.0760	-.0038	.2003	.0887	-.0178
.0200	.0591	.0152	.0877	.0764	-.0042	.2033	.0889	-.0180
.0209	.0596	.0147	.0897	.0767	-.0046	.2063	.0891	-.0182
.0219	.0600	.0142	.0917	.0771	-.0050	.2094	.0892	-.0184
.0229	.0604	.0137	.0938	.0779	-.0053	.2125	.0894	-.0187

TABLE I.- WING COORDINATES ALONG STREAMWISE CHORDS - Continued.

(b) $\frac{y}{b/2} = 0.104$; c' = 45.839 cm (18.047 in.) - Concluded

x'/c'	z'/c' Upper surface	z'/c' Lower surface
0.2156	0.0896	-0.0189
.2187	.0897	-.0191
.2219	.0899	-.0193
.2251	.0900	-.0195
.2283	.0902	-.0197
.2315	.0903	-.0200
.2348	.0905	-.0201
.2380	.0906	-.0203
.2413	.0907	-.0205
.2446	.0908	-.0206
.2480	.0909	-.0208
.2513	.0910	-.0210
.2547	.0911	-.0212
.2581	.0911	-.0213
.2616	.0912	-.0215
.2650	.0912	-.0216
.2685	.0913	-.0218
.2720	.0913	-.0219
.2755	.0913	-.0220
.2791	.0913	-.0222
.2826	.0913	-.0223
.2862	.0913	-.0224
.2898	.0913	-.0225
.2935	.0912	-.0226
.2971	.0912	-.0227
.3008	.0912	-.0228
.3045	.0911	-.0229
.3082	.0910	-.0230
.3120	.0909	-.0231
.3157	.0908	-.0232
.3195	.0907	-.0232
.3233	.0906	
.3272	.0904	
.3310	.0903	
.3349	.0901	
.3388	.0900	
.3428	.0898	
.3467	.0897	
.3507	.0895	
.3547	.0893	-.0238
.3587	.0891	-.0238
.3627	.0888	-.0239
.3668	.0886	-.0239
.3709	.0884	-.0239
.3750	.0881	-.0239
.3791	.0879	-.0239
0.3833	0.0876	-0.0238
.3875	.0873	-.0238
.3917	.0871	-.0238
.3959	.0868	-.0237
.4001	.0865	-.0237
.4044	.0861	-.0236
.4087	.0858	-.0235
.4130	.0855	-.0234
.4173	.0851	-.0233
.4217	.0848	-.0232
.4261	.0844	-.0230
.4305	.0841	-.0230
.4817	.0793	-.0209
.5515	.0726	-.0155
.6095	.0669	-.0095
.6591	.0617	-.0035
.7023	.0571	.0018
.7406	.0530	.0065
.7748	.0493	.0105
.8057	.0454	.0135
.8341	.0414	.0157
.8602	.0374	.0168
.8843	.0336	.0170
.9068	.0299	.0163
.9277	.0265	.0153
.9474	.0232	.0140
.9659	.0196	.0124
.9747	.0178	.0115
.9833	.0159	.0103
.9943	.0132	.0088
.9966	.0126	.0085
1.0000		.0080

(c) $\frac{y}{b/2} = 0.158$; c' = 36.873 cm (14.517 in.)

x'/c'	z'/c' Upper surface	z'/c' Lower surface
0	0.0384	0.0384
.0030	.0472	.0294
.0060	.0507	.0257
.0090	.0533	.0229
.0119	.0554	.0206
.0149	.0572	.0186
.0179	.0588	.0168
.0209	.0602	.0152
.0239	.0615	.0137
.0269	.0626	.0124
.0299	.0636	.0112
.0328	.0646	.0100
.0358	.0656	.0090
.0388	.0665	.0079
.0418	.0674	.0070
.0448	.0683	.0061
.0478	.0691	.0053
.0508	.0698	.0045
.0537	.0706	.0037
.0567	.0713	.0029
.0597	.0719	.0022
.0627	.0726	.0015
.0657	.0732	.0008
.0687	.0738	.0002
.0717	.0744	-.0005
.0746	.0750	-.0011
.0776	.0756	-.0017
.0806	.0761	-.0022
.0836	.0766	-.0028
.0866	.0771	-.0033
.0896	.0775	-.0038
.0925	.0780	-.0043
.0955	.0784	-.0048
.0985	.0789	-.0052
.1015	.0793	-.0057
.1045	.0797	-.0061
.1075	.0801	-.0066
.1105	.0804	-.0070
.1134	.0808	-.0074
.1164	.0811	-.0078
.1194	.0815	-.0082
.1224	.0818	-.0086
.1254	.0821	-.0090
.1284	.0825	-.0093
.1314	.0828	-.0097
.1343	.0831	-.0101
0.1373	0.0834	-0.0104
.1403	.0837	-.0107
.1433	.0839	-.0110
.1463	.0842	-.0113
.1493	.0844	-.0116
.1523	.0846	-.0118
.1552	.0848	-.0121
.1582	.0851	-.0124
.1612	.0853	-.0127
.1642	.0855	-.0129
.1672	.0857	-.0132
.1702	.0859	-.0135
.1732	.0860	-.0137
.1761	.0862	-.0139
.1791	.0864	-.0142
.1821	.0865	-.0144
.1851	.0867	-.0146
.1881	.0868	-.0148
.1911	.0869	-.0151
.1941	.0871	-.0153
.1970	.0872	-.0155
.2000	.0873	-.0157
.2030	.0874	-.0159
.2060	.0874	-.0161
.2090	.0875	-.0162
.2120	.0876	-.0164
.2149	.0877	-.0166
.2179	.0877	-.0167
.2209	.0878	-.0169
.2239	.0878	-.0170
.2269	.0879	-.0172
.2299	.0879	-.0174
.2329	.0880	-.0175
.2358	.0880	-.0176
.2388	.0881	-.0178
.2418	.0881	-.0179
.2448	.0882	-.0180
.2478	.0882	-.0182
.2508	.0882	-.0183
.2538	.0882	-.0184
.2567	.0882	-.0185
.2597	.0882	-.0186
.2627	.0882	-.0187
.2657	.0882	-.0188
.2687	.0882	-.0189
.2717	.0881	-.0190
0.2747	0.0881	-0.0191
.2776	.0881	-.0191
.2806	.0880	-.0192
.2836	.0880	-.0193
.2866	.0879	-.0194
.2896	.0879	-.0194
.2926	.0878	-.0195
.2956	.0878	-.0196
.2985	.0877	-.0196
.3015	.0876	-.0197
.3045	.0876	-.0197
.3075	.0875	-.0198
.3105	.0874	-.0198
.3828	.0845	-.0192
.4600	.0802	-.0158
.5245	.0761	-.0115
.5797	.0721	-.0068
.6279	.0681	-.0021
.6707	.0642	.0027
.7095	.0605	.0071
.7447	.0568	.0114
.7769	.0533	.0153
.8066	.0501	.0183
.8341	.0470	.0205
.8596	.0438	.0219
.8836	.0402	.0225
.9075	.0368	.0225
.9313	.0333	.0220
.9548	.0295	.0207
.9663	.0276	.0199
.9776	.0255	.0190
.9924	.0226	.0174
.9956	.0220	.0170
1.0000		.0164

TABLE I.- WING COORDINATES ALONG STREAMWISE CHORDS - Continued.

(d) $\frac{y}{b/2} = 0.232$; c' = 26.355 cm (10.376 in.)

x'/c'	z'/c' Upper surface	z'/c' Lower surface
0	0.0378	0.0378
.0006	.0420	.0336
.0028	.0471	.0284
.0055	.0507	.0246
.0096	.0545	.0206
.0150	.0581	.0167
.0204	.0607	.0136
.0335	.0654	.0080
.0648	.0723	0
.0942	.0764	-.0045
.1218	.0792	-.0073
.1727	.0826	-.0109
.2184	.0843	-.0130
.2987	.0860	-.0140
.3683	.0859	-.0128
.4293	.0847	-.0105
.4835	.0827	-.0077
.5322	.0805	-.0044
.5764	.0780	-.0007
.6174	.0751	.0033
.6575	.0725	.0081
.6962	.0699	.0129
.7335	.0669	.0178
.7694	.0641	.0228
.8043	.0611	.0273
.8382	.0579	.0310
.8713	.0544	.0334
.9038	.0506	.0347
.9361	.0461	.0346
.9522	.0438	.0339
.9683	.0414	.0329
.9893	.0381	.0308
.9937	.0374	.0302
1.0000		.0293

(e) $\frac{y}{b/2} = 0.309$; c' = 20.808 cm (8.192 in.)

x'/c'	z'/c' Upper surface	z'/c' Lower surface
0	0.0318	0.0318
.0004	.0349	.0288
.0018	.0385	.0251
.0035	.0411	.0224
.0062	.0439	.0196
.0097	.0465	.0169
.0131	.0486	.0147
.0217	.0529	.0107
.0426	.0597	.0046
.0626	.0642	.0007
.0819	.0677	-.0020
.1186	.0725	-.0063
.1530	.0758	-.0091
.2174	.0804	-.0117
.2770	.0828	-.0122
.3329	.0837	-.0117
.3857	.0838	-.0102
.4362	.0833	-.0081
.4846	.0822	-.0054
.5318	.0807	-.0020
.5781	.0794	.0023
.6236	.0780	.0076
.6682	.0763	.0139
.7120	.0745	.0209
.7549	.0722	.0283
.7972	.0696	.0353
.8388	.0665	.0408
.8799	.0628	.0441
.9204	.0582	.0449
.9404	.0554	.0441
.9604	.0523	.0424
.9866	.0475	.0385
.9921	.0464	.0374
1.0000		.0358

(f) $\frac{y}{b/2} = 0.386$; c' = 18.654 cm (7.344 in.)

x'/c'	z'/c' Upper surface	z'/c' Lower surface
0	0.0255	0.0255
.0002	.0282	.0229
.0013	.0314	.0196
.0025	.0337	.0173
.0044	.0361	.0148
.0069	.0384	.0124
.0094	.0402	.0106
.0156	.0435	.0074
.0310	.0492	.0024
.0462	.0532	-.0010
.0613	.0563	-.0037
.0911	.0610	-.0076
.1204	.0646	-.0103
.1777	.0697	-.0129
.2334	.0728	-.0141
.2876	.0750	-.0139
.3405	.0765	-.0129
.3922	.0773	-.0111
.4430	.0775	-.0088
.4927	.0775	-.0057
.5417	.0773	-.0017
.5898	.0768	.0034
.6373	.0760	.0099
.6842	.0749	.0179
.7306	.0733	.0266
.7765	.0712	.0355
.8220	.0688	.0427
.8671	.0655	.0471
.9118	.0610	.0481
.9341	.0582	.0471
.9562	.0549	.0448
.9852	.0495	.0397
.9913	.0482	.0383
1.0000		.0364

(g) $\frac{y}{b/2} = 0.464$; c' = 12.537 cm (4.936 in.)

x'/c'	z'/c' Upper surface	z'/c' Lower surface
0	0.0193	0.0193
.0002	.0218	.0168
.0012	.0248	.0137
.0023	.0270	.0115
.0041	.0294	.0091
.0064	.0316	.0068
.0088	.0332	.0051
.0146	.0367	.0020
.0291	.0420	-.0029
.0435	.0459	-.0062
.0578	.0488	-.0087
.0862	.0530	-.0122
.1143	.0561	-.0145
.1697	.0610	-.0170
.2241	.0646	-.0177
.2776	.0673	-.0173
.3304	.0694	-.0161
.3824	.0707	-.0144
.4338	.0720	-.0119
.4846	.0729	-.0085
.5347	.0734	-.0045
.5841	.0735	.0008
.6329	.0732	.0075
.6810	.0725	.0156
.7284	.0714	.0250
.7752	.0700	.0341
.8213	.0677	.0416
.8669	.0646	.0464
.9118	.0603	.0476
.9341	.0576	.0464
.9562	.0542	.0438
.9852	.0487	.0388
.9913	.0474	.0374
1.0000		.0352

(h) $\frac{y}{b/2} = 0.541$; c' = 16.231 cm (6.390 in.)

x'/c'	z'/c' Upper surface	z'/c' Lower surface
0	0.0122	0.0122
.0002	.0146	.0097
.0011	.0175	.0068
.0023	.0197	.0046
.0040	.0219	.0023
.0063	.0240	.0001
.0086	.0257	-.0015
.0143	.0289	-.0046
.0286	.0343	-.0093
.0429	.0380	-.0123
.0570	.0410	-.0145
.0852	.0454	-.0177
.1132	.0488	-.0198
.1686	.0540	-.0215
.2232	.0578	-.0218
.2770	.0608	-.0211
.3300	.0633	-.0195
.3823	.0654	-.0173
.4338	.0672	-.0147
.4846	.0686	-.0112
.5347	.0694	-.0069
.5841	.0700	-.0013
.6329	.0704	.0055
.6810	.0702	.0141
.7284	.0696	.0235
.7752	.0683	.0326
.8213	.0663	.0402
.8669	.0635	.0452
.9118	.0592	.0463
.9341	.0565	.0452
.9562	.0531	.0427
.9852	.0475	.0376
.9913	.0462	.0362
1.0000		.0339

(i) $\frac{y}{b/2} = 0.580$; c' = 15.624 cm (6.151 in.)

x'/c'	z'/c' Upper surface	z'/c' Lower surface
0	0.0082	0.0082
.0002	.0106	.0058
.0011	.0135	.0029
.0023	.0156	.0008
.0040	.0178	-.0015
.0063	.0199	-.0037
.0086	.0216	-.0053
.0143	.0248	-.0082
.0286	.0301	-.0127
.0429	.0340	-.0157
.0570	.0369	-.0178
.0852	.0414	-.0207
.1132	.0450	-.0226
.1686	.0504	-.0241
.2232	.0545	-.0241
.2770	.0577	-.0230
.3300	.0603	-.0214
.3823	.0626	-.0191
.4338	.0646	-.0163
.4846	.0662	-.0126
.5347	.0673	-.0082
.5841	.0681	-.0025
.6329	.0687	.0045
.6810	.0688	.0129
.7284	.0686	.0225
.7752	.0676	.0318
.8213	.0656	.0395
.8669	.0628	.0444
.9118	.0586	.0455
.9341	.0559	.0445
.9562	.0525	.0421
.9782	.0484	.0385
.9913	.0454	.0354
1.0000		.0331

TABLE I.- WING COORDINATES ALONG STREAMWISE CHORDS - Continued

(j) $\frac{y}{b/2} = 0.618$; c' = 15.019 cm (5.913 in.)

x'/c'	z'/c' Upper surface	z'/c' Lower surface
0	0.0043	0.0043
.0002	.0066	.0019
.0012	.0095	-.0010
.0023	.0116	-.0031
.0040	.0138	-.0053
.0063	.0158	-.0075
.0086	.0174	-.0091
.0143	.0205	-.0119
.0286	.0259	-.0164
.0429	.0298	-.0194
.0570	.0328	-.0213
.0852	.0374	-.0239
.1132	.0411	-.0255
.1686	.0467	-.0268
.2232	.0509	-.0265
.2770	.0543	-.0251
.3300	.0571	-.0233
.3823	.0597	-.0209
.4338	.0618	-.0180
.4846	.0637	-.0142
.5347	.0650	-.0097
.5841	.0661	-.0039
.6329	.0669	.0033
.6810	.0673	.0117
.7284	.0672	.0216
.7752	.0664	.0308
.8213	.0647	.0385
.8669	.0620	.0437
.9118	.0579	.0446
.9341	.0551	.0436
.9562	.0518	.0414
.9782	.0476	.0376
.9913	.0445	.0346
1.0000		.0322

(k) $\frac{y}{b/2} = 0.657$; c' = 14.412 cm (5.674 in.)

x'/c'	z'/c' Upper surface	z'/c' Lower surface
0	0.0002	0.0002
.0002	.0025	-.0022
.0011	.0054	-.0050
.0023	.0074	-.0071
.0040	.0096	-.0093
.0063	.0116	-.0114
.0086	.0131	-.0129
.0143	.0162	-.0160
.0286	.0218	-.0201
.0429	.0256	-.0230
.0570	.0287	-.0250
.0852	.0333	-.0273
.1132	.0370	-.0286
.1686	.0428	-.0294
.2232	.0472	-.0289
.2770	.0507	-.0274
.3300	.0538	-.0253
.3823	.0564	-.0229
.4338	.0588	-.0199
.4846	.0608	-.0159
.5347	.0626	-.0112
.5841	.0639	-.0053
.6329	.0650	.0018
.6810	.0656	.0106
.7284	.0657	.0205
.7752	.0650	.0297
.8213	.0636	.0374
.8669	.0610	.0425
.9118	.0570	.0436
.9341	.0543	.0426
.9562	.0509	.0404
.9782	.0467	.0367
.9913	.0436	.0336
1.0000		.0312

(l) $\frac{y}{b/2} = 0.696$; c' = 13.807 cm (5.436 in.)

x'/c'	z'/c' Upper surface	z'/c' Lower surface
0	-0.0041	-0.0041
.0002	-.0018	-.0064
.0011	.0010	-.0092
.0023	.0031	-.0112
.0040	.0052	-.0134
.0063	.0072	-.0155
.0086	.0087	-.0170
.0143	.0119	-.0201
.0286	.0175	-.0241
.0429	.0214	-.0266
.0570	.0244	-.0285
.0852	.0291	-.0306
.1132	.0328	-.0318
.1686	.0388	-.0325
.2232	.0434	-.0317
.2770	.0469	-.0299
.3300	.0503	-.0277
.3823	.0530	-.0251
.4338	.0557	-.0219
.4846	.0579	-.0178
.5347	.0600	-.0129
.5841	.0616	-.0069
.6329	.0627	.0004
.6810	.0636	.0093
.7284	.0640	.0191
.7752	.0636	.0284
.8213	.0623	.0360
.8669	.0599	.0411
.9118	.0559	.0424
.9341	.0532	.0414
.9562	.0498	.0393
.9782	.0457	.0357
.9913	.0426	.0326
1.0000		.0302

(m) $\frac{y}{b/2} = 0.734$; c' = 13.200 cm (5.197 in.)

x'/c'	z'/c' Upper surface	z'/c' Lower surface
0	-0.0085	-0.0085
.0002	-.0063	-.0108
.0011	-.0035	-.0136
.0023	-.0015	-.0156
.0040	.0006	-.0177
.0063	.0025	-.0197
.0086	.0041	-.0212
.0143	.0074	-.0239
.0286	.0130	-.0282
.0429	.0170	-.0305
.0570	.0199	-.0321
.0852	.0246	-.0340
.1132	.0285	-.0352
.1686	.0347	-.0357
.2232	.0394	-.0347
.2770	.0432	-.0327
.3300	.0467	-.0304
.3823	.0497	-.0274
.4338	.0525	-.0240
.4846	.0550	-.0198
.5347	.0572	-.0148
.5841	.0590	-.0086
.6329	.0603	-.0012
.6810	.0614	.0077
.7284	.0620	.0174
.7752	.0619	.0268
.8213	.0608	.0345
.8669	.0587	.0396
.9118	.0546	.0409
.9341	.0520	.0400
.9562	.0485	.0379
.9782	.0445	.0344
.9913	.0414	.0314
1.0000		.0290

(n) $\frac{y}{b/2} = 0.773$; c' = 12.596 cm (4.959 in.)

x'/c'	z'/c' Upper surface	z'/c' Lower surface
0	-0.0128	-0.0128
.0002	-.0106	-.0151
.0011	-.0078	-.0178
.0023	-.0059	-.0198
.0040	-.0038	-.0219
.0063	-.0019	-.0239
.0086	-.0002	-.0253
.0143	.0029	-.0282
.0286	.0083	-.0322
.0429	.0121	-.0344
.0570	.0151	-.0361
.0852	.0199	-.0377
.1132	.0241	-.0387
.1686	.0305	-.0389
.2232	.0353	-.0377
.2770	.0393	-.0356
.3366	.0430	-.0332
.3823	.0461	-.0300
.4338	.0491	-.0263
.4846	.0518	-.0220
.5347	.0541	-.0169
.5841	.0561	-.0105
.6329	.0578	-.0031
.6810	.0590	.0058
.7284	.0596	.0154
.7752	.0598	.0249
.8213	.0590	.0328
.8669	.0569	.0378
.9118	.0531	.0393
.9341	.0505	.0384
.9562	.0471	.0364
.9782	.0431	.0330
.9913	.0398	.0301
1.0000		.0276

(o) $\frac{y}{b/2} = 0.812$; c' = 11.989 cm (4.720 in.)

x'/c'	z'/c' Upper surface	z'/c' Lower surface
0	-0.0173	-0.0173
.0002	-.0151	-.0196
.0011	-.0124	-.0223
.0023	-.0105	-.0242
.0040	-.0085	-.0263
.0063	-.0066	-.0282
.0086	-.0049	-.0296
.0143	-.0018	-.0325
.0286	.0035	-.0363
.0429	.0073	-.0384
.0570	.0104	-.0400
.0852	.0153	-.0416
.1132	.0194	-.0425
.1686	.0258	-.0425
.2232	.0309	-.0411
.2770	.0352	-.0388
.3300	.0389	-.0362
.3823	.0422	-.0329
.4338	.0454	-.0288
.4846	.0482	-.0244
.5347	.0506	-.0191
.5841	.0528	-.0127
.6329	.0548	-.0052
.6810	.0561	.0037
.7284	.0570	.0133
.7752	.0574	.0227
.8213	.0568	.0306
.8669	.0548	.0357
.9118	.0514	.0374
.9341	.0489	.0366
.9562	.0455	.0347
.9782	.0414	.0314
.9913	.0382	.0286
1.0000		.0261

TABLE I.- WING COORDINATES ALONG STREAMWISE CHORDS - Concluded.

(p) $\frac{y}{b/2} = 0.850$; c' = 11.382 cm (4.481 in.)

x'/c'	z'/c' Upper surface	z'/c' Lower surface
0	-0.0221	-0.0221
.0002	-.0199	-.0243
.0011	-.0172	-.0270
.0023	-.0153	-.0289
.0040	-.0133	-.0309
.0063	-.0115	-.0328
.0086	-.0099	-.0342
.0143	-.0068	-.0368
.0286	-.0014	-.0405
.0429	.0025	-.0425
.0570	.0057	-.0440
.0852	.0105	-.0458
.1132	.0144	-.0467
.1686	.0208	-.0465
.2232	.0261	-.0448
.2770	.0304	-.0424
.3300	.0344	-.0394
.3823	.0379	-.0361
.4338	.0411	-.0318
.4846	.0440	-.0271
.5347	.0466	-.0217
.5841	.0493	-.0153
.6329	.0513	-.0077
.6810	.0529	.0014
.7284	.0541	.0109
.7752	.0547	.0202
.8213	.0542	.0282
.8669	.0526	.0334
.9118	.0494	.0353
.9341	.0469	.0347
.9562	.0438	.0329
.9782	.0397	.0296
.9913	.0367	.0269
1.0000		.0246

(q) $\frac{y}{b/2} = 0.935$; c' = 10.051 cm (3.957 in.)

x'/c'	z'/c' Upper surface	z'/c' Lower surface
0	-0.0330	-0.0330
.0002	-.0309	-.0352
.0011	-.0283	-.0378
.0023	-.0264	-.0397
.0040	-.0245	-.0416
.0063	-.0227	-.0434
.0086	-.0213	-.0448
.0143	-.0185	-.0473
.0286	-.0133	-.0509
.0429	-.0094	-.0532
.0570	-.0064	-.0549
.0852	-.0014	-.0568
.1132	.0026	-.0574
.1686	.0090	-.0568
.2232	.0143	-.0546
.2770	.0189	-.0519
.3300	.0231	-.0481
.3823	.0271	-.0441
.4338	.0307	-.0395
.4846	.0340	-.0343
.5347	.0371	-.0287
.5841	.0401	-.0221
.6329	.0426	-.0141
.6810	.0447	-.0050
.7284	.0465	.0043
.7752	.0477	.0135
.8213	.0477	.0215
.8669	.0468	.0274
.9118	.0441	.0299
.9341	.0419	.0295
.9562	.0393	.0277
.9852	.0342	.0233
.9913	.0330	.0221
1.0000		.0202

(r) $\frac{y}{b/2} = 0.968$; c' = 9.467 cm (3.727 in.)

x'/c'	z'/c' Upper surface	z'/c' Lower surface
0	-0.0382	-0.0382
.0002	-.0362	-.0405
.0011	-.0339	-.0432
.0023	-.0321	-.0450
.0040	-.0301	-.0467
.0063	-.0282	-.0484
.0086	-.0266	-.0497
.0143	-.0235	-.0522
.0286	-.0180	-.0558
.0429	-.0410	-.0580
.0570	-.0108	-.0598
.0852	-.0057	-.0618
.1132	-.0014	-.0622
.1686	.0052	-.0611
.2232	.0102	-.0590
.2770	.0147	-.0560
.3330	.0188	-.0521
.3823	.0230	-.0478
.4338	.0268	-.0428
.4846	.0303	-.0373
.5347	.0338	-.0314
.5841	.0368	-.0247
.6329	.0395	-.0166
.6810	.0417	-.0075
.7284	.0434	.0015
.7752	.0446	.0101
.8213	.0453	.0185
.8669	.0448	.0248
.9118	.0425	.0278
.9341	.0403	.0274
.9562	.0374	.0258
.9852	.0322	.0215
.9913	.0310	.0203
1.0000		.0184

TABLE II.- TUNNEL TEST CONDITIONS

Mach number	Temperature		Reynolds number		Dynamic pressure	
	K	°F	per m	per ft	N/m²	lb/ft²
1.00	322	120	14.8×10^6	4.5×10^6	40 698	850
.99	322	120	14.8	4.5	40 698	850
.98	322	120	14.8	4.5	40 698	850
.97	322	120	14.8	4.5	40 698	850
.95	322	120	15.1	4.6	40 698	850
.90	322	120	15.7	4.8	40 698	850
.80	322	120	17.1	5.2	40 698	850
.50	322	120	13.1	4.0	21 546	450
.25	322	120	10.2	3.1	8 571	179

TABLE III.- LOCATION OF PRESSURE ORIFICES ON MODEL

Orifices on wing

[c in cm (in.)]

Wing orifice location, $\frac{x}{c}$, at semispan station, $\frac{y}{b/2}$, of –					
0.133 (c = 22.614 (8.903))	0.307 (c = 19.883 (7.828))	0.480 (c = 17.160 (6.756))	0.653 (c = 14.442 (5.686))	0.804 (c = 12.070 (4.752))	0.933 (c = 10.043 (3.954))
Right-wing upper surface					
-0.660	-0.021	0.023	0.025	0.022	0.018
-.567	.035	.068	.079	.075	.077
-.452	.105	.134	.133	.129	.129
-.311	.178	.209	.214	.201	.209
-.023	.286	.294	.295	.294	.293
.133	.396	.404	.407	.397	.494
.272	.514	.497	.502	.495	.590
.416	.618	.599	.601	.594	.693
.565	.733	.700	.698	.693	.777
.713	.835	.864	.863	.784	.861
.854	.919	.926	.923	.856	.918
.980	.987	.975	.977	.926	.972
1.074				.977	
1.122					
Left-wing lower surface					
-0.660	-0.022	0.024	0.025	0.019	0.020
-.616	.038	.075	.074	.066	.076
-.572	.101	.297	.130	.136	.136
-.462	.185	.400	.298	.214	.221
-.329	.398	.604	.397	.292	.295
-.172	.737	.785	.501	.403	.396
-.030		.967	.603	.489	.497
.128		1.000	.703	.594	.597
.418			.784	.700	.702
.564			.868	.786	.786
.710			.923	.858	.864
.976			.972	.919	.912
1.072				.967	.985
1.110					

Orifices on wing

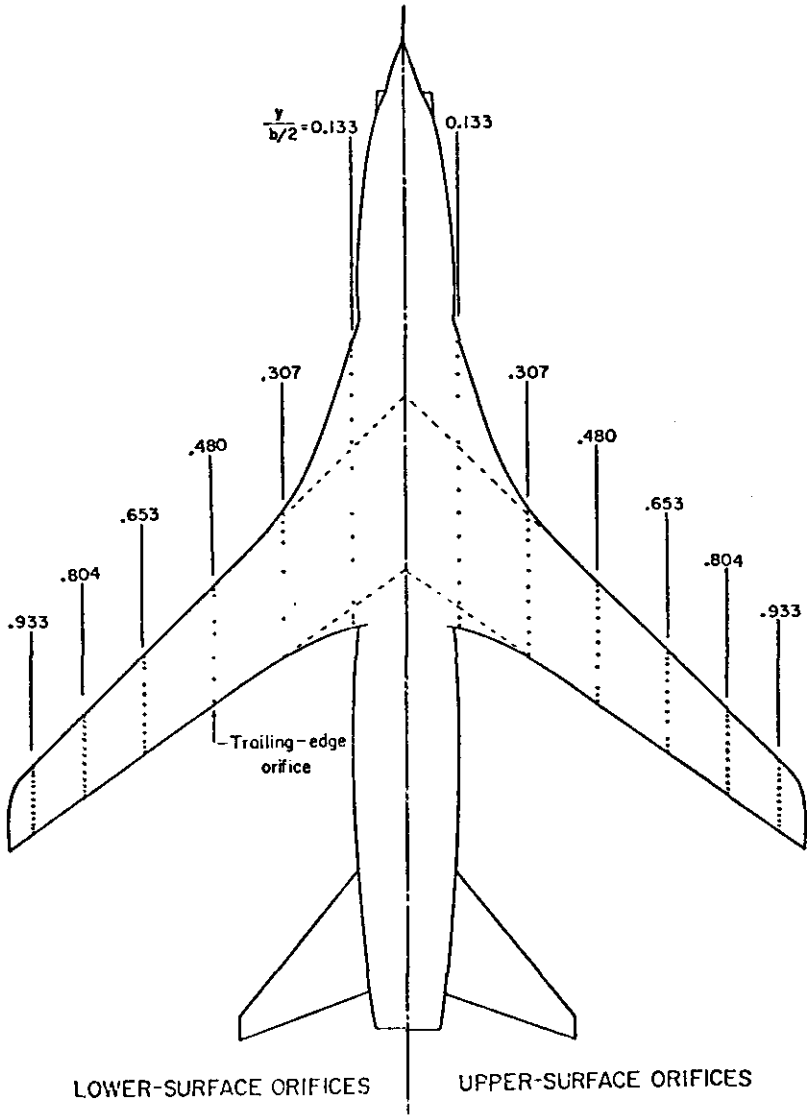
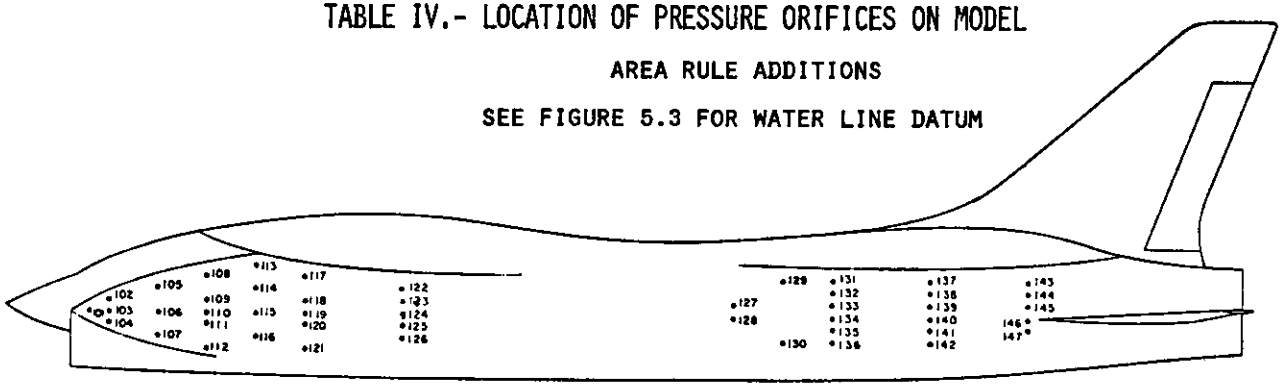


TABLE IV.- LOCATION OF PRESSURE ORIFICES ON MODEL

AREA RULE ADDITIONS

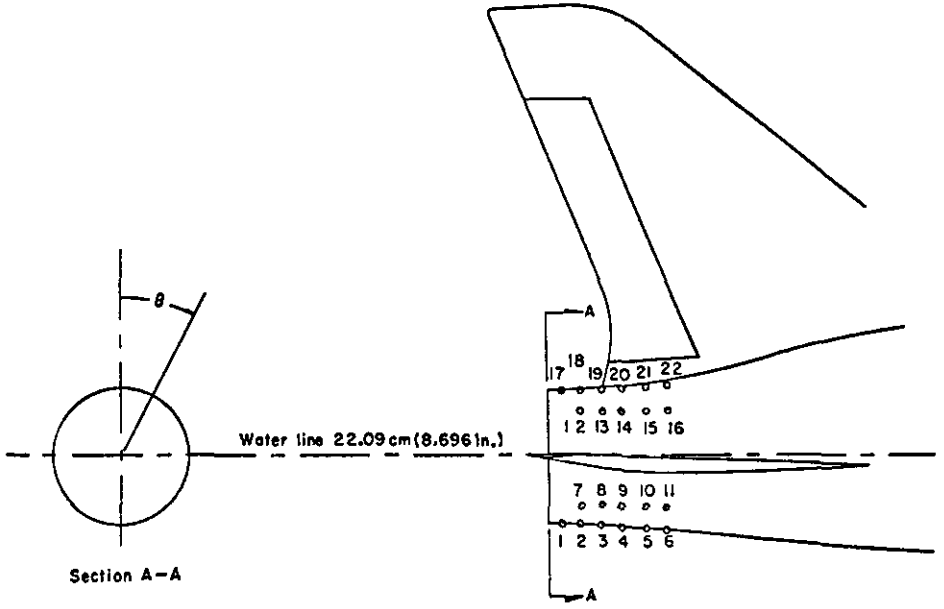
SEE FIGURE 5.3 FOR WATER LINE DATUM



Fore fuselage area-rule addition					Aft fuselage area-rule addition				
Orifice	Model fuselage station		Model water line		Orifice	Model fuselage station		Model water line	
	cm	in.	cm	in.		cm	in.	cm	in.
101	30.92	12.17	20.75	8.17	127	103.81	40.87	22.10	8.70
102	33.12	13.04	22.10	8.70	128	103.81	40.87	20.75	8.17
103	33.12	13.04	20.75	8.17	129	109.32	43.04	24.74	9.74
104	33.12	13.04	19.43	7.65	130	109.32	43.04	18.11	7.13
105	38.66	15.22	23.42	9.22	131	114.88	45.22	24.74	9.74
106	38.66	15.22	20.75	8.17	132	114.86	45.22	23.42	9.22
107	38.66	15.22	18.11	7.13	133	114.86	45.22	22.10	8.70
108	44.17	17.39	24.74	9.74	134	114.86	45.22	20.75	8.17
109	44.17	17.39	22.10	8.70	135	114.86	45.22	19.43	7.65
110	44.17	17.39	20.75	8.17	136	114.86	45.22	18.11	7.13
111	44.17	17.39	19.43	7.65	137	125.91	49.57	24.74	9.74
112	44.17	17.39	16.79	6.61	138	125.91	49.57	23.42	9.22
113	49.71	19.57	26.06	10.26	139	125.91	49.57	22.10	8.70
114	49.71	19.57	23.42	9.22	140	125.91	49.57	20.75	8.17
115	49.71	19.57	20.75	8.17	141	125.91	49.57	19.43	7.65
116	49.71	19.57	18.11	7.13	142	125.91	49.57	18.11	7.13
117	55.22	21.74	24.74	9.74	143	136.93	53.91	24.74	9.74
118	55.22	21.74	22.10	8.70	144	136.93	53.91	23.42	9.22
119	55.22	21.74	20.75	8.17	145	136.93	53.91	22.10	8.70
120	55.22	21.74	19.43	7.65	146	136.93	53.91	20.75	8.17
121	55.22	21.74	16.79	6.61	147	136.93	53.91	19.43	7.65
122	66.27	26.09	23.42	9.22					
123	66.27	26.09	22.10	8.70					
124	66.27	26.09	20.75	8.17					
125	66.27	26.09	19.43	7.65					
126	66.27	26.09	18.11	7.13					

TABLE IV. - LOCATION OF PRESSURE ORIFICES ON MODEL - Concluded.

Orifices on rear of fuselage



Orifices on rear of fuselage

Orifice	θ, deg	Model fuselage station	
		cm	in.
1	179.7	160.45	63.17
2	179.7	159.08	62.63
3	179.7	157.56	62.03
4	181.0	156.13	61.47
5	180.6	154.25	60.73
6	179.8	152.88	60.19
7	137.1	159.16	62.66
8	137.3	157.84	62.14
9	136.6	156.21	61.50
10	135.5	154.61	60.87
11	135.2	152.96	60.22
12	45.1	159.16	62.66
13	45.7	157.63	62.06
14	45.5	156.06	61.44
15	45.2	154.36	60.77
16	45.1	152.38	60.19
17	8.1	160.78	63.30
18	8.2	159.03	62.61
19	8.6	157.56	62.03
20	9.2	156.01	61.42
21	8.6	154.28	60.74
22	9.6	153.01	60.24

TABLE V.- TEST CONDITIONS FOR TABULATED DATA *

M	α, deg	C_L
0.50	-4.08	-0.339
	0	0.039
	4.0	0.396
	8.0	0.73
	11.07	0.952
0.80	-3.98	-0.372
	0.03	-0.034
	4.02	0.427
	8.14	0.792
	11.22	0.990
0.90	-3.82	-0.389
	0.02	0.024
	3.97	0.461
	8.17	0.863
0.95	-3.97	-0.440
	-0.09	0.012
	3.96	0.495
	8.15	0.902
0.99	-3.96	-0.459
	-0.05	-0.004
	3.43	0.440
	7.99	0.893

*Angles of attack slightly different for side-fuselage pressure data in Table VIII.

TABLE VI.- PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE ADDITIONS; $\delta_h = -2.5^\circ$

M = 0.50

$\alpha = -4.08^\circ$; $C_L = -0.339$

STA .133		STA .307		STA .480		STA .653		STA .804		STA .933	
X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
					UPPER SURFACE						
-.660	.035	-.021	.299	.023	.360	.025	.373	.022	.459	.018	.499
-.567	-.007	.035	.124	.068	.184	.079	.217	.075	.253	.077	.197
-.452	-.076	.165	.060	.134	.099	.133	.147	.129	.185	.129	.182
-.311	-.119	.170	.013	.209	.046	.214	.092	.201	.120	.209	.117
-.023	-.099	.285	-.023	.294	.018	.295	.049	.294	.081	.293	.059
.133	-.041	.396	-.043	.404	-.010	.407	.014	.397	.040	.494	-.016
.272	-.021	.514	-.032	.497	-.044	.502	-.029	.495	-.003	.590	-.055
.416	.000	.618	-.060	.599	-.065	.601	-.056	.594	-.046	.693	-.096
.565	.006	.733	-.065	.700	-.105	.698	-.100	.693	-.088	.777	-.133
.713	.012	.835	-.091	.864	-.144	.863	-.167	.784	-.133	.861	-.133
.854	-.016	.919	-.080	.926	-.125	.923	-.147	.856	-.158	.918	-.140
.960	-.026	.987	-.048	.975	-.057	.977	-.057	.926	-.153	.972	-.061
1.074	-.041							.977	-.042		
1.122	-.023										
					LOWER SURFACE						
-.663	-.068	-.022	-.627	.024	-1.292	.025	-1.911	.019	-2.183	.020	-1.642
-.616	-.104	.038	-.677	.075	-.896	.130	-.692	.066	-1.082	.076	-1.157
-.572	-.210	.101	-.585	.257	-.386	.258	-.384	.136	-.695	.136	-.936
-.462	-.217	.165	-.469	.460	-.310	.357	-.306	.214	-.485	.221	-.472
-.324	-.207	.398	-.293	.604	-.191	.501	-.236	.292	-.389	.295	-.394
-.172	-.175	.737	.025	.765	.065	.603	-.096	.403	-.308	.396	-.267
-.030	-.249			.967	.170	.703	.013	.489	-.262	.497	-.174
.128	-.292			1.000	.043	.784	.059	.594	-.171	.597	-.090
.418	-.202					.868	.142	.700	-.030	.702	.006
.564	-.136					.923	.158	.786	.048	.786	.049
.710	-.015					.972	.122	.858	.089	.864	.075
.976	.175							.919	.145	.912	.089
1.072	.172							.967	.114		
1.110	.135										
CN=	-.1590		-.2158		-.2867		-.3294		-.3574		-.3363
CM=	-.0684		-.0497		-.0645		-.0819		-.0702		-.0720

TABLE VI.- PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE ADDITIONS; $\delta_h = -2.5^{\circ}$ - Continued.

M = 0.50

$\alpha = 0^{\circ}; C_L = 0.039$

STA X/C	.133 CP	STA X/C	.307 CP	STA X/C	.480 CP	STA X/C	.653 CP	STA X/C	.804 CP	STA X/C	.933 CP
					UPPER SURFACE						
-.660	-.006	-.021	-.082	.023	-.142	.025	-.092	.022	.043	.018	.153
-.567	-.108	.035	-.249	.068	-.188	.079	-.143	.075	-.095	.077	-.152
-.452	-.193	.105	-.230	.134	-.184	.133	-.138	.129	-.096	.129	-.065
-.311	-.235	.178	-.239	.209	-.195	.214	-.145	.201	-.116	.209	-.072
-.023	-.198	.286	-.220	.294	-.183	.295	-.140	.294	-.108	.293	-.097
.133	-.146	.396	-.196	.404	-.170	.407	-.149	.397	-.113	.494	-.112
.272	-.114	.514	-.154	.497	-.169	.502	-.154	.495	-.137	.590	-.134
.416	-.080	.618	-.163	.599	-.179	.601	-.171	.594	-.159	.693	-.163
.565	-.057	.733	-.142	.700	-.191	.698	-.198	.693	-.183	.777	-.182
.713	-.050	.835	-.139	.864	-.201	.863	-.225	.784	-.211	.861	-.172
.854	-.060	.919	-.119	.926	-.154	.923	-.169	.856	-.216	.918	-.162
.980	-.060	.987	-.049	.975	-.068	.977	-.050	.926	-.184	.972	-.058
1.074	-.061							.977	-.057		
1.122	-.032										
					LOWER SURFACE						
-.660	.055	-.022	-.025	.024	-.226	.025	-.287	.019	-.561	.020	-.523
-.616	-.036	.038	-.209	.075	-.316	.130	-.276	.066	-.458	.076	-.459
-.572	-.061	.101	-.217	.297	-.212	.298	-.187	.136	-.343	.136	-.371
-.462	-.095	.185	-.202	.400	-.155	.397	-.176	.214	-.227	.221	-.225
-.329	-.095	.398	-.151	.604	-.113	.501	-.140	.292	-.186	.295	-.184
-.172	-.091	.737	.076	.785	.135	.603	-.052	.403	-.163	.396	-.150
-.030	-.157			.967	.163	.703	.041	.489	-.149	.497	-.114
.128	-.190			1.000	.019	.784	.127	.594	-.114	.597	-.058
.418	-.107					.868	.181	.700	.034	.702	.065
.564	-.054					.923	.208	.786	.138	.786	.151
.710	.052					.972	.155	.858	.207	.864	.209
.976	.200							.919	.216	.912	.213
1.072	.175							.967	.143		
1.110	.132										
CN=	.1399		.0990		.0844		.0808		.0278		.0203
CM=	-.0292		-.0479		-.0653		-.0726		-.0776		-.0786

$\alpha = 4.00^{\circ}; C_L = 0.396$

STA X/C	.133 CP	STA X/C	.307 CP	STA X/C	.480 CP	STA X/C	.653 CP	STA X/C	.804 CP	STA X/C	.933 CP
					UPPER SURFACE						
-.660	-.096	-.021	-.799	.023	-1.072	.025	-.855	.022	-.804	.018	-.708
-.567	-.256	.035	-.653	.068	-.702	.079	-.630	.075	-.586	.077	-.630
-.452	-.332	.105	-.556	.134	-.526	.133	-.514	.129	-.450	.129	-.378
-.311	-.347	.178	-.486	.209	-.449	.214	-.396	.201	-.359	.209	-.283
-.023	-.297	.286	-.393	.294	-.382	.295	-.338	.294	-.311	.293	-.249
.133	-.237	.396	-.331	.404	-.317	.407	-.304	.397	-.272	.494	-.204
.272	-.194	.514	-.258	.497	-.292	.502	-.289	.495	-.263	.590	-.214
.416	-.162	.618	-.236	.599	-.265	.601	-.270	.594	-.263	.693	-.223
.565	-.118	.733	-.194	.700	-.265	.698	-.286	.693	-.264	.777	-.238
.713	-.104	.835	-.163	.864	-.220	.863	-.256	.784	-.272	.861	-.209
.854	-.115	.919	-.119	.926	-.162	.923	-.188	.856	-.263	.918	-.182
.980	-.106	.987	-.041	.975	-.065	.977	-.064	.926	-.191	.972	-.073
1.074	-.085							.977	-.053		
1.122	-.048										
					LOWER SURFACE						
-.660	.093	-.022	.339	.024	.320	.025	.283	.019	.306	.020	.279
-.616	.072	.038	.145	.075	.107	.130	.030	.066	.055	.076	.009
-.572	.054	.101	.042	.297	-.043	.298	-.019	.136	-.004	.136	-.057
-.462	.019	.185	.000	.400	-.033	.397	-.032	.214	-.007	.221	-.066
-.329	.006	.398	-.025	.604	-.047	.501	-.037	.292	-.025	.295	-.061
-.172	-.001	.737	.112	.785	.164	.603	.025	.403	-.032	.396	-.044
-.030	-.056			.967	.161	.703	.075	.489	-.045	.497	-.048
.128	-.084			1.000	-.004	.784	.153	.594	-.045	.597	-.020
.418	-.018					.868	.231	.700	.081	.702	.079
.564	.026					.923	.270	.786	.171	.786	.154
.710	.111					.972	.166	.858	.247	.864	.217
.976	.238							.919	.256	.912	.222
1.072	.196							.967	.140		
1.110	.144										
CN=	.4399		.4148		.4151		.4208		.3788		.3201
CM=	.0271		-.0391		-.0577		-.0752		-.0744		-.0663

TABLE VI.- PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE ADDITIONS; $\delta_h = -2.5^{\circ}$ - Continued.

M = 0.50

$\alpha = 8.00^{\circ}$; $C_L = 0.730$

STA .133 X/C	CP	STA .307 X/C	CP	STA .480 X/C	CP	STA .653 X/C	CP	STA .804 X/C	CP	STA .933 X/C	CP
				UPPER SURFACE							
-.660	-.263	-.021	-2.287	.023	-2.607	.025	-2.205	.022	-1.602	.018	-1.445
-.567	-.426	.035	-1.244	.068	-1.382	.079	-1.221	.075	-1.398	.077	-.990
-.452	-.477	.105	-.890	.134	-1.094	.133	-.866	.129	-1.145	.129	-.841
-.311	-.465	.178	-.746	.209	-.693	.214	-.650	.201	-.727	.209	-.672
-.023	-.394	.266	-.587	.294	-.558	.295	-.529	.294	-.647	.293	-.477
.133	-.319	.396	-.466	.404	-.448	.407	-.434	.397	-.427	.494	-.309
.272	-.276	.514	-.364	.497	-.393	.502	-.377	.495	-.364	.590	-.262
.416	-.216	.618	-.296	.599	-.336	.601	-.338	.594	-.314	.693	-.239
.565	-.186	.733	-.232	.700	-.291	.698	-.312	.693	-.281	.777	-.214
.713	-.161	.835	-.165	.864	-.194	.863	-.210	.784	-.262	.861	-.175
.854	-.170	.919	-.107	.926	-.124	.923	-.150	.856	-.230	.918	-.158
.980	-.144	.987	-.056	.975	-.065	.977	-.067	.926	-.153	.972	-.088
1.074	-.115							.977	-.067		
1.122	-.068										
				LOWER SURFACE							
-.660	.085	-.022	.345	.024	.531	.025	.534	.019	.520	.020	.503
-.616	.152	.038	.337	.075	.367	.130	.269	.066	.329	.076	.279
-.572	.156	.101	.259	.297	.126	.298	.125	.136	.225	.136	.168
-.462	.130	.185	.180	.400	.082	.397	.085	.214	.161	.221	.088
-.329	.110	.398	.090	.604	.015	.501	.058	.292	.112	.295	.059
-.172	.093	.737	.155	.785	.191	.603	.094	.403	.079	.396	.029
-.030	.043			.967	.153	.703	.116	.489	.038	.497	.006
.128	.010			1.000	-.046	.784	.173	.594	.023	.597	.012
.418	.073					.868	.258	.700	.104	.702	.079
.564	.104					.923	.287	.786	.188	.786	.142
.710	.165					.972	.166	.858	.250	.864	.197
.576	.283							.919	.260	.912	.197
1.072	.233							.967	.121		
1.110	.163										
CN=	.7492		.7432		.7350		.7190		.6925		.5634
CM=	.0859		-.0242		-.0376		-.0584		-.0572		-.0478

$\alpha = 11.07^{\circ}$; $C_L = 0.952$

STA .133 X/C	CP	STA .307 X/C	CP	STA .480 X/C	CP	STA .653 X/C	CP	STA .804 X/C	CP	STA .933 X/C	CP
				UPPER SURFACE							
-.660	-.453	-.021	-2.537	.023	-1.025	.025	-2.363	.022	-.992	.018	-.509
-.567	-.573	.035	-2.425	.068	-1.494	.079	-2.075	.075	-1.038	.077	-.503
-.452	-.626	.105	-1.606	.134	-.945	.133	-1.015	.129	-.970	.129	-.471
-.311	-.587	.178	-.751	.209	-.932	.214	-.428	.201	-1.020	.209	-.456
-.023	-.474	.266	-.639	.294	-.650	.295	-.384	.294	-.999	.293	-.425
.133	-.393	.396	-.518	.404	-.812	.407	-.328	.397	-1.004	.494	-.365
.272	-.349	.514	-.357	.497	-.704	.502	-.288	.495	-.970	.590	-.338
.416	-.297	.618	-.304	.599	-.694	.601	-.311	.594	-.842	.693	-.327
.565	-.250	.733	-.225	.700	-.637	.698	-.253	.693	-.746	.777	-.306
.713	-.232	.835	-.158	.864	-.460	.863	-.258	.784	-.598	.861	-.284
.854	-.217	.919	-.106	.926	-.191	.923	-.201	.856	-.375	.918	-.284
.980	-.192	.987	-.076	.975	-.196	.977	-.233	.926	-.330	.972	-.279
1.074	-.137							.977	-.177		
1.122	-.080										
				LOWER SURFACE							
-.660	.044	-.022	.193	.024	.566	.025	.528	.019	.498	.020	.512
-.616	.164	.038	.446	.075	.459	.130	.306	.066	.389	.076	.352
-.572	.214	.101	.382	.297	.186	.298	.158	.136	.284	.136	.234
-.462	.209	.185	.305	.400	.139	.397	.104	.214	.203	.221	.139
-.329	.175	.398	.168	.604	.039	.501	.060	.292	.156	.295	.091
-.172	.100	.737	.184	.785	.165	.603	.073	.403	.108	.396	.055
-.030	.016			.967	.060	.703	.065	.489	.056	.497	.011
.128	.065			1.000	-.467	.784	.116	.594	.040	.597	.010
.418	.140					.868	.215	.700	.100	.702	.071
.564	.182					.923	.247	.786	.173	.786	.125
.710	.241					.972	.058	.858	.236	.864	.178
.576	.325							.919	.231	.912	.180
1.072	.253							.967	.062		
1.110	.193										
CN=	1.0112		.9814		.9111		.7276		.9722		.5131
CM=	.1265		-.0118		-.1126		-.0379		-.1574		-.0915

TABLE VI.- PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE ADDITIONS; $\delta_h = -2.5^{\circ}$ - Continued.

M = 0.80

$\alpha = -3.98^{\circ}$; $C_L = -0.372$

STA .133 X/C	CP	STA .307 X/C	CP	STA .480 X/C	CP	STA .653 X/C	CP	STA .804 X/C	CP	STA .933 X/C	CP
					UPPER SURFACE						
-.660	.028	-.021	.310	.023	.339	.025	.326	.022	.420	.018	.460
-.567	-.002	.035	.135	.068	.182	.079	.190	.075	.209	.077	.129
-.452	-.091	.105	.067	.134	.089	.133	.122	.129	.142	.129	.132
-.311	-.139	.176	-.012	.209	.039	.214	.076	.201	.091	.209	.068
-.023	-.113	.286	-.031	.294	.010	.295	.029	.294	.052	.293	.012
.133	-.049	.396	-.043	.404	-.019	.407	-.012	.397	.011	.494	-.080
.272	-.015	.514	-.041	.497	-.045	.502	-.042	.495	-.038	.590	-.126
.416	.004	.618	-.062	.599	-.074	.601	-.086	.594	-.078	.693	-.185
.565	.031	.733	-.079	.700	-.116	.698	-.142	.693	-.142	.777	-.243
.713	.024	.835	-.097	.864	-.169	.863	-.214	.784	-.188	.861	-.243
.854	-.008	.919	-.091	.926	-.133	.923	-.187	.856	-.213	.918	-.257
.980	-.028	.987	-.024	.975	-.047	.977	-.051	.926	-.177	.972	-.151
1.074	-.049							.977	-.045		
1.122	-.023										
					LOWER SURFACE						
-.660	-.049	-.022	-.689	.024	-1.448	.025	-1.540	.019	-.801	.020	-.614
-.616	-.150	.038	-.798	.075	-1.286	.130	-1.340	.066	-.804	.076	-.440
-.572	-.208	.101	-.664	.297	-.404	.298	-.333	.136	-.768	.136	-.461
-.462	-.202	.185	-.582	.400	-.341	.397	-.286	.214	-.747	.221	-.341
-.329	-.189	.398	-.332	.604	-.207	.501	-.197	.292	-.715	.295	-.323
-.172	-.156	.737	.021	.785	.087	.603	-.041	.403	-.589	.396	-.291
-.030	-.253			.967	.169	.703	.044	.489	-.562	.497	-.251
.128	-.341			1.000	.047	.764	.057	.594	-.461	.597	-.227
.418	-.289					.868	.101	.700	-.298	.702	-.178
.564	-.191					.923	.125	.786	-.171	.786	-.149
.710	-.034					.972	.116	.858	-.056	.864	-.139
.976	.200							.919	.032	.912	-.162
1.072	.200							.967	.052		
1.110	.165										
CN= -.1815		-.3125		-.3432		-.3461		-.4513		-.2205	
CM= -.0763		-.0508		-.0782		-.0959		-.0082		-.0236	

$\alpha = 0.03^{\circ}$; $C_L = -0.034$

STA .133 X/C	CP	STA .307 X/C	CP	STA .480 X/C	CP	STA .653 X/C	CP	STA .804 X/C	CP	STA .933 X/C	CP
					UPPER SURFACE						
-.660	.004	-.021	-.010	.023	-.214	.025	-.097	.022	.080	.018	.210
-.567	-.096	.035	-.228	.068	-.232	.079	-.154	.075	-.104	.077	-.202
-.452	-.210	.105	-.240	.134	-.219	.133	-.183	.129	-.111	.129	-.090
-.311	-.268	.178	-.264	.209	-.215	.214	-.168	.201	-.130	.209	-.099
-.023	-.224	.286	-.256	.294	-.200	.295	-.175	.294	-.122	.293	-.111
.133	-.155	.396	-.214	.404	-.195	.407	-.165	.397	-.140	.494	-.141
.272	-.128	.514	-.176	.497	-.197	.502	-.182	.495	-.172	.590	-.163
.416	-.092	.618	-.175	.599	-.199	.601	-.207	.594	-.194	.693	-.190
.565	-.059	.733	-.163	.700	-.223	.698	-.242	.693	-.230	.777	-.211
.713	-.055	.835	-.161	.864	-.228	.863	-.249	.784	-.252	.861	-.183
.854	-.078	.919	-.121	.926	-.163	.923	-.180	.856	-.263	.918	-.163
.980	-.084	.987	-.033	.975	-.066	.977	-.032	.926	-.190	.972	-.028
1.074	-.074							.977	-.028		
1.122	-.031										
					LOWER SURFACE						
-.660	.033	-.022	-.018	.024	-.284	.025	-.404	.019	-.643	.020	-.576
-.616	-.040	.038	-.219	.075	-.355	.130	-.349	.066	-.563	.076	-.600
-.572	-.068	.101	-.260	.297	-.259	.298	-.232	.136	-.414	.136	-.526
-.462	-.098	.185	-.246	.400	-.208	.397	-.222	.214	-.285	.221	-.270
-.329	-.099	.398	-.188	.604	-.131	.501	-.179	.292	-.241	.295	-.218
-.172	-.090	.737	.085	.785	.138	.603	-.051	.403	-.200	.396	-.183
-.030	-.169			.967	.187	.703	.059	.489	-.192	.497	-.129
.128	-.223			1.000	.019	.764	.129	.594	-.150	.597	-.052
.418	-.147					.868	.178	.700	.031	.702	.085
.564	-.081					.923	.201	.786	.140	.786	.159
.710	.044					.972	.153	.858	.202	.864	.204
.976	.219							.919	.228	.912	.203
1.072	.209							.967	.159		
1.110	.157										
CN= .1452		.0916		.0873		.0738		.0146		.0057	
CM= -.0333		-.0534		-.0707		-.0800		-.0858		-.0851	

TABLE VI.- PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE ADDITIONS; $\delta_h = -2.5^0$ - Continued.

M = 0.80

$\alpha = 4.02^0$; $C_L = 0.427$

STA .133 X/C	CP	STA .307 X/C	CP	STA .480 X/C	CP	STA .653 X/C	CP	STA .804 X/C	CP	STA .933 X/C	CP
				UPPER SURFACE							
-.660	-.061	-.021	-.774	.023	-1.257	.025	-1.167	.022	-.879	.018	-.707
-.567	-.215	.035	-.812	.068	-1.283	.079	-.828	.075	-.773	.077	-.795
-.452	-.338	.105	-.631	.134	-.601	.133	-.567	.129	-.520	.129	-.458
-.311	-.389	.178	-.553	.209	-.478	.214	-.444	.201	-.429	.209	-.351
-.023	-.335	.286	-.463	.294	-.413	.295	-.378	.294	-.352	.293	-.290
.133	-.245	.396	-.291	.404	-.353	.407	-.333	.397	-.312	.494	-.235
.272	-.232	.514	-.302	.497	-.326	.502	-.323	.495	-.312	.590	-.231
.416	-.198	.618	-.272	.599	-.292	.601	-.322	.594	-.312	.693	-.243
.565	-.155	.733	-.222	.700	-.291	.698	-.330	.693	-.315	.777	-.257
.713	-.131	.835	-.180	.864	-.235	.863	-.277	.784	-.310	.861	-.224
.854	-.137	.919	-.111	.926	-.152	.923	-.173	.856	-.283	.918	-.182
.980	-.135	.987	-.031	.975	-.065	.977	-.047	.926	-.176	.972	-.046
1.074	-.112							.977	-.039		
1.122	-.054										
				LOWER SURFACE							
-.660	.096	.022	.342	.024	.306	.025	.275	.019	.250	.020	.242
-.616	.065	.038	.145	.075	.074	.130	.002	.066	.039	.076	-.028
-.572	.045	.101	.042	.297	-.037	.298	-.048	.136	-.038	.136	-.090
-.462	.001	.185	-.012	.400	-.054	.397	-.063	.214	-.047	.221	-.109
-.329	-.012	.398	-.046	.604	-.057	.501	-.065	.292	-.046	.295	-.103
-.172	-.009	.737	.125	.785	.169	.603	.008	.403	-.052	.396	-.074
-.030	-.066			.967	.185	.703	.070	.489	-.078	.497	-.076
.128	-.121			1.000	-.017	.784	.157	.594	-.071	.597	-.024
.418	-.034					.868	.239	.700	.074	.702	.090
.564	.021					.923	.290	.786	.182	.786	.172
.710	.125					.972	.188	.858	.254	.864	.231
.976	.271							.919	.273	.912	.227
1.072	.228							.967	.150		
1.110	.174										
CN= .4732		.4591		.4752		.4635		.4114		.3394	
CM= .0060		-.0435		-.0562		-.0758		-.0787		-.0690	

$\alpha = 8.14^0$; $C_L = 0.792$

STA .133 X/C	CP	STA .307 X/C	CP	STA .480 X/C	CP	STA .653 X/C	CP	STA .804 X/C	CP	STA .933 X/C	CP
				UPPER SURFACE							
-.660	-.211	-.021	-1.696	.023	-1.008	.025	-1.474	.022	-.963	.018	-.627
-.567	-.370	-.035	-1.744	.068	-1.050	.079	-1.474	.075	-.953	.077	-.609
-.452	-.472	.105	-1.288	.134	-.990	.133	-1.151	.129	-.927	.129	-.571
-.311	-.510	.178	-1.350	.209	-.792	.214	-.588	.201	-.890	.209	-.520
-.023	-.448	.266	-.858	.294	-.871	.295	-.467	.294	-.853	.293	-.506
.133	-.382	.396	-.444	.404	-.870	.407	-.396	.397	-.786	.494	-.395
.272	-.341	.514	-.330	.497	-.753	.502	-.353	.495	-.693	.590	-.356
.416	-.305	.618	-.305	.599	-.689	.601	-.320	.594	-.586	.693	-.306
.565	-.250	.733	-.225	.700	-.592	.698	-.293	.693	-.485	.777	-.276
.713	-.236	.835	-.160	.864	-.408	.863	-.259	.784	-.396	.861	-.231
.854	-.232	.919	-.088	.926	-.390	.923	-.268	.856	-.340	.918	-.203
.980	-.191	.987	-.035	.975	-.274	.977	-.242	.926	-.243	.972	-.198
1.074	-.160							.977	-.201		
1.122	-.092										
				LOWER SURFACE							
-.660	.116	-.022	.426	.024	.515	.025	.482	.019	.454	.020	.451
-.616	.152	.038	.351	.075	.317	.130	.180	.066	.257	.076	.183
-.572	.161	.101	.256	.297	.100	.298	.069	.136	.139	.136	.083
-.462	.115	.185	.189	.400	.056	.397	.017	.214	.089	.221	.020
-.329	.102	.398	.098	.604	-.013	.501	-.014	.292	.054	.295	-.018
-.172	.107	.737	.173	.785	.182	.603	.025	.403	.022	.396	-.040
-.030	.045			.967	.064	.703	.044	.489	-.012	.497	-.075
.128	.002			1.000	-.266	.784	.116	.594	-.030	.597	-.052
.418	.073					.868	.220	.700	.086	.702	.042
.564	.110					.923	.268	.786	.178	.786	.107
.710	.200					.972	.107	.858	.244	.864	.161
.976	.324							.919	.251	.912	.163
1.072	.271							.967	.100		
1.110	.192										
CN= .8409		.8669		.8443		.6505		.7580		.4628	
CM= .0528		-.0175		-.1276		-.0604		-.1160		-.0735	

TABLE VI.- PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE ADDITIONS; $\delta_h = -2.5^0$ - Continued.

M = 0.80

$\alpha = 11.22^0$; $C_L = 0.990$

STA .133 X/C	CP	STA .307 X/C	CP	STA .480 X/C	CP	STA .653 X/C	CP	STA .804 X/C	CP	STA .933 X/C	CP
					UPPER SURFACE						
-.660	-.368	-.021	-1.215	.023	-1.381	.025	-1.529	.022	-.979	.018	-.473
-.567	-.503	.035	-1.167	.068	-1.066	.079	-1.527	.075	-.957	.077	-.460
-.452	-.599	.105	-1.183	.134	-1.346	.133	-1.558	.129	-.922	.129	-.466
-.311	-.620	.178	-1.142	.209	-1.273	.214	-.732	.201	-.949	.209	-.434
-.023	-.538	.286	-1.140	.294	-.995	.295	-.373	.294	-.940	.293	-.414
.133	-.460	.396	-.999	.404	-1.039	.407	-.369	.397	-.928	.494	-.383
.272	-.402	.514	-.926	.497	-.867	.502	-.354	.495	-.950	.590	-.366
.416	-.360	.618	-.791	.599	-.689	.601	-.326	.594	-.848	.693	-.346
.565	-.330	.733	-.690	.700	-.577	.698	-.329	.693	-.784	.777	-.353
.713	-.323	.835	-.546	.864	-.335	.863	-.314	.784	-.679	.861	-.349
.854	-.352	.919	-.425	.926	-.424	.923	-.307	.856	-.586	.918	-.334
.980	-.322	.987	-.299	.975	-.338	.977	-.309	.926	-.491	.972	-.329
1.074	-.241							.977	-.270		
1.122	-.147										
					LOWER SURFACE						
-.660	.101	-.022	.423	.024	.563	.025	.541	.019	.515	.020	.494
-.616	.211	.038	.462	.075	.412	.130	.266	.066	.353	.076	.271
-.572	.238	.101	.374	.297	.152	.298	.113	.136	.228	.136	.144
-.462	.218	.185	.278	.400	.102	.397	.058	.214	.153	.221	.059
-.329	.195	.398	.159	.604	-.030	.501	.005	.292	.112	.295	.015
-.172	.174	.737	.170	.785	.121	.603	.046	.403	.071	.396	-.041
-.030	.141			.967	-.009	.703	.046	.489	.009	.497	-.083
.128	.091			1.000	-.393	.784	.116	.594	-.022	.597	-.088
.418	.150					.868	.231	.700	.064	.702	-.002
.564	.177					.923	.275	.786	.138	.786	.064
.710	.249					.972	.090	.858	.200	.864	.115
.976	.345							.919	.191	.912	.118
1.072	.274							.967	-.025		
1.110	.183										
CN= 1.1329		1.1712		.9681		.7313		.9392		.4493	
CM= .0659		-.1521		-.1080		-.0647		-.1688		-.0849	

M = 0.90

$\alpha = -3.82^0$; $C_L = -0.388$

STA .133 X/C	CP	STA .307 X/C	CP	STA .480 X/C	CP	STA .653 X/C	CP	STA .804 X/C	CP	STA .933 X/C	CP
					UPPER SURFACE						
-.660	.022	-.021	.295	.023	.267	.025	.308	.022	.402	.018	.433
-.567	-.010	.035	.116	.068	.149	.079	.162	.075	.189	.077	.093
-.452	-.112	.105	.043	.134	.056	.133	.101	.129	.138	.129	.113
-.311	-.178	.178	-.014	.209	.025	.214	.059	.201	.084	.209	.060
-.023	-.132	.286	-.043	.294	-.004	.295	.021	.294	.042	.293	-.015
.133	-.058	.396	-.058	.404	-.038	.407	-.019	.397	-.001	.494	-.121
.272	-.021	.514	-.041	.497	-.064	.502	-.056	.495	-.054	.590	-.190
.416	.006	.618	-.074	.599	-.093	.601	-.100	.594	-.110	.693	-.272
.565	.045	.733	-.083	.700	-.138	.698	-.166	.693	-.180	.777	-.361
.713	.032	.835	-.111	.864	-.158	.863	-.249	.784	-.236	.861	-.309
.854	-.013	.919	-.099	.926	-.156	.923	-.209	.856	-.244	.918	-.332
.980	-.044	.987	-.011	.975	-.059	.977	-.069	.926	-.210	.972	-.217
1.074	-.058							.977	-.136		
1.122	-.026										
					LOWER SURFACE						
-.660	-.056	-.022	-.623	.024	-1.062	.025	-1.190	.019	-.898	.020	-.483
-.616	-.141	.038	-.698	.075	-1.092	.130	-1.200	.066	-.868	.076	-.462
-.572	-.177	.101	-.635	.297	-.970	.298	-.668	.136	-.785	.136	-.403
-.462	-.206	.185	-.604	.400	-.184	.397	-.261	.214	-.757	.221	-.356
-.329	-.194	.398	-.565	.604	-.198	.501	-.181	.292	-.741	.295	-.318
-.172	-.121	.737	.005	.785	.111	.603	-.070	.403	-.693	.396	-.296
-.030	-.234			.967	.176	.703	.044	.489	-.599	.497	-.249
.128	-.350			1.000	.028	.784	.044	.594	-.544	.597	-.227
.418	-.343					.868	.093	.700	-.428	.702	-.229
.564	-.310					.923	.102	.786	-.328	.786	-.208
.710	-.083					.972	.078	.858	-.152	.864	-.214
.976	.198							.919	.107	.912	-.201
1.072	.222							.967	.136		
1.110	.179										
CN= -.1937		-.3660		-.3399		-.3294		-.4824		-.1795	
CM= -.0538		-.0365		-.0772		-.0878		-.0054		-.0314	

TABLE VI.- PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE ADDITIONS; $\delta_h = -2.5^{\circ}$ - Continued.

M = 0.90

$\alpha = 0.02^{\circ}$; $C_L = 0.024$

STA .133 X/C	CP	STA .307 X/C	CP	STA .480 X/C	CP	STA .653 X/C	CP	STA .804 X/C	CP	STA .933 X/C	CP
				UPPER SURFACE							
-.660	.015	-.021	-.032	.023	-.169	.025	-.079	.022	.081	.018	.190
-.567	-.081	.035	-.227	.068	-.238	.079	-.150	.075	-.122	.077	-.204
-.452	-.219	.105	-.240	.134	-.232	.133	-.171	.129	-.115	.129	-.089
-.311	-.291	.178	-.248	.209	-.213	.214	-.167	.201	-.138	.209	-.127
-.023	-.244	.286	-.253	.294	-.216	.295	-.163	.294	-.140	.293	-.149
.133	-.158	.396	-.233	.404	-.194	.407	-.171	.397	-.146	.494	-.169
.272	-.123	.514	-.186	.497	-.199	.502	-.200	.495	-.185	.590	-.182
.416	-.097	.618	-.188	.599	-.213	.601	-.217	.594	-.209	.693	-.207
.565	-.056	.733	-.170	.700	-.239	.698	-.272	.693	-.258	.777	-.213
.713	-.055	.835	-.167	.864	-.236	.863	-.276	.784	-.285	.861	-.172
.854	-.086	.919	-.119	.926	-.146	.923	-.168	.856	-.282	.918	-.127
.980	-.098	.987	-.015	.975	-.050	.977	-.024	.926	-.173	.972	.012
1.074	-.090							.977	-.010		
1.122	-.030										
				LOWER SURFACE							
-.660	.039	-.022	.032	.024	-.264	.025	-.520	.019	-.659	.020	-.633
-.616	-.039	.038	-.223	.075	-.425	.130	-.343	.066	-.698	.076	-.699
-.572	-.074	.101	-.274	.297	-.285	.298	-.297	.136	-.515	.136	-.665
-.462	-.112	.185	-.288	.400	-.229	.397	-.256	.214	-.315	.221	-.398
-.329	-.117	.398	-.203	.604	-.130	.501	-.195	.292	-.285	.295	-.255
-.172	-.078	.737	.086	.785	.143	.603	-.047	.403	-.223	.396	-.165
-.030	-.173			.967	.199	.703	.065	.489	-.223	.497	-.128
.128	-.257			1.000	.007	.784	.116	.594	-.168	.597	-.044
.418	-.178					.868	.174	.700	.024	.702	.089
.564	-.110					.923	.185	.786	.132	.786	.160
.710	.037					.972	.139	.858	.192	.864	.199
.976	.234							.919	.214	.912	.197
1.072	.223							.967	.162		
1.110	.170										
CN= .1383		.0651		.0772		.0561		-.0057		-.0125	
CM= -.0364		-.0541		-.0741		-.0831		-.0879		-.0872	

$\alpha = 3.97^{\circ}$; $C_L = 0.461$

STA .133 X/C	CP	STA .307 X/C	CP	STA .480 X/C	CP	STA .653 X/C	CP	STA .804 X/C	CP	STA .933 X/C	CP
				UPPER SURFACE							
-.660	-.051	-.021	-.806	.023	-.951	.025	-.944	.022	-.823	.018	-.733
-.567	-.188	.035	-.799	.068	-1.076	.079	-1.031	.075	-.952	.077	-.916
-.452	-.334	.105	-.620	.134	-1.002	.133	-1.013	.129	-.893	.129	-.795
-.311	-.411	.178	-.608	.209	-.983	.214	-.963	.201	-.465	.209	-.397
-.023	-.344	.286	-.566	.294	-.675	.295	-.545	.294	-.352	.293	-.344
.133	-.273	.396	-.494	.404	-.405	.407	-.283	.397	-.300	.494	-.228
.272	-.224	.514	-.402	.497	-.284	.502	-.267	.495	-.332	.590	-.237
.416	-.213	.618	-.362	.595	-.245	.601	-.296	.594	-.345	.693	-.255
.565	-.188	.733	-.231	.700	-.279	.698	-.340	.693	-.347	.777	-.261
.713	-.183	.835	-.153	.864	-.220	.863	-.291	.784	-.332	.861	-.209
.854	-.219	.919	-.083	.926	-.132	.923	-.180	.856	-.273	.918	-.150
.980	-.181	.987	-.019	.975	-.053	.977	-.057	.926	-.149	.972	-.017
1.074	-.135							.977	-.034		
1.122	-.064										
				LOWER SURFACE							
-.660	.100	-.022	.347	.024	.277	.025	.218	.019	.213	.020	.224
-.616	.072	.038	.143	.075	.046	.130	-.031	.066	.001	.076	-.047
-.572	.043	.101	.041	.297	-.065	.298	-.065	.136	-.052	.136	-.115
-.462	-.007	.185	-.012	.400	-.079	.397	-.086	.214	-.063	.221	-.128
-.329	-.020	.398	-.058	.604	-.070	.501	-.077	.292	-.064	.295	-.132
-.172	-.006	.737	.133	.785	.181	.603	.016	.403	-.047	.396	-.107
-.030	-.080			.967	.200	.703	.073	.489	-.092	.497	-.099
.128	-.128			1.000	-.016	.784	.157	.594	-.090	.597	-.034
.418	-.037					.868	.244	.700	.068	.702	.092
.564	.007					.923	.295	.786	.180	.786	.177
.710	.127					.972	.196	.858	.254	.864	.226
.976	.286							.919	.271	.912	.231
1.072	.249							.967	.148		
1.110	.184										
CN= .5090		.5028		.5232		.5291		.4396		.3635	
CM= -.0154		-.0501		-.0546		-.0732		-.0762		-.0621	

TABLE VI.- PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE ADDITIONS; $\delta_h = -2.5^0$ - Continued.

M = 0.90

$\alpha = 8.17^0$; $C_L = 0.863$

STA .133		STA .307		STA .480		STA .653		STA .804		STA .933	
X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
				UPPER SURFACE							
-.660	-.150	-.021	-1.321	.023	-1.324	.025	-1.294	.022	-1.251	.018	-.665
-.567	-.323	.035	-1.440	.068	-1.436	.079	-1.345	.075	-1.327	.077	-.623
-.452	-.438	.109	-1.118	.134	-1.365	.133	-1.323	.129	-1.305	.129	-.578
-.311	-.520	.178	-1.076	.209	-1.324	.214	-1.184	.201	-1.253	.209	-.556
-.023	-.458	.286	-1.048	.294	-1.017	.295	-.910	.294	-.821	.293	-.525
.133	-.349	.396	-.920	.404	-.812	.407	-.746	.397	-.727	.494	-.450
.272	-.319	.514	-.732	.497	-.800	.502	-.515	.495	-.672	.590	-.403
.416	-.312	.618	-.575	.599	-.751	.601	-.340	.594	-.613	.693	-.363
.565	-.265	.733	-.489	.700	-.682	.698	-.283	.693	-.554	.777	-.337
.713	-.293	.835	-.199	.864	-.461	.863	-.255	.784	-.455	.861	-.308
.854	-.369	.919	-.082	.926	-.415	.923	-.261	.856	-.396	.918	-.291
.980	-.431	.987	-.037	.975	-.319	.977	-.262	.926	-.312	.972	-.279
1.074	-.288							.977	-.259		
1.122	-.140										
				LOWER SURFACE							
-.660	.141	-.022	.462	.024	.507	.025	.450	.019	.437	.020	.443
-.616	.170	.038	.354	.075	.293	.130	.158	.066	.209	.076	.166
-.572	.169	.101	.265	.297	.096	.298	.041	.136	.112	.136	.064
-.462	.121	.185	.191	.400	.045	.397	-.013	.214	.063	.221	-.004
-.329	.101	.398	.092	.604	-.029	.501	-.047	.292	.029	.295	-.041
-.172	.109	.737	.180	.785	.163	.603	.006	.403	-.003	.396	-.076
-.030	.033			.967	.076	.703	.015	.489	-.049	.497	-.101
.128	-.002			1.000	-.382	.784	.096	.594	-.066	.597	-.081
.418	.081					.868	.212	.700	.077	.702	.012
.564	.118					.923	.266	.786	.179	.786	.091
.710	.215					.972	.096	.858	.251	.864	.140
.976	.337							.919	.254	.912	.138
1.072	.273							.967	.095		
1.110	.192										
CN=	.9065		.9782		.9787		.7661		.8394		.4854
CM=	-.0047		-.0174		-.1287		-.0683		-.1153		-.0848

M = 0.95

$\alpha = -3.97^0$; $C_L = -0.440$

STA .133		STA .307		STA .480		STA .653		STA .804		STA .933	
X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
				UPPER SURFACE							
-.660	.046	-.021	.325	.023	.295	.025	.289	.022	.394	.018	.450
-.567	.002	.035	.125	.068	.132	.079	.151	.075	.203	.077	.199
-.452	-.109	.105	.048	.134	.059	.133	.100	.129	.139	.129	.129
-.311	-.199	.178	.000	.209	.023	.214	.044	.201	.082	.209	.056
-.023	-.113	.286	-.019	.294	-.007	.295	.032	.294	.050	.293	.001
.133	-.041	.396	-.040	.404	-.029	.407	-.009	.397	.014	.494	-.126
.272	-.000	.514	-.034	.497	-.060	.502	-.056	.495	-.043	.590	-.204
.416	.032	.618	-.065	.599	-.085	.601	-.097	.594	-.095	.693	-.302
.565	.055	.733	-.083	.700	-.136	.698	-.175	.693	-.171	.777	-.413
.713	.051	.835	-.121	.864	-.198	.863	-.252	.784	-.261	.861	-.515
.854	.007	.919	-.098	.926	-.152	.923	-.204	.856	-.344	.918	-.646
.980	-.038	.987	.008	.975	-.027	.977	-.033	.926	-.515	.972	-.267
1.074	-.072							.977	-.538		
1.122	-.033										
				LOWER SURFACE							
-.660	-.043	-.022	-.528	.024	-.889	.025	-1.025	.019	-.824	.020	-.405
-.616	-.132	.038	-.746	.075	-.931	0.000	0.000	.066	-.701	.076	-.391
0.000	0.000	.101	-.626	.297	-.937	.130	-1.096	.136	-.720	.136	-.367
-.329	-.234	.185	-.521	.400	-.894	.298	-.879	.214	-.714	.221	-.368
-.172	-.101	.398	-.592	.604	-.188	.397	-.528	.292	-.660	.295	-.345
-.030	-.216	.737	-.097	.785	.040	.501	-.380	.403	-.582	.396	-.311
.128	-.345			.967	.067	.603	-.214	.489	-.522	.497	-.281
.418	-.289			1.000	.034	.703	.044	.594	-.528	.597	-.257
.564	-.310					.784	.055	.700	-.422	.702	-.237
.710	-.189					.868	.058	.786	-.363	.786	-.232
.976	.162					.923	.006	.858	-.305	.864	-.217
1.072	.200							.919	-.284	.912	-.209
1.110	.163							.967	-.288		
0.000	0.000										
CN=	-.1909		-.4113		-.4398		-.4042		-.4507		-.1497
CM=	-.0081		-.0114		-.0382		-.0587		.0019		-.0531

TABLE VI.- PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE ADDITIONS; $\delta_h = -2.5^0$ - Continued.

M = 0.95

$\alpha = -0.09^0$; $C_L = 0.012$

STA .133 X/C	CP	STA .307 X/C	CP	STA .480 X/C	CP	STA .653 X/C	CP	STA .804 X/C	CP	STA .933 X/C	CP
					UPPER SURFACE						
-.660	.030	-.021	.018	.023	-.141	.025	-.104	.022	.094	.018	.190
-.567	-.065	.035	-.189	.068	-.272	.079	-.214	.075	-.106	.077	-.068
-.452	-.195	.105	-.229	.134	-.261	.133	-.213	.129	-.125	.129	-.093
-.311	-.287	.178	-.273	.209	-.232	.214	-.177	.201	-.131	.209	-.139
-.023	-.378	.286	-.235	.294	-.207	.295	-.158	.294	-.138	.293	-.156
.133	-.119	.396	-.243	.404	-.184	.407	-.171	.397	-.143	.494	-.222
.272	-.095	.514	-.197	.497	-.234	.502	-.199	.495	-.196	.590	-.289
.416	-.081	.618	-.200	.599	-.227	.601	-.221	.594	-.254	.693	-.354
.565	-.039	.733	-.202	.700	-.266	.698	-.296	.693	-.317	.777	-.111
.713	-.040	.835	-.183	.864	-.268	.863	-.338	.784	-.317	.861	-.137
.854	-.100	.919	-.125	.926	-.155	.923	-.159	.856	-.329	.918	-.106
.980	-.123	.987	-.005	.975	-.052	.977	-.016	.926	-.205	.972	.027
1.074	-.104							.977	-.022		
1.122	-.029										
					LOWER SURFACE						
-.660	.042	-.022	.040	.024	-.289	.025	-.491	.019	-.568	.020	-.573
-.616	-.024	.038	-.208	.075	-.451	0.000	0.000	.066	-.743	.076	-.791
0.000	0.000	.101	-.290	.297	-.241	.130	-.549	.136	-.682	.136	-.731
-.329	-.121	.185	-.312	.400	-.259	.298	-.237	.214	-.340	.221	-.621
-.172	-.071	.398	-.225	.604	-.207	.397	-.235	.292	-.278	.295	-.383
-.030	-.192	.737	.088	.785	.142	.501	-.287	.403	-.251	.396	-.282
.128	-.314			.967	.209	.603	-.029	.489	-.184	.497	-.083
.418	-.196			1.000	.016	.703	.067	.594	-.201	.597	-.002
.564	-.148					.784	.113	.700	.014	.702	.102
.710	.033					.868	.177	.786	.116	.786	.164
.976	.237					.923	.185	.858	.174	.864	.204
1.072	.233							.919	.212	.912	.212
1.110	.184							.967	.150		
0.000	0.000										

CN=	.1469	.0777	.0759	.0428	-.0069	-.0343
CM=	-.0213	-.0580	-.0750	-.0838	-.0955	-.0964

$\alpha = 3.96^0$; $C_L = 0.495$

STA .133 X/C	CP	STA .307 X/C	CP	STA .480 X/C	CP	STA .653 X/C	CP	STA .804 X/C	CP	STA .933 X/C	CP
					UPPER SURFACE						
-.660	-.019	-.021	-.838	.023	-.789	.025	-.767	.022	-.656	.018	-.620
-.567	-.142	.035	-.935	.068	-.903	.079	-.847	.075	-.822	.077	-.805
-.452	-.276	.105	-.853	.134	-.871	.133	-.856	.129	-.813	.129	-.822
-.311	-.374	.178	-.366	.209	-.795	.214	-.832	.201	-.818	.209	-.790
-.023	-.461	.286	-.446	.294	-.587	.295	-.775	.294	-.757	.293	-.751
.133	-.360	.396	-.439	.404	-.503	.407	-.744	.397	-.735	.494	-.607
.272	-.221	.514	-.382	.497	-.434	.502	-.455	.495	-.695	.590	.016
.416	-.105	.618	-.380	.599	-.444	.601	-.423	.594	-.510	.693	-.005
.565	-.098	.733	-.381	.700	-.503	.698	-.503	.693	-.231	.777	-.145
.713	-.123	.835	-.383	.864	-.193	.863	-.175	.784	-.188	.861	-.185
.854	-.207	.919	-.184	.926	-.102	.923	-.076	.856	-.180	.918	-.163
.980	-.260	.987	-.063	.975	-.078	.977	-.022	.926	-.115	.972	-.019
1.074	-.309							.977	.022		
1.122	-.172										
					LOWER SURFACE						
-.660	.118	-.022	.372	.024	.249	.025	.170	.019	.148	.020	.216
-.616	.088	.038	.146	.075	.026	0.000	0.000	.066	-.076	.076	-.079
0.000	0.000	.101	.047	.297	-.104	.130	-.071	.136	-.100	.136	-.138
-.329	-.021	.185	-.003	.400	-.101	.298	-.103	.214	-.106	.221	-.148
-.172	-.003	.398	-.055	.604	-.084	.397	-.132	.292	-.088	.295	-.152
-.030	-.095	.737	.131	.785	.174	.501	-.104	.403	-.055	.396	-.129
.128	-.173			.967	.191	.603	.015	.489	-.103	.497	-.117
.418	-.052			1.000	-.055	.703	.068	.594	-.088	.597	-.022
.564	.007					.784	.159	.700	.087	.702	.118
.710	.124					.868	.244	.786	.200	.786	.197
.976	.293					.923	.297	.858	.271	.864	.237
1.072	.242							.919	.296	.912	.245
1.110	.163							.967	.193		
0.000	0.000										

CN=	.4939	.5261	.5249	.5578	.5405	.4376
CM=	-.0320	-.0743	-.0801	-.0848	-.0891	-.0584

TABLE VI.- PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE ADDITIONS; $\delta_h = -2.5^0$ - Continued.

M = 0.95

$\alpha = 8.15^0$; $C_L = 0.902$

STA .133 X/C	CP	STA .307 X/C	CP	STA .480 X/C	CP	STA .653 X/C	CP	STA .804 X/C	CP	STA .933 X/C	CP
					UPPER SURFACE						
-.660	-.115	-.021	-1.163	.023	-1.141	.025	-1.101	.022	-1.034	.018	-.979
-.567	-.302	.035	-1.281	.068	-1.227	.079	-1.155	.075	-1.131	.077	-1.074
-.452	-.380	.105	-1.228	.134	-1.187	.133	-1.145	.129	-1.114	.129	-.976
-.311	-.465	.178	-1.155	.209	-1.150	.214	-1.125	.201	-1.101	.209	-.889
-.023	-.529	.286	-.925	.294	-1.110	.295	-1.093	.294	-1.057	.293	-.774
.133	-.411	.396	-.753	.404	-1.046	.407	-1.079	.397	-1.028	.494	-.555
.272	-.345	.514	-.644	.497	-.855	.502	-1.053	.495	-.972	.590	-.485
.416	-.263	.618	-.520	.599	-.717	.601	-.941	.594	-.691	.693	-.412
.565	-.188	.733	-.455	.700	-.588	.698	-.657	.693	-.500	.777	-.388
.713	-.203	.835	-.462	.864	-.348	.863	-.554	.784	-.401	.861	-.338
.854	-.292	.919	-.325	.926	-.311	.923	-.506	.856	-.373	.918	-.319
.980	-.361	.987	-.161	.975	-.258	.977	-.404	.926	-.353	.972	-.305
1.074	-.440							.977	-.344		
1.122	-.359										
					LOWER SURFACE						
-.660	.163	-.022	.474	.024	.501	.025	.431	.019	.387	.020	.382
-.616	.183	.038	.369	.075	.279	0.000	0.000	.066	.168	.076	.101
0.000	0.000	.101	.261	.297	.082	.130	.125	.136	.072	.136	.002
-.329	.108	.185	.193	.400	.033	.298	.018	.214	.029	.221	-.058
-.172	.108	.398	.096	.604	-.039	.397	-.037	.292	-.008	.295	-.111
-.030	.035	.737	.174	.785	.154	.501	-.071	.403	-.016	.396	-.153
.128	-.005			.967	.100	.603	.006	.489	-.082	.497	-.186
.418	.081			1.000	-.295	.703	.025	.594	-.136	.597	-.160
.564	.120					.784	.112	.700	.017	.702	-.039
.710	.217					.868	.234	.786	.117	.786	.050
.976	.344					.923	.289	.858	.196	.864	.101
1.072	.269							.919	.208	.912	.098
1.110	.168							.967	.024		
0.000	0.000										
CN= .8513		.9747		.9257		.9816		.8335		.5909	
CM= -.0259		-.1008		-.1197		-.1700		-.1217		-.0758	

M = 0.99

$\alpha = -3.98^0$; $C_L = -0.459$

STA .133 X/C	CP	STA .307 X/C	CP	STA .480 X/C	CP	STA .653 X/C	CP	STA .804 X/C	CP	STA .933 X/C	CP
					UPPER SURFACE						
-.660	-.044	-.021	.330	.023	.291	.025	.273	.022	.365	.018	.430
-.567	-.048	.035	.158	.068	.151	.079	.129	.075	.178	.077	.189
-.452	-.111	.105	.078	.134	.077	.133	.099	.129	.117	.129	.121
-.311	-.172	.178	.028	.209	.040	.214	.044	.201	.062	.209	.063
-.023	-.200	.286	-.004	.294	.009	.295	.035	.294	.032	.293	.006
.133	.002	.396	-.023	.404	-.022	.407	-.010	.397	.000	.494	-.113
.272	.032	.514	-.013	.497	-.060	.502	-.055	.495	-.069	.590	-.189
.416	.057	.618	-.048	.599	-.091	.601	-.093	.594	-.134	.693	-.290
.565	.088	.733	-.084	.700	-.146	.698	-.176	.693	-.183	.777	-.389
.713	.073	.835	-.145	.864	-.194	.863	-.402	.784	-.213	.861	-.486
.854	.025	.919	-.096	.926	-.150	.923	-.152	.856	-.342	.918	-.637
.980	-.025	.987	.016	.975	-.030	.977	-.034	.926	-.442	.972	-.433
1.074	-.088							.977	-.457		
1.122	-.040										
					LOWER SURFACE						
-.660	-.100	-.022	-.438	.024	-.789	.025	-.867	.019	-.929	.020	-.688
-.616	-.137	.038	-.594	.075	-.833	0.000	0.000	.066	-1.054	.076	-.644
0.000	0.000	.101	-.587	.297	-.826	.130	-.992	.136	-.997	.136	-.615
-.329	-.223	.185	-.514	.400	-.851	.298	-.959	.214	-.981	.221	-.541
-.172	-.063	.398	-.516	.604	-.197	.397	-.921	.292	-.934	.295	-.531
-.030	-.205	.737	-.097	.785	.017	.501	-.627	.403	-.709	.396	-.442
.128	-.334			.967	.084	.603	-.170	.489	-.653	.497	-.409
.418	-.238			1.000	.021	.703	.083	.594	-.638	.597	-.377
.564	-.293					.784	.197	.700	-.529	.702	-.381
.710	-.176					.868	.189	.786	-.286	.786	-.376
.976	.174					.923	.084	.858	-.107	.864	-.340
1.072	.218							.919	-.085	.912	-.331
1.110	.180							.967	-.041		
0.000	0.000										
CN= -.1620		-.3911		-.4051		-.4054		-.5415		-.3100	
CM= .0019		-.0125		-.0359		-.0673		-.0139		-.0271	

TABLE VI.- PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE ADDITIONS; $\delta_h = -2.5^{\circ}$ - Continued.

$M = 0.99$

$\alpha = -0.05^{\circ}$; $C_L = -0.004$

STA .133 X/C	CP	STA .307 X/C	CP	STA .480 X/C	CP	STA .653 X/C	CP	STA .804 X/C	CP	STA .933 X/C	CP
				UPPER SURFACE							
-.660	-.006	-.021	-.061	.023	-.205	.025	-.081	.022	.097	.018	.225
-.567	-.079	.035	-.293	.068	-.248	.079	-.175	.075	-.097	.077	-.037
-.452	-.157	.105	-.258	.134	-.240	.133	-.186	.129	-.106	.129	-.056
-.311	-.245	.178	-.307	.209	-.264	.214	-.191	.201	-.130	.209	-.096
-.023	-.332	.286	-.216	.294	-.237	.295	-.170	.294	-.098	.293	-.128
.133	-.247	.396	-.201	.404	-.188	.407	-.175	.397	-.074	.494	-.221
.272	-.183	.514	-.183	.497	-.204	.502	-.224	.495	-.125	.590	-.286
.416	-.113	.618	-.199	.599	-.249	.601	-.263	.594	-.196	.693	-.373
.565	-.028	.733	-.197	.700	-.288	.698	-.156	.693	-.282	.777	-.471
.713	-.018	.835	-.240	.864	-.163	.863	-.322	.784	-.367	.861	-.333
.854	-.071	.919	-.111	.926	-.086	.923	-.166	.856	-.494	.918	-.076
.980	-.118	.987	.032	.975	-.012	.977	.001	.926	-.186	.972	-.011
1.074	-.142							.977	-.050		
1.122	-.042										
				LOWER SURFACE							
-.660	.040	-.022	.040	.024	-.261	.025	-.430	.019	-.526	.020	-.539
-.616	-.029	.038	-.233	.075	-.427	0.000	0.000	.066	-.731	.076	-.691
0.000	0.000	.101	-.292	.297	-.473	.130	-.674	.136	-.662	.136	-.706
-.329	-.097	.185	-.306	.400	-.447	.298	-.164	.214	-.563	.221	-.742
-.172	-.036	.398	-.383	.604	-.123	.397	-.223	.292	-.301	.295	-.478
-.030	-.161	.737	.079	.785	.176	.501	-.244	.403	-.247	.396	-.339
.128	-.283			.967	.232	.603	.008	.489	-.176	.497	-.242
.418	-.238			1.000	.022	.703	.096	.594	-.192	.597	-.059
.564	-.211					.784	.147	.700	.019	.702	.056
.710	-.020					.868	.201	.786	.109	.786	.126
.976	.220					.923	.217	.858	.168	.864	.173
1.072	.230							.919	.201	.912	.175
1.110	.183							.967	.119		
0.000	0.000										
CN= .1439		.0379		.0291		.0414		-.0362		-.0512	
CM= -.0082		-.0463		-.0692		-.0860		-.0973		-.1068	

$\alpha = 3.43^{\circ}$; $C_L = 0.440$

STA .133 X/C	CP	STA .307 X/C	CP	STA .480 X/C	CP	STA .653 X/C	CP	STA .804 X/C	CP	STA .933 X/C	CP
				UPPER SURFACE							
-.660	.000	-.021	-.051	.023	-.655	.025	-.613	.022	-.493	.018	-.413
-.567	-.135	.035	-.748	.068	-.792	.079	-.722	.075	-.678	.077	-.632
-.452	-.201	.105	-.695	.134	-.768	.133	-.735	.129	-.678	.129	-.650
-.311	-.284	.178	-.530	.209	-.731	.214	-.722	.201	-.697	.209	-.632
-.023	-.389	.286	-.466	.294	-.671	.295	-.676	.294	-.639	.293	-.598
.133	-.319	.396	-.465	.404	-.588	.407	-.659	.397	-.644	.494	-.581
.272	-.283	.514	-.346	.497	-.427	.502	-.633	.495	-.591	.590	-.576
.416	-.269	.618	-.321	.599	-.314	.601	-.352	.594	-.596	.693	-.597
.565	-.163	.733	-.307	.700	-.437	.698	-.393	.693	-.457	.777	-.229
.713	-.103	.835	-.314	.864	-.280	.863	-.232	.784	-.459	.861	-.109
.854	-.150	.919	-.159	.926	-.111	.923	-.111	.856	-.317	.918	-.061
.980	-.201	.987	-.043	.975	-.077	.977	-.076	.926	-.148	.972	-.049
1.074	-.256							.977	-.094		
1.122	-.149										
				LOWER SURFACE							
-.660	.124	-.022	.305	.024	.212	.025	.137	.019	.056	.020	.120
-.616	.088	.038	.080	.075	-.020	0.000	0.000	.066	-.146	.076	-.157
0.000	0.000	.101	-.006	.297	-.106	.130	-.092	.136	-.126	.136	-.218
-.329	-.002	.185	-.057	.400	-.110	.298	-.179	.214	-.140	.221	-.237
-.172	.023	.398	-.066	.604	-.045	.397	-.237	.292	-.162	.295	-.272
-.030	-.085	.737	.134	.785	.166	.501	-.172	.403	-.217	.396	-.209
.128	-.208			.967	.198	.603	.036	.489	-.085	.497	-.242
.418	-.079			1.000	-.053	.703	.056	.594	-.197	.597	-.129
.564	-.002					.784	.123	.700	.040	.702	.038
.710	.124					.868	.218	.786	.159	.786	.113
.976	.299					.923	.269	.858	.230	.864	.155
1.072	.265							.919	.251	.912	.175
1.110	.183							.967	.128		
0.000	0.000										
CN= .4592		.4772		.5025		.4759		.4827		.3885	
CM= -.0473		-.0683		-.0870		-.0835		-.1110		-.0834	

TABLE VI.- PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE ADDITIONS; $\delta_h = -2.5^0$ - Concluded.

$M = 0.99$

$\alpha = 7.99^0$; $C_L = 0.893$

STA .133 X/C	CP	STA .307 X/C	CP	STA .480 X/C	CP	STA .653 X/C	CP	STA .804 X/C	CP	STA .933 X/C	CP
					UPPER SURFACE						
-.660	-.092	-.021	-1.042	.023	-1.022	.025	-.974	.022	-.899	.018	-.820
-.567	-.259	.035	-1.169	.068	-1.100	.079	-1.027	.075	-1.006	.077	-.959
-.452	-.319	.105	-1.149	.134	-1.084	.133	-1.026	.129	-.988	.129	-.976
-.311	-.393	.178	-1.107	.209	-1.061	.214	-1.014	.201	-.985	.209	-.947
-.023	-.487	.286	-.934	.294	-1.027	.295	-.978	.294	-.949	.293	-.922
.133	-.402	.396	-.782	.404	-1.010	.407	-.976	.397	-.932	.494	-.899
.272	-.347	.514	-.577	.497	-.968	.502	-.962	.495	-.920	.590	-.889
.416	-.305	.618	-.449	.595	-.800	.601	-.921	.594	-.902	.693	-.872
.565	-.226	.733	-.401	.700	-.621	.698	-.625	.693	-.714	.777	-.766
.713	-.185	.835	-.373	.864	-.384	.863	-.511	.784	-.548	.861	-.493
.854	-.244	.919	-.239	.926	-.313	.923	-.495	.856	-.463	.918	-.447
.980	-.302	.987	-.112	.975	-.284	.977	-.474	.926	-.408	.972	-.459
1.074	-.375							.977	-.413		
1.122	-.310										
					LOWER SURFACE						
-.660	.197	-.022	.490	.024	.512	.025	.447	.019	.369	.020	.364
-.616	.217	.038	.357	.075	.302	0.000	0.000	.066	.141	.076	.073
0.000	0.000	.101	.266	.297	.095	.130	.141	.136	.054	.136	-.027
-.329	.130	.185	.202	.400	.043	.298	.035	.214	.001	.221	-.101
-.172	.128	.398	.110	.604	-.012	.397	-.034	.292	-.043	.295	-.165
-.030	.043	.737	.199	.785	.183	.501	-.114	.403	-.008	.396	-.154
.128	-.005			.967	.121	.603	.029	.489	-.076	.497	-.241
.418	.102			1.000	-.293	.703	.019	.594	-.207	.597	-.225
.564	.137					.784	.057	.700	-.018	.702	-.085
.710	.238					.868	.210	.786	.100	.786	-.000
.976	.368					.923	.270	.858	.182	.864	.049
1.072	.295							.919	.193	.912	.045
1.110	.201							.967	.009		
0.000	0.000										
CN= .8307		.9363		.9365		.9087		.8211		.7527	
CM= -.0383		-.0922		-.1397		-.1611		-.1480		-.1456	

TABLE VII.- PRESSURE DISTRIBUTIONS OVER REAR FUSELAGE WITH FUSELAGE AREA-RULE ADDITIONS (SEE TABLE VI FOR ORIFICE LOCATIONS): $\delta_h = -2.5^0$

$M = 0.50$

Fuselage station		C_p for							
cm	in.	$\theta = 8^0$	$\theta = 46^0$	$\theta = 136^0$	$\theta = 180^0$	$\theta = 8^0$	$\theta = 46^0$	$\theta = 136^0$	$\theta = 180^0$
		$\alpha = -4.08^0$; $C_L = -0.339$				$\alpha = 0^0$; $C_L = 0.039$			
153.0	60.22	0.073	0.062	-0.014	0.028	0.051	0.042	0.000	0.034
154.4	60.80		.084	.010	.046		.066	.025	.053
156.1	61.46	.127	.100	.041	.059	.108	.087	.049	.060
157.6	62.04	.145	.105	.062	.081	.134	.102	.066	.075
159.2	62.67		.084	.070	.055		.080	.073	.054
160.8	63.30	.058			.015	.057			.026
		$\alpha = 4.00^0$; $C_L = 0.396$				$\alpha = 8.00^0$; $C_L = 0.730$			
153.0	60.22	0.041	0.025	0.020	0.053	0.020	0.003	0.047	0.073
154.4	60.80		.054	.042	.067		.032	.057	.091
156.1	61.46	.101	.080	.062	.076	.085	.065	.075	.091
157.6	62.04	.124	.093	.080	.092	.110	.079	.084	.103
159.2	62.67		.074	.079	.061		.060	.087	.067
160.8	63.30	.061			.031	.046			.018
		$\alpha = 11.07^0$; $C_L = 0.952$							
153.0	60.22	0.004	-0.012	0.052	0.091				
154.4	60.80		.012	.059	.098				
156.1	61.46	.078	.054	.084	.104				
157.6	62.04	.110	.075	.088	.117				
159.2	62.67		.063	.090	.070				
160.8	63.30	.048			.017				

TABLE VII.- PRESSURE DISTRIBUTIONS OVER REAR FUSELAGE WITH FUSELAGE AREA-RULE ADDITIONS; $\delta_h = -2.5^\circ$ - Continued.

M = 0.80

Fuselage station		C_p for							
cm	in.	$\theta = 8^\circ$	$\theta = 46^\circ$	$\theta = 136^\circ$	$\theta = 180^\circ$	$\theta = 8^\circ$	$\theta = 46^\circ$	$\theta = 136^\circ$	$\theta = 180^\circ$
		$\alpha = 3.98^\circ$; $C_L = -0.372$				$\alpha = 0.03^\circ$; $C_L = -0.034$			
153.0	60.22	0.072	0.061	-0.015	0.021	0.047	0.043	-0.002	0.033
154.4	60.80		.090	.014	.048		.076	.031	.057
156.1	61.46	.150	.117	.055	.079	.123	.109	.062	.072
157.6	62.04	.175	.134	.074	.099	.153	.128	.078	.090
159.2	62.67		.109	.089	.078		.103	.090	.069
160.8	63.30	.071			.025	.075			.046
		$\alpha = 4.02^\circ$; $C_L = 0.427$				$\alpha = 8.14^\circ$; $C_L = 0.792$			
153.0	60.22	0.037	0.026	0.015	0.052	0.016	-0.012	0.035	0.082
154.4	60.80		.062	.043	.070		.037	.061	.091
156.1	61.46	.113	.097	.069	.085	.103	.078	.083	.097
157.6	62.04	.142	.122	.088	.100	.122	.110	.100	.122
159.2	62.67		.100	.097	.072		.086	.106	.073
160.8	63.30	.075			.038	.068			.030
		$\alpha = 11.22^\circ$; $C_L = 0.990$							
153.0	60.22	-0.014	-0.036	0.051	0.090				
154.4	60.80		.018	.071	.112				
156.1	61.46	.087	.057	.086	.114				
157.6	62.04	.125	.090	.104	.130				
159.2	62.67		.082	.102	.082				
160.8	63.30	.052			.017				

M = 0.90

Fuselage station		C_p for							
cm	in.	$\theta = 8^\circ$	$\theta = 46^\circ$	$\theta = 136^\circ$	θ 180°	$\theta = 8^\circ$	$\theta = 46^\circ$	$\theta = 136^\circ$	$\theta = 180^\circ$
		$\alpha = -3.82^\circ$; $C_L = -0.389$				$\alpha = 0.02^\circ$; $C_L = 0.024$			
153.0	60.22	0.064	0.054	-0.021	0.018	0.052	0.036	-0.005	0.030
154.4	60.80		.092	.021	.054		.078	.033	.056
156.1	61.46	.155	.130	.062	.079	.138	.119	.066	.081
157.6	62.04	.190	.144	.089	.109	.166	.136	.094	.099
159.2	62.67		.117	.103	.088		.118	.105	.087
160.8	63.30	.082			.039	.097			.062
		$\alpha = 3.97^\circ$; $C_L = 0.461$				$\alpha = 8.17^\circ$; $C_L = 0.863$			
153.0	60.22	0.033	0.014	0.012	0.051	0.002	-0.017	0.034	0.069
154.4	60.80		.066	.050	.073		.043	.065	.093
156.1	61.46	.126	.107	.080	.087	.102	.090	.092	.106
157.6	62.04	.155	.133	.104	.110	.135	.125	.108	.128
159.2	62.67		.115	.110	.087		.108	.115	.090
160.8	63.30	.095			.049	.085			.041

TABLE VII.- PRESSURE DISTRIBUTIONS OVER REAR FUSELAGE WITH FUSELAGE AREA-RULE ADDITIONS; $\delta_h = -2.5^\circ$ - Concluded.

M = 0.95

Fuselage station		C_p for							
cm	in.	$\Theta = 8^\circ$	$\Theta = 46^\circ$	$\Theta = 136^\circ$	$\Theta = 180^\circ$	$\Theta = 8^\circ$	$\Theta = 46^\circ$	$\Theta = 136^\circ$	$\Theta = 180^\circ$
		$\alpha = -3.97^\circ$; $C_L = -0.440$				$\alpha = -0.09^\circ$; $C_L = 0.012$			
153.0	60.22	0.066	0.050	-0.024	0.012	0.050	0.035	-0.010	0.033
154.4	60.80		.100	.025	.054		.088	.040	.065
156.1	61.46	.169	.141	.075	.087	.151	.132	.082	.090
157.6	62.04	.214	.158	.105	.122	.186	.156	.108	.116
159.2	62.67		.135	.120	.101		.137	.123	.100
160.8	63.30	.097			.060	.112			.079
		$\alpha = 3.96^\circ$; $C_L = 0.495$				$\alpha = 8.15^\circ$; $C_L = 0.902$			
153.0	60.22	0.030	0.012	0.015	0.053	-0.010	-0.029	0.040	0.079
154.4	60.80		.071	.053	.079		.053	.070	.105
156.1	61.46	.133	.126	.093	.102	.120	.109	.094	.117
157.6	62.04	.167	.154	.118	.128	.154	.138	.122	.138
159.2	62.67		.135	.129	.102		.130	.125	.106
160.8	63.30	.113			.070	.103			.051

M = 0.99

Fuselage station		C_p for							
cm	in.	$\Theta = 8^\circ$	$\Theta = 46^\circ$	$\Theta = 136^\circ$	$\Theta = 180^\circ$	$\Theta = 8^\circ$	$\Theta = 46^\circ$	$\Theta = 136^\circ$	$\Theta = 180^\circ$
		$\alpha = -3.96^\circ$; $C_L = -0.459$				$\alpha = -0.05^\circ$; $C_L = -0.004$			
153.0	60.22	0.091	0.057	-0.083	-0.052	0.041	0.019	0.012	0.027
154.4	60.80		.106	- .002	.026		.090	.048	.069
156.1	61.46	.203	.151	.066	.078	.174	.148	.095	.103
157.6	62.04	.252	.176	.109	.123	.216	.176	.129	.129
159.2	62.67		.155	.130	.117		.161	.145	.126
160.8	63.30	.116			.087	.132			.110
		$\alpha = 3.43^\circ$; $C_L = 0.440$				$\alpha = 7.99^\circ$; $C_L = 0.893$			
153.0	60.22	-0.001	-0.036	0.005	0.046	-0.016	-0.075	0.056	0.095
154.4	60.80		.069	.057	.088		.056	.086	.121
156.1	61.46	.145	.138	.101	.109	.130	.127	.117	.135
157.1	62.04	.191	.171	.131	.136	.168	.166	.141	.160
159.2	62.67		.160	.147	.127		.155	.151	.135
160.8	63.30	.133			.100	.134			.087

TABLE XIII.- PRESSURE DISTRIBUTIONS OVER SIDE OF FUSELAGE WITH AREA RULE ADDITIONS

	M = 0.5 C_p at α, deg. of-					M = 0.8 C_p at α, deg. of-					M = 0.9 C_p at α, deg. of-			
	-3.23	0.09	4.50	7.79	12.14	-3.63	0.25	4.14	7.93	10.24	-3.76	0.25	4.25	8.01
101	.1040	.0524	.0109	-.0267	-.1700	.1201	.0705	.0278	-.0422	-.1299	.1040	.0877	.0423	-.0500
102	.0848	.0228	-.0301	-.0718	-.1232	.0729	.0217	-.0245	-.0724	-.1249	.0894	.0363	-.0135	-.0505
103	-.1437	-.1239	-.1037	-.0989	-.0894	-.1444	-.1471	-.1098	-.0814	-.0311	-.1810	-.1400	-.1080	-.0587
104	-.1051	-.0672	-.0234	.0203	.0422	-.1314	-.0724	-.0320	.0414	.1152	-.1327	-.0724	-.0116	.1115
105	-.0744	-.0393	-.1135	-.1346	-.1494	-.0959	-.1122	-.1290	-.1509	-.1672	-.1135	-.1269	-.1407	-.1555
106	-.1397	-.1135	-.0949	-.1071	-.1478	-.1531	-.1317	-.1123	-.1146	-.1266	-.1675	-.1365	-.1217	-.1135
107	-.1184	-.0644	-.0191	-.0077	-.0179	-.1347	-.0699	-.0234	-.0104	.0029	-.1475	-.0785	-.0242	.0041
108	-.1590	-.1263	-.1533	-.1700	-.2041	-.1351	-.1522	-.1740	-.1968	-.2080	-.1453	-.1697	-.1947	-.2191
109	-.1739	-.1570	-.1473	-.1640	-.2057	-.1940	-.1806	-.1702	-.1827	-.2073	-.2166	-.1951	-.1939	-.2042
110	-.1747	-.1561	-.1438	-.1583	-.2039	-.1998	-.1766	-.1672	-.1755	-.2069	-.2130	-.1867	-.1812	-.1883
111	-.1527	-.1255	-.1095	-.1201	-.1659	-.1759	-.1435	-.1251	-.1311	-.1442	-.1878	-.1492	-.1379	-.1424
112	-.1392	-.1003	-.0728	-.0611	-.0689	-.1547	-.1187	-.0856	-.0707	-.0695	-.1678	-.1176	-.0916	-.0730
113	-.0926	-.0780	-.0636	-.0573	-.0656	-.1023	-.0863	-.0639	-.0674	-.0419	-.1051	-.0825	-.0574	-.0310
114	-.1475	-.1271	-.1173	-.1258	-.1589	-.1634	-.1396	-.1247	-.1280	-.1368	-.1666	-.1367	-.1229	-.1176
115	-.1737	-.1465	-.1328	-.1460	-.2010	-.1878	-.1635	-.1504	-.1709	-.1849	-.1913	-.1656	-.1531	-.1667
116	-.1800	-.1432	-.1439	-.1580	-.2013	-.1966	-.1722	-.1620	-.1863	-.2058	-.2083	-.1801	-.1750	-.1930
117	-.1432	-.0575	-.0232	.0115	.0422	-.1639	-.1107	-.0424	.0214	.0362	-.1988	-.1285	-.0398	.0390
118	-.1609	-.1183	-.0772	-.0702	-.0878	-.1349	-.1291	-.0899	-.0759	-.0720	-.2073	-.1480	-.0996	-.0683
119	-.1649	-.1198	-.0999	-.1064	-.1342	-.1349	-.1455	-.1193	-.1127	-.1162	-.2127	-.1606	-.1273	-.1128
120	-.1607	-.1050	-.0974	-.1116	-.1532	-.1570	-.1278	-.1122	-.1213	-.1355	-.1762	-.1442	-.1231	-.1176
121	-.1109	-.0968	-.0930	-.1068	-.1513	-.1274	-.1129	-.1072	-.1245	-.1358	-.1417	-.1280	-.1210	-.1305
122	-.1134	-.0364	.0342	.1009	.1258	-.1224	-.0449	.0239	.1077	.1417	-.1114	-.0412	.0324	.1073
123	-.0920	-.0320	.0402	.0811	.1315	-.0924	-.0212	.0362	.0927	.1292	-.0905	-.0241	.0457	.1034
124	-.0719	-.0222	.0248	.0669	.1144	-.0762	-.0152	.0256	.0778	.1183	-.0741	-.0179	.0355	.0993
125	-.0492	-.0083	.0270	.0439	.0658	-.0473	-.0020	.0231	.0534	.0850	-.0469	-.0045	.0324	.0801
126	-.0341	-.0043	.0155	.0279	.0191	-.0353	-.0072	.0191	.0404	.0475	-.0300	.0041	.0264	.0528
127	.0876	.1084	.1355	.1580	.1297	.1049	.1348	.1581	.1775	.1659	.0876	.1439	.1682	.1833
128	.0848	.0874	.1173	.1395	.1481	.0827	.1110	.1441	.1605	.1547	.0894	.1212	.1563	.1738
129	.0307	.0334	.0460	.0631	.0594	.0437	.0453	.0550	.0620	.0353	.0507	.0543	.0655	.0728
130	-.0551	-.0263	.0090	.0383	.0521	-.0631	-.0235	.0141	.0415	.0359	-.0623	-.0184	.0216	.0348
131	-.0872	-.0301	-.0185	-.0068	-.0155	-.0317	-.0333	-.0232	-.0256	-.0433	-.0384	-.0338	-.0178	-.0187
132	-.0462	-.0351	-.0279	-.0229	-.0160	-.0477	-.0411	-.0309	-.0328	-.0345	-.0567	-.0450	-.0285	-.0282
133	-.0485	-.0424	-.0219	-.0140	-.0545	-.0571	-.0425	-.0292	-.0347	-.0593	-.0664	-.0485	-.0263	-.0412
134	-.0684	-.0483	-.0301	-.0125	-.0485	-.0735	-.0548	-.0331	-.0304	-.0715	-.0806	-.0570	-.0274	-.0340
135	-.0706	-.0556	-.0283	-.0099	-.0245	-.0842	-.0624	-.0356	-.0259	-.0389	-.0884	-.0622	-.0319	-.0261
136	-.0816	-.0575	-.0283	-.0071	-.0020	-.0957	-.0636	-.0334	-.0168	-.0314	-.0965	-.0674	-.0296	-.0156
137	-.0797	-.0779	-.0712	-.0633	-.0760	-.0993	-.0907	-.0815	-.0822	-.0904	-.1122	-.1015	-.0881	-.0932
138	-.1027	-.0934	-.0873	-.0828	-.0881	-.1252	-.1133	-.1023	-.1036	-.1091	-.1404	-.1223	-.1091	-.1193
139	-.0983	-.0874	-.0728	-.0759	-.0991	-.1213	-.1067	-.0935	-.0968	-.1014	-.1390	-.1196	-.1020	-.1091
140	-.0989	-.0773	-.0633	-.0551	-.0745	-.1197	-.0959	-.0796	-.0768	-.1015	-.1322	-.1133	-.0881	-.1037
141	-.0980	-.0836	-.0639	-.0462	-.0599	-.1169	-.0977	-.0799	-.0781	-.0903	-.1354	-.1187	-.0903	-.0888
142	-.0953	-.0773	-.0589	-.0446	-.0349	-.1150	-.0924	-.0752	-.0657	-.0560	-.1341	-.1089	-.0836	-.0912
143	-.0448	-.0546	-.0674	-.0787	-.1020	-.0625	-.0715	-.0309	-.0954	-.0956	-.0796	-.0853	-.0939	-.0995
144	-.0445	-.0455	-.0567	-.0677	-.0912	-.0625	-.0672	-.0737	-.0863	-.0784	-.0697	-.0795	-.0864	-.0895
145	-.0451	-.0398	-.0363	-.0519	-.0741	-.0518	-.0526	-.0564	-.0635	-.0778	-.0546	-.0566	-.0675	-.0699
146	-.0486	-.0329	-.0229	-.0254	-.0232	-.0529	-.0430	-.0350	-.0407	-.0306	-.0519	-.0522	-.0445	-.0496
147	-.0794	-.0565	-.0371	-.0197	-.0232	-.0773	-.0592	-.0461	-.0386	-.0339	-.0714	-.0620	-.0555	-.0526

TABLE XIII.- PRESSURE DISTRIBUTIONS OVER SIDE OF FUSELAGE WITH AREA RULE ADDITIONS (CONCLUDED)

M = 0.95 C_p at α, deg. of-				M = 0.99 C_p at α, deg. of-			
-3.66	0.25	4.08	7.85	-3.62	0.19	4.11	7.83
.1415	.0894	.0665	-.0267	.1623	.1151	.0955	-.0097
.0917	.0498	.0170	-.0229	.1193	.0811	.0500	.0105
-.1820	-.1312	-.0907	-.0393	-.1560	-.1087	-.0496	-.0128
-.1488	-.0628	-.0010	.1193	-.1108	-.0346	.0318	.1430
-.1174	-.1295	-.1341	-.1411	-.1441	-.1075	-.1103	-.1112
-.1629	-.1457	-.1186	-.1067	-.1089	-.1132	-.0910	-.0795
-.1379	-.0791	-.0229	.0133	-.0708	-.0533	.0046	.0398
-.1404	-.1770	-.2175	-.2997	-.1651	-.2159	-.2563	-.2914
-.2315	-.2218	-.2529	-.2696	-.2401	-.2412	-.2372	-.2476
-.2256	-.1954	-.2136	-.2206	-.2216	-.2069	-.1928	-.1371
-.1944	-.1598	-.1630	-.1637	-.1947	-.1686	-.1474	-.1416
-.1575	-.1249	-.1043	-.0766	-.1588	-.1180	-.0860	-.0535
-.0359	-.0614	-.0308	.0014	-.0628	-.0535	-.0552	-.0293
-.1638	-.1281	-.1103	-.1028	-.1577	-.1502	-.1928	-.2592
-.1905	-.1622	-.1448	-.1494	-.2015	-.2205	-.2323	-.3341
-.1959	-.1775	-.1772	-.1906	-.2156	-.2749	-.2906	-.3077
-.2399	-.1659	-.0611	.0294	-.2166	-.1470	-.0682	.0535
-.2612	-.1985	-.1123	-.0597	-.2423	-.1778	-.1219	-.0138
-.2802	-.2065	-.1417	-.1033	-.2616	-.1868	-.1503	-.0645
-.2300	-.1857	-.1370	-.1181	-.2166	-.1660	-.1503	-.0855
-.1896	-.1651	-.1361	-.1246	-.1663	-.1449	-.1552	-.1930
-.0950	-.0369	.0313	.1176	-.0949	-.0242	.0501	.1323
-.0686	-.0163	.0488	.1161	-.0609	.0055	.0797	.1466
-.0544	-.0090	.0488	.1017	-.0415	.0142	.0790	.1391
-.0301	.0038	.0418	.0935	-.0142	.0305	.0782	.1286
-.0153	.0101	.0371	.0729	-.0051	.0368	.0732	.1107
.0979	.1497	.1631	.1801	.1112	.1602	.1815	.2055
.0762	.1338	.1485	.1714	.0851	.1430	.1707	.2024
.0573	.0619	.0399	.0109	.0696	.0920	.0569	.0436
-.0602	-.0103	.0081	.0241	-.0633	.0188	.0220	.0530
-.0347	-.0318	-.0308	-.0590	-.0394	-.0054	-.0357	-.0554
-.0546	-.0454	-.0400	-.0591	-.0628	-.0144	-.0399	-.0572
-.0659	-.0458	-.0376	-.0524	-.0769	-.0196	-.0391	-.0522
-.0783	-.0584	-.0418	-.0612	-.0944	-.0302	-.0445	-.0699
-.0878	-.0626	-.0437	-.0498	-.1033	-.0322	-.0438	-.0443
-.1001	-.0657	-.0454	-.0447	-.1227	-.0384	-.0433	-.0334
-.1219	-.1088	-.0839	-.0791	-.1253	-.0915	-.1129	-.1352
-.1503	-.1367	-.1065	-.1077	-.1513	-.1162	-.1398	-.1655
-.1512	-.1261	-.0972	-.0963	-.1602	-.1158	-.1294	-.1532
-.1520	-.1215	-.0898	-.0888	-.1595	-.1105	-.1182	-.1406
-.1537	-.1263	-.0895	-.0832	-.1712	-.1170	-.1197	-.1326
-.1452	-.1214	-.0856	-.0853	-.1649	-.1111	-.1153	-.1238
-.0844	-.0917	-.0919	-.0946	-.2860	-.2564	-.2643	-.2735
-.0711	-.0916	-.0825	-.0839	-.2858	-.2433	-.2429	-.2587
-.0521	-.0708	-.0638	-.0635	-.2521	-.2178	-.2133	-.2239
-.0483	-.0589	-.0493	-.0451	-.2099	-.1803	-.1757	-.1937
-.0633	-.0711	-.0573	-.0449	-.1578	-.1718	-.1726	-.1879

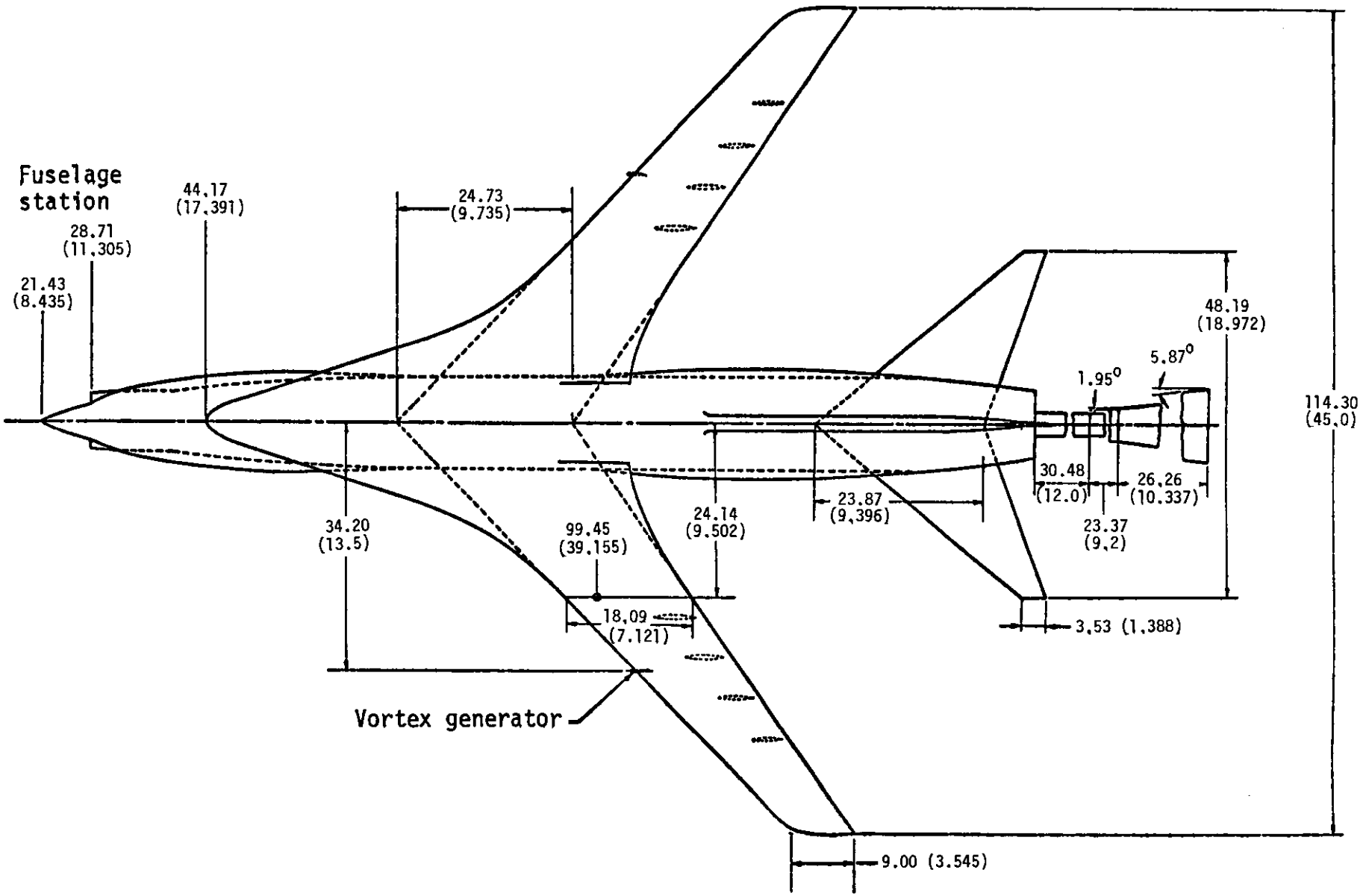


Figure 5.1.- Planform view of TF-8A supercritical wing research model.

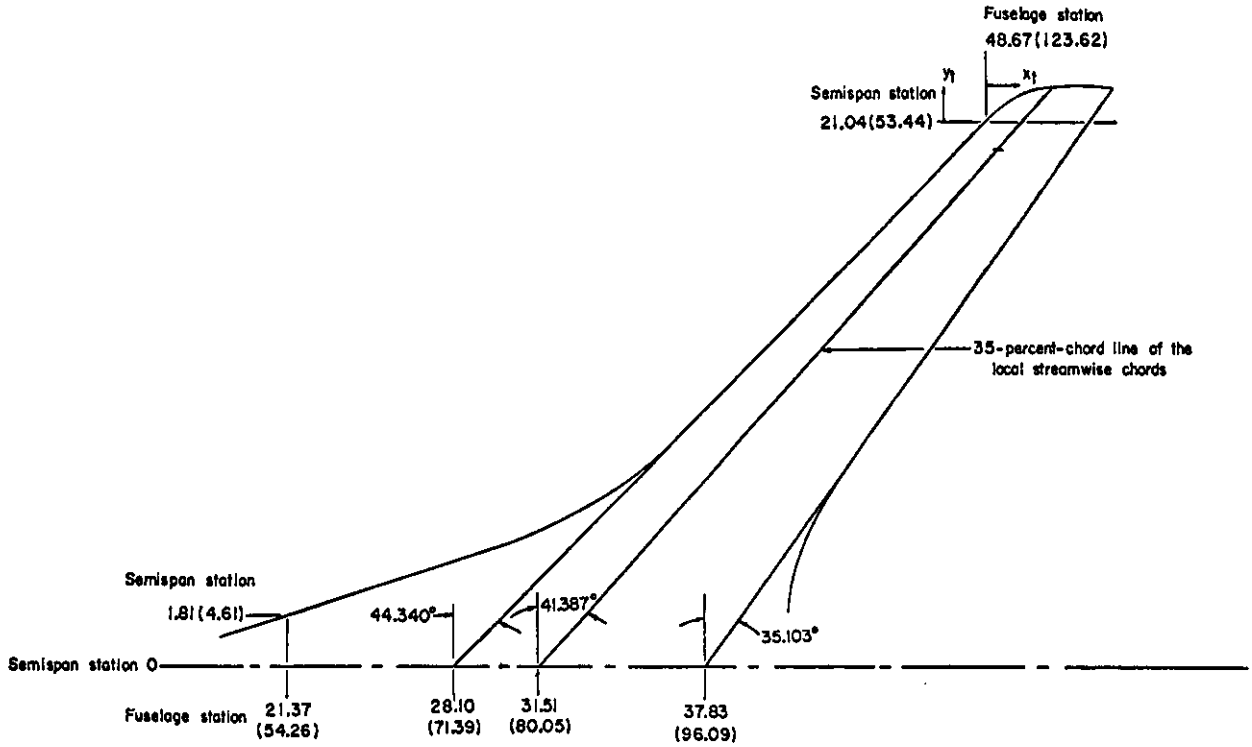


Figure 5.2.- Wing semispan planform layout with model dimensions.

Trailing-Edge Extension Contour

Fuselage station		Semispan station	
Inches	Centimeters	Inches	Centimeters
41.09	104.35	2.26	5.74
41.21	104.70	3.13	7.91
41.43	105.22	4.00	10.17
41.74	106.00	4.87	12.35
42.13	107.04	5.74	14.61
42.60	108.17	6.61	16.78
43.14	109.57	7.48	18.90
43.71	111.04	8.35	21.22

Tip Contour

x_t, In.	x_t, cm	y_t, In.	y_t, cm
0	0	0	0
.13	.35	.13	.35
.38	.96	.39	.96
.63	1.57	.64	1.65
.88	2.26	.85	2.17
1.13	2.87	1.01	2.61
1.38	3.48	1.14	2.87
1.63	4.17	1.24	3.13
1.88	4.78	1.31	3.30
2.13	5.39	1.36	3.48
2.38	6.00	1.40	3.57
2.63	6.70	1.43	3.65
2.88	7.30	1.44	3.65
3.13	7.91	1.45	3.65
3.38	8.61	1.45	3.65
3.63	9.22	1.45	3.65
3.88	9.83	1.45	3.65
4.13	10.52	1.45	3.65
4.38	11.13	1.44	3.65
4.60	11.65	1.44	3.65
4.85	12.34	1.43	3.65
4.96	12.61	1.43	3.65

Glove Leading-Edge Contour

Fuselage station		Semispan station	
Inches	Centimeters	Inches	Centimeters
21.37	54.26	1.81	4.61
21.74	55.22	1.92	4.87
22.60	57.39	2.21	5.57
23.48	59.65	2.49	6.35
24.35	61.83	2.77	7.04
25.22	64.09	3.05	7.74
26.09	66.26	3.33	8.43
26.96	68.43	3.62	9.22
27.83	70.70	3.90	9.91
28.70	72.87	4.18	10.60
29.57	75.13	4.47	11.39
30.17	76.61	4.68	11.91
30.78	78.17	4.91	12.43
31.30	79.48	5.13	13.04
32.17	81.74	5.52	14.00
33.04	83.91	5.97	15.13
33.91	86.17	6.49	16.52
34.78	88.35	7.08	18.00
35.65	90.52	7.78	19.74
36.52	92.78	8.62	21.91

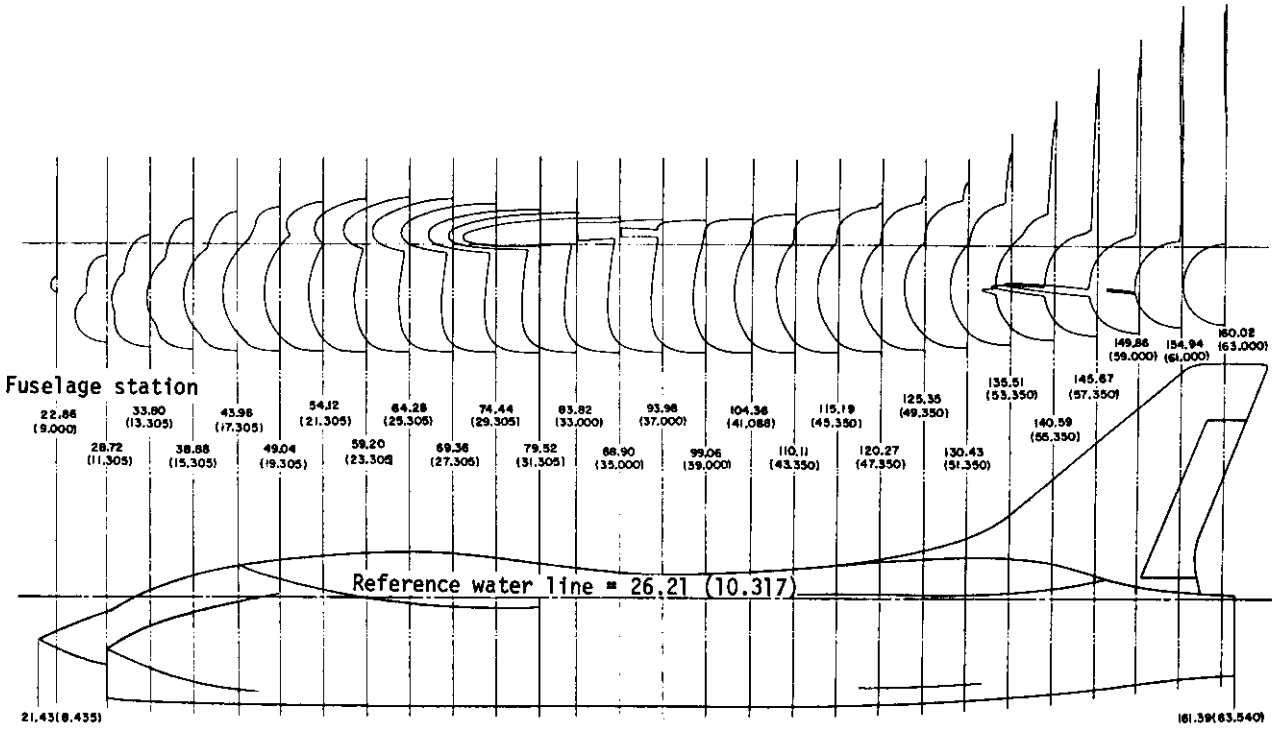


Figure 5.3.- Cross-section layout of 0.087-scale model with fuselage area-rule additions.

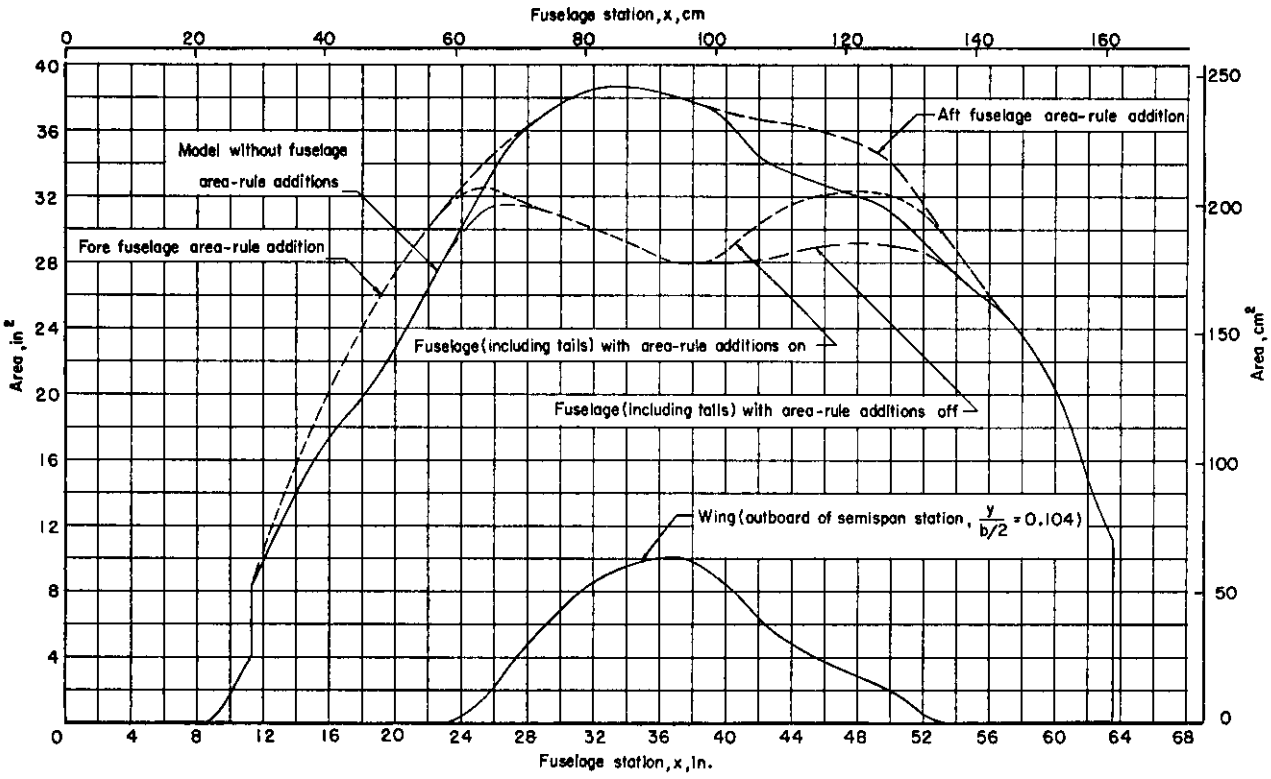
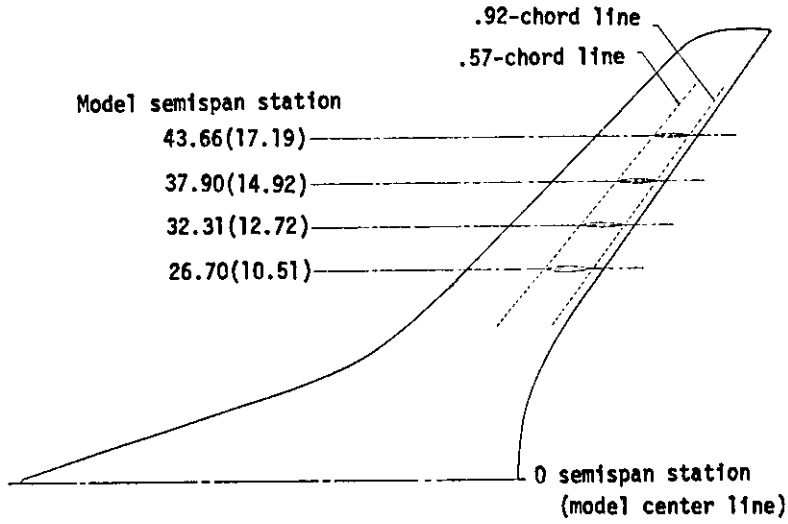
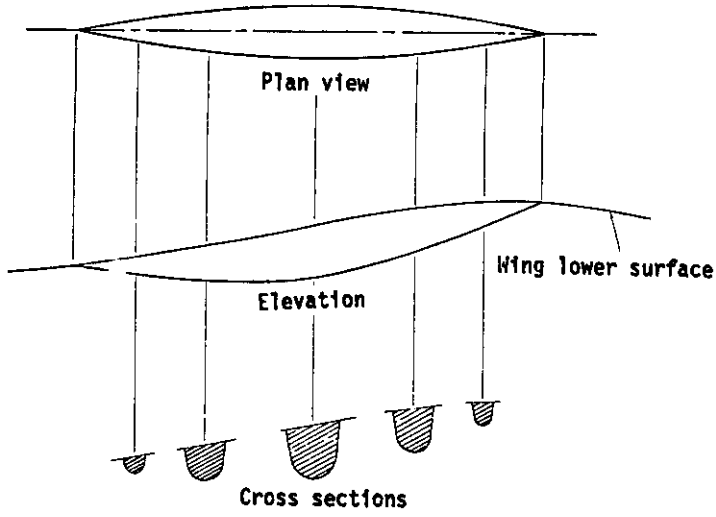


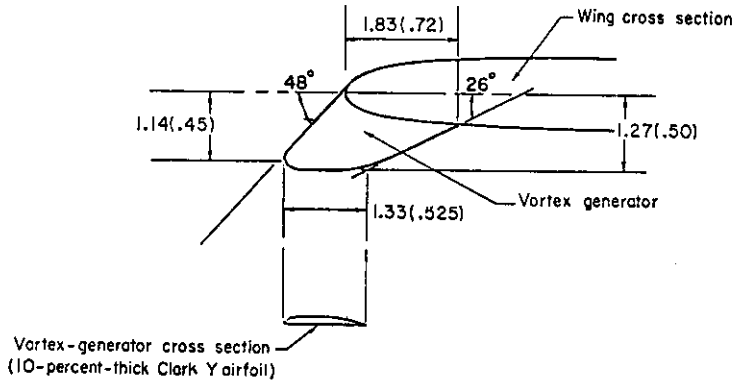
Figure 5.4.- Longitudinal progress of cross-section area taken normal to fuselage centerline. Model and fuselage areas include 28.39 cm^2 (4.40 in^2) of inlet area.



(a) Location of aileron hinge fairings.



(b) Sketch of typical aileron hinge fairing.



(c) Sketch of underwing leading-edge vortex generator.

Figure 5.5 - Sketches giving details of aileron hinge fairings and vortex generator. See Figure 5.1.

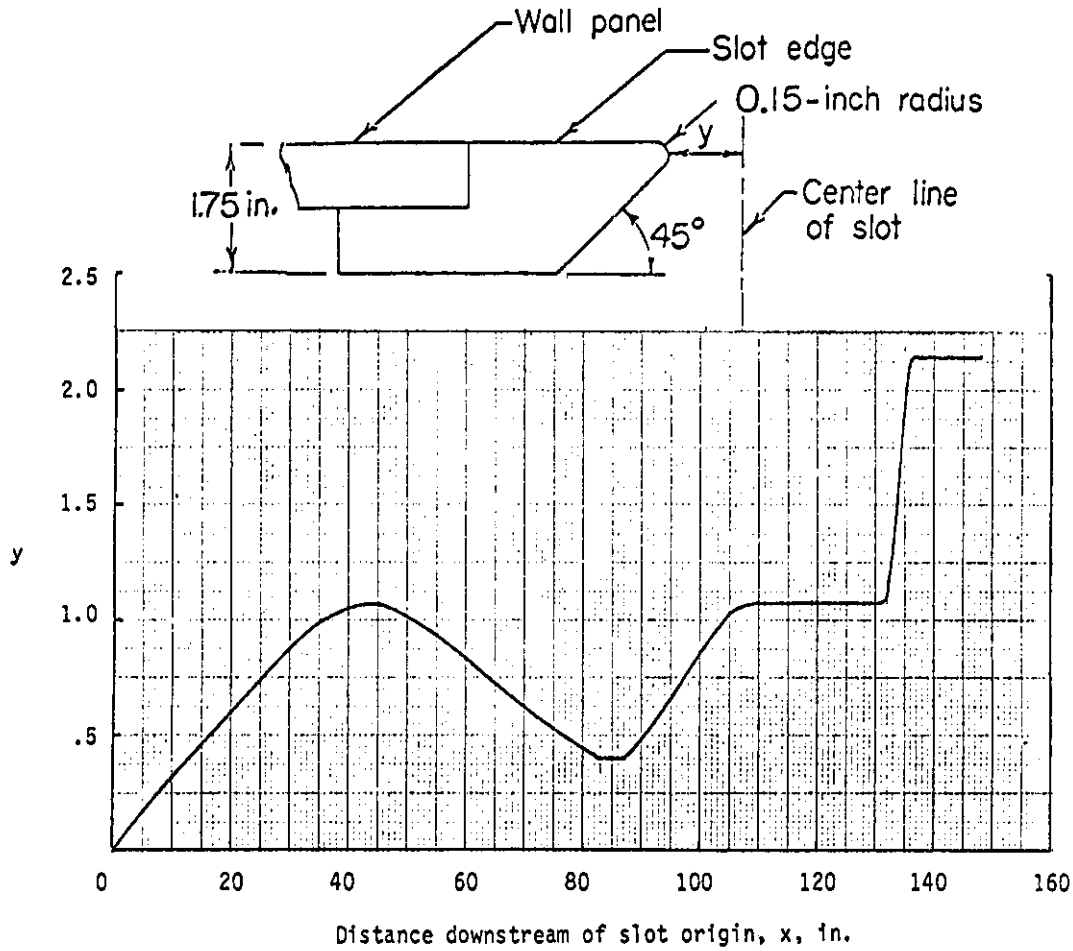


Figure 5.6.- Slot geometry for the Langley 8-Foot Transonic Pressure Tunnel.

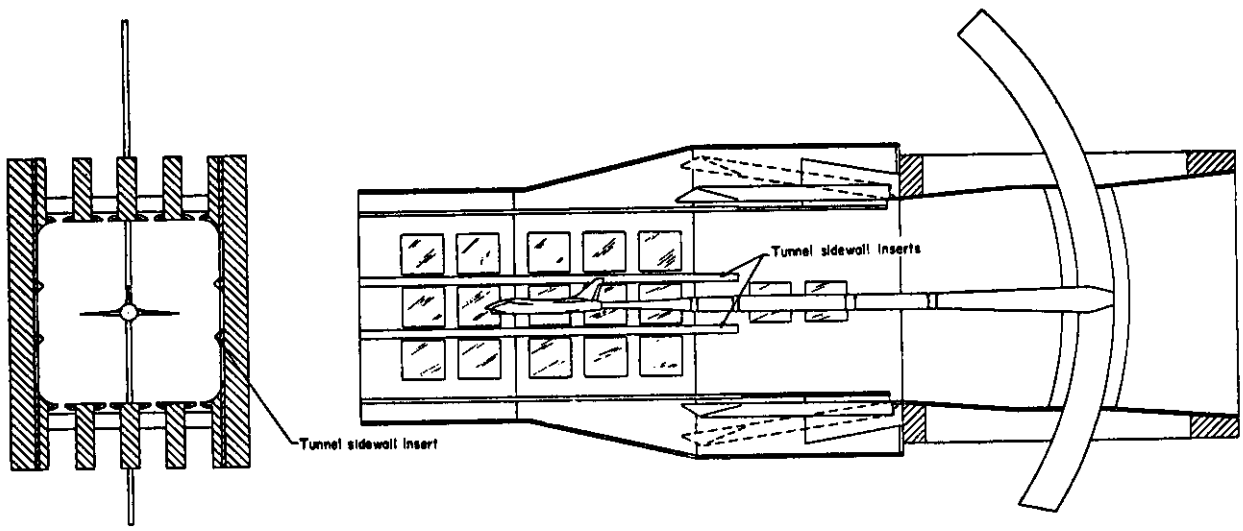


Figure 5.7.- Tunnel test section with sidewall inserts.

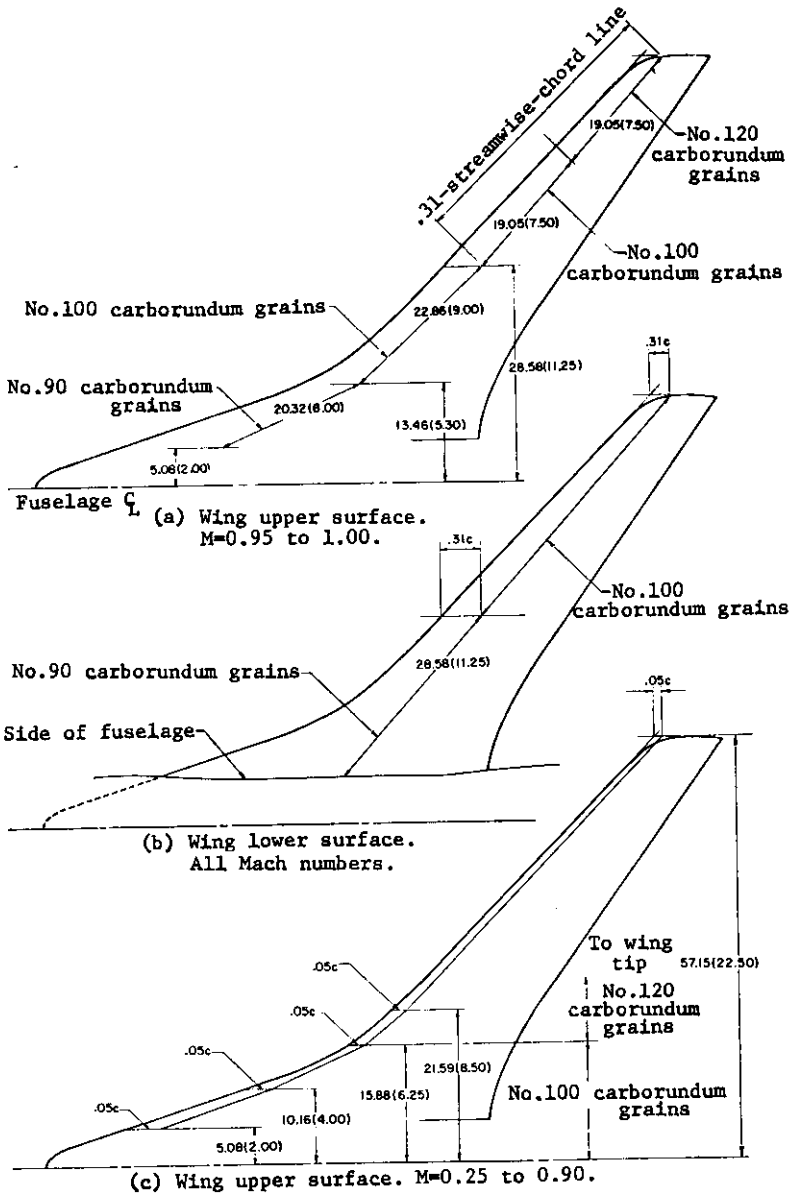


Figure 5.8.- Boundary-layer trip arrangements. Dimensions are in centimeters (inches).

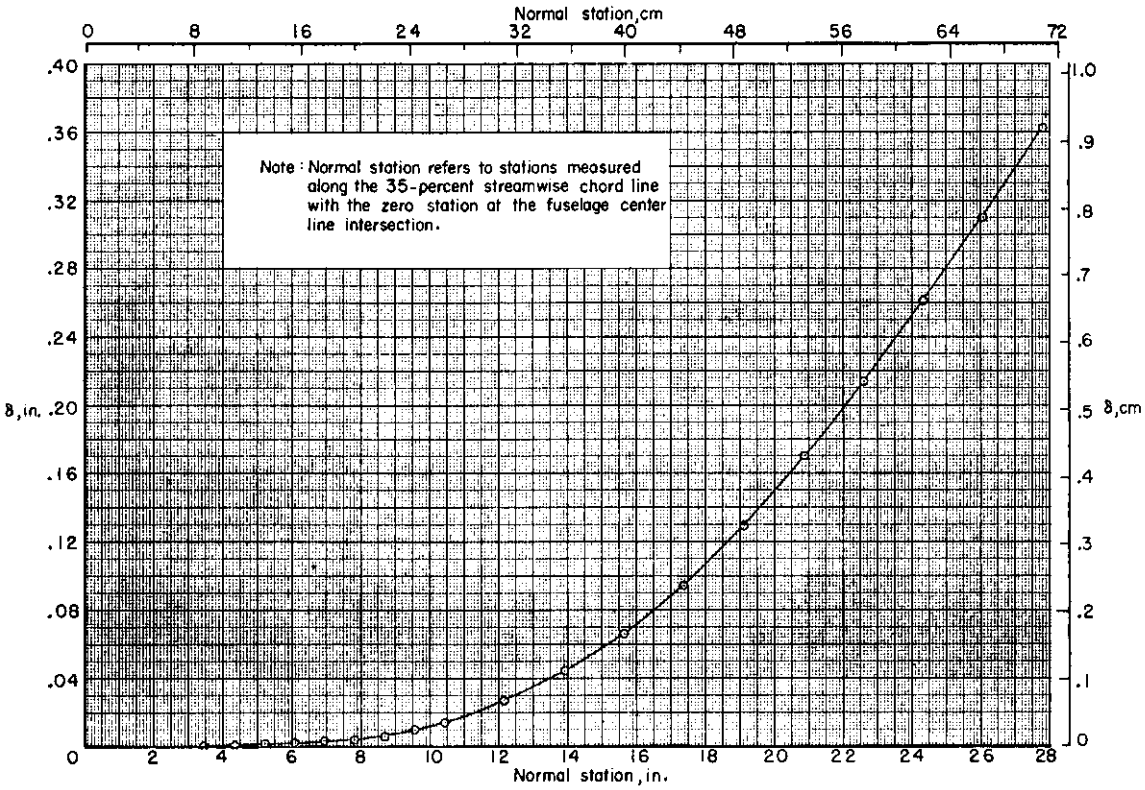
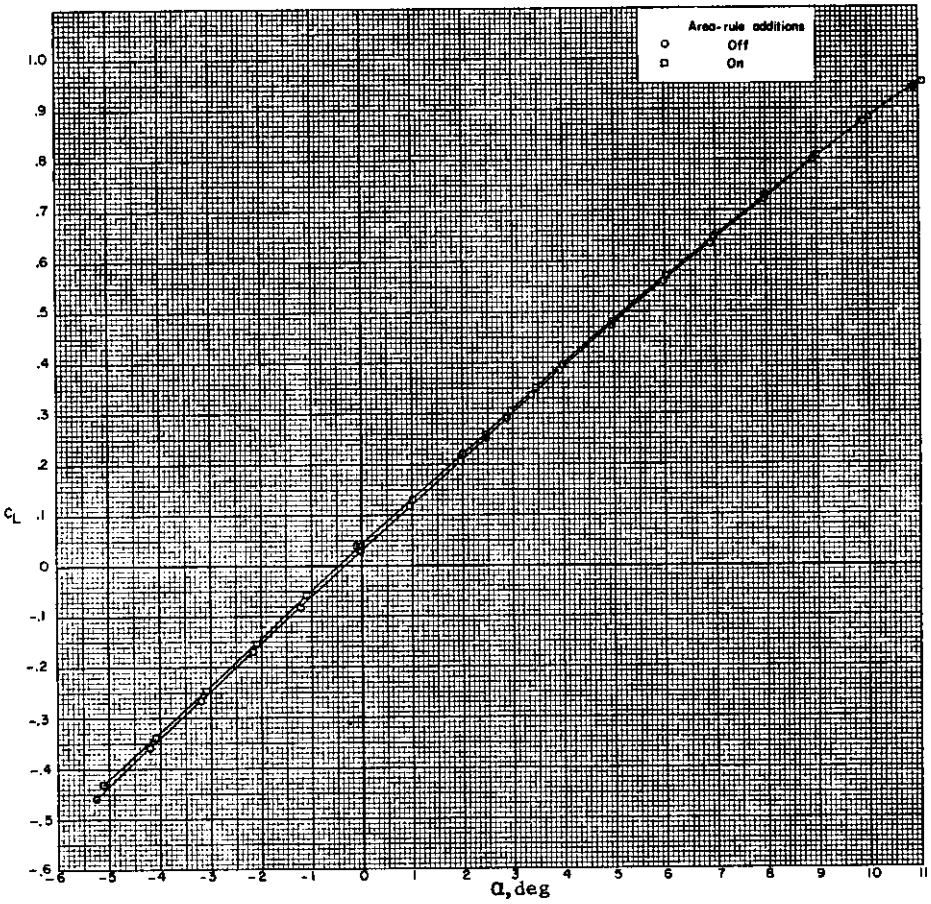
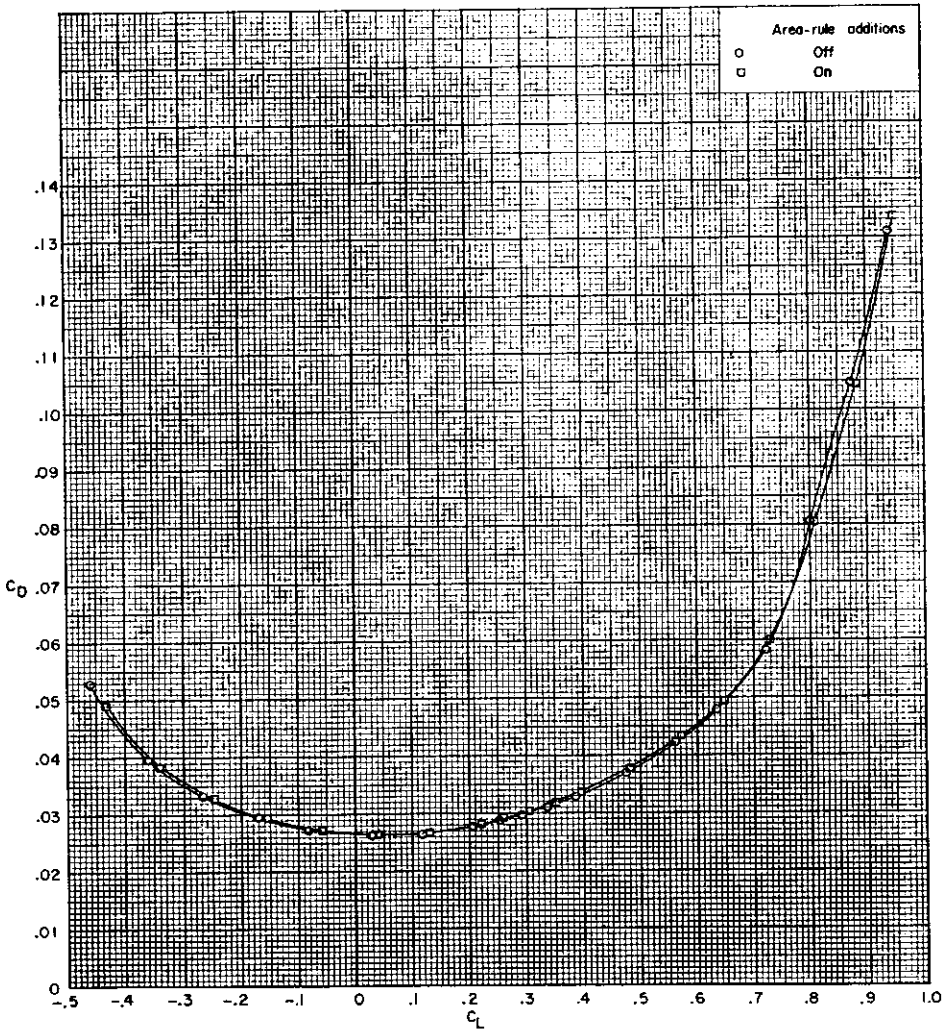


Figure 5.9.- Vertical deflection of model wing due to aerodynamic loading. $M = 0.99$; $C_L = 0.429$; $q = 44\ 193\ N/m^2$ (923 lb/sq ft); $R = 16.1 \times 10^6$ per meter (4.9×10^6 per foot). Note: Tip at normal station 30.

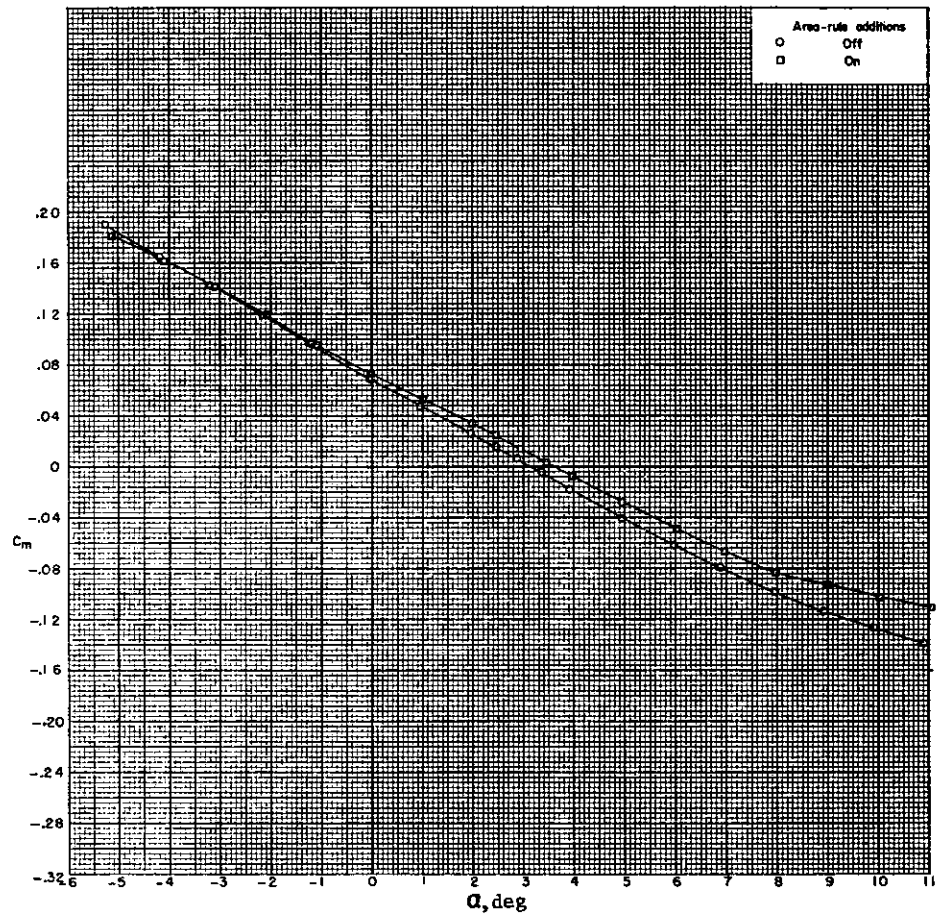


M = 0.50.

Figure 5.10.- Longitudinal force and moment characteristics for supercritical wing research airplane model.

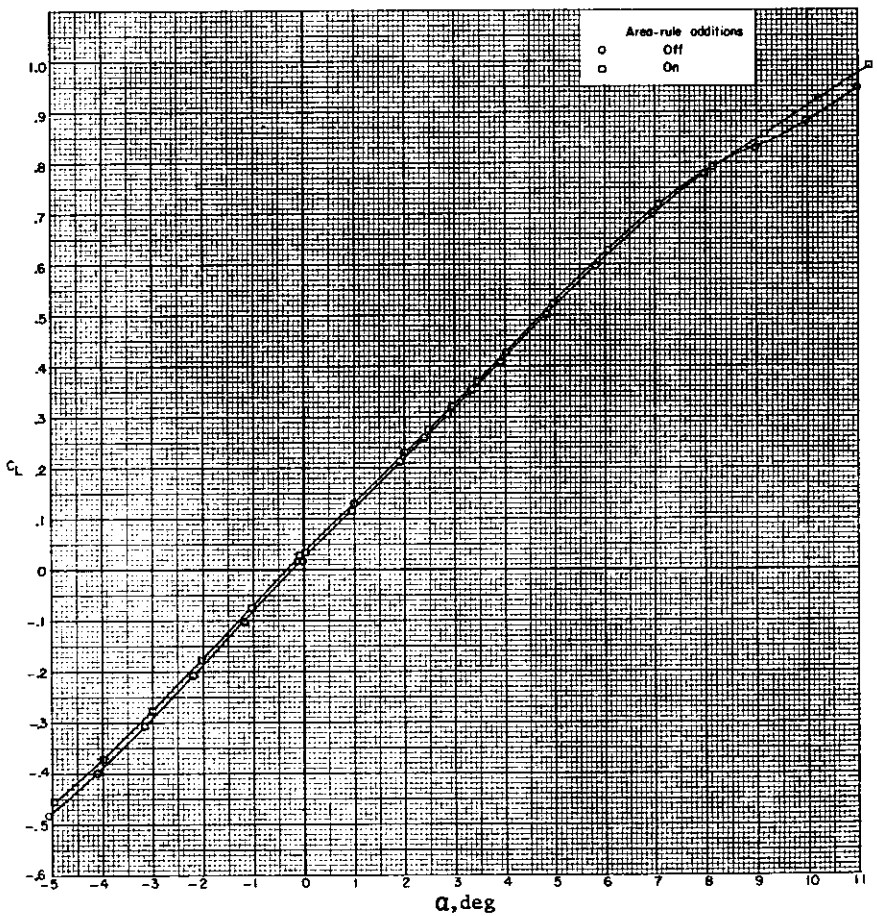


M = 0.50. Continued.

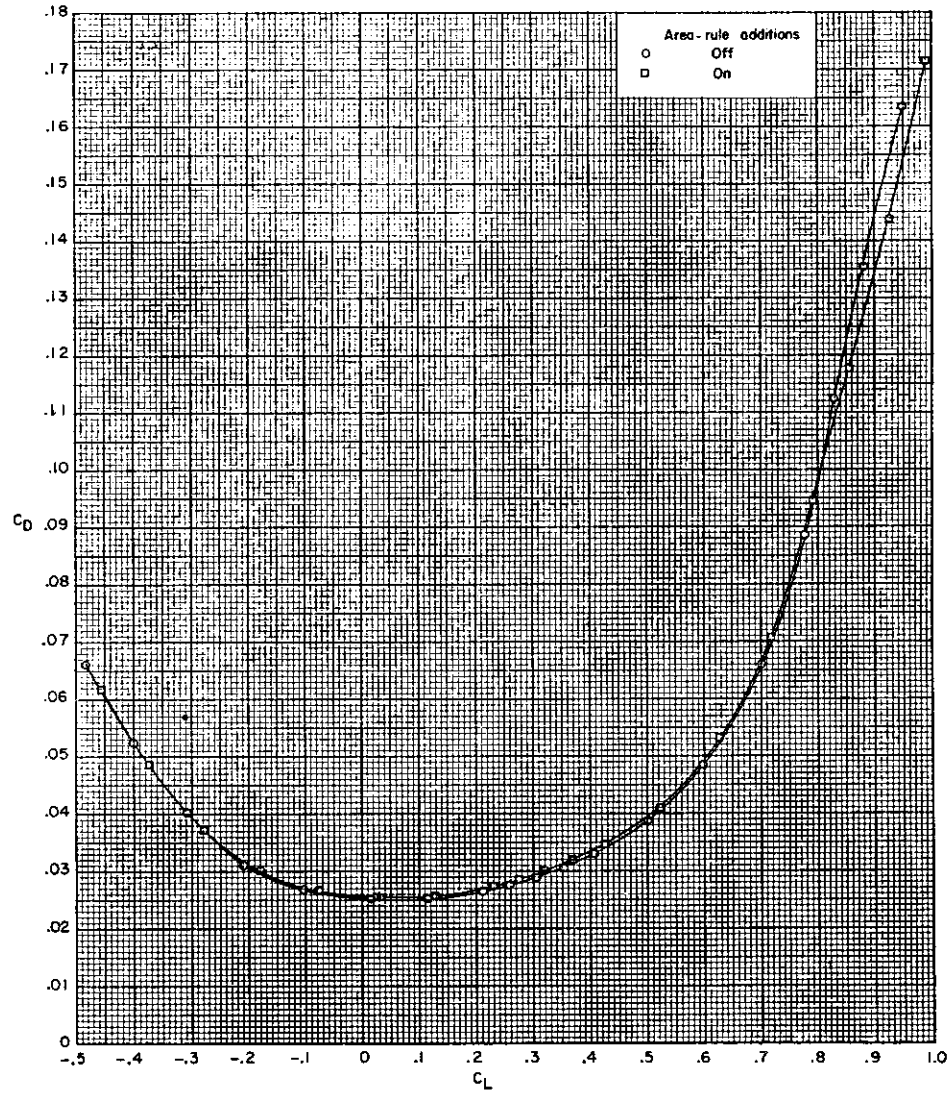


M = 0.50. Concluded.

Figure 5.10.- Continued

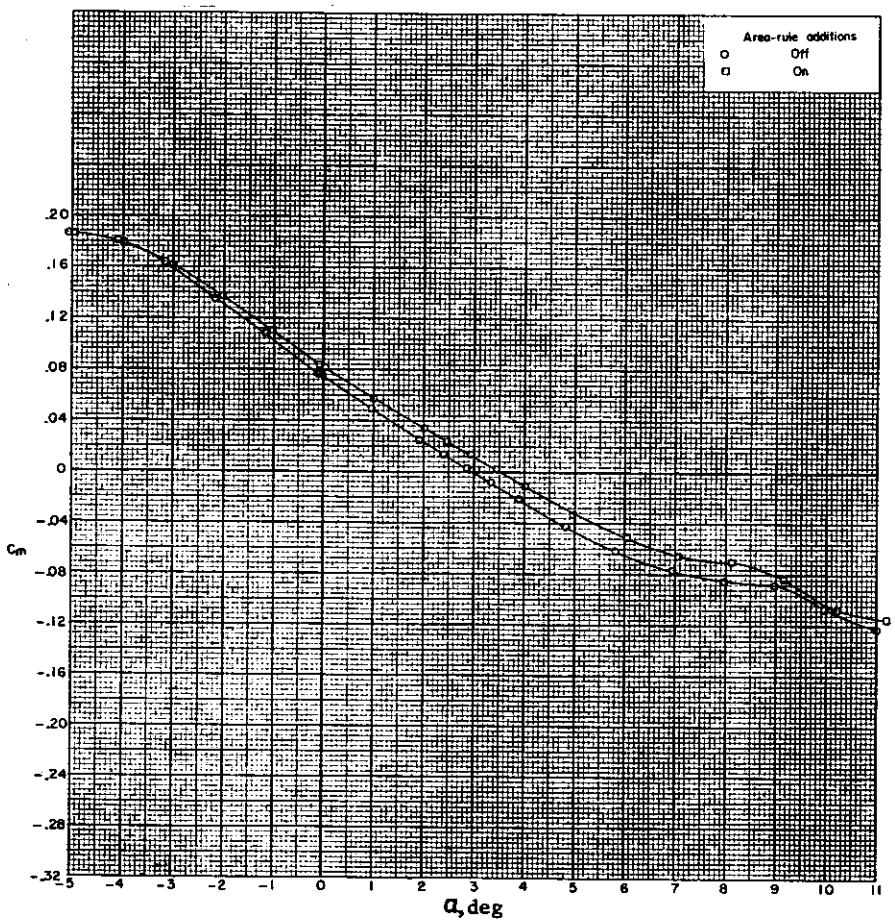


M = 0.80.

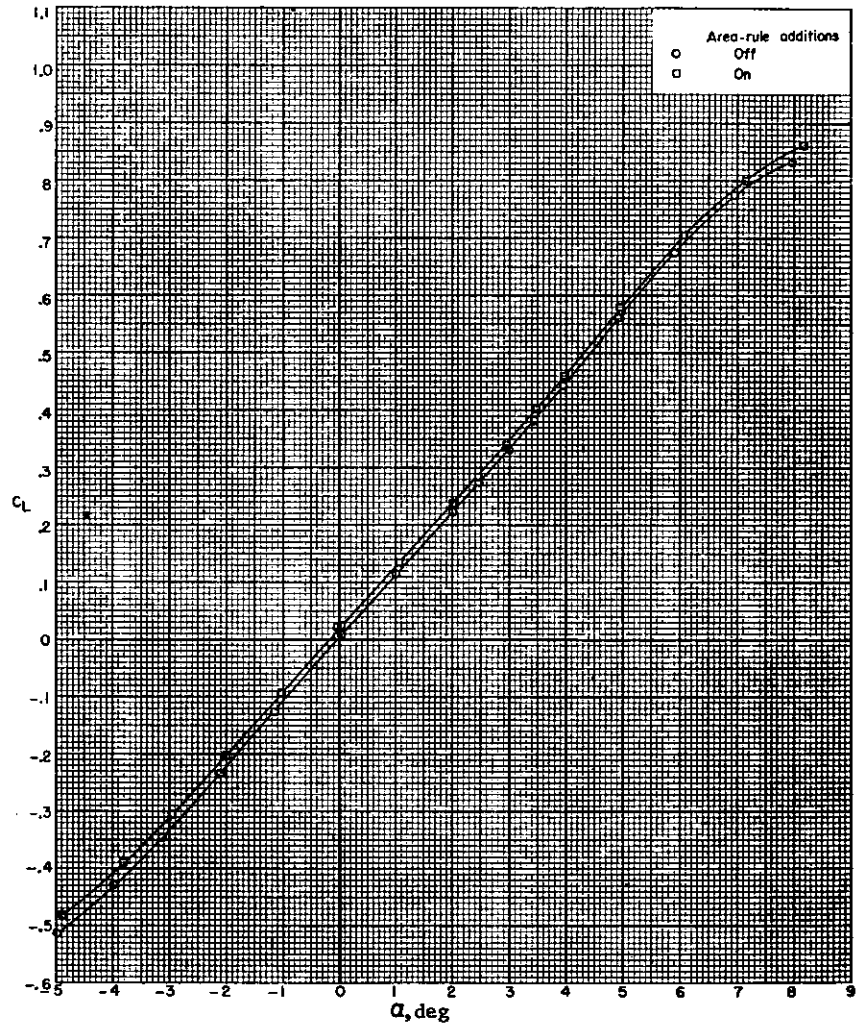


M = 0.80. Continued.

Figure 5.10.- Continued

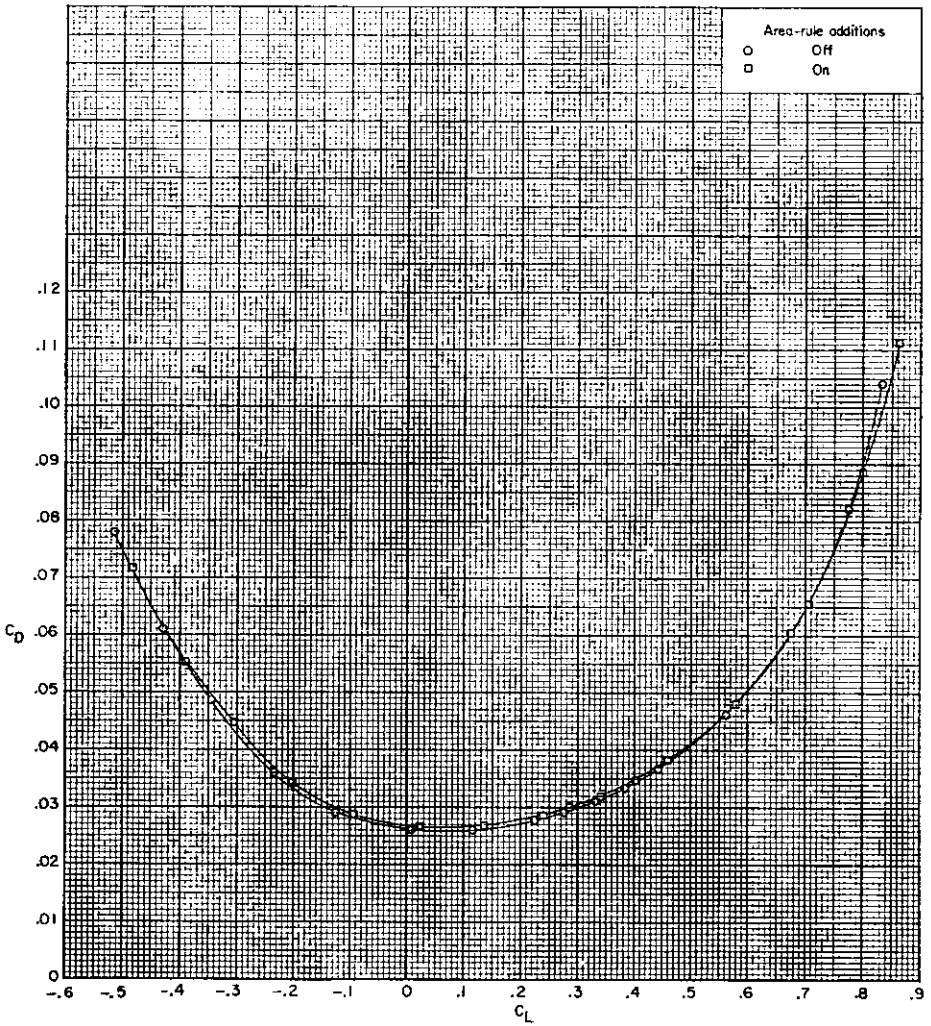


M = 0.80. Concluded.



M = 0.90.

Figure 5.10.- Continued



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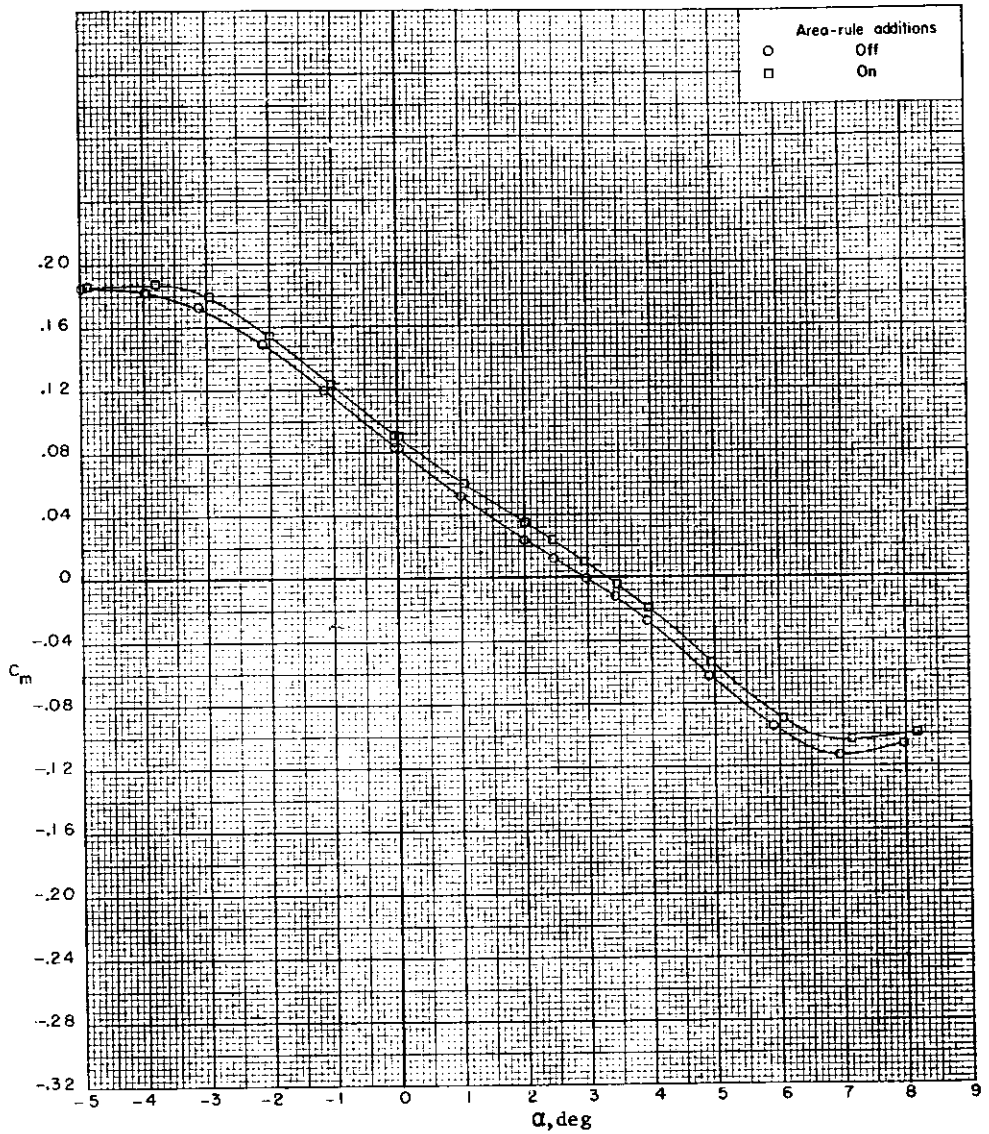
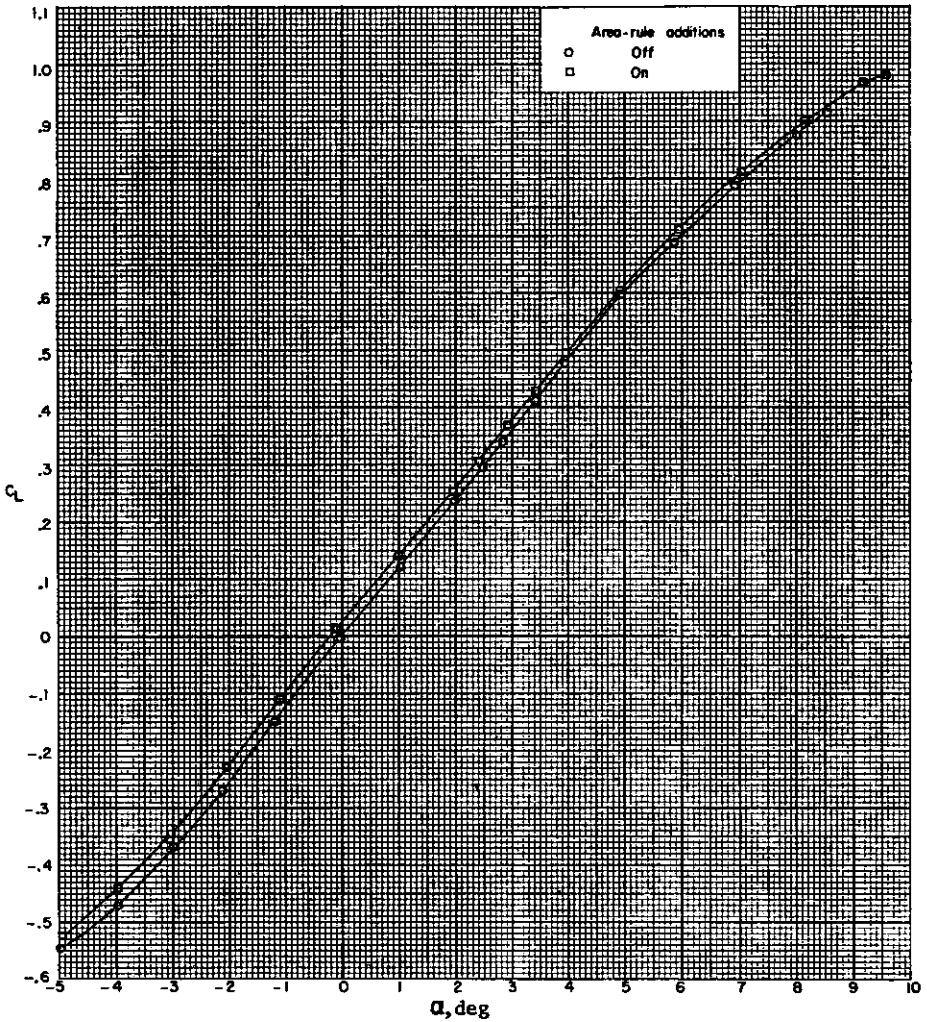
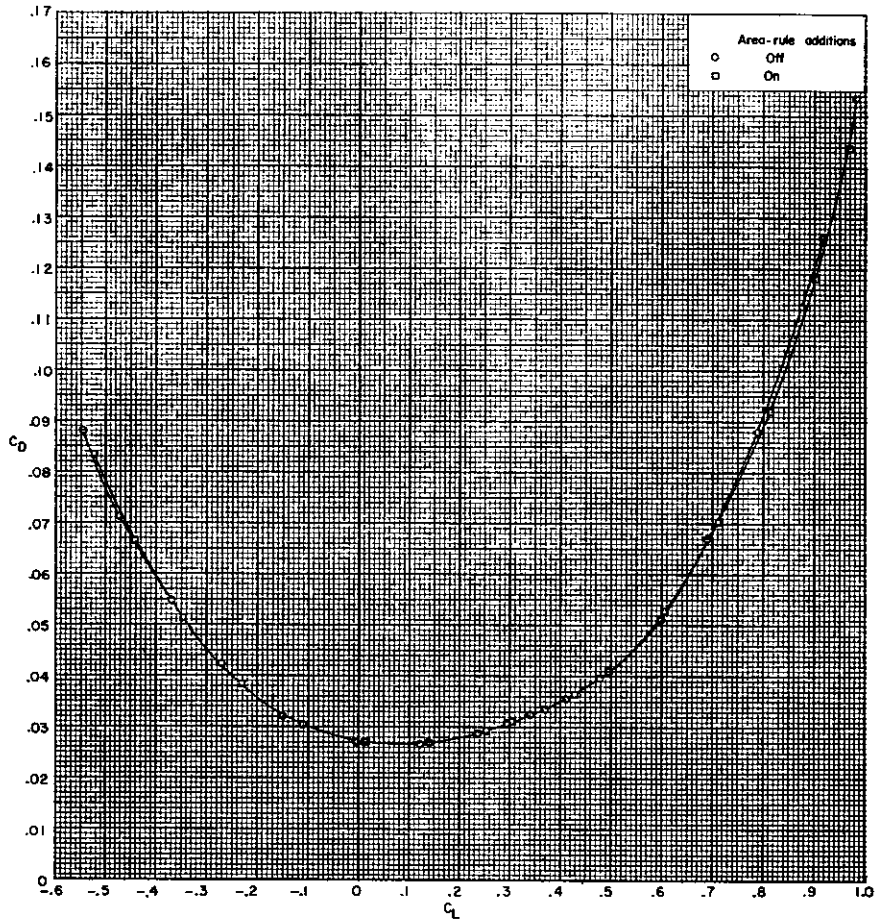


M = 0.90. Concluded.

Figure 5.10.- Continued

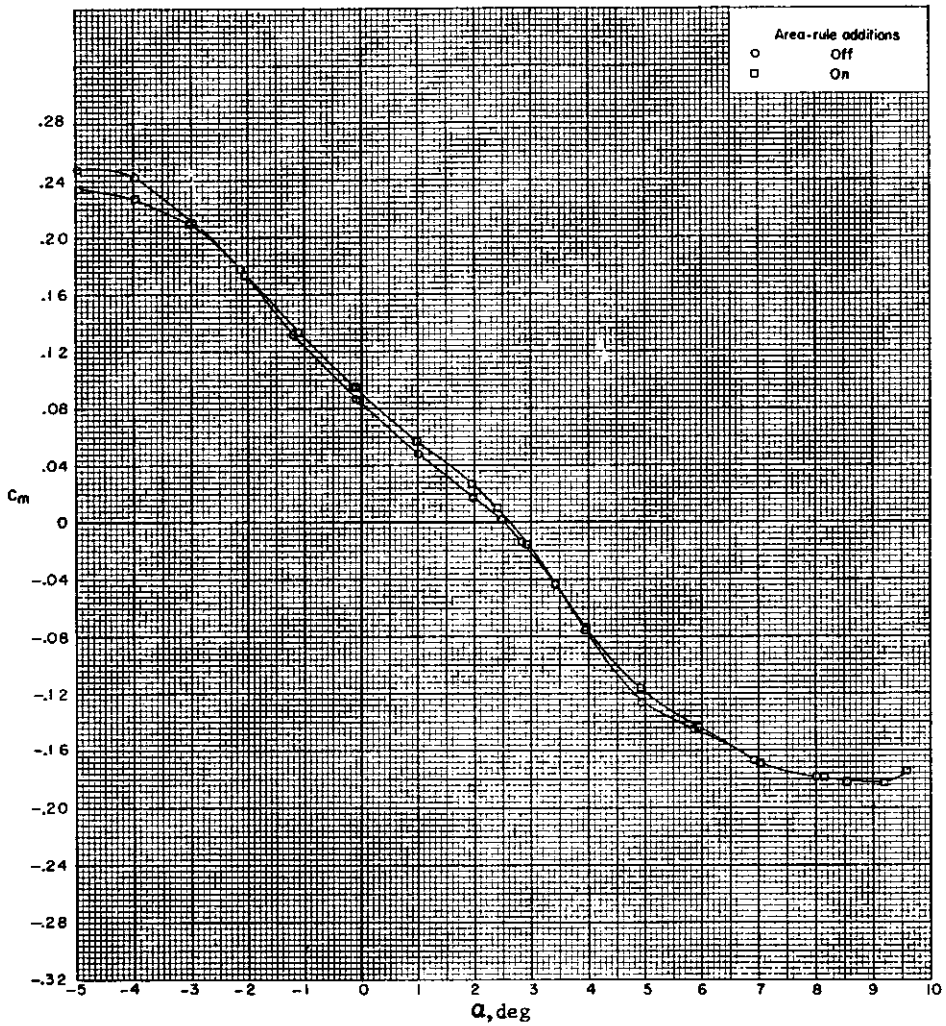


M = 0.95.



M = 0.95. Continued.

Figure 5.10.- Continued



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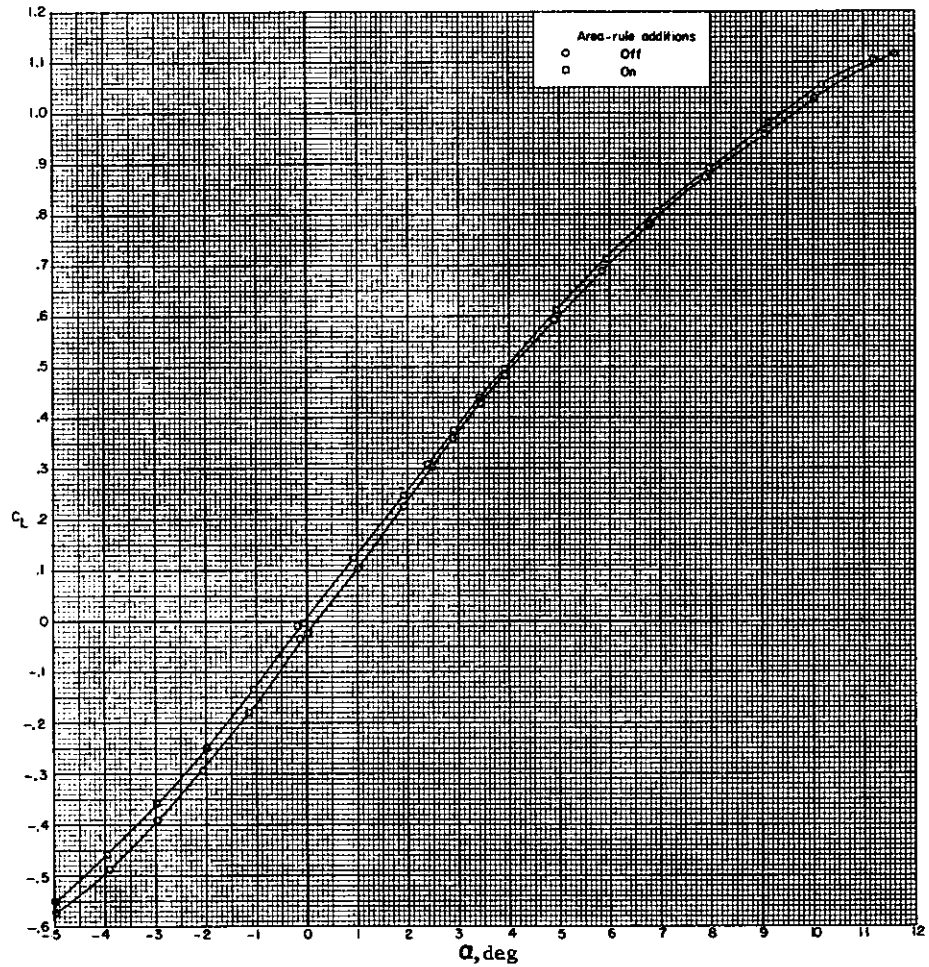
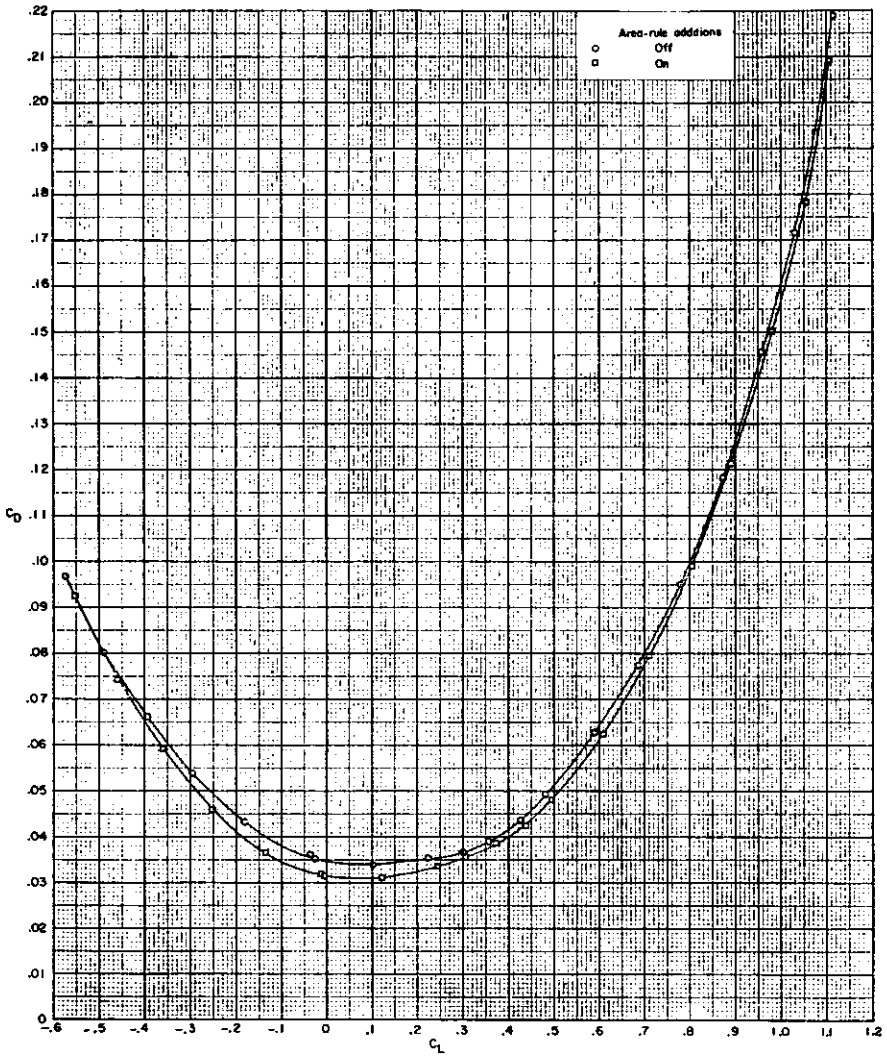


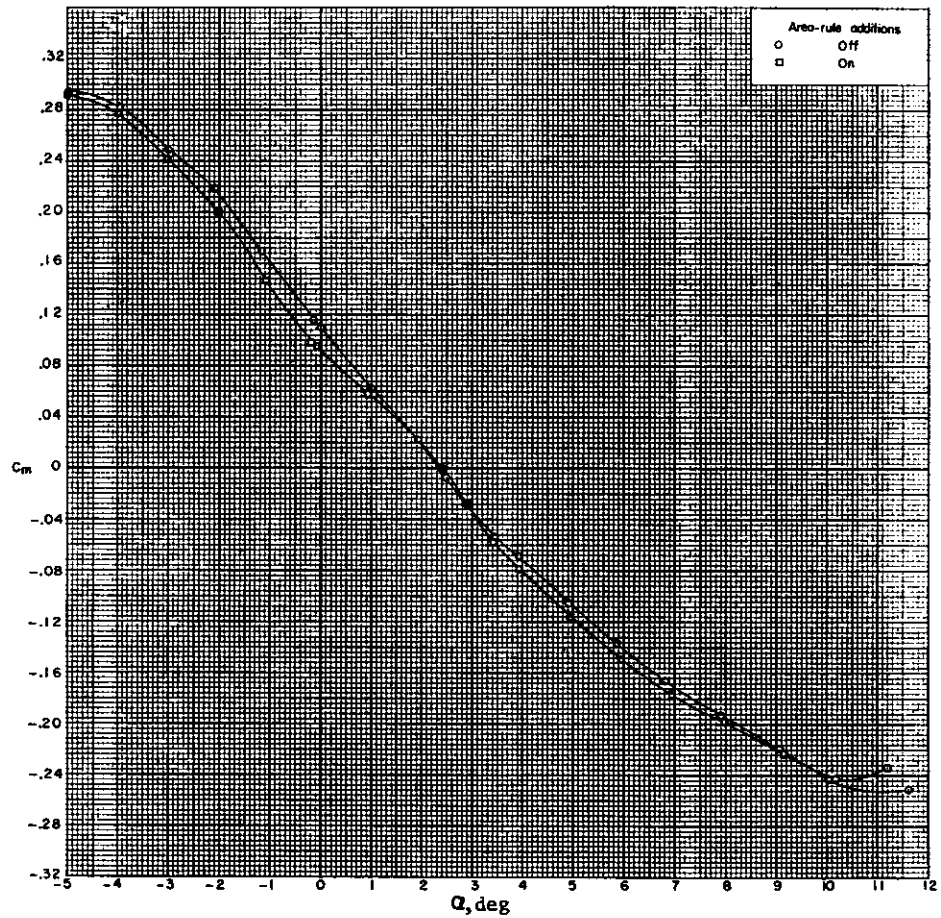
M = 0.99.

Figure 5.10.- Continued



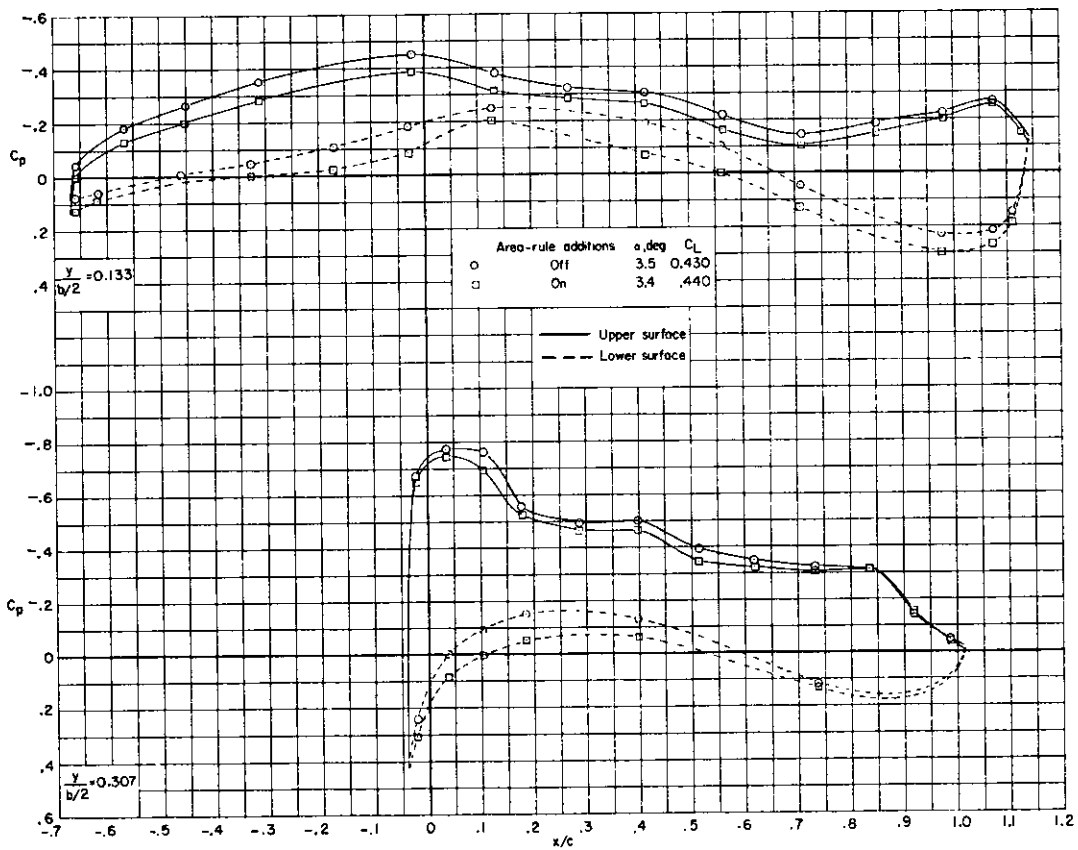
M = 0.99. Continued.

Figure 5.10.- Continued



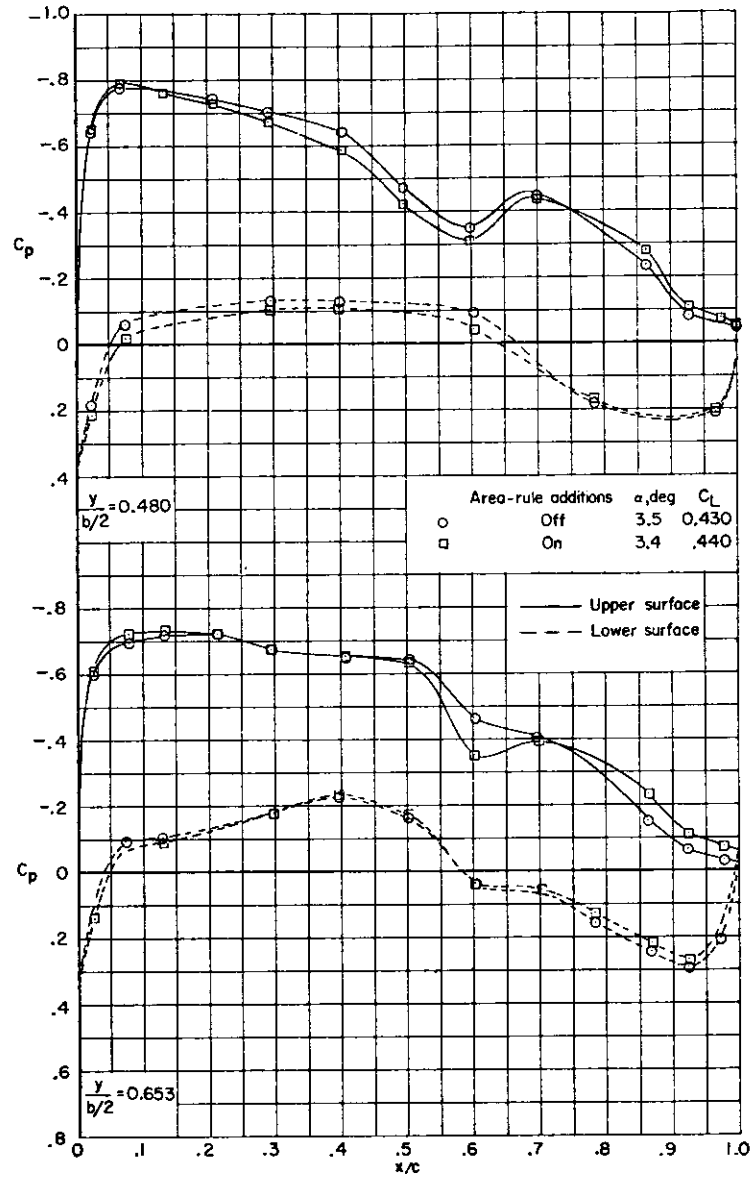
M = 0.99. Concluded.

Figure 5.10.- Concluded



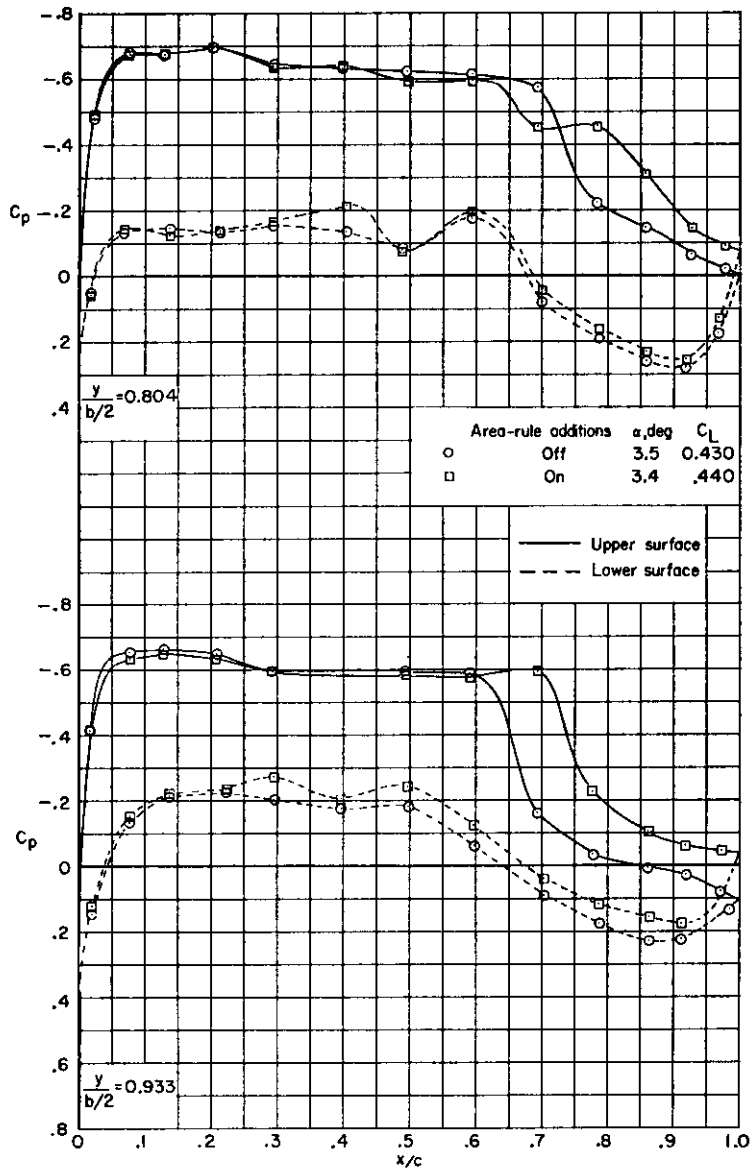
M = 0.99.

Figure 5.11.- Streamwise pressure distributions near cruise lift coefficient for supercritical wing research airplane model



M = 0.99. Continued.

Figure 5.11.- Continued



M = 0.99. Concluded.

Figure 5.11.- Concluded

APPENDIX C

BODY-ALONE CONFIGURATIONS

Guide to the Data

The body-alone data are included in the data base to provide data on rather simple three-dimensional (3D) configurations to aid in theory development and program checkout. The configurations include a 1.5-diameter ogive-cylinder (C-1), a cubic-cylinder-cubic body (C-2), a 10-degree cone cylinder (C-3), and an equivalent body of the ONERA calibration model (C-4). Pressures along 13 rays and force data were taken on the ogive-cylinder at angles of attack from 0 to 30 degrees and Mach numbers from 0.5 to 1.2. Body and some tunnel wall pressures and force data are given for the cubic-cylinder-cubic model at angles of attack from -3 to 5 degrees and Mach numbers of 0.5, 0.8, 1.0, and 1.2. The cone-cylinder pressure data were taken at zero angle of attack at Mach numbers from 0.9 to 1.4. Pressures along two rays and forebody drag are presented for the ONERA model at zero incidence and Mach numbers from 0.6 to 1.0.

The model and tunnel information format is the same as used for the 3D configurations and includes, in addition to the data, information on the model geometry, the wind tunnel, test parameters, instrumentation, and data accuracy. This information is provided to assist the user in determining the usefulness of each data set for his application.

As mentioned in Chapter 2 the model-to-tunnel blockage ratios are small enough so that the wall interference effects in the subsonic range are less than 10^{-2} on the pressure coefficient. However, all of the data obtained at supersonic speeds contain some evidence of reflected waves. These disturbances are rather easily discerned at zero incidence and do not significantly affect the data upstream of the disturbance. At angle of attack, however, it may be difficult to ascertain if irregular pressure variations are caused by shed vortices and therefore are "legitimate" or are caused by reflected waves and therefore are "illegitimate." It is left to the user to discriminate between the two phenomena.

1. 1.5 D Ogive - Circular Cylinder Body, L/D = 21.5

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Aerodynamische Versuchsanstalt E. V.

1.1 Introduction

This paper has been prepared for the Working Group 04 of the Fluid Dynamics Panel of AGARD as a contribution to the "Experimental Data Base for Computer Program Assessment" that is being established. This contribution contains selected data from force- and surface pressure distribution measurements as well as results from flow visualization experiments, e.g. smoke and oil flow pictures. The experimental investigations were performed in the DFVLR 1 x 1 Meter Transonic Wind Tunnel and in the High-Speed Wind Tunnel of the DFVLR/AVA. Figure 1.1 shows the tested model consisting of a 1.5 D long circular arc tangent ogive and a 20 D long afterbody of circular cross section (D = 4.5 cm body diameter). This body geometry is typical for most missiles. The model was manufactured of steel with a very smooth surface; transition was always free.

Two different model supports had to be used since the angle of attack range is limited to ± 15°. The model supports are shown in Figure 1.2.

The data presented here are not corrected for wall constraints.

At small supersonic Mach numbers the disturbances starting at the model nose are not completely cancelled at the test section walls. The effect of the reflected waves on the pressure distribution is, however, clearly visible in the respective figures, e.g. Figure 1.8. The reflection pattern of the waves is shown schematically in Fig. 1.3.

1.2 Data set

1. General Description	
1.1 Model Designation or Name	B3-20 D, 1.5 D ogive + 20 D circular cylinder D = body diameter; Ref. [1], [2]
1.2 Model Type (e.g., Full Span Wing-Body, Semi-Span Wing)	body of revolution, general body for missiles
2. Model Geometry	
2.2 Body Data (Detail Description of Body Geometry)	See Figure 1.1
2.5 Fabrication Tolerances/Waviness	Manufactured of steel, smooth surface
3. Wind Tunnel	
3.1 Designation	1 x 1 Meter Transonic Wind Tunnel
3.2 Type of Tunnel	
3.2.1 Continuous or Blowdown. Indicate Minimum Run Time if Applicable	Continuous, closed circuit
3.2.2 Stagnation Pressure	0.4 bar up to 1.6 bar
3.2.3 Stagnation Temperature	Ambient
3.3 Test Section	
3.3.1 Shape of Test Section	Square
3.3.2 Size of Test Section (Width, Height, Length)	1 meter, 1meter, 3 meter

3.3.3 Type of Test Section Walls Closed, Open, Slotted, Perforated	Perforated
Open Area Ratio (Give Range if Variable)	6 %
Slot/Hole Geometry (e.g., 30-Degree Slanted Holes)	30 degree slanted holes, four walls are perforated and boundary layer is influenced by plenum suction to adjust free stream conditions. In case of 2 D and half-model-testing solid end plates (ø 0.57 m) are used.
Treatment of Side Wall Boundary Layer	
Full span models	
Half model testing	
3.4 Flow Field (Empty Test Section)	
3.4.1 Reference Static Pressure	Plenum pressure, calibrated against side wall static pressure and lancet-probe [7]
3.4.2 Flow Angularity	$\Delta\alpha = \Delta\beta < \pm 0.05^{\circ}$ wedge probe calibration
3.4.3 Mach Number Distribution 3.4.4 Pressure Gradient	See Chapter A 5 Fig. 5.4 and Ref. [5], [6], [7] (also see 3.5.4)
3.4.5 Turbulence/Noise Level	Low turbulence level (measurements are in progress) [14] Low noise level ($\sqrt{n\,F(n)} < 0.001$) [8]
3.4.6 Side Wall Boundary Layer	M_{∞} = 0.5 0.8 1.0 1.2 δ(Pitot pressure = 0.999 p_o) = 8.0 7.4 6.7 6.5cm
3.5 Freestream Mach Number (or Velocity)	
3.5.1 Range	Transonic M_{∞} = 0.5 to 1.2, supersonic M_{∞} = 1.3 to 2.0
3.5.2 Pressures Used to Determine Mach Number (e.g., Settling Chamber Total Pressure and Plenum Chamber Pressure)	Transonic range: settling chamber total pressure and plenum chamber pressure. Dependence between plenum pressure and free stream static pressure has been calibrated by lancet-probe and side-wall static pressure [7]
3.5.3 Accuracy of Mach Number Determination (ΔM)	$\Delta M_{\infty} = \pm 0.003$
3.5.4 Maximum Mach Number Variation in x,y,z-Direction (Empty Tunnel; Specify at What Mach Number)	M_{∞} = 0.5 0.8 1.0 1.2 ΔM_{∞} (x-direct.) 0.005 0.003 0.006 0.015 (z-direct.) 0.003
Maximum Variation of Flow Direction	$\pm 0.05^{\circ}$
Maximum Mach Number Variation During a Run	$\Delta M_{\infty} = \pm 0.001$
3.6 Reynolds Number Range	
3.6.1 Unit Reynolds Number Range. (Give Range at Representative Mach Numbers; 1/m)	M_{∞} 0.5 1.0 2.0 Re_{max} $1.7 \cdot 10^7$ $1.8 \cdot 10^7$ $1.2 \cdot 10^7$ Re_{min} $0.27 \cdot 10^7$ $0.42 \cdot 10^7$ $0.5 \cdot 10^7$
3.6.2 Means of Varying Reynolds Number (e.g., by Pressurization)	Pressurization
3.7 Temperature Range and Dewpoint. Can Temperature be Controlled?	$T_o \approx 305$ K (ambient), no $t_{Dewpoint} \approx -30^{\circ}$ C
3.8 Model Attitudes	
3.8.1 Angle of Attack, Yaw, Roll	2-D and sheared wings: total $\alpha = 25^{\circ}(\pm 0.02^{\circ})$ half-models: total $\alpha = 25^{\circ}$ ($\pm 0.02^{\circ}$) complete models: total $\alpha = 30^{\circ}(\pm 0.02^{\circ})$*

* range can be extended by cranked stings

	complete models: total yaw 15° ($\pm$ 0.1°) total roll 360° ($\pm$ 0.1°)
3.9 Organization Operating the Tunnel and Location of Tunnel	Deutsche Forschungs- und Versuchsanstalt für Luft- und Raumfahrt E.V. Bunsenstraße 10 D-3400 Göttingen, Germany (FRG)
3.10 Who is to be Contacted for Additional Information	Dr.-Ing. W. Lorenz-Meyer Address see 3.9
3.11 Literature Concerning this Facility	Ref. [5] to [11]

4. Tests

4.1 Type of Tests	Force- and moment measurements, surface pressure distribution and base pressure measurements, oil flow pictures
4.3 Test Conditions	
4.3.1 Angle of Attack	-4° to 18° (force - measurements) 0° to 30° (pressure distribution measurements)
4.3.2 Mach Number	0.5 to 1.2
4.3.3 Dynamic Pressure	0.16 to 0.43 bar
4.3.4 Reynolds Number	$Re_D = 4 \cdot 10^5$ to $6.5 \cdot 10^5$, based on body diameter
4.3.5 Stagnation Temperature	$T_o = 320$ K
4.4 Transition	
4.4.1 Free or Fixed	Free
4.4.2 Position of Free Transition	Unknown
4.4.4 Were Checks Made to Determine if Transition Occurred at Trip Location?	No
4.5 Bending or Torsion Under Load	Unknown
4.6 Were Different Sized Models Used in Wind-Tunnel Investigation? If so, Indicate Sizes	No
4.7 Areas and Lengths Used to Form Coefficients	Area: Body crossection $S = \frac{\pi D^2}{4} = 15.9\ cm^2$ Length: Body diameter D = 45 mm
4.8 References on Tests	Ref. [1], [2]
4.9 Related Reports	Ref. [3], [4]

5. Instrumentation

5.1 Surface Pressure Measurements	
5.1.3 Pressure Orifices on Components, Give Component and Orifice Location	Body, see Fig. 1.1
5.1.4 Geometry of Orifices	Holes, 0.7 mm in diameter, 4.5 mm deep
5.1.5 Type of Pressure Transducer and Scanning Devices Used. Indicate Range and Accuracy	CEC differential pressure transducers plus scanivalves. Range: $\pm$ 5 psi and $\pm$ 10 psi Accuracy: $\pm$ 0.3 % FS Scanning rate: 4.5 sec/orifice
5.2 Force Measurements	
5.2.1 Type and Location of Balance	Sting mounted internal three component strain gauge balance made in DFVLR/AVA, Germany (FRG), located in the middle of the body

5.2.2 Forces and Moments that Can be Measured. Maximum Loads and Accuracy		maximum load	accuracy
	Normal force	300 N	0.5 %
	Pitching moment	4000 N cm	1 % FS
	Axial force	100 N	2 %

5.3 Boundary Layer and Flow-Field Measurements — No

5.4 Surface Flow Visualization — Yes

5.4.1 Indicate Method Used to Determine

- Streamline pattern — Oil-flow pictures (paint pictures), see Fig. 1.16
- Boundary-layer transition

5.5 Skin Friction Measurements — No

6. Data

6.1 Accuracy

6.1.1 Pressure Coefficients — $\Delta c_p \approx 1\,\%$ assuming worst possible combination of errors including an error of $\Delta M_\infty = \pm 0.002$ evaluated at max. c_p and $M_\infty = 0.76$

6.1.2 Aerodynamic Coefficients — 0.5 %

6.1.4 Repeatability — Within 1 %

6.3 Data Presentation

6.3.1 Aerodynamic Coefficients — $C_N(\alpha)$, $C_m(\alpha)$ and $C_A(\alpha)$; Table 1.45, Figures 1.4 to 1.6

6.3.2 Surface Pressure Coefficients — $c_p\,(\frac{x}{D})$; Tables 1.1 to 1.44 and Figures 1.8 to 1.15

6.3.3 Flow Conditions for

- Aerodynamic coefficients data
- Pressure data

} Angle of attack-, Mach number - and Reynolds number range, see Chapter 4.3

6.3.4 Boundary Layer and/or Wake Data — Base pressure $c_{pB}(\alpha)$; Table 1.45 and Figure 1.7

6.3.5 Flow Conditions for Boundary Layer and/or Wake Data — See Section 4.3

6.4 Were Tests Carried Out in Different Facilities on the Current Model? If so, What Facilities. Are Data Included in Present Data Base? — No

7. References

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8. List of Symbols

C_N	normal - force coefficient, $F_n/q_\infty \cdot S$
C_m	pitching - moment coefficient, $M/q_\infty \cdot S \cdot D$
C_A	axial - force coefficient, $F_a/q_\infty \cdot S$ (includes base drag)
c_p	pressure coefficient, $p - p_\infty/q_\infty$
c_{pB}	base pressure coefficient, $p_B - p_\infty/q_\infty$; base pressure measured with a probe mounted on sting within the model 3.5 D from the base
D	body diameter, see Fig. 1.1
F_a	axial - force, positiv against flow direction
F_n	normal - force
L	total body length, $L = L_N + L_A$, Fig. 1.1
L_N	length of nose (ogive), see Fig. 1.1
L_A	afterbody length, see Fig. 1.1
M	pitching moment, positive if increasing α, reference point at $\frac{x}{D} = 11.5$
M_∞	free - stream Mach number
M_{loc}	local Mach number
p	local static pressure on the body surface
p_o	stagnation pressure
p_∞	free - stream static pressure
p_B	base pressure
q_∞	free - stream dynamic pressure, $\frac{1}{2}\rho_\infty V_\infty^2$
Re_D	free - stream Reynolds number based on body diameter, $\rho_\infty \cdot V_\infty \cdot D/\mu_\infty$
S	reference area, $\pi D^2/4$
V_∞	free - stream velocity
x	axial distance from body nose, see Fig. 1.1
α	angle of attack
δ	boundary layer thickness
Φ	polar angle, see Fig. 1.1
μ_∞	free - stream dynamic viscosity of air
ρ_∞	free - stream density of air

Table 1.1 Experimental pressure coefficients , $\alpha = 0^{o}$

Coordinates x/D	Polar angle, Φ, deg.															
	0	15	90	180	0	15	90	180	0	15	90	180	0	15	90	180
	$M_\infty = 0,70$ $Re_D = 5,2 \cdot 10^5$				$M_\infty = 0,80$ $Re_D = 5,6 \cdot 10^5$				$M_\infty = 0,90$ $Re_D = 5,9 \cdot 10^5$				$M_\infty = 0,95$ $Re_D = 6,0 \cdot 10^5$			
0,251	0,366	0,363	0,368	0,366	0,394	0,393	0,401	0,398	0,445	0,438	0,454	0,449	0,484	0,489	0,494	0,487
0,482	0,103	0,107	0,106	0,104	0,122	0,128	0,127	0,125	0,169	0,170	0,175	0,170	0,214	0,223	0,219	0,211
0,731	-0,080	-0,080	-0,080	-0,081	-0,078	-0,074	-0,079	-0,079	-0,038	-0,042	-0,038	-0,042	0,013	0,017	0,009	0,002
0,980	-0,245	-0,245	-0,251	-0,246	-0,279	-0,283	-0,281	-0,281	-0,280	-0,289	-0,282	-0,286	-0,227	-0,227	-0,229	-0,237
1,238	-0,282	-0,282	-0,283	-0,284	-0,337	-0,332	-0,335	-0,334	-0,472	-0,474	-0,471	-0,474	-0,420	-0,416	-0,422	-0,427
1,500	-0,265	-0,261	-0,262	-0,263	-0,315	-0,310	-0,307	-0,307	-0,523	-0,521	-0,522	-0,521	-0,486	-0,486	-0,489	-0,494
1,944	-0,059	-0,059	-0,059	-0,059	-0,060	-0,065	-0,061	-0,065	-0,030	-0,032	-0,030	-0,038	-0,338	-0,339	-0,336	-0,338
2,444	-0,022	-0,027	-0,027	-0,027	-0,025	-0,025	-0,025	-0,030	-0,018	-0,022	-0,018	-0,022	0,040	0,028	0,036	0,039
2,944	-0,011	-0,011	-0,011	-0,011	-0,016	-0,011	-0,012	-0,012	-0,010	-0,010	-0,007	-0,011	0,035	0,040	0,035	0,028
3,444	-0,006	-0,006	-0,006	-0,006	-0,011	-0,007	-0,007	-0,012	-0,006	-0,007	-0,007	-0,011	0,017	0,020	0,020	0,009
3,944	-0,000	-0,000	-0,000	-0,001	-0,002	-0,002	-0,003	-0,003	-0,003	-0,007	-0,003	-0,003	0,009	0,013	0,013	0,005
4,444	-0,000	-0,000	-0,000	-0,001	-0,002	-0,002	-0,003	-0,003	-0,003	-0,003	0,001	-0,003	0,005	0,006	0,009	0,005
4,944	-0,000	-0,000	-0,000	-0,001	-0,002	-0,002	-0,003	-0,003	-0,003	-0,003	0,001	-0,003	0,006	0,006	0,005	0,002
5,444	-0,000	-0,000	-0,000	0,005	0,002	-0,002	0,012	-0,003	0,001	-0,003	0,001	-0,003	0,006	0,006	0,005	0,002
5,944	0,005	0,005	0,005	0,005	-0,002	0,002	0,002	0,002	0,001	0,001	0,001	0,005	0,006	0,006	0,005	0,002
6,444	0,005	0,005	0,005	0,005	0,002	0,002	0,002	0,002	0,001	-0,003	0,001	0,001	0,002	0,006	0,005	0,002
6,944	0,005	0,005	0,005	0,005	0,002	0,002	0,006	0,002	0,001	0,001	0,005	0,001	0,006	0,006	0,005	0,005
7,444	0,005	0,005	0,005	0,005	0,002	0,002	0,002	0,002	0,005	0,001	0,005	0,001	0,006	0,006	0,005	0,002
7,944	0,005	0,005	0,005	0,005	0,002	0,002	0,002	0,002	0,005	0,001	0,005	0,005	0,005	0,006	0,005	0,005
8,444	0,005	0,005	0,005	0,005	0,002	0,002	0,002	0,002	0,001	0,001	0,005	0,001	0,005	0,006	0,005	0,013
8,944	0,005	0,005	0,005	0,005	0,002	0,002	0,006	0,002	0,001	0,001	0,005	0,001	0,005	0,006	0,005	0,002
9,444	0,005	0,005	-0,001	-0,001	0,002	0,002	-0,003	-0,003	0,001	0,001	-0,003	-0,007	0,002	0,006	-0,002	-0,002
9,944	0,005	0,005	0,005	0,005	0,002	0,002	0,002	0,002	0,001	0,001	0,005	0,001	0,002	0,002	0,002	0,009
10,444	0,005	0,005	0,005	0,004	0,002	0,006	0,003	0,001	0,005	0,001	0,001	0,001	0,005	0,006	0,003	0,003
10,944	0,005	0,005	0,005	0,007	0,007	0,006	0,004	0,004	0,005	0,001	0,005	0,003	0,005	0,006	0,003	0,005
11,444	0,005	0,005	0,002	0,002	0,002	0,006	0,001	0,001	0,001	0,001	-0,001	0,001	0,005	0,005	-0,000	0,001
11,944	0,005	0,005	0,002	0,002	0,002	0,002	0,001	0,001	0,001	0,001	-0,001	-0,001	0,002	0,002	-0,000	0,001
12,444	0,005	0,005	0,005	0,004	0,002	0,002	0,004	0,001	0,001	0,001	0,001	0,001	0,002	0,002	0,001	0,001
12,944	0,005	0,005	0,005	0,007	0,007	0,006	0,004	0,004	0,005	0,001	0,003	-0,003	0,005	0,005	0,003	0,003
13,444	0,005	0,005	0,002	0,004	0,002	0,002	0,001	0,001	0,001	0,001	0,001	-0,001	0,002	0,002	0,001	0,001
13,944	0,005	0,005	0,002	0,004	0,002	0,002	0,001	0,001	0,001	0,001	-0,001	-0,001	0,002	0,002	0,001	0,001
14,444	0,037	0,037	0,002	0,004	0,033	0,033	0,001	0,003	0,029	0,029	-0,001	-0,000	0,028	0,028	0,001	0,001
14,944	0,005	0,005	0,002	0,004	0,002	0,002	0,001	0,004	0,001	0,001	-0,001	0,001	0,002	0,002	0,001	0,001
15,444	0,005	0,005	0,004	0,004	0,002	0,002	0,004	0,004	0,001	0,001	0,001	0,001	0,002	0,002	0,001	0,001
15,944	0,005	0,005	0,002	0,004	0,002	0,002	0,004	0,004	0,001	0,001	0,001	0,001	0,002	0,002	0,001	0,001
16,444	-0,000	0,005	0,013	0,015	0,002	0,002	0,013	0,013	-0,003	0,001	0,009	0,009	-0,002	0,002	0,009	0,011
16,944	0,005	0,005	0,010	0,013	0,002	0,006	0,011	0,011	0,001	0,001	0,007	0,007	0,002	0,002	0,007	0,007
17,444	-0,000	0,005	0,002	0,002	0,002	0,002	0,004	0,004	0,001	0,001	-0,001	-0,007	0,002	0,002	-0,000	0,001
17,944	0,005	0,016	0,002	0,002	0,002	0,002	0,002	0,004	0,001	0,001	-0,001	0,001	0,002	0,002	-0,000	0,001
18,444	-0,000	-0,000	-0,001	-0,001	0,002	0,002	0,002	0,002	-0,003	-0,002	-0,003	-0,001	-0,002	-0,002	-0,002	-0,002
18,944	-0,000	-0,000	-0,001	-0,001	0,002	0,002	0,002	0,002	-0,003	-0,002	-0,003	-0,003	-0,002	-0,002	-0,002	-0,001
19,444	-0,000	-0,000	-0,004	-0,001	-0,002	0,002	0,002	0,002	-0,003	-0,002	-0,003	-0,003	-0,002	-0,002	-0,002	-0,001
19,944	-0,006	-0,006	-0,006	-0,004	-0,002	-0,002	-0,001	-0,001	-0,006	-0,006	-0,003	-0,003	-0,002	-0,002	-0,004	-0,006
20,444	-0,011	-0,011	-0,012	-0,012	-0,007	-0,007	-0,007	-0,008	-0,010	-0,010	-0,011	-0,009	-0,009	-0,009	-0,010	-0,008
20,944	-0,027	-0,021	-0,028	-0,025	-0,025	-0,020	-0,021	-0,021	-0,026	-0,026	-0,025	-0,027	-0,024	-0,024	-0,025	-0,025
21,444	-0,080	-0,074	-0,079	-0,077	-0,078	-0,078	-0,075	-0,076	-0,088	-0,085	-0,084	-0,085	-0,091	-0,091	-0,087	-0,093

Table 1.2 Experimental pressure coefficients , $\alpha = 0^{o}$

Coordinates x/D	Polar angle, Φ, deg.															
	0	15	90	180	0	15	90	180	0	15	90	180	0	15	90	180
	$M_\infty = 1,00$ $Re_D = 6,1 \cdot 10^5$				$M_\infty = 1,05$ $Re_D = 6,2 \cdot 10^5$				$M_\infty = 1,10$ $Re_D = 6,2 \cdot 10^5$				$M_\infty = 1,20$ $Re_D = 6,3 \cdot 10^5$			
0,251	0,532	0,539	0,540	0,533	0,581	0,585	0,587	0,582	0,609	0,613	0,615	0,615	0,514	0,645	0,652	0,644
0,482	0,267	0,279	0,274	0,265	0,324	0,333	0,328	0,321	0,356	0,363	0,353	0,356	0,315	0,396	0,395	0,391
0,731	0,070	0,076	0,070	0,062	0,131	0,136	0,129	0,125	0,167	0,172	0,166	0,163	0,167	0,208	0,206	0,204
0,980	-0,157	-0,157	-0,155	-0,165	-0,084	-0,088	-0,088	-0,095	-0,041	-0,038	-0,045	-0,048	0,023	0,020	0,020	0,016
1,238	-0,345	-0,341	-0,344	-0,354	-0,268	-0,269	-0,274	-0,277	-0,223	-0,220	-0,224	-0,228	-0,116	-0,157	-0,142	-0,161
1,500	-0,415	-0,415	-0,415	-0,425	-0,337	-0,337	-0,343	-0,345	-0,292	-0,292	-0,294	-0,298	-0,176	-0,226	-0,230	-0,240
1,944	-0,295	-0,295	-0,294	-0,304	-0,231	-0,231	-0,232	-0,232	-0,200	-0,203	-0,204	-0,205	-0,105	-0,169	-0,167	-0,161
2,444	-0,175	-0,175	-0,173	-0,179	-0,118	-0,122	-0,119	-0,119	-0,110	-0,107	-0,111	-0,088	-0,075	-0,064	-0,104	-0,095
2,944	-0,115	-0,111	-0,112	-0,112	-0,057	-0,064	-0,054	-0,061	-0,058	-0,058	-0,061	-0,055	-0,018	-0,059	-0,037	-0,053
3,444	-0,083	-0,083	-0,084	-0,080	-0,026	-0,030	-0,030	-0,044	-0,034	-0,034	-0,038	-0,028	-0,015	-0,037	-0,018	-0,025
3,944	-0,062	-0,065	-0,062	-0,012	-0,026	-0,012	-0,030	-0,047	-0,018	-0,025	-0,015	-0,015	-0,015	-0,015	-0,015	-0,025
4,444	0,028	-0,040	0,002	0,046	-0,040	-0,030	-0,047	-0,057	-0,018	-0,008	-0,022	-0,018	-0,002	-0,028	-0,015	-0,022
4,944	0,054	0,052	0,055	0,047	-0,053	-0,047	-0,061	-0,068	-0,021	-0,021	-0,012	-0,015	-0,009	-0,006	-0,015	-0,012
5,444	0,051	0,059	0,056	0,041	-0,064	-0,060	-0,067	-0,075	-0,008	-0,015	-0,005	-0,005	-0,003	-0,012	-0,018	-0,022
5,944	0,043	0,052	0,049	0,032	-0,070	-0,067	-0,074	-0,078	-0,008	-0,001	-0,009	-0,002	-0,003	-0,015	-0,018	-0,003
6,444	0,031	0,040	0,036	0,023	-0,081	-0,077	-0,081	-0,085	0,002	-0,005	0,002	0,005	-0,009	-0,022	-0,015	-0,015
6,944	0,023	0,030	0,027	0,016	-0,081	-0,081	-0,084	-0,071	0,002	0,018	0,018	0,012	-0,006	-0,018	-0,012	-0,025
7,444	0,013	0,018	0,016	0,009	-0,064	-0,084	-0,054	-0,013	-0,008	0,005	-0,008	-0,022	-0,009	-0,018	-0,015	-0,025
7,944	0,009	0,009	0,009	0,009	-0,012	-0,043	0,015	0,059	-0,034	-0,021	-0,042	-0,048	0,007	-0,006	0,001	-0,009
8,444	0,005	0,006	0,005	0,005	0,083	0,022	0,103	0,109	-0,041	-0,044	-0,058	-0,062	0,013	-0,012	0,004	-0,009
8,944	0,005	0,002	0,005	0,005	0,117	0,116	0,112	0,106	-0,054	-0,054	-0,051	-0,055	0,001	0,007	-0,006	-0,003
9,444	0,005	0,006	0,002	-0,002	0,102	0,112	0,092	0,084	-0,044	-0,054	-0,048	-0,035	0,004	-0,005	-0,005	-0,013
9,944	0,002	0,006	0,005	0,002	0,081	0,090	0,076	0,068	-0,024	-0,028	-0,019	-0,012	0,010	-0,002	0,004	-0,006
10,444	0,005	0,006	0,005	0,005	0,064	0,072	0,061	0,040	-0,008	-0,001	-0,012	-0,015	0,004	-0,002	-0,006	0,000
10,944	0,005	0,005	0,005	0,005	0,045	0,053	0,042	0,018	-0,031	-0,025	-0,035	-0,039	0,042	0,017	0,034	0,006
11,444	0,005	0,005	0,001	0,002	0,022	0,033	0,016	-0,008	-0,021	-0,041	-0,015	0,035	0,064	0,074	0,066	0,065
11,944	0,002	0,005	0,001	0,002	0,001	0,015	-0,006	-0,025	0,092	0,055	0,090	0,096	0,042	0,037	0,043	0,030
12,444	0,002	0,002	0,003	0,003	-0,012	0,001	-0,011	-0,029	0,078	0,085	0,077	0,080	0,013	0,001	0,000	-0,003
12,944	0,005	0,005	0,003	0,005	-0,019	-0,002	-0,017	-0,015	0,073	0,064	0,069	0,067	-0,005	-0,009	-0,014	-0,011
13,444	0,002	0,002	0,003	0,003	-0,016	-0,016	-0,017	-0,022	0,061	0,057	0,057	0,051	-0,012	-0,012	-0,028	-0,019
13,944	0,005	0,005	0,003	0,003	-0,016	-0,009	-0,017	-0,036	0,049	0,057	0,044	0,041	0,004	-0,021	-0,008	-0,027
14,444	0,027	0,027	0,003	0,003	0,025	0,025	-0,032	-0,037	0,026	0,025	0,033	0,029	0,024	0,013	-0,005	-0,008
14,944	0,002	0,006	0,003	0,002	-0,047	-0,026	-0,048	-0,037	0,025	0,025	0,022	0,018	0,010	0,004	0,002	0,005
15,444	0,002	0,002	0,001	0,002	-0,040	-0,041	-0,054	-0,017	0,004	0,010	0,001	-0,014	0,017	0,016	0,013	0,004
15,944	0,002	-0,002	-0,002	0,002	-0,033	-0,057	-0,037	-0,004	-0,018	-0,005	-0,027	-0,046	0,023	0,020	0,016	0,024
16,444	-0,002	-0,002	0,007	0,011	-0,006	-0,064	0,008	0,020	-0,041	-0,034	-0,025	-0,027	0,023	0,020	0,018	0,008
16,944	0,002	-0,002	0,005	0,007	0,018	-0,026	0,013	0,022	-0,041	-0,038	-0,029	-0,020	-0,012	-0,025	-0,003	-0,013
17,444	0,002	0,002	0,001	0,002	0,025	0,008	0,023	0,020	-0,031	-0,041	-0,020	0,001	0,010	0,013	0,002	0,004
17,944	0,002	0,006	0,001	0,002	0,025	0,025	0,022	0,013	-0,011	-0,025	-0,002	0,048	0,010	0,004	0,004	0,012
18,444	0,002	0,002	-0,000	-0,000	0,008	0,027	0,004	0,008	0,051	0,012	0,043	0,051	0,004	0,001	-0,003	0,000
18,944	0,002	0,002	0,001	-0,000	-0,002	0,011	-0,006	0,013	0,072	0,056	0,061	0,029	0,004	-0,002	-0,001	0,010
19,444	0,002	-0,002	-0,000	0,002	0,015	-0,002	0,022	0,028	0,032	0,060	0,025	0,001	0,007	0,001	-0,001	-0,002
19,944	0,002	-0,002	-0,000	0,002	0,031	0,008	0,033	0,029	0,005	0,022	-0,002	-0,015	0,013	0,010	0,005	0,018
20,444	-0,002	-0,002	-0,002	-0,004	0,025	0,025	0,028	0,018	-0,015	-0,008	-0,017	-0,025	0,017	0,023	0,008	0,015
20,944	-0,016	-0,012	-0,015	-0,018	0,022	0,018	0,015	-0,006	-0,031	-0,021	-0,034	-0,039	0,020	0,013	0,015	0,008
21,444	-0,111	-0,111	-0,100	-0,105	-0,104	-0,094	-0,116	-0,119	-0,120	-0,117	-0,121	-0,118	-0,040	-0,059	-0,062	-0,066

Table 1.3 Experimental pressure coefficients c_p for $\alpha = 5.07^{\circ}$, $M_{\infty} = 0.7$ and $Re_D = 5.2 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
x/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.491	0.490	0.477	0.456	0.409	0.370	0.342	0.311	0.278	0.260	0.244	0.231	0.232
0.482	0.232	0.230	0.212	0.193	0.158	0.118	0.084	0.052	0.032	0.009	-0.006	-0.011	-0.016
0.731	0.032	0.026	0.010	-0.011	-0.043	-0.075	-0.102	-0.133	-0.149	-0.170	-0.180	-0.180	-0.185
0.980	-0.150	-0.159	-0.180	-0.197	-0.218	-0.245	-0.267	-0.287	-0.303	-0.318	-0.324	-0.323	-0.328
1.238	-0.224	-0.228	-0.249	-0.250	-0.266	-0.287	-0.299	-0.313	-0.325	-0.323	-0.324	-0.323	-0.323
1.500	-0.233	-0.239	-0.249	-0.255	-0.266	-0.277	-0.278	-0.287	-0.282	-0.281	-0.276	-0.270	-0.270
1.944	-0.048	-0.048	-0.058	-0.064	-0.069	-0.080	-0.080	-0.083	-0.075	-0.069	-0.064	-0.050	-0.055
2.444	-0.016	-0.016	-0.021	-0.027	-0.037	-0.043	-0.048	-0.048	-0.038	-0.033	-0.027	-0.027	-0.021
2.944	-0.000	-0.000	-0.011	-0.016	-0.027	-0.032	-0.032	-0.032	-0.027	-0.021	-0.016	-0.011	-0.006
3.444	-0.005	-0.000	-0.005	-0.011	-0.022	-0.027	-0.027	-0.027	-0.022	-0.016	-0.011	-0.005	-0.000
3.944	0.005	0.005	-0.000	-0.006	-0.016	-0.022	-0.022	-0.021	-0.016	-0.011	-0.006	-0.000	-0.000
4.444	0.010	0.005	-0.000	-0.006	-0.016	-0.022	-0.022	-0.021	-0.011	-0.011	-0.005	-0.000	-0.000
4.944	0.010	0.009	-0.000	-0.006	-0.016	-0.022	-0.022	-0.021	-0.011	-0.006	-0.000	-0.000	-0.000
5.444	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.021	-0.016	-0.011	-0.006	-0.000	-0.000	0.005
5.944	0.010	0.015	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.011	-0.006	-0.000	-0.000	0.005
6.444	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.006	-0.006	-0.000	-0.000	0.005
6.944	0.016	0.016	0.005	-0.000	-0.006	-0.011	-0.011	-0.011	-0.006	-0.000	-0.000	0.005	0.005
7.444	0.016	0.010	0.005	-0.000	-0.011	-0.011	-0.011	-0.011	-0.006	-0.006	-0.000	-0.000	0.005
7.944	0.016	0.016	0.005	0.005	-0.006	-0.011	-0.011	-0.011	-0.000	-0.000	-0.000	-0.000	0.005
8.444	0.016	0.016	0.005	-0.000	-0.006	-0.011	-0.011	-0.011	-0.006	-0.000	-0.000	-0.000	0.005
8.944	0.016	0.016	0.005	-0.000	-0.006	-0.011	-0.011	-0.011	-0.000	-0.000	-0.000	-0.000	0.003
9.444	0.016	0.010	0.005	-0.000	-0.011	-0.016	-0.022	-0.016	-0.006	-0.006	-0.005	-0.006	-0.000
9.944	0.010	0.010	0.005	-0.000	-0.006	-0.011	-0.011	-0.011	-0.000	-0.000	-0.000	-0.000	0.005
10.444	0.016	0.016	0.010	0.002	-0.006	-0.009	-0.012	-0.006	-0.003	-0.003	-0.003	0.002	0.007
10.944	0.016	0.016	0.010	0.002	-0.003	-0.009	-0.009	-0.006	-0.003	-0.003	-0.001	0.002	0.010
11.444	0.016	0.016	0.010	-0.001	-0.006	-0.011	-0.012	-0.009	-0.006	-0.003	-0.003	-0.001	0.002
11.944	0.016	0.016	0.005	-0.001	-0.009	-0.011	-0.014	-0.009	-0.003	-0.003	-0.003	-0.003	0.002
12.444	0.016	0.016	0.005	-0.001	-0.006	-0.011	-0.012	-0.006	-0.003	-0.003	-0.001	-0.001	0.005
12.944	0.016	0.016	0.010	0.002	-0.006	-0.009	-0.009	-0.006	-0.003	-0.003	-0.001	0.002	0.007
13.444	0.016	0.016	0.005	-0.001	-0.009	-0.012	-0.012	-0.006	-0.003	-0.003	-0.003	-0.001	0.005
13.944	0.016	0.021	0.005	-0.001	-0.006	-0.009	-0.012	-0.006	-0.003	-0.003	-0.003	-0.001	0.005
14.444	0.037	0.040	0.037	-0.001	-0.006	-0.009	-0.022	-0.006	-0.003	-0.003	-0.003	0.001	0.005
14.944	0.016	0.016	0.010	-0.001	-0.005	-0.009	-0.003	-0.006	-0.003	-0.003	-0.003	0.002	0.009
15.444	0.016	0.013	0.006	-0.001	-0.006	-0.009	-0.012	-0.006	-0.003	-0.003	-0.003	-0.001	0.005
15.944	0.016	0.010	0.005	-0.001	-0.006	-0.009	-0.012	-0.006	-0.003	-0.003	-0.001	0.002	0.009
16.444	0.010	0.016	0.005	0.011	0.007	0.005	0.002	0.007	0.010	0.007	0.010	0.013	0.015
16.944	0.016	0.016	0.003	0.016	0.005	0.002	-0.005	0.002	0.005	0.009	0.005	0.007	0.013
17.444	0.010	0.010	0.005	-0.001	-0.009	-0.011	-0.012	-0.009	-0.006	-0.006	-0.003	-0.003	0.002
17.944	0.010	0.010	0.005	-0.003	-0.009	-0.011	-0.022	-0.009	-0.005	-0.006	-0.003	-0.003	0.002
18.444	0.010	0.010	0.005	-0.006	-0.011	-0.011	-0.017	-0.009	-0.009	-0.006	-0.006	-0.006	-0.001
18.944	0.005	0.005	-0.000	-0.006	-0.011	-0.014	-0.020	-0.011	-0.009	-0.009	-0.006	-0.006	-0.003
19.444	0.005	0.005	-0.000	-0.006	-0.011	-0.014	-0.017	-0.012	-0.009	-0.009	-0.009	-0.009	-0.003
19.944	0.005	0.005	-0.000	-0.009	-0.014	-0.017	-0.020	-0.014	-0.014	-0.014	-0.011	-0.009	-0.006
20.444	-0.006	-0.008	-0.006	-0.014	-0.022	-0.025	-0.028	-0.022	-0.022	-0.019	-0.019	-0.017	-0.014
20.944	-0.022	-0.016	-0.021	-0.038	-0.038	-0.038	-0.044	-0.041	-0.038	-0.038	-0.035	-0.036	-0.033
21.444	-0.091	-0.085	-0.090	-0.095	-0.106	-0.105	-0.114	-0.108	-0.108	-0.103	-0.102	-0.100	-0.095

Table 1.4 Experimental pressure coefficients c_p for $\alpha = 5.08^{\circ}$, $M_{\infty} = 0.8$ and $Re_D = 5.6 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
x/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.528	0.520	0.511	0.484	0.437	0.412	0.376	0.344	0.315	0.294	0.277	0.263	0.267
0.482	0.260	0.251	0.235	0.212	0.178	0.145	0.127	0.071	0.046	0.024	0.015	0.007	0.002
0.731	0.040	0.033	0.020	-0.007	-0.039	-0.069	-0.096	-0.127	-0.150	-0.171	-0.180	-0.180	-0.185
0.980	-0.177	-0.185	-0.202	-0.220	-0.245	-0.270	-0.293	-0.323	-0.342	-0.358	-0.372	-0.372	-0.372
1.238	-0.271	-0.274	-0.295	-0.300	-0.317	-0.337	-0.351	-0.367	-0.373	-0.375	-0.376	-0.372	-0.372
1.500	-0.288	-0.292	-0.300	-0.305	-0.312	-0.323	-0.324	-0.331	-0.324	-0.318	-0.314	-0.305	-0.301
1.944	-0.052	-0.056	-0.060	-0.069	-0.079	-0.083	-0.087	-0.087	-0.078	-0.073	-0.069	-0.060	-0.056
2.444	-0.016	-0.020	-0.024	-0.034	-0.043	-0.047	-0.051	-0.051	-0.043	-0.038	-0.029	-0.025	-0.020
2.944	-0.002	-0.007	-0.011	-0.020	-0.029	-0.034	-0.038	-0.038	-0.029	-0.020	-0.016	-0.011	-0.007
3.444	0.002	-0.002	-0.007	-0.016	-0.025	-0.029	-0.029	-0.029	-0.025	-0.016	-0.011	-0.007	-0.002
3.944	0.007	0.002	-0.002	-0.011	-0.016	-0.025	-0.025	-0.025	-0.020	-0.011	-0.007	-0.002	0.002
4.444	0.007	0.002	-0.002	-0.007	-0.016	-0.020	-0.025	-0.020	-0.016	-0.011	-0.007	-0.002	0.002
4.944	0.007	0.007	0.002	-0.007	-0.016	-0.020	-0.025	-0.020	-0.016	-0.011	-0.007	-0.002	0.002
5.444	0.011	0.007	0.002	-0.007	-0.016	-0.020	-0.020	-0.020	-0.011	-0.007	-0.007	-0.002	0.002
5.944	0.011	0.007	0.002	-0.002	-0.011	-0.016	-0.020	-0.016	-0.011	-0.007	-0.002	-0.002	0.002
6.444	0.011	0.007	0.002	-0.002	-0.011	-0.020	-0.020	-0.016	-0.011	-0.007	-0.007	-0.002	0.002
6.944	0.015	0.011	0.007	-0.002	-0.007	-0.016	-0.016	-0.011	-0.007	-0.007	-0.002	-0.002	0.007
7.444	0.015	0.011	0.007	-0.002	-0.011	-0.016	-0.016	-0.016	-0.007	-0.007	-0.007	-0.002	0.002
7.944	0.015	0.011	0.007	0.002	-0.007	-0.016	-0.016	-0.011	-0.007	-0.002	-0.002	0.007	0.007
8.444	0.015	0.011	0.007	-0.002	-0.011	-0.016	-0.016	-0.011	-0.007	-0.007	-0.007	-0.002	0.002
8.944	0.015	0.011	0.007	-0.002	-0.011	-0.016	-0.016	-0.011	-0.007	-0.002	-0.007	-0.002	0.002
9.444	0.015	0.011	0.002	-0.007	-0.016	-0.020	-0.025	-0.020	-0.011	-0.007	-0.011	-0.011	-0.002
9.944	0.011	0.011	0.002	-0.002	-0.011	-0.016	-0.016	-0.011	-0.007	-0.007	-0.007	-0.002	0.002
10.444	0.015	0.015	0.007	-0.000	-0.008	-0.012	-0.014	-0.009	-0.005	-0.003	-0.005	-0.000	0.004
10.944	0.015	0.015	0.007	0.002	-0.005	-0.010	-0.021	-0.007	-0.005	-0.003	-0.003	0.002	0.006
11.444	0.015	0.015	0.007	-0.000	-0.008	-0.012	-0.014	-0.009	-0.007	-0.005	-0.005	-0.003	0.002
11.944	0.015	0.011	0.007	-0.003	-0.010	-0.014	-0.016	-0.009	-0.005	-0.005	-0.005	-0.003	-0.001
12.444	0.015	0.011	0.007	-0.003	-0.010	-0.012	-0.014	-0.009	-0.005	-0.005	-0.003	-0.000	0.004
12.944	0.020	0.015	0.007	-0.000	-0.008	-0.010	-0.012	-0.007	-0.005	-0.003	-0.003	0.002	0.006
13.444	0.015	0.011	0.007	-0.003	-0.008	-0.012	-0.014	-0.009	-0.005	-0.005	-0.005	-0.003	0.004
13.944	0.015	0.015	0.007	-0.000	-0.008	-0.012	-0.012	-0.007	-0.005	-0.005	-0.003	-0.003	0.004
14.444	0.034	0.033	0.033	-0.001	-0.008	-0.012	-0.012	-0.007	-0.005	-0.005	-0.004	-0.002	0.004
14.944	0.015	0.015	0.007	-0.001	-0.007	-0.012	-0.012	-0.007	-0.005	-0.005	-0.005	-0.000	0.004
15.444	0.015	0.013	0.007	-0.001	-0.007	-0.010	-0.012	-0.007	-0.005	-0.003	-0.003	-0.000	0.006
15.944	0.015	0.011	0.006	-0.001	-0.007	-0.012	-0.010	-0.007	-0.005	-0.003	-0.003	-0.000	0.004
16.444	0.015	0.011	0.006	0.011	0.006	0.004	0.004	0.006	0.008	0.006	0.008	0.011	0.013
16.944	0.015	0.015	0.006	0.009	0.004	0.002	-0.001	0.004	0.004	0.004	0.006	0.009	0.013
17.444	0.015	0.011	0.006	-0.001	-0.007	-0.012	-0.012	-0.007	-0.005	-0.003	-0.003	-0.000	0.002
17.944	0.015	0.011	0.006	-0.001	-0.007	-0.010	-0.012	-0.005	-0.005	-0.003	-0.003	-0.000	0.004
18.444	0.015	0.011	0.006	-0.003	-0.010	-0.012	-0.012	-0.007	-0.005	-0.005	-0.005	-0.003	0.002
18.944	0.011	0.011	0.006	-0.003	-0.010	-0.012	-0.014	-0.007	-0.007	-0.005	-0.005	-0.005	-0.001
19.444	0.011	0.006	0.006	-0.003	-0.010	-0.012	-0.014	-0.007	-0.007	-0.005	-0.005	-0.005	-0.001
19.944	0.011	0.007	0.002	-0.009	-0.012	-0.016	-0.016	-0.012	-0.010	-0.009	-0.007	-0.007	-0.001
20.444	0.006	0.002	-0.002	-0.012	-0.019	-0.021	-0.021	-0.019	-0.016	-0.016	-0.014	-0.014	-0.010
20.944	-0.011	-0.011	-0.016	-0.025	-0.034	-0.037	-0.039	-0.034	-0.034	-0.032	-0.032	-0.032	-0.028
21.444	-0.083	-0.083	-0.087	-0.095	-0.104	-0.109	-0.111	-0.107	-0.104	-0.102	-0.101	-0.100	-0.091

Table 1.5 Experimental pressure coefficients c_p for $\alpha = 5.09^{\circ}$, $M_{\infty} = 0.9$ and $Re_D = 5.9 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
x/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.577	0.567	0.563	0.531	0.490	0.464	0.425	0.401	0.370	0.349	0.333	0.322	0.321
0.482	0.304	0.296	0.284	0.255	0.222	0.193	0.152	0.125	0.096	0.074	0.063	0.054	0.047
0.731	0.079	0.066	0.055	0.029	-0.002	-0.030	-0.065	-0.085	-0.112	-0.132	-0.139	-0.139	-0.147
0.980	-0.167	-0.179	-0.193	-0.217	-0.245	-0.269	-0.299	-0.319	-0.342	-0.359	-0.372	-0.377	-0.362
1.238	-0.381	-0.386	-0.399	-0.419	-0.444	-0.468	-0.494	-0.514	-0.531	-0.542	-0.551	-0.553	-0.557
1.500	-0.441	-0.448	-0.458	-0.474	-0.487	-0.519	-0.537	-0.561	-0.570	-0.581	-0.586	-0.583	-0.591
1.944	-0.030	-0.038	-0.034	-0.057	-0.065	-0.057	-0.041	-0.049	-0.050	-0.034	-0.022	-0.018	-0.022
2.444	-0.010	-0.014	-0.018	-0.030	-0.038	-0.042	-0.045	-0.038	-0.038	-0.026	-0.018	-0.010	-0.010
2.944	-0.003	-0.006	-0.006	-0.018	-0.026	-0.030	-0.034	-0.034	-0.026	-0.018	-0.010	-0.006	-0.006
3.444	0.001	-0.003	-0.006	-0.018	-0.022	-0.030	-0.030	-0.026	-0.022	-0.014	-0.006	-0.002	-0.002
3.944	0.005	0.001	-0.002	-0.010	-0.018	-0.022	-0.026	-0.022	-0.018	-0.010	-0.006	0.001	0.001
4.444	0.009	0.005	0.001	-0.010	-0.018	-0.022	-0.026	-0.022	-0.018	-0.010	-0.006	-0.002	0.001
4.944	0.009	0.005	0.001	-0.010	-0.018	-0.022	-0.026	-0.022	-0.014	-0.010	-0.006	0.001	-0.002
5.444	0.013	0.005	0.001	-0.010	-0.014	-0.022	-0.022	-0.018	-0.014	-0.010	-0.006	0.001	0.001
5.944	0.013	0.009	0.005	-0.006	-0.014	-0.018	-0.022	-0.018	-0.014	-0.010	-0.002	0.001	0.001
6.444	0.013	0.009	0.005	-0.006	-0.014	-0.018	-0.022	-0.014	-0.010	-0.006	-0.006	0.001	0.001
6.944	0.017	0.013	0.005	-0.003	-0.010	-0.014	-0.018	-0.014	-0.006	-0.006	-0.002	0.001	0.001
7.444	0.013	0.009	0.005	-0.006	-0.010	-0.014	-0.018	-0.014	-0.010	-0.006	-0.006	0.001	0.001
7.944	0.013	0.013	0.009	-0.003	-0.010	-0.014	-0.018	-0.010	-0.006	-0.006	-0.002	0.001	0.001
8.444	0.013	0.009	0.005	-0.003	-0.010	-0.014	-0.018	-0.014	-0.006	-0.006	-0.006	-0.002	-0.002
8.944	0.013	0.009	0.005	-0.006	-0.010	-0.014	-0.018	-0.014	-0.006	-0.006	-0.006	-0.002	0.001
9.444	0.013	0.009	0.001	-0.010	-0.018	-0.022	-0.026	-0.022	-0.014	-0.010	-0.010	-0.010	-0.006
9.944	0.013	0.009	0.001	-0.007	-0.014	-0.014	-0.018	-0.014	-0.010	-0.006	-0.006	-0.002	-0.002
10.444	0.017	0.013	0.005	-0.003	-0.009	-0.013	-0.015	-0.011	-0.007	-0.005	-0.005	-0.003	0.001
10.944	0.017	0.013	0.009	-0.001	-0.009	-0.011	-0.015	-0.011	-0.005	-0.005	-0.005	-0.003	0.005
11.444	0.017	0.013	0.005	-0.005	-0.011	-0.013	-0.017	-0.011	-0.009	-0.007	-0.005	-0.007	-0.003
11.944	0.013	0.009	0.005	-0.005	-0.013	-0.015	-0.017	-0.013	-0.007	-0.007	-0.007	-0.007	-0.001
12.444	0.013	0.009	0.005	-0.005	-0.013	-0.015	-0.017	-0.011	-0.009	-0.007	-0.005	-0.005	0.001
12.944	0.017	0.013	0.005	-0.003	-0.009	-0.013	-0.015	-0.009	-0.007	-0.005	-0.005	-0.001	0.003
13.444	0.013	0.009	0.005	-0.005	-0.011	-0.015	-0.021	-0.011	-0.007	-0.007	-0.005	-0.003	0.001
13.944	0.013	0.013	0.005	-0.005	-0.011	-0.015	-0.015	-0.011	-0.007	-0.005	-0.005	-0.005	0.001
14.444	0.029	0.029	0.029	-0.005	-0.011	-0.015	-0.016	-0.010	-0.007	-0.006	-0.006	-0.004	0.001
14.944	0.013	0.009	0.005	-0.005	-0.011	-0.015	-0.017	-0.009	-0.007	-0.007	-0.007	-0.003	0.001
15.444	0.013	0.009	0.005	-0.005	-0.011	-0.013	-0.015	-0.009	-0.007	-0.007	-0.005	-0.003	0.003
15.944	0.013	0.009	0.005	-0.005	-0.011	-0.013	-0.015	-0.011	-0.007	-0.007	-0.005	-0.003	0.001
16.444	0.013	0.000	0.001	0.005	0.003	-0.001	-0.001	0.003	0.005	0.005	0.005	0.007	0.011
16.944	0.013	0.000	0.005	0.003	-0.001	-0.003	-0.005	-0.001	0.001	0.001	0.003	0.005	0.007
17.444	0.009	0.000	0.001	-0.007	-0.011	-0.015	-0.015	-0.011	-0.007	-0.007	-0.005	-0.003	-0.001
17.944	0.013	0.009	0.005	-0.005	-0.011	-0.013	-0.015	-0.009	-0.009	-0.007	-0.007	-0.003	-0.001
18.444	0.009	0.009	0.001	-0.009	-0.015	-0.017	-0.017	-0.011	-0.009	-0.009	-0.007	-0.007	-0.003
18.944	0.009	0.005	0.001	-0.009	-0.015	-0.017	-0.016	-0.013	-0.009	-0.009	-0.009	-0.007	-0.003
19.444	0.009	0.009	0.001	-0.009	-0.013	-0.015	-0.016	-0.013	-0.009	-0.009	-0.009	-0.007	-0.005
19.944	0.009	0.005	0.001	0.011	-0.015	-0.019	-0.019	-0.015	-0.015	-0.013	-0.011	-0.009	-0.005
20.444	0.001	0.001	-0.006	-0.015	-0.023	-0.025	-0.027	-0.023	-0.021	-0.021	-0.019	-0.017	-0.015
20.944	-0.010	-0.014	-0.018	-0.031	-0.037	-0.041	-0.042	-0.041	-0.038	-0.038	-0.036	-0.036	-0.034
21.444	-0.092	-0.092	-0.100	-0.106	-0.114	-0.118	-0.142	-0.120	-0.118	-0.115	-0.113	-0.107	-0.107

Table 1.6 Experimental pressure coefficients c_p for $\alpha = 5.18^{\circ}$, $M_{\infty} = 0.95$ and $Re_D = 6 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
x/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.613	0.612	0.600	0.579	0.543	0.504	0.461	0.440	0.411	0.391	0.377	0.363	0.366
0.482	0.346	0.344	0.327	0.305	0.273	0.237	0.195	0.166	0.142	0.119	0.111	0.098	0.096
0.731	0.123	0.118	0.103	0.079	0.048	0.017	-0.020	-0.045	-0.061	-0.080	-0.083	-0.091	-0.095
0.980	-0.117	-0.124	-0.143	-0.157	-0.184	-0.213	-0.249	-0.261	-0.299	-0.302	-0.313	-0.320	-0.317
1.238	-0.328	-0.328	-0.346	-0.361	-0.389	-0.413	-0.445	-0.464	-0.474	-0.488	-0.495	-0.502	-0.498
1.500	-0.409	-0.413	-0.424	-0.442	-0.467	-0.487	-0.512	-0.500	-0.517	-0.543	-0.547	-0.549	-0.546
1.944	-0.298	-0.302	-0.309	-0.324	-0.344	-0.358	-0.360	-0.372	-0.370	-0.358	-0.347	-0.334	-0.335
2.444	0.028	0.002	0.017	-0.002	0.020	0.017	0.017	0.013	0.024	0.024	0.028	0.033	0.030
2.944	0.044	0.047	0.038	0.033	0.020	0.013	-0.002	0.020	0.020	0.028	0.038	0.042	0.045
3.444	0.028	0.028	0.020	0.017	0.002	-0.006	-0.017	0.002	0.002	0.013	0.020	0.024	0.028
3.944	0.020	0.020	0.013	0.009	-0.006	-0.009	-0.017	-0.006	-0.006	0.002	0.009	0.013	0.017
4.444	0.017	0.017	0.009	0.002	-0.009	-0.013	-0.020	-0.013	-0.006	-0.002	0.005	0.009	0.009
4.944	0.013	0.013	0.009	-0.002	-0.009	-0.017	-0.020	-0.013	-0.009	-0.002	0.002	0.006	0.005
5.444	0.017	0.013	0.006	-0.002	-0.009	-0.017	-0.020	-0.013	-0.009	-0.002	0.002	0.006	0.006
5.944	0.017	0.013	0.009	-0.002	-0.009	-0.013	-0.017	-0.013	-0.009	-0.006	-0.002	0.006	0.006
6.444	0.013	0.013	0.006	-0.002	-0.009	-0.013	-0.020	-0.013	-0.006	-0.006	-0.002	0.002	0.006
6.944	0.017	0.017	0.009	0.002	-0.006	-0.013	-0.017	-0.009	-0.006	-0.002	-0.002	0.002	0.005
7.444	0.017	0.013	0.009	-0.002	-0.009	-0.013	-0.017	-0.013	-0.006	-0.006	-0.002	0.002	0.002
7.944	0.017	0.017	0.009	0.002	-0.006	-0.013	-0.013	-0.009	-0.006	-0.002	-0.002	0.002	0.006
8.444	0.017	0.013	0.009	-0.002	-0.009	-0.013	-0.017	-0.003	-0.006	-0.006	-0.002	-0.002	0.002
8.944	0.017	0.013	0.009	-0.002	-0.009	-0.013	-0.017	-0.009	-0.006	-0.006	-0.002	0.002	0.002
9.444	0.017	0.013	0.006	-0.006	-0.013	-0.021	-0.028	-0.020	-0.009	-0.009	-0.009	-0.009	-0.006
9.944	0.013	0.009	0.006	-0.002	-0.009	-0.013	-0.017	-0.013	-0.006	-0.006	-0.006	-0.002	0.002
10.444	0.017	0.017	0.009	0.002	-0.006	-0.012	-0.013	-0.010	-0.004	-0.004	-0.004	-0.002	0.001
10.944	0.017	0.017	0.009	0.002	-0.006	-0.012	-0.013	-0.008	-0.004	-0.004	-0.004	-0.000	0.005
11.444	0.017	0.017	0.009	-0.000	-0.008	-0.013	-0.015	-0.010	-0.008	-0.006	-0.006	-0.004	-0.000
11.944	0.013	0.013	0.006	-0.002	-0.010	-0.015	-0.015	-0.010	-0.006	-0.006	-0.006	-0.006	-0.002
12.444	0.017	0.013	0.006	-0.002	-0.008	-0.014	-0.015	-0.010	-0.006	-0.006	-0.004	-0.002	0.001
12.944	0.017	0.017	0.009	-0.000	-0.006	-0.012	-0.013	-0.008	-0.004	-0.004	-0.004	-0.000	0.005
13.444	0.013	0.013	0.006	-0.002	-0.010	-0.014	-0.015	-0.010	-0.006	-0.006	-0.004	-0.004	0.001
13.944	0.017	0.013	0.006	-0.002	-0.008	-0.014	-0.015	-0.010	-0.006	-0.006	-0.006	-0.004	0.001
14.444	0.028	0.028	0.028	-0.002	-0.008	-0.014	-0.015	-0.010	-0.006	-0.006	-0.006	-0.003	0.001
14.944	0.017	0.013	0.006	-0.002	-0.008	-0.014	-0.015	-0.010	-0.006	-0.006	-0.006	-0.002	0.002
15.444	0.015	0.013	0.006	-0.002	-0.008	-0.014	-0.013	-0.012	-0.006	-0.006	-0.004	-0.002	0.001
15.944	0.013	0.013	0.006	-0.002	-0.008	-0.014	-0.013	-0.010	-0.006	-0.006	-0.006	-0.004	0.002
16.444	0.013	0.009	0.006	0.007	0.003	-0.000	-0.000	0.001	0.005	0.005	0.005	0.007	0.009
16.944	0.013	0.013	0.006	0.005	-0.000	-0.004	-0.004	-0.002	0.001	0.001	0.003	0.003	0.007
17.444	0.009	0.009	0.002	-0.004	-0.010	-0.015	-0.015	-0.010	-0.006	-0.008	-0.006	-0.004	-0.000
17.944	0.013	0.009	0.006	-0.004	-0.010	-0.015	-0.015	-0.010	-0.008	-0.006	-0.006	-0.004	-0.002
18.444	0.009	0.009	0.002	-0.006	-0.014	-0.017	-0.017	-0.012	-0.010	-0.008	-0.008	-0.006	-0.004
18.944	0.009	0.009	0.002	-0.006	-0.012	-0.015	-0.015	-0.012	-0.008	-0.008	-0.008	-0.006	-0.004
19.444	0.009	0.009	0.002	-0.004	-0.012	-0.015	-0.017	-0.012	-0.010	-0.010	-0.008	-0.008	-0.004
19.944	0.009	0.009	0.002	-0.006	-0.013	-0.017	-0.021	-0.013	-0.014	-0.012	-0.012	-0.008	-0.006
20.444	0.005	0.002	-0.002	-0.012	-0.019	-0.025	-0.025	-0.021	-0.021	-0.019	-0.017	-0.017	-0.013
20.944	-0.009	-0.009	-0.017	-0.023	-0.032	-0.038	-0.042	-0.038	-0.038	-0.038	-0.038	-0.038	-0.036
21.444	-0.087	-0.087	-0.094	-0.100	-0.111	-0.121	-0.124	-0.126	-0.120	-0.119	-0.120	-0.115	-0.114

Table 1.7 Experimental pressure coefficients c_p for $\alpha = 5.11^{\circ}$; $M_{\infty} = 1.0$ and $Re_D = 6.1 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.653	0.659	0.644	0.683	0.590	0.552	0.521	0.490	0.461	0.440	0.427	0.41[illegible]	0.417
0.482	0.391	0.396	0.377	0.429	0.325	0.291	0.261	0.224	0.198	0.175	0.167	0.157	0.154
0.731	0.176	0.178	0.163	0.204	0.107	0.076	0.049	0.027	-0.002	-0.019	-0.023	-0.026	-0.030
0.980	-0.058	-0.055	-0.073	-0.026	-0.119	-0.143	-0.168	-0.193	-0.215	-0.232	-0.263	-0.242	-0.2[illegible]3
1.238	-0.260	-0.253	-0.271	-0.235	-0.314	-0.338	-0.359	-0.381	-0.396	-0.412	-0.417	-0.42[illegible]	-0.430
1.500	-0.345	-0.342	-0.353	-0.324	-0.395	-0.412	-0.430	-0.449	-0.463	-0.469	-0.470	-0.47[illegible]	-0.473
1.944	-0.257	-0.250	-0.264	-0.257	-0.300	-0.313	-0.324	-0.332	-0.328	-0.324	-0.314	-0.30[illegible]	-0.3[illegible]7
2.444	-0.182	-0.179	-0.190	-0.228	-0.211	-0.217	-0.214	-0.204	-0.190	-0.175	-0.161	-0.15[illegible]	-0.151
2.944	-0.129	-0.126	-0.133	-0.196	-0.144	-0.143	-0.143	-0.137	-0.122	-0.115	-0.104	-0.09[illegible]	-0.094
3.444	-0.080	-0.083	-0.090	-0.136	-0.101	-0.108	-0.108	-0.101	-0.094	-0.090	-0.083	-0.07[illegible]	-0.073
3.944	-0.051	-0.062	-0.065	-0.101	-0.076	-0.083	-0.083	-0.080	-0.069	-0.062	-0.065	-0.05[illegible]	-0.055
4.444	0.053	-0.048	-0.030	-0.079	0.028	0.020	0.016	0.016	0.027	0.027	-0.009	0.02[illegible]	0.016
4.944	0.065	0.060	0.057	0.030	0.040	0.034	0.034	0.036	0.040	0.044	0.048	0.05[illegible]	0.056
5.444	0.058	0.069	0.058	0.039	0.037	0.033	0.032	0.035	0.037	0.041	0.051	0.05[illegible]	0.057
5.944	0.048	0.062	0.052	0.034	0.028	0.027	0.027	0.027	0.028	0.032	0.043	0.04[illegible]	0.050
6.444	0.035	0.052	0.040	0.023	0.020	0.013	0.013	0.016	0.020	0.023	0.030	0.03[illegible]	0.038
6.944	0.030	0.042	0.030	0.016	0.009	0.006	0.006	0.009	0.013	0.013	0.023	0.02[illegible]	0.027
7.444	0.023	0.028	0.020	0.002	0.002	-0.005	-0.005	-0.002	0.002	0.006	0.009	0.01[illegible]	0.016
7.944	0.023	0.023	0.016	-0.005	-0.002	-0.009	-0.009	-0.005	-0.002	0.002	0.002	0.006	0.013
8.444	0.016	0.016	0.009	-0.016	-0.005	-0.012	-0.012	-0.009	-0.005	-0.002	-0.002	0.00[illegible]	0.006
8.944	0.016	0.009	0.009	-0.019	-0.009	-0.012	-0.012	-0.009	-0.005	-0.002	-0.005	0.00[illegible]	0.006
9.444	0.016	0.013	0.005	-0.023	-0.012	-0.019	-0.019	-0.019	-0.009	-0.005	-0.009	-0.00[illegible]	-0.002
9.944	0.013	0.009	0.006	-0.019	-0.009	-0.016	-0.016	-0.012	-0.005	-0.005	-0.002	-0.00[illegible]	0.006
10.444	0.016	0.020	0.013	-0.011	-0.005	-0.009	-0.011	-0.007	-0.004	-0.002	-0.002	-0.00[illegible]	0.005
10.944	0.020	0.020	0.013	-0.009	-0.004	-0.009	-0.009	-0.007	-0.004	-0.004	-0.002	0.00[illegible]	0.007
11.444	0.016	0.016	0.009	-0.016	-0.007	-0.013	-0.013	-0.011	-0.007	-0.005	-0.005	-0.004	0.002
11.944	0.016	0.013	0.009	-0.016	-0.009	-0.013	-0.014	-0.009	-0.006	-0.005	-0.007	-0.00[illegible]	-0.000
12.444	0.016	0.013	0.006	-0.016	-0.007	-0.013	-0.013	-0.009	-0.006	-0.005	-0.004	-0.00[illegible]	0.003
12.944	0.020	0.016	0.009	-0.013	-0.005	-0.009	-0.011	-0.007	-0.004	-0.004	-0.002	0.002	0.007
13.444	0.013	0.016	0.009	-0.014	-0.007	-0.013	-0.013	-0.007	-0.013	-0.004	-0.002	-0.00[illegible]	0.003
13.944	0.016	0.020	0.009	-0.014	-0.007	-0.011	-0.011	-0.007	-0.004	-0.004	-0.002	-0.00[illegible]	0.003
14.444	0.027	0.028	0.027	-0.014	-0.007	-0.012	-0.012	-0.008	-0.005	-0.005	-0.003	-0.007	0.003
14.944	0.016	0.016	0.009	-0.013	-0.007	-0.013	-0.013	-0.009	-0.006	-0.005	-0.004	-0.002	0.003
15.444	0.014	0.013	0.007	-0.016	-0.009	-0.014	-0.014	-0.009	-0.007	-0.005	-0.004	-0.002	0.002
15.944	0.013	0.009	0.006	-0.018	-0.011	-0.014	-0.014	-0.011	-0.007	-0.007	-0.007	-0.00[illegible]	-0.000
16.444	0.009	0.006	0.002	-0.004	-0.002	-0.002	-0.002	0.002	0.003	0.003	0.003	0.00[illegible]	0.007
16.944	0.013	0.009	0.002	-0.009	-0.000	-0.004	-0.004	-0.000	0.002	0.002	-0.000	0.00[illegible]	0.005
17.444	0.009	0.009	0.009	-0.020	-0.009	-0.013	-0.013	-0.009	-0.006	-0.005	-0.004	-0.002	0.002
17.944	0.013	0.016	0.006	-0.013	-0.009	-0.013	-0.014	-0.009	-0.006	-0.005	-0.002	-0.002	0.002
18.444	0.009	0.009	0.006	-0.016	-0.011	-0.016	-0.014	-0.009	-0.007	-0.007	-0.004	-0.004	-0.000
18.944	0.013	0.016	0.006	-0.009	-0.009	-0.013	-0.013	-0.009	-0.006	-0.005	-0.004	-0.004	-0.000
19.444	0.013	0.013	0.006	-0.014	-0.009	-0.013	-0.013	-0.007	-0.006	-0.006	-0.005	-0.00[illegible]	-0.002
19.944	0.013	0.009	0.006	-0.018	-0.009	-0.013	-0.013	-0.009	-0.007	-0.007	-0.007	-0.004	-0.000
20.444	0.013	0.009	0.006	-0.016	-0.011	-0.014	-0.016	-0.013	-0.011	-0.011	-0.011	-0.007	-0.005
20.944	0.002	0.006	-0.002	-0.020	-0.020	-0.023	-0.027	-0.025	-0.025	-0.027	-0.027	-0.02[illegible]	-0.023
21.444	-0.065	-0.062	-0.069	-0.074	-0.095	-0.109	-0.124	-0.137	-0.142	-0.144	-0.144	-0.135	-0.127

Table 1.8 Experimental pressure coefficients c_p for $\alpha = 5.12^{\circ}$, M_{∞} 1.1 and $Re_D = 6.2 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.733	0.728	0.716	0.697	0.667	0.619	0.599	0.569	0.539	0.523	0.511	0.49[illegible]	0.500
0.482	0.481	0.475	0.461	0.442	0.411	0.376	0.350	0.315	0.292	0.271	0.259	0.247	0.244
0.731	0.277	0.269	0.257	0.235	0.204	0.173	0.148	0.121	0.095	0.078	0.070	0.06[illegible]	0.059
0.980	0.053	0.049	0.034	0.022	-0.005	-0.031	-0.054	-0.077	-0.097	-0.111	-0.117	-0.12[illegible]	-0.124
1.238	-0.133	-0.140	-0.150	-0.166	-0.190	-0.213	-0.232	-0.252	-0.269	-0.282	-0.285	-0.29[illegible]	-0.292
1.500	-0.219	-0.223	-0.233	-0.249	-0.269	-0.289	-0.305	-0.322	-0.335	-0.342	-0.335	-0.34[illegible]	-0.348
1.944	-0.157	-0.157	-0.167	-0.183	-0.200	-0.217	-0.226	-0.233	-0.236	-0.236	-0.219	-0.22[illegible]	-0.220
2.444	-0.104	-0.107	-0.114	-0.127	-0.137	-0.144	-0.143	-0.140	-0.130	-0.117	-0.111	-0.097	-0.097
2.944	-0.067	-0.068	-0.071	-0.080	-0.091	-0.091	-0.090	-0.087	-0.074	-0.061	-0.051	-0.04[illegible]	-0.034
3.444	-0.038	-0.038	-0.048	-0.051	-0.058	-0.061	-0.064	-0.058	-0.048	-0.041	-0.035	-0.02[illegible]	-0.018
3.944	-0.015	-0.018	-0.021	-0.034	-0.035	-0.038	-0.041	-0.038	-0.034	-0.034	-0.028	-0.02[illegible]	-0.021
4.444	-0.005	-0.008	-0.015	-0.021	-0.035	-0.041	-0.041	-0.034	-0.028	-0.025	-0.028	-0.01[illegible]	-0.015
4.944	-0.011	-0.011	-0.018	-0.028	-0.031	-0.035	-0.031	-0.031	-0.025	-0.011	-0.011	-0.00[illegible]	-0.001
5.444	-0.008	-0.008	-0.011	-0.015	-0.021	-0.021	-0.028	-0.021	-0.018	-0.015	-0.008	-0.00[illegible]	-0.001
5.944	0.002	0.002	-0.001	-0.015	-0.015	-0.025	-0.018	-0.018	-0.018	-0.011	-0.011	-0.00[illegible]	-0.001
6.444	0.009	0.008	-0.001	-0.005	-0.021	-0.021	-0.028	-0.021	-0.015	-0.015	-0.011	-0.00[illegible]	-0.005
6.944	0.009	0.008	0.002	-0.005	0.002	-0.011	-0.005	-0.008	-0.011	-0.008	-0.008	-0.00[illegible]	0.005
7.444	0.054	0.052	0.037	0.025	-0.005	-0.028	-0.015	-0.025	-0.025	-0.015	-0.011	-0.01[illegible]	-0.008
7.944	0.009	0.009	-0.005	-0.008	-0.045	-0.064	-0.051	-0.054	-0.051	-0.034	-0.024	-0.031	-0.021
8.444	-0.031	-0.031	-0.044	-0.051	-0.074	-0.081	-0.077	-0.071	-0.061	-0.054	-0.048	-0.05[illegible]	-0.041
8.944	-0.048	-0.051	-0.058	-0.067	-0.068	-0.071	-0.071	-0.068	-0.058	-0.061	-0.061	-0.05[illegible]	-0.051
9.444	-0.057	-0.058	-0.064	-0.074	-0.064	-0.068	-0.061	-0.054	-0.048	-0.044	-0.051	-0.04[illegible]	-0.041
9.944	-0.024	-0.025	-0.028	-0.034	-0.028	-0.035	-0.031	-0.031	-0.028	-0.028	-0.031	-0.021	-0.018
10.444	0.009	0.012	0.015	-0.012	-0.007	-0.020	-0.023	-0.025	-0.025	-0.023	-0.017	-0.01[illegible]	-0.012
10.944	0.012	0.012	0.002	-0.007	-0.033	-0.045	-0.035	-0.032	-0.017	-0.025	-0.022	-0.02[illegible]	-0.013
11.444	-0.024	-0.024	-0.035	-0.033	-0.037	-0.030	-0.018	-0.012	-0.002	-0.003	-0.018	0.01[illegible]	0.015
11.944	-0.034	-0.031	-0.028	-0.032	0.038	0.095	0.023	0.046	0.055	0.020	0.010	0.02[illegible]	0.025
12.444	0.164	0.163	0.150	0.132	0.089	0.069	0.071	0.064	0.063	0.054	0.041	0.05[illegible]	0.058
12.944	0.096	0.095	0.083	0.080	0.060	0.059	0.056	0.059	0.060	0.060	0.074	0.06[illegible]	0.071
13.444	0.068	0.067	0.061	0.053	0.047	0.042	0.041	0.046	0.050	0.048	0.020	0.052	0.060
13.944	0.067	0.065	0.060	0.045	0.039	0.032	0.038	0.037	0.037	0.040	0.039	0.04[illegible]	0.045
14.444	0.025	0.025	0.025	0.035	0.025	0.019	0.023	0.024	0.025	0.029	0.029	0.03[illegible]	0.038
14.944	0.037	0.036	0.028	0.026	0.012	0.005	0.008	0.012	0.013	0.018	0.018	0.023	0.031
15.444	0.031	0.029	0.020	0.012	0.003	-0.013	0.000	-0.005	-0.007	0.003	0.008	0.007	0.015
15.944	0.025	0.022	0.012	0.010	-0.035	-0.049	-0.035	-0.037	-0.033	-0.018	-0.010	-0.01[illegible]	-0.008
16.444	-0.024	-0.024	-0.035	-0.017	-0.035	-0.037	-0.035	-0.030	-0.023	-0.022	-0.013	-0.017	-0.012
16.944	-0.048	-0.048	-0.054	-0.033	-0.034	-0.034	-0.038	-0.030	-0.027	-0.028	-0.022	-0.02[illegible]	-0.018
17.444	-0.031	-0.031	-0.035	-0.045	-0.040	-0.040	-0.047	-0.040	-0.033	-0.040	-0.038	-0.03[illegible]	-0.035
17.944	-0.015	-0.011	-0.018	-0.027	-0.005	-0.003	-0.020	-0.010	-0.003	-0.025	-0.033	-0.01[illegible]	-0.022
18.444	0.025	0.025	0.018	0.007	0.023	0.029	0.010	0.023	0.034	0.003	-0.015	0.007	-0.002
18.944	0.055	0.048	0.053	0.023	0.033	0.031	0.037	0.044	0.042	0.034	0.010	0.045	0.035
19.444	0.047	0.045	0.041	0.040	0.013	-0.000	0.022	0.020	0.017	0.043	0.047	0.047	0.058
19.944	0.025	0.025	0.018	0.018	-0.008	-0.022	-0.000	-0.007	-0.010	0.015	0.038	0.022	0.034
20.444	0.009	0.009	0.002	-0.002	-0.029	-0.034	-0.025	-0.027	-0.027	-0.010	0.010	-0.003	0.002
20.944	-0.008	-0.008	-0.015	-0.025	-0.039	-0.049	-0.038	-0.039	-0.040	-0.030	-0.020	-0.02[illegible]	-0.023
21.444	-0.036	-0.036	-0.044	-0.048	-0.075	-0.089	-0.102	-0.127	-0.149	-0.150	-0.128	-0.105	-0.090

Table 1.9 Experimental pressure coefficients c_p for $\alpha = 5.13^{\circ}$, $M_{\infty} = 1.2$ and $Re_D = 6.3 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
x/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.768	0.763	0.746	0.735	0.703	0.656	0.637	0.606	0.577	0.559	0.545	0.532	0.530
0.482	0.515	0.512	0.498	0.481	0.449	0.414	0.389	0.373	0.332	0.312	0.299	0.288	0.284
0.731	0.320	0.312	0.300	0.277	0.246	0.215	0.187	0.160	0.133	0.118	0.109	0.102	0.098
0.980	0.108	0.104	0.088	0.074	0.047	0.024	0.001	-0.021	-0.040	-0.056	-0.059	-0.065	-0.066
1.238	-0.072	-0.075	-0.084	-0.097	-0.122	-0.144	-0.163	-0.182	-0.201	-0.207	-0.220	-0.220	-0.217
1.500	-0.157	-0.160	-0.169	-0.182	-0.200	-0.219	-0.232	-0.242	-0.264	-0.260	-0.264	-0.264	-0.271
1.944	-0.119	-0.122	-0.134	-0.141	-0.163	-0.179	-0.192	-0.198	-0.201	-0.188	-0.175	-0.179	-0.166
2.444	-0.085	-0.087	-0.094	-0.094	-0.116	-0.125	-0.122	-0.116	-0.103	-0.100	-0.100	-0.081	-0.091
2.944	-0.062	-0.062	-0.062	-0.069	-0.078	-0.075	-0.081	-0.084	-0.072	-0.068	-0.053	-0.059	-0.053
3.444	-0.025	-0.028	-0.034	-0.043	-0.043	-0.050	-0.053	-0.053	-0.050	-0.043	-0.037	-0.031	-0.031
3.944	-0.006	-0.006	-0.006	-0.024	-0.028	-0.043	-0.043	-0.037	-0.040	-0.021	-0.018	-0.015	-0.015
4.444	-0.028	-0.024	-0.034	-0.028	-0.040	-0.037	-0.043	-0.043	-0.040	-0.037	-0.024	-0.021	-0.018
4.944	-0.006	-0.009	-0.018	-0.031	-0.040	-0.053	-0.053	-0.046	-0.025	-0.027	-0.021	-0.021	-0.018
5.444	0.001	-0.009	-0.012	-0.006	-0.024	-0.031	-0.034	-0.031	-0.037	-0.021	-0.028	-0.012	-0.012
5.944	-0.009	-0.009	-0.009	-0.034	-0.037	-0.047	-0.047	-0.040	-0.034	-0.031	-0.015	-0.021	-0.015
6.444	-0.009	-0.012	-0.012	-0.021	-0.034	-0.043	-0.043	-0.037	-0.025	-0.021	-0.024	-0.018	-0.015
6.944	0.010	0.004	-0.009	-0.015	-0.024	-0.034	-0.034	-0.028	-0.028	-0.018	-0.021	-0.012	-0.009
7.444	-0.015	-0.015	-0.021	-0.028	-0.037	-0.037	-0.031	-0.018	-0.009	-0.009	-0.009	-0.006	-0.012
7.944	-0.006	-0.009	0.001	-0.006	-0.015	-0.018	-0.021	-0.021	-0.021	-0.012	-0.012	-0.006	0.001
8.444	0.007	0.010	0.001	-0.006	-0.009	-0.006	-0.009	-0.009	-0.006	-0.015	-0.012	-0.015	-0.012
8.944	0.010	0.010	0.004	-0.009	-0.018	-0.031	-0.031	-0.021	-0.018	-0.009	-0.015	-0.009	-0.006
9.444	0.017	0.004	-0.002	-0.015	-0.018	-0.021	-0.025	-0.028	-0.025	-0.021	-0.018	-0.025	-0.012
9.944	0.001	0.001	0.004	-0.006	-0.015	-0.018	-0.021	-0.015	-0.009	-0.009	-0.015	-0.006	-0.009
10.444	0.017	0.013	0.007	0.005	-0.017	-0.023	-0.020	-0.014	-0.004	-0.006	-0.004	-0.006	0.002
10.944	0.007	0.001	-0.002	-0.014	-0.004	0.010	0.023	0.032	0.040	0.028	0.016	0.033	0.034
11.444	0.044	0.060	0.066	0.069	0.046	0.033	0.028	0.028	0.029	0.035	0.040	0.042	0.054
11.944	0.115	0.107	0.086	0.066	0.067	0.043	0.039	0.033	0.024	0.026	0.029	0.023	0.032
12.444	0.044	0.038	0.023	0.039	0.005	-0.011	-0.007	-0.001	-0.009	0.004	0.013	0.005	0.013
12.944	0.004	0.001	-0.009	0.002	-0.023	-0.034	-0.030	-0.020	-0.017	-0.009	-0.004	0.002	0.008
13.444	-0.015	-0.012	-0.015	-0.036	-0.038	-0.039	-0.043	-0.036	-0.025	-0.026	-0.025	-0.025	-0.015
13.944	-0.015	-0.015	-0.024	-0.028	-0.039	-0.038	-0.031	-0.020	-0.019	-0.017	-0.023	-0.020	-0.022
14.444	0.023	0.023	0.023	-0.015	-0.025	-0.025	-0.022	-0.013	-0.013	-0.008	-0.015	-0.010	-0.011
14.944	0.013	0.007	-0.002	-0.001	-0.011	-0.012	-0.012	-0.006	-0.008	0.001	-0.006	0.001	0.000
15.444	0.018	0.018	0.015	0.007	-0.009	-0.007	-0.006	0.001	0.010	-0.001	-0.004	-0.004	-0.001
15.944	0.023	0.030	0.033	-0.003	0.026	0.020	0.010	0.005	0.004	0.007	0.008	0.007	0.015
16.444	0.020	0.023	0.023	0.020	0.018	0.016	0.010	0.010	0.002	0.010	0.016	0.010	0.016
16.944	0.050	0.059	0.030	0.025	0.010	-0.001	-0.007	-0.004	-0.009	-0.003	0.004	-0.006	0.002
17.444	0.007	-0.002	-0.021	-0.017	-0.031	-0.015	-0.023	-0.020	-0.003	-0.007	-0.012	0.015	-0.004
17.944	0.023	0.017	-0.002	0.012	-0.012	-0.014	-0.015	-0.012	-0.008	-0.011	-0.017	-0.014	-0.017
18.444	0.004	0.004	-0.007	-0.023	-0.014	-0.015	-0.017	-0.009	-0.009	-0.001	0.001	-0.001	0.000
18.944	0.007	0.004	-0.002	-0.003	-0.019	-0.022	-0.020	-0.012	-0.004	-0.006	-0.007	0.002	0.002
19.444	0.013	0.007	0.004	-0.006	-0.011	-0.014	-0.011	-0.006	-0.011	-0.006	-0.007	-0.006	0.002
19.944	0.004	0.010	0.007	-0.001	-0.009	-0.011	-0.011	-0.004	-0.008	-0.003	-0.004	-0.001	-0.003
20.444	0.038	0.035	0.027	0.033	0.015	0.007	0.007	0.005	0.008	0.001	-0.001	-0.003	-0.002
20.944	0.010	0.010	0.001	-0.007	-0.012	-0.008	-0.007	0.002	0.005	0.008	0.008	0.012	0.018
21.444	0.010	0.007	0.007	-0.007	-0.011	-0.030	-0.043	-0.065	-0.097	-0.098	-0.082	-0.049	-0.033

Table 1.10 Experimental pressure coefficients c_p for $\alpha = 10.17^{\circ}$, $M_{\infty} = 0.7$ and $Re_D = 5.2 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
x/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.625	0.615	0.580	0.507	0.418	0.341	0.264	0.201	0.151	0.122	0.108	0.098	0.096
0.482	0.370	0.359	0.318	0.257	0.182	0.099	0.032	-0.032	-0.080	-0.112	-0.127	-0.139	-0.133
0.731	0.153	0.139	0.101	0.043	-0.022	-0.096	-0.160	-0.213	-0.250	-0.261	-0.270	-0.277	-0.271
0.980	-0.043	-0.064	-0.096	-0.144	-0.213	-0.271	-0.325	-0.361	-0.373	-0.393	-0.387	-0.379	-0.283
1.238	-0.144	-0.165	-0.186	-0.234	-0.282	-0.325	-0.362	-0.372	-0.378	-0.367	-0.355	-0.336	-0.334
1.500	-0.181	-0.197	-0.218	-0.255	-0.293	-0.320	-0.340	-0.340	-0.325	-0.303	-0.276	-0.256	-0.255
1.944	-0.016	-0.022	-0.048	-0.080	-0.112	-0.138	-0.149	-0.144	-0.117	-0.091	-0.069	-0.048	-0.043
2.444	0.016	0.005	-0.021	-0.048	-0.080	-0.107	-0.117	-0.106	-0.080	-0.054	-0.032	-0.016	-0.006
2.944	0.026	0.021	-0.006	-0.037	-0.064	-0.091	-0.101	-0.091	-0.064	-0.038	-0.021	-0.006	0.005
3.444	0.026	0.021	-0.000	-0.032	-0.064	-0.085	-0.091	-0.080	-0.054	-0.032	-0.021	-0.000	0.005
3.944	0.032	0.026	0.005	-0.027	-0.059	-0.080	-0.085	-0.075	-0.048	-0.027	-0.021	-0.006	0.010
4.444	0.037	0.026	0.005	-0.027	-0.053	-0.080	-0.085	-0.069	-0.038	-0.027	-0.027	-0.011	0.010
4.944	0.037	0.026	0.005	-0.027	-0.053	-0.075	-0.085	-0.064	-0.038	-0.027	-0.027	-0.016	0.010
5.444	0.037	0.032	0.005	-0.021	-0.053	-0.075	-0.080	-0.059	-0.032	-0.022	-0.027	-0.016	0.010
5.944	0.037	0.032	0.010	-0.021	-0.048	-0.069	-0.075	-0.053	-0.027	-0.022	-0.027	-0.016	0.010
6.444	0.037	0.032	0.010	-0.021	-0.048	-0.069	-0.075	-0.053	-0.027	-0.022	-0.027	-0.022	0.005
6.944	0.039	0.037	0.010	-0.016	-0.048	-0.064	-0.070	-0.048	-0.022	-0.016	-0.021	-0.022	0.005
7.444	0.038	0.032	0.010	-0.022	-0.048	-0.064	-0.070	-0.048	-0.022	-0.016	-0.021	-0.027	-0.006
7.944	0.040	0.037	0.010	-0.016	-0.043	-0.064	-0.064	-0.043	-0.022	-0.016	-0.021	-0.027	-0.000
8.444	0.040	0.032	0.010	-0.016	-0.043	-0.064	-0.064	-0.037	-0.022	-0.016	-0.021	-0.027	-0.006
8.944	0.038	0.032	0.010	-0.016	-0.048	-0.064	-0.064	-0.037	-0.016	-0.016	-0.016	-0.022	-0.006
9.444	0.039	0.032	0.010	-0.022	-0.053	-0.069	-0.075	-0.043	-0.022	-0.022	-0.021	-0.038	-0.016
9.944	0.037	0.032	0.010	-0.016	-0.043	-0.059	-0.059	-0.032	-0.016	-0.016	-0.016	-0.022	-0.005
10.444	0.039	0.037	0.016	-0.017	-0.041	-0.057	-0.060	-0.033	-0.017	-0.014	-0.017	-0.020	-0.003
10.944	0.040	0.037	0.016	-0.014	-0.038	-0.055	-0.054	-0.030	-0.017	-0.014	-0.014	-0.014	0.002
11.444	0.041	0.037	0.016	-0.017	-0.041	-0.057	-0.054	-0.030	-0.020	-0.020	-0.017	-0.020	-0.006
11.944	0.037	0.032	0.010	-0.019	-0.044	-0.057	-0.055	-0.030	-0.017	-0.014	-0.017	-0.020	-0.006
12.444	0.037	0.032	0.010	-0.017	-0.041	-0.057	-0.052	-0.028	-0.017	-0.011	-0.014	-0.014	-0.001
12.944	0.041	0.037	0.016	-0.017	-0.041	-0.055	-0.049	-0.025	-0.014	-0.011	-0.011	-0.012	0.002
12.444	0.037	0.032	0.010	-0.017	-0.041	-0.054	-0.049	-0.025	-0.017	-0.012	-0.014	-0.014	-0.001
13.944	0.037	0.037	0.010	-0.017	-0.041	-0.054	-0.049	-0.022	-0.014	-0.012	-0.014	-0.014	-0.001
14.444	0.037	0.037	0.037	-0.015	-0.040	-0.054	-0.049	-0.022	-0.014	-0.012	-0.014	-0.013	-0.001
14.944	0.037	0.037	0.010	-0.014	-0.038	-0.054	-0.049	-0.022	-0.014	-0.012	-0.014	-0.012	-0.001
15.444	0.037	0.034	0.010	-0.014	-0.038	-0.052	-0.046	-0.019	-0.014	-0.011	-0.011	-0.009	-0.001
15.944	0.037	0.032	0.010	-0.014	-0.038	-0.052	-0.046	-0.019	-0.014	-0.011	-0.011	-0.012	-0.003
16.444	0.037	0.032	0.010	0.002	-0.017	-0.025	-0.022	-0.003	0.002	0.002	0.002	0.005	0.010
16.944	0.037	0.032	0.016	-0.003	-0.019	-0.030	-0.025	-0.006	-0.003	-0.001	-0.001	-0.001	0.005
17.444	0.037	0.032	0.010	-0.017	-0.038	-0.052	-0.047	-0.019	-0.014	-0.011	-0.014	-0.014	-0.009
17.944	0.037	0.032	0.010	-0.017	-0.038	-0.049	-0.047	-0.022	-0.014	-0.014	-0.014	-0.014	-0.009
18.444	0.032	0.032	0.010	-0.019	-0.041	-0.052	-0.047	-0.022	-0.017	-0.017	-0.017	-0.017	-0.014
18.944	0.032	0.026	0.005	-0.019	-0.041	-0.052	-0.047	-0.025	-0.017	-0.017	-0.017	-0.017	-0.014
19.444	0.032	0.026	0.005	-0.019	-0.041	-0.052	-0.047	-0.022	-0.020	-0.017	-0.017	-0.020	-0.017
19.944	0.026	0.026	0.005	-0.025	-0.044	-0.057	-0.052	-0.027	-0.022	-0.020	-0.019	-0.020	-0.019
20.444	0.021	0.016	-0.006	-0.030	-0.052	-0.062	-0.060	-0.036	-0.030	-0.028	-0.027	-0.028	-0.027
20.944	-0.003	-0.000	-0.021	-0.049	-0.068	-0.078	-0.079	-0.054	-0.046	-0.044	-0.043	-0.044	-0.046
21.444	-0.096	-0.096	-0.106	-0.127	-0.143	-0.148	-0.154	-0.135	-0.130	-0.122	-0.119	-0.114	-0.108

Table 1.11 Experimental pressure coefficients c_p for $\alpha = 10.20^{\circ}$, $M_{\infty} = 0.8$ and $Re_D = 5.6 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.662	0.647	0.610	0.543	0.451	0.379	0.303	0.239	0.188	0.158	0.142	0.13[illegible]	0.130
0.482	0.397	0.382	0.342	0.283	0.205	0.123	0.053	-0.016	-0.060	-0.096	-0.114	-0.12[illegible]	-0.123
0.731	0.169	0.152	0.112	0.059	-0.011	-0.087	-0.154	-0.212	-0.248	-0.269	-0.273	-0.28[illegible]	-0.283
0.980	-0.056	-0.074	-0.109	-0.154	-0.229	-0.301	-0.331	-0.403	-0.431	-0.448	-0.452	-0.44[illegible]	-0.444
1.238	-0.189	-0.199	-0.225	-0.275	-0.322	-0.377	-0.418	-0.434	-0.431	-0.421	-0.403	-0.387	-0.381
1.500	-0.238	-0.248	-0.275	-0.306	-0.345	-0.377	-0.387	-0.385	-0.364	-0.332	-0.305	-0.28[illegible]	-0.274
1.944	-0.025	-0.034	-0.056	-0.087	-0.118	-0.149	-0.154	-0.145	-0.123	-0.096	-0.069	-0.05[illegible]	-0.043
2.444	0.007	-0.002	-0.025	-0.052	-0.087	-0.109	-0.119	-0.109	-0.087	-0.056	-0.034	-0.01[illegible]	-0.007
2.944	0.024	0.015	-0.007	-0.038	-0.069	-0.096	-0.101	-0.096	-0.069	-0.043	-0.025	-0.00[illegible]	0.002
3.444	0.029	0.015	-0.002	-0.034	-0.065	-0.087	-0.096	-0.083	-0.056	-0.034	-0.025	-0.01[illegible]	0.002
3.944	0.033	0.024	0.002	-0.029	-0.060	-0.083	-0.087	-0.074	-0.047	-0.029	-0.025	-0.01[illegible]	0.007
4.444	0.033	0.024	0.002	-0.025	-0.060	-0.083	-0.087	-0.069	-0.043	-0.029	-0.029	-0.01[illegible]	0.007
4.944	0.033	0.024	0.002	-0.025	-0.056	-0.083	-0.083	-0.069	-0.038	-0.029	-0.034	-0.02[illegible]	0.007
5.444	0.035	0.029	0.007	-0.025	-0.056	-0.078	-0.078	-0.060	-0.034	-0.025	-0.034	-0.02[illegible]	0.007
5.944	0.036	0.029	0.007	-0.020	-0.051	-0.074	-0.078	-0.056	-0.029	-0.025	-0.034	-0.02[illegible]	0.007
6.444	0.035	0.029	0.007	-0.025	-0.051	-0.074	-0.074	-0.056	-0.025	-0.020	-0.034	-0.02[illegible]	0.002
6.944	0.040	0.033	0.011	-0.020	-0.047	-0.069	-0.070	-0.047	-0.025	-0.020	-0.025	-0.02[illegible]	-0.002
7.444	0.038	0.033	0.011	-0.020	-0.051	-0.069	-0.070	-0.047	-0.025	-0.020	-0.025	-0.02[illegible]	-0.007
7.944	0.040	0.033	0.011	-0.016	-0.047	-0.065	-0.065	-0.043	-0.020	-0.016	-0.020	-0.02[illegible]	-0.002
8.444	0.039	0.033	0.011	-0.020	-0.047	-0.065	-0.065	-0.043	-0.025	-0.020	-0.025	-0.02[illegible]	-0.011
8.944	0.038	0.033	0.011	-0.020	-0.047	-0.065	-0.061	-0.038	-0.020	-0.016	-0.020	-0.02[illegible]	-0.007
9.444	0.040	0.029	0.007	-0.025	-0.056	-0.074	-0.074	-0.047	-0.025	-0.025	-0.029	-0.04[illegible]	-0.020
9.944	0.036	0.029	0.007	-0.020	-0.047	-0.065	-0.061	-0.038	-0.020	-0.020	-0.020	-0.025	-0.011
10.444	0.039	0.033	0.011	-0.016	-0.043	-0.059	-0.057	-0.034	-0.019	-0.016	-0.019	-0.021	-0.007
10.944	0.040	0.033	0.011	-0.014	-0.041	-0.057	-0.055	-0.030	-0.019	-0.016	-0.016	-0.01[illegible]	-0.003
11.444	0.040	0.033	0.011	-0.019	-0.043	-0.059	-0.055	-0.032	-0.021	-0.019	-0.019	-0.023	-0.010
11.944	0.039	0.033	0.011	-0.019	-0.045	-0.061	-0.055	-0.030	-0.019	-0.016	-0.019	-0.02[illegible]	-0.012
12.444	0.038	0.029	0.011	-0.019	-0.043	-0.059	-0.053	-0.028	-0.019	-0.016	-0.016	-0.01[illegible]	-0.003
12.944	0.041	0.033	0.011	-0.016	-0.041	-0.057	-0.050	-0.028	-0.016	-0.014	-0.014	-0.01[illegible]	-0.031
13.444	0.037	0.033	0.011	-0.019	-0.043	-0.057	-0.050	-0.028	-0.019	-0.014	-0.016	-0.016	-0.003
13.944	0.039	0.033	0.011	-0.016	-0.041	-0.055	-0.050	-0.025	-0.016	-0.014	-0.014	-0.01[illegible]	-0.003
14.444	0.033	0.033	0.033	-0.015	-0.040	-0.055	-0.049	-0.024	-0.016	-0.014	-0.015	-0.01[illegible]	-0.003
14.944	0.040	0.033	0.011	-0.014	-0.039	-0.055	-0.048	-0.023	-0.016	-0.014	-0.016	-0.014	-0.003
15.444	0.039	0.031	0.011	-0.014	-0.039	-0.052	-0.046	-0.021	-0.014	-0.012	-0.012	-0.012	-0.003
15.944	0.039	0.029	0.011	-0.014	-0.039	-0.050	-0.044	-0.021	-0.016	-0.012	-0.012	-0.014	-0.005
16.444	0.037	0.033	0.011	0.002	-0.016	-0.025	-0.021	-0.003	-0.001	0.002	0.002	0.00[illegible]	0.006
16.944	0.040	0.033	0.016	-0.003	-0.021	-0.030	-0.023	-0.007	-0.005	-0.003	-0.001	-0.003	0.004
17.444	0.037	0.029	0.011	-0.014	-0.039	-0.050	-0.041	-0.019	-0.014	-0.012	-0.012	-0.014	-0.010
17.944	0.038	0.033	0.011	-0.014	-0.037	-0.048	-0.041	-0.019	-0.014	-0.012	-0.012	-0.014	-0.010
18.444	0.036	0.029	0.011	-0.016	-0.039	-0.050	-0.041	-0.021	-0.016	-0.014	-0.014	-0.01[illegible]	-0.012
18.944	0.033	0.029	0.011	-0.016	-0.039	-0.050	-0.041	-0.021	-0.016	-0.014	-0.014	-0.01[illegible]	-0.014
19.444	0.033	0.029	0.011	-0.016	-0.039	-0.048	-0.041	-0.019	-0.016	-0.014	-0.014	-0.01[illegible]	-0.014
19.944	0.033	0.029	0.007	-0.019	-0.041	-0.052	-0.044	-0.023	-0.019	-0.019	-0.016	-0.01[illegible]	-0.014
20.444	0.029	0.020	0.002	-0.025	-0.048	-0.057	-0.055	-0.030	-0.025	-0.023	-0.021	-0.023	-0.021
20.944	0.011	0.002	-0.016	-0.041	-0.064	-0.075	-0.068	-0.048	-0.043	-0.041	-0.039	-0.043	-0.039
21.444	-0.087	-0.091	-0.105	-0.125	-0.143	-0.149	-0.147	-0.134	-0.129	-0.122	-0.118	-0.113	-0.104

Table 1.12 Experimental pressure coefficients c_p for $\alpha = 10.24^{\circ}$, $M_{\infty} = 0.9$ and $Re_D = 5.9 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.710	0.691	0.662	0.592	0.510	0.438	0.362	0.310	0.251	0.219	0.206	0.195	0.193
0.482	0.440	0.424	0.392	0.326	0.252	0.177	0.105	0.043	-0.003	-0.042	-0.061	-0.073	-0.059
0.731	0.205	0.190	0.153	0.094	0.025	-0.038	-0.112	-0.167	-0.207	-0.230	-0.237	-0.249	-0.245
0.980	-0.042	-0.061	-0.096	-0.144	-0.213	-0.280	-0.334	-0.386	-0.423	-0.449	-0.456	-0.461	-0.459
1.238	-0.264	-0.276	-0.311	-0.359	-0.420	-0.480	-0.537	-0.577	-0.607	-0.621	-0.624	-0.621	-0.619
1.500	-0.354	-0.366	-0.393	-0.434	-0.486	-0.530	-0.569	-0.608	-0.627	-0.637	-0.613	-0.539	-0.534
1.944	-0.026	-0.034	-0.053	-0.081	-0.108	-0.116	-0.120	-0.100	-0.081	-0.054	-0.026	-0.006	0.001
2.444	0.013	0.001	-0.022	-0.050	-0.084	-0.104	-0.112	-0.100	-0.073	-0.042	-0.018	0.001	0.009
2.944	0.025	0.013	-0.006	-0.038	-0.073	-0.092	-0.100	-0.089	-0.061	-0.038	-0.018	-0.003	0.009
3.444	0.029	0.017	-0.003	-0.034	-0.065	-0.089	-0.096	-0.081	-0.054	-0.030	-0.022	-0.006	0.009
3.944	0.031	0.021	0.005	-0.026	-0.061	-0.081	-0.088	-0.073	-0.046	-0.030	-0.022	-0.010	0.009
4.444	0.032	0.025	0.005	-0.026	-0.061	-0.081	-0.085	-0.069	-0.038	-0.030	-0.026	-0.014	0.005
4.944	0.031	0.025	0.005	-0.026	-0.057	-0.081	-0.084	-0.065	-0.038	-0.026	-0.030	-0.018	0.001
5.444	0.036	0.029	0.005	-0.026	-0.057	-0.077	-0.081	-0.061	-0.034	-0.026	-0.030	-0.02[illegible]	0.001
5.944	0.036	0.029	0.009	-0.022	-0.053	-0.073	-0.077	-0.057	-0.030	-0.026	-0.030	-0.022	0.005
6.444	0.036	0.029	0.005	-0.022	-0.053	-0.073	-0.077	-0.053	-0.026	-0.022	-0.030	-0.03[illegible]	0.001
6.944	0.039	0.030	0.013	-0.018	-0.049	-0.069	-0.069	-0.045	-0.026	-0.022	-0.026	-0.026	0.001
7.444	0.038	0.029	0.009	0.049	-0.049	-0.069	-0.069	-0.045	-0.026	-0.022	-0.026	-0.030	-0.006
7.944	0.040	0.031	0.013	0.051	-0.049	-0.065	-0.065	-0.041	-0.022	-0.018	-0.022	-0.026	-0.003
8.444	0.039	0.030	0.009	0.048	-0.049	-0.065	-0.065	-0.041	-0.022	-0.018	-0.026	-0.030	-0.010
8.944	0.038	0.029	0.009	0.049	-0.049	-0.065	-0.065	-0.038	-0.022	-0.018	-0.022	-0.026	-0.006
9.444	0.039	0.029	0.009	0.045	-0.057	-0.073	-0.077	-0.045	-0.026	-0.026	-0.026	-0.042	-0.018
9.944	0.035	0.029	0.009	0.050	-0.049	-0.065	-0.065	-0.038	-0.022	-0.018	-0.022	-0.026	-0.010
10.444	0.039	0.029	0.013	-0.017	-0.044	-0.060	-0.058	-0.033	-0.021	-0.019	-0.019	-0.021	-0.007
10.944	0.041	0.031	0.013	-0.019	-0.042	-0.058	-0.056	-0.031	-0.021	-0.017	-0.017	-0.017	-0.001
11.444	0.040	0.030	0.013	-0.019	-0.044	-0.060	-0.056	-0.033	-0.023	-0.021	-0.021	-0.023	-0.009
11.944	0.038	0.029	0.009	-0.019	-0.046	-0.060	-0.058	-0.031	-0.021	-0.019	-0.019	-0.023	-0.009
12.444	0.037	0.029	0.009	-0.019	-0.044	-0.060	-0.056	-0.029	-0.021	-0.017	-0.017	-0.019	-0.003
12.944	0.041	0.030	0.013	-0.017	-0.042	-0.056	-0.052	-0.027	-0.021	-0.015	-0.015	-0.013	-0.001
13.444	0.037	0.029	0.009	-0.019	-0.044	-0.058	-0.054	-0.027	-0.019	-0.017	-0.015	-0.017	-0.005
13.944	0.038	0.029	0.009	-0.019	-0.042	-0.056	-0.052	-0.027	-0.019	-0.017	-0.017	-0.017	-0.005
14.444	0.029	0.029	0.029	-0.018	-0.041	-0.055	-0.051	-0.026	-0.019	-0.017	-0.017	-0.016	-0.005
14.944	0.038	0.029	0.009	-0.017	-0.043	-0.054	-0.050	-0.029	-0.019	-0.017	-0.017	-0.015	-0.005
15.444	0.037	0.029	0.009	-0.017	-0.040	-0.054	-0.048	-0.021	-0.019	-0.015	-0.013	-0.013	-0.007
15.944	0.037	0.029	0.009	-0.015	-0.040	-0.052	-0.046	-0.021	-0.019	-0.015	-0.015	-0.015	-0.007
16.444	0.035	0.029	0.009	-0.001	-0.021	-0.029	-0.027	-0.005	-0.005	-0.001	-0.001	0.001	0.003
16.944	0.036	0.029	0.013	-0.005	-0.023	-0.033	-0.029	-0.009	-0.007	-0.005	-0.005	-0.003	-0.001
17.444	0.034	0.029	0.009	-0.017	-0.040	-0.050	-0.046	-0.021	-0.019	-0.015	-0.015	-0.015	-0.013
17.944	0.036	0.029	0.009	-0.017	-0.040	-0.050	-0.044	-0.021	-0.019	-0.017	-0.017	-0.015	-0.015
18.444	0.033	0.025	0.009	-0.019	-0.042	-0.052	-0.046	-0.021	-0.019	-0.017	-0.017	-0.017	-0.019
18.944	0.031	0.025	0.005	-0.019	-0.042	-0.052	-0.046	-0.021	-0.019	-0.017	-0.019	-0.017	-0.021
19.444	0.031	0.025	0.009	-0.017	-0.040	-0.051	-0.044	-0.021	-0.019	-0.017	-0.019	-0.019	-0.021
19.944	0.032	0.025	0.005	-0.019	-0.044	-0.055	-0.050	-0.025	-0.023	-0.021	-0.021	-0.017	-0.021
20.444	0.029	0.021	0.001	-0.025	-0.050	-0.060	-0.056	-0.032	-0.030	-0.029	-0.027	-0.025	-0.031
20.944	0.013	0.005	-0.014	-0.041	-0.064	-0.078	-0.074	-0.052	-0.048	-0.046	-0.046	-0.046	-0.050
21.444	-0.089	-0.093	-0.108	-0.130	-0.149	-0.163	-0.163	-0.147	-0.143	-0.137	-0.133	-0.123	-0.123

Table 1.13 Experimental pressure coefficients c_p for $\alpha = 10.26^{\circ}$, $M_{\infty} = 0.95$ and $Re_D = 6.0 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.744	0.262	0.697	0.639	0.562	0.478	0.402	0.346	0.295	0.268	0.254	0.240	0.238
0.482	0.481	0.473	0.434	0.378	0.305	0.222	0.150	0.093	0.041	0.009	-0.009	-0.024	-0.023
0.731	0.248	0.239	0.198	0.146	0.081	0.009	-0.065	-0.117	-0.153	-0.176	-0.183	-0.198	-0.198
0.980	0.005	-0.009	-0.046	-0.091	-0.154	-0.228	-0.283	-0.327	-0.364	-0.383	-0.387	-0.394	-0.393
1.238	-0.220	-0.228	-0.261	-0.306	-0.365	-0.428	-0.483	-0.516	-0.542	-0.557	-0.561	-0.561	-0.559
1.500	-0.313	-0.324	-0.353	-0.395	-0.446	-0.502	-0.549	-0.583	-0.605	-0.605	-0.602	-0.594	-0.593
1.944	-0.224	-0.231	-0.261	-0.306	-0.361	-0.417	-0.454	-0.471	-0.446	-0.383	-0.317	-0.253	-0.242
2.444	-0.109	-0.183	-0.179	-0.246	-0.057	-0.046	-0.043	-0.043	-0.013	-0.009	0.009	0.031	0.042
2.944	0.067	0.067	0.040	0.017	-0.020	-0.046	-0.061	-0.035	-0.009	0.009	0.028	0.047	0.063
3.444	0.052	0.051	0.028	-0.002	-0.035	-0.061	-0.072	-0.046	-0.024	-0.009	-0.002	0.024	0.038
3.944	0.045	0.041	0.020	-0.009	-0.043	-0.068	-0.076	-0.054	-0.028	-0.017	-0.020	0.009	0.028
4.444	0.041	0.036	0.013	-0.017	-0.046	-0.072	-0.076	-0.057	-0.028	-0.020	-0.032	0.002	0.020
4.944	0.039	0.033	0.009	-0.020	-0.050	-0.072	-0.076	-0.057	-0.028	-0.020	-0.035	-0.006	0.013
5.444	0.041	0.032	0.013	-0.017	-0.046	-0.072	-0.072	-0.054	-0.028	-0.020	-0.035	-0.013	0.006
5.944	0.040	0.033	0.013	-0.017	-0.046	-0.068	-0.072	-0.050	-0.024	-0.020	-0.028	-0.017	0.002
6.444	0.039	0.031	0.009	-0.020	-0.050	-0.068	-0.072	-0.046	-0.024	-0.020	-0.028	-0.024	-0.006
6.944	0.043	0.035	0.013	-0.017	-0.043	-0.065	-0.065	-0.043	-0.024	-0.017	-0.020	-0.020	-0.006
7.444	0.041	0.033	0.013	-0.017	-0.046	-0.065	-0.065	-0.043	-0.024	-0.020	-0.020	-0.024	-0.009
7.944	0.043	0.035	0.017	-0.017	-0.043	-0.065	-0.061	-0.039	-0.020	-0.017	-0.020	-0.024	-0.006
8.444	0.041	0.033	0.013	-0.017	-0.046	-0.065	-0.061	-0.039	-0.020	-0.017	-0.020	-0.024	-0.013
8.944	0.039	0.031	0.013	-0.017	-0.046	-0.065	-0.061	-0.035	-0.020	-0.017	-0.020	-0.024	-0.009
9.444	0.041	0.031	0.009	-0.024	-0.050	-0.072	-0.072	-0.043	-0.024	-0.024	-0.028	-0.039	-0.024
9.944	0.037	0.028	0.009	-0.020	-0.046	-0.065	-0.061	-0.035	-0.020	-0.020	-0.020	-0.024	-0.013
10.444	0.042	0.033	0.013	-0.015	-0.042	-0.058	-0.056	-0.032	-0.019	-0.015	-0.017	-0.019	-0.010
10.944	0.043	0.035	0.017	-0.012	-0.040	-0.057	-0.054	-0.030	-0.019	-0.015	-0.015	-0.013	-0.002
11.444	0.043	0.034	0.013	-0.015	-0.042	-0.058	-0.055	-0.030	-0.021	-0.019	-0.017	-0.021	-0.010
11.944	0.039	0.030	0.009	-0.017	-0.043	-0.060	-0.055	-0.030	-0.021	-0.017	-0.019	-0.021	-0.013
12.444	0.039	0.030	0.013	-0.017	-0.042	-0.058	-0.058	-0.028	-0.019	-0.015	-0.015	-0.015	-0.004
12.944	0.043	0.033	0.013	-0.014	-0.040	-0.055	-0.051	-0.027	-0.019	-0.013	-0.013	-0.012	0.002
13.444	0.038	0.029	0.013	-0.017	-0.042	-0.057	-0.051	-0.027	-0.019	-0.015	-0.015	-0.017	-0.004
13.944	0.040	0.030	0.013	-0.015	-0.042	-0.057	-0.049	-0.025	-0.019	-0.015	-0.015	-0.017	-0.004
14.444	0.028	0.028	0.028	-0.015	-0.040	-0.056	-0.048	-0.025	-0.019	-0.015	-0.016	-0.016	-0.004
14.944	0.040	0.030	0.013	-0.015	-0.038	-0.055	-0.047	-0.025	-0.019	-0.015	-0.017	-0.015	-0.004
15.444	0.039	0.029	0.013	-0.015	-0.038	-0.053	-0.047	-0.023	-0.017	-0.015	-0.013	-0.013	-0.004
15.944	0.039	0.029	0.013	-0.015	-0.038	-0.053	-0.045	-0.023	-0.017	-0.015	-0.015	-0.015	-0.006
16.444	0.035	0.028	0.009	-0.000	-0.019	-0.030	-0.025	-0.006	-0.004	-0.002	-0.002	-0.000	0.003
16.944	0.039	0.031	0.013	-0.004	-0.021	-0.034	-0.027	-0.010	-0.008	-0.006	-0.006	-0.004	-0.000
17.444	0.034	0.028	0.009	-0.017	-0.038	-0.053	-0.045	-0.021	-0.017	-0.015	-0.015	-0.015	-0.011
17.944	0.036	0.028	0.009	-0.015	-0.038	-0.051	-0.044	-0.021	-0.017	-0.015	-0.015	-0.015	-0.011
18.444	0.033	0.028	0.009	-0.017	-0.040	-0.053	-0.045	-0.023	-0.019	-0.017	-0.017	-0.019	-0.015
18.944	0.032	0.028	0.009	-0.017	-0.038	-0.053	-0.044	-0.023	-0.019	-0.017	-0.017	-0.019	-0.017
19.444	0.033	0.028	0.009	-0.015	-0.036	-0.051	-0.044	-0.021	-0.019	-0.017	-0.019	-0.021	-0.017
19.944	0.034	0.028	0.009	-0.017	-0.040	-0.055	-0.047	-0.025	-0.021	-0.021	-0.019	-0.019	-0.017
20.444	0.028	0.024	0.002	-0.023	-0.044	-0.060	-0.053	-0.032	-0.028	-0.028	-0.027	-0.027	-0.026
20.944	0.017	0.013	0.000	-0.034	-0.059	-0.073	-0.072	-0.051	-0.047	-0.047	-0.047	-0.049	-0.049
21.444	-0.065	-0.069	0.000	-0.113	-0.137	-0.158	-0.164	-0.154	-0.148	-0.144	-0.142	-0.135	-0.131

Table 1.14 Experimental pressure coefficients c_p for $\alpha = 10.28^{\circ}$, $M_{\infty} = 1.0$ and $Re_D = 6.1 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.782	0.510	0.740	0.683	0.608	0.527	0.459	0.394	0.348	0.322	0.308	0.293	0.291
0.482	0.526	0.519	0.483	0.429	0.356	0.277	0.213	0.147	0.100	0.068	0.048	0.033	0.035
0.731	0.300	0.293	0.255	0.204	0.140	0.069	0.006	-0.058	-0.090	-0.108	-0.122	-0.140	-0.136
0.980	0.059	0.049	0.016	-0.026	-0.087	-0.157	-0.207	-0.260	-0.291	-0.306	-0.312	-0.318	-0.320
1.238	-0.157	-0.161	-0.190	-0.235	-0.288	-0.353	-0.397	-0.441	-0.461	-0.472	-0.478	-0.455	-0.483
1.500	-0.253	-0.257	-0.286	-0.324	-0.377	-0.431	-0.472	-0.512	-0.525	-0.525	-0.525	-0.520	-0.518
1.944	-0.182	-0.186	-0.215	-0.257	-0.309	-0.367	-0.401	-0.423	-0.408	-0.369	-0.330	-0.303	-0.295
2.444	-0.147	-0.154	-0.183	-0.228	-0.278	-0.321	-0.330	-0.299	-0.246	-0.192	-0.157	-0.136	-0.125
2.944	-0.129	-0.133	-0.161	-0.196	-0.224	-0.232	-0.228	-0.200	-0.161	-0.132	-0.111	-0.090	-0.079
3.444	-0.080	-0.087	-0.108	-0.136	-0.161	-0.183	-0.182	-0.157	-0.129	-0.111	-0.100	-0.079	-0.062
3.944	-0.037	-0.048	-0.069	-0.101	-0.129	-0.151	-0.150	-0.111	-0.090	-0.093	-0.093	-0.069	-0.033
4.444	0.049	-0.030	-0.044	-0.079	-0.101	-0.101	-0.083	-0.012	-0.009	-0.026	-0.040	-0.012	0.049
4.944	0.088	0.077	0.060	0.030	0.006	-0.016	-0.019	-0.002	0.020	0.020	-0.001	0.043	0.063
5.444	0.090	0.086	0.064	0.039	0.009	-0.016	-0.016	0.002	0.023	0.027	-0.002	0.038	0.056
5.944	0.081	0.087	0.059	0.034	0.002	-0.019	-0.023	-0.009	0.016	0.023	-0.005	0.027	0.043
6.444	0.070	0.070	0.047	0.023	-0.012	-0.034	-0.037	-0.019	0.009	0.013	-0.009	0.009	0.027
6.944	0.063	0.063	0.039	0.016	-0.019	-0.041	-0.044	-0.026	-0.002	0.006	-0.005	0.005	0.016
7.444	0.053	0.050	0.027	0.002	-0.033	-0.055	-0.055	-0.033	-0.012	-0.005	-0.009	-0.009	0.002
7.944	0.048	0.043	0.023	-0.005	-0.037	-0.058	-0.058	-0.037	-0.016	-0.009	-0.012	-0.016	-0.005
8.444	0.043	0.034	0.016	-0.016	-0.044	-0.065	-0.062	-0.037	-0.019	-0.016	-0.019	-0.026	-0.016
8.944	0.040	0.031	0.013	-0.019	-0.044	-0.062	-0.062	-0.037	-0.019	-0.016	-0.019	-0.023	-0.012
9.444	0.040	0.036	0.009	-0.023	-0.051	-0.073	-0.069	-0.044	-0.023	-0.023	-0.026	-0.037	-0.026
9.944	0.036	0.028	0.009	-0.019	-0.048	-0.065	-0.062	-0.033	-0.019	-0.016	-0.019	-0.023	-0.016
10.444	0.043	0.037	0.016	-0.011	-0.040	-0.055	-0.054	-0.031	-0.020	-0.014	-0.014	-0.016	-0.011
10.944	0.045	0.038	0.020	-0.009	-0.036	-0.054	-0.052	-0.029	-0.020	-0.014	-0.016	-0.011	-0.004
11.444	0.043	0.034	0.016	-0.016	-0.041	-0.059	-0.054	-0.031	-0.022	-0.020	-0.020	-0.018	-0.013
11.944	0.040	0.032	0.013	-0.016	-0.041	-0.059	-0.055	-0.031	-0.022	-0.018	-0.021	-0.020	-0.013
12.444	0.040	0.031	0.013	-0.016	-0.041	-0.059	-0.054	-0.029	-0.022	-0.016	-0.020	-0.015	-0.007
12.944	0.045	0.039	0.016	-0.013	-0.038	-0.054	-0.050	-0.027	-0.020	-0.014	-0.014	-0.009	-0.002
13.444	0.039	0.031	0.013	-0.014	-0.039	-0.056	-0.050	-0.027	-0.018	-0.014	-0.014	-0.013	-0.005
13.944	0.041	0.034	0.016	-0.014	-0.039	-0.056	-0.050	-0.025	-0.018	-0.013	-0.014	-0.014	-0.004
14.444	0.027	0.027	0.027	-0.014	-0.039	-0.056	-0.050	-0.026	-0.018	-0.013	-0.016	-0.011	-0.004
14.944	0.040	0.035	0.016	-0.013	-0.038	-0.056	-0.050	-0.027	-0.018	-0.014	-0.018	-0.007	-0.004
15.444	0.038	0.031	0.013	-0.016	-0.041	-0.058	-0.050	-0.025	-0.020	-0.016	-0.018	-0.011	-0.005
15.944	0.037	0.028	0.009	-0.018	-0.043	-0.058	-0.052	-0.027	-0.022	-0.018	-0.020	-0.018	-0.009
16.444	0.033	0.027	0.009	-0.004	-0.023	-0.034	-0.030	-0.009	-0.007	-0.005	-0.005	-0.004	0.002
16.944	0.035	0.027	0.009	-0.009	-0.027	-0.040	-0.034	-0.013	-0.009	-0.009	-0.009	-0.004	-0.000
17.444	0.035	0.027	0.013	-0.020	-0.038	-0.049	-0.043	-0.023	-0.016	-0.013	-0.014	-0.016	-0.009
17.944	0.035	0.032	0.013	-0.013	-0.038	-0.052	-0.045	-0.023	-0.018	-0.013	-0.014	-0.016	-0.009
18.444	0.033	0.029	0.009	-0.016	-0.041	-0.056	-0.047	-0.023	-0.018	-0.014	-0.016	-0.016	-0.013
18.944	0.036	0.030	0.013	-0.009	-0.036	-0.052	-0.045	-0.022	-0.018	-0.014	-0.016	-0.013	-0.013
19.444	0.034	0.028	0.013	-0.014	-0.036	-0.050	-0.043	-0.022	-0.018	-0.016	-0.018	-0.018	-0.014
19.944	0.038	0.029	0.013	-0.018	-0.039	-0.054	-0.046	-0.023	-0.020	-0.016	-0.018	-0.016	-0.009
20.444	0.037	0.030	0.013	-0.016	-0.038	-0.052	-0.046	-0.025	-0.022	-0.020	-0.020	-0.022	-0.014
20.944	0.029	0.027	0.006	-0.020	-0.045	-0.059	-0.055	-0.038	-0.032	-0.032	-0.034	-0.038	-0.024
21.444	-0.023	-0.026	-0.048	-0.074	-0.104	-0.133	-0.148	-0.160	-0.165	-0.163	-0.156	-0.134	-0.125

Table 1.15 Experimental pressure coefficients c_p for $\alpha = 10.31^\circ$, $M_\infty = 1.1$ and $Re_D = 6.2 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
x/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.856	0.849	0.740	0.754	0.683	0.597	0.539	0.479	0.433	0.407	0.393	0.378	0.379
0.482	0.607	0.596	0.483	0.510	0.439	0.367	0.302	0.244	0.196	0.162	0.144	0.131	0.133
0.731	0.393	0.382	0.255	0.294	0.234	0.167	0.103	0.047	0.012	-0.015	-0.024	-0.038	-0.038
0.980	0.163	0.154	0.016	0.077	0.018	-0.044	-0.094	-0.140	-0.173	-0.189	-0.196	-0.196	-0.196
1.238	-0.038	-0.048	-0.190	-0.117	-0.170	-0.226	-0.272	-0.309	-0.332	-0.345	-0.347	-0.347	-0.348
1.500	-0.133	-0.143	-0.286	-0.206	-0.256	-0.305	-0.344	-0.375	-0.395	-0.397	-0.393	-0.387	-0.387
1.944	-0.087	-0.094	-0.215	-0.163	-0.213	-0.259	-0.295	-0.312	-0.309	-0.279	-0.248	-0.222	-0.212
2.444	-0.064	-0.071	-0.183	-0.144	-0.190	-0.229	-0.249	-0.229	-0.190	-0.137	-0.103	-0.077	-0.064
2.944	-0.048	-0.057	-0.161	-0.127	-0.164	-0.186	-0.179	-0.150	-0.114	-0.081	-0.057	-0.041	-0.021
3.444	-0.031	-0.038	-0.108	-0.094	-0.124	-0.143	-0.140	-0.117	-0.074	-0.067	-0.051	-0.034	-0.018
3.944	-0.001	-0.011	-0.069	-0.061	-0.081	-0.104	-0.110	-0.091	-0.058	-0.054	-0.057	-0.024	-0.005
4.444	0.015	0.009	-0.044	-0.051	-0.081	-0.100	-0.100	-0.074	-0.051	-0.041	-0.057	-0.011	0.009
4.944	0.015	0.009	0.060	-0.051	-0.074	-0.090	-0.084	-0.061	-0.041	-0.034	-0.054	-0.011	0.009
5.444	0.025	0.022	0.064	-0.028	-0.064	-0.084	-0.087	-0.061	-0.038	-0.034	-0.061	-0.018	0.002
5.944	0.026	0.018	0.059	-0.031	-0.054	-0.074	-0.074	-0.054	-0.045	-0.038	-0.061	-0.028	-0.011
6.444	0.034	0.033	0.047	-0.021	-0.064	-0.087	-0.087	-0.064	-0.041	-0.038	-0.057	-0.038	-0.018
6.944	0.035	0.025	0.039	-0.028	-0.044	-0.067	-0.071	-0.051	-0.045	-0.034	-0.044	-0.034	-0.018
7.444	0.041	0.029	0.027	-0.031	-0.061	-0.087	-0.090	-0.068	-0.054	-0.041	-0.041	-0.051	-0.034
7.944	0.054	0.055	0.023	0.002	-0.074	-0.097	-0.100	-0.074	-0.058	-0.048	-0.044	-0.051	-0.038
8.444	0.012	0.005	0.016	-0.054	-0.111	-0.130	-0.123	-0.087	-0.068	-0.061	-0.054	-0.071	-0.051
8.944	-0.018	-0.029	0.013	-0.084	-0.107	-0.123	-0.123	-0.071	-0.071	-0.067	-0.064	-0.061	-0.047
9.444	-0.028	-0.038	0.009	-0.104	-0.107	-0.117	-0.104	-0.071	-0.054	-0.054	-0.061	-0.064	-0.057
9.944	-0.001	-0.008	0.009	-0.054	-0.064	-0.084	-0.080	-0.054	-0.051	-0.041	-0.038	-0.038	-0.024
10.444	0.022	0.012	0.016	-0.034	-0.054	-0.079	-0.077	-0.054	-0.040	-0.045	-0.038	-0.033	-0.023
10.944	0.039	0.032	0.020	-0.022	-0.055	-0.073	-0.067	-0.039	-0.005	-0.022	-0.038	0.000	-0.013
11.444	0.025	0.018	0.016	-0.040	-0.032	-0.043	-0.037	-0.012	-0.020	-0.008	-0.010	-0.015	0.008
11.944	0.009	0.005	0.013	-0.018	-0.055	-0.063	-0.050	-0.022	-0.002	-0.013	-0.010	-0.010	-0.003
12.444	0.025	0.012	0.013	-0.030	0.099	0.057	0.034	0.026	0.048	0.012	-0.005	0.007	0.025
12.944	0.167	0.166	0.016	0.112	0.044	0.025	0.028	0.047	0.051	0.048	0.035	0.051	0.061
13.444	0.117	0.111	0.013	0.062	0.022	0.002	0.008	0.032	0.037	0.040	0.041	0.037	0.054
13.944	0.091	0.082	0.016	0.031	0.012	-0.005	0.000	0.025	0.028	0.032	0.030	0.029	0.043
14.444	0.025	0.029	0.027	0.029	-0.003	-0.021	-0.015	0.010	0.011	0.020	0.025	0.019	0.035
14.944	0.074	0.066	0.016	0.018	-0.018	-0.037	-0.030	-0.005	-0.007	0.008	0.020	0.010	0.028
15.444	0.064	0.056	0.013	-0.000	-0.030	-0.050	-0.045	-0.022	-0.025	-0.008	-0.002	-0.010	0.003
15.944	0.055	0.047	0.009	-0.008	-0.055	-0.075	-0.068	-0.040	-0.040	-0.028	-0.025	-0.032	-0.022
16.444	0.025	0.022	0.009	-0.013	-0.049	-0.062	-0.053	-0.030	-0.024	-0.018	-0.017	-0.015	-0.010
16.944	-0.001	-0.005	0.009	-0.028	-0.055	-0.063	-0.055	-0.033	-0.032	-0.025	-0.020	-0.022	-0.017
17.444	-0.018	-0.025	0.013	-0.064	-0.075	-0.092	-0.085	-0.060	-0.047	-0.052	-0.045	-0.052	-0.043
17.944	0.009	-0.001	0.013	-0.055	-0.025	-0.042	-0.047	-0.032	-0.010	-0.037	-0.050	-0.042	-0.043
18.444	0.047	0.045	0.009	-0.002	-0.025	-0.052	-0.045	-0.017	0.012	-0.010	-0.028	-0.012	-0.010
18.944	0.047	0.041	0.013	-0.008	-0.023	-0.035	-0.022	0.003	0.007	0.008	-0.007	0.012	0.015
19.444	0.044	0.039	0.013	-0.002	-0.027	-0.037	-0.020	0.003	-0.010	0.012	0.015	0.015	0.026
19.944	0.031	0.025	0.013	-0.015	-0.039	-0.050	-0.035	-0.012	-0.017	-0.003	0.008	0.003	0.010
20.444	0.029	0.029	0.013	-0.020	-0.032	-0.047	-0.035	-0.017	-0.030	-0.017	-0.010	-0.018	-0.015
20.944	0.027	0.018	0.006	-0.030	-0.057	-0.067	-0.057	-0.033	-0.045	-0.030	-0.023	-0.037	-0.030
21.444	0.012	0.017	-0.048	-0.027	-0.082	-0.103	-0.115	-0.134	-0.156	-0.140	-0.105	-0.082	-0.067

Table 1.16 Experimental pressure coefficients c_p for $\alpha = 10.33^\circ$, $M_\infty = 1.2$ and $Re_D = 6.3 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
x/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.897	0.886	0.850	0.796	0.729	0.637	0.580	0.518	0.473	0.446	0.430	0.419	0.415
0.482	0.646	0.636	0.603	0.555	0.484	0.410	0.349	0.306	0.249	0.213	0.193	0.185	0.182
0.731	0.439	0.428	0.392	0.344	0.284	0.219	0.159	0.104	0.066	0.043	0.025	0.023	0.016
0.980	0.219	0.211	0.175	0.137	0.079	0.017	-0.028	-0.072	-0.103	-0.113	-0.116	-0.119	-0.113
1.238	0.025	0.017	-0.009	-0.043	-0.100	-0.157	-0.194	-0.239	-0.258	-0.261	-0.261	-0.267	-0.261
1.500	-0.069	-0.081	-0.103	-0.135	-0.189	-0.235	-0.269	-0.302	-0.321	-0.321	-0.317	-0.314	-0.308
1.944	-0.034	-0.046	-0.078	-0.107	-0.170	-0.213	-0.244	-0.251	-0.251	-0.233	-0.210	-0.182	-0.179
2.444	-0.034	-0.043	-0.075	-0.110	-0.151	-0.197	-0.219	-0.214	-0.185	-0.141	-0.110	-0.084	-0.078
2.944	-0.028	-0.031	-0.062	-0.094	-0.154	-0.179	-0.188	-0.163	-0.125	-0.091	-0.065	-0.040	-0.024
3.444	-0.028	-0.037	-0.050	-0.097	-0.122	-0.147	-0.144	-0.119	-0.084	-0.062	-0.055	-0.037	-0.024
3.944	0.001	-0.006	-0.028	-0.059	-0.085	-0.106	-0.100	-0.088	-0.065	-0.059	-0.053	-0.024	-0.002
4.444	0.013	0.007	-0.021	-0.034	-0.088	-0.116	-0.122	-0.094	-0.062	-0.050	-0.056	-0.024	-0.002
4.944	0.001	-0.002	-0.015	-0.062	-0.091	-0.109	-0.112	-0.088	-0.053	-0.053	-0.069	-0.031	-0.002
5.444	0.010	0.004	-0.025	-0.037	-0.075	-0.097	-0.097	-0.072	-0.059	-0.053	-0.078	-0.040	-0.015
5.944	0.033	0.023	-0.012	-0.040	-0.078	-0.109	-0.103	-0.081	-0.053	-0.050	-0.065	-0.043	-0.009
6.444	0.028	0.026	-0.002	-0.040	-0.075	-0.091	-0.084	-0.053	-0.037	-0.037	-0.062	-0.034	-0.012
6.944	0.020	0.010	-0.006	-0.053	-0.066	-0.087	-0.087	-0.062	-0.040	-0.037	-0.050	-0.040	-0.018
7.444	0.029	0.023	-0.015	-0.018	-0.081	-0.084	-0.062	-0.031	-0.031	-0.021	-0.031	-0.024	-0.006
7.944	0.013	0.007	0.007	-0.037	-0.050	-0.072	-0.072	-0.043	-0.034	-0.028	-0.037	-0.034	-0.024
8.444	0.029	0.023	0.004	-0.037	-0.053	-0.062	-0.065	-0.043	-0.028	-0.034	-0.034	-0.040	-0.018
8.944	0.044	0.033	0.007	-0.006	-0.053	-0.078	-0.068	-0.040	-0.037	-0.025	-0.037	-0.028	-0.001
9.444	0.040	0.036	0.001	-0.018	-0.056	-0.069	-0.075	-0.056	-0.034	-0.043	-0.037	-0.056	-0.034
9.944	0.035	0.032	0.001	-0.028	-0.062	-0.075	-0.062	-0.034	-0.025	-0.018	-0.025	-0.012	-0.012
10.444	0.024	0.023	0.016	-0.019	-0.046	-0.063	-0.057	-0.031	-0.017	-0.017	-0.015	-0.019	-0.008
10.944	0.045	0.032	0.001	-0.012	-0.049	-0.046	-0.042	-0.017	0.021	0.004	-0.011	-0.003	0.004
11.444	0.027	0.028	0.048	-0.030	0.046	-0.001	-0.003	0.010	0.015	0.018	0.020	0.037	0.031
11.944	0.126	0.111	0.099	0.039	0.016	-0.014	-0.022	-0.004	-0.003	0.004	0.004	0.001	0.012
12.444	0.090	0.079	0.048	0.029	-0.023	-0.057	-0.050	-0.025	-0.019	-0.011	-0.007	-0.009	-0.001
12.944	0.076	0.070	0.030	0.021	-0.043	-0.068	-0.055	-0.025	-0.019	-0.009	-0.011	-0.001	0.005
13.444	0.024	0.016	-0.015	-0.031	-0.067	-0.087	-0.079	-0.047	-0.033	-0.028	-0.027	-0.022	-0.015
13.944	-0.002	-0.009	-0.021	-0.060	-0.081	-0.090	-0.085	-0.051	-0.038	-0.030	-0.036	-0.023	-0.023
14.444	0.024	0.029	0.024	-0.029	-0.062	-0.075	-0.065	-0.034	-0.027	-0.022	-0.026	-0.017	-0.013
14.944	0.038	0.036	0.023	0.002	-0.043	-0.060	-0.044	-0.017	-0.017	-0.014	-0.015	-0.011	-0.003
15.444	0.042	0.045	0.027	-0.014	-0.028	-0.052	-0.041	-0.019	-0.015	-0.022	-0.022	-0.027	-0.014
15.944	0.048	0.054	0.031	-0.016	-0.027	-0.027	-0.025	-0.003	-0.001	-0.003	0.005	0.018	0.032
16.444	0.034	0.028	0.004	0.004	-0.004	-0.027	-0.023	-0.006	-0.003	-0.003	-0.006	-0.007	-0.006
16.944	0.087	0.092	0.073	0.008	0.007	-0.020	-0.017	-0.006	-0.009	-0.006	-0.009	-0.014	-0.012
17.444	0.070	0.060	0.023	0.021	-0.059	-0.085	-0.074	-0.035	-0.015	-0.006	-0.003	0.012	0.016
17.944	0.023	0.013	-0.021	-0.031	-0.060	-0.058	-0.058	-0.036	-0.031	-0.030	-0.031	-0.038	-0.031
18.444	0.001	-0.002	0.007	-0.060	-0.044	-0.060	-0.055	-0.027	-0.017	-0.016	-0.023	-0.006	-0.007
18.944	0.023	0.013	-0.009	-0.039	-0.047	-0.060	-0.052	-0.027	-0.017	-0.022	-0.023	-0.022	-0.017
19.444	0.030	0.027	0.001	-0.015	-0.051	-0.041	-0.034	-0.017	-0.017	-0.016	-0.017	-0.020	-0.012
19.944	0.034	0.036	0.048	0.024	-0.023	-0.052	-0.046	-0.019	-0.020	-0.015	-0.019	-0.011	-0.022
20.444	0.048	0.039	0.007	-0.015	-0.049	-0.039	-0.039	-0.017	-0.012	-0.017	-0.017	-0.019	-0.025
20.944	0.024	0.029	0.023	-0.014	-0.044	-0.055	-0.055	-0.022	-0.006	-0.011	-0.006	-0.011	0.005
21.444	0.041	0.031	0.007	-0.014	-0.043	-0.052	-0.058	-0.081	-0.107	-0.094	-0.068	-0.027	-0.019

Table 1.17 Experimental pressure coefficients c_p for $\alpha = 15.31^{\circ}$, $M_{\infty} = 0.7$ and $Re_D = 5.2 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
x/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.749	0.726	0.657	0.541	0.392	0.263	0.144	0.050	-0.006	-0.032	-0.037	-0.032	-0.037
0.482	0.504	0.482	0.413	0.304	0.176	0.041	-0.070	-0.165	-0.218	-0.240	-0.255	-0.255	-0.244
0.731	0.283	0.257	0.192	0.087	-0.027	-0.149	-0.256	-0.329	-0.365	-0.378	-0.367	-0.356	-0.345
0.980	0.073	0.045	-0.011	-0.107	-0.218	-0.329	-0.405	-0.457	-0.478	-0.468	-0.446	-0.425	-0.419
1.238	-0.048	-0.075	-0.133	-0.219	-0.308	-0.398	-0.448	-0.467	-0.462	-0.431	-0.372	-0.340	-0.329
1.500	-0.112	-0.139	-0.186	-0.261	-0.340	-0.403	-0.432	-0.430	-0.393	-0.336	-0.277	-0.234	-0.223
1.944	0.032	0.016	-0.037	-0.107	-0.176	-0.234	-0.256	-0.239	-0.186	-0.128	-0.069	-0.03[illegible]	-0.021
2.444	0.053	0.037	-0.011	-0.086	-0.154	-0.207	-0.224	-0.202	-0.149	-0.080	-0.038	-0.011	0.010
2.944	0.065	0.049	0.005	-0.064	-0.138	-0.191	-0.208	-0.181	-0.117	-0.064	-0.038	-0.016	0.021
3.444	0.069	0.050	0.005	-0.064	-0.133	-0.186	-0.182	-0.165	-0.096	-0.064	-0.059	-0.032	0.021
3.944	0.073	0.055	0.016	-0.054	-0.123	-0.175	-0.181	-0.149	-0.075	-0.059	-0.080	-0.042	0.026
4.444	0.075	0.056	0.016	-0.054	-0.128	-0.170	-0.181	-0.133	-0.064	-0.054	-0.076	-0.053	0.010
4.944	0.075	0.057	0.016	-0.054	-0.122	-0.170	-0.171	-0.117	-0.059	-0.048	-0.091	-0.06[illegible]	-0.000
5.444	0.079	0.059	0.016	-0.053	-0.117	-0.165	-0.165	-0.106	-0.059	-0.043	-0.069	-0.07[illegible]	-0.011
5.944	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021
6.444	0.078	0.060	0.016	-0.048	-0.117	-0.154	-0.155	-0.090	-0.053	-0.043	-0.053	-0.074	-0.027
6.944	0.082	0.064	0.021	-0.048	-0.112	-0.149	-0.144	-0.080	-0.048	-0.043	-0.048	-0.064	-0.027
7.444	0.080	0.061	0.021	-0.048	-0.112	-0.149	-0.139	-0.075	-0.048	-0.043	-0.043	-0.059	-0.032
7.944	0.082	0.064	0.021	-0.043	-0.106	-0.144	-0.139	-0.069	-0.048	-0.038	-0.043	-0.043	-0.027
8.444	0.081	0.062	0.021	-0.048	-0.107	-0.144	-0.133	-0.064	-0.048	-0.038	-0.043	-0.048	-0.027
8.944	0.080	0.061	0.021	-0.048	-0.107	-0.144	-0.128	-0.059	-0.043	-0.038	-0.038	-0.043	-0.021
9.444	0.080	0.059	0.016	-0.053	-0.117	-0.149	-0.139	-0.064	-0.048	-0.043	-0.043	-0.059	-0.032
9.944	0.078	0.059	0.021	-0.048	-0.107	-0.138	-0.123	-0.053	-0.043	-0.032	-0.038	-0.043	-0.016
10.444	0.081	0.063	0.021	-0.044	-0.103	-0.129	-0.119	-0.049	-0.041	-0.032	-0.036	-0.038	-0.011
10.944	0.083	0.064	0.021	-0.041	-0.100	-0.127	-0.114	-0.044	-0.038	-0.028	-0.033	-0.03[illegible]	-0.009
11.444	0.083	0.063	0.021	-0.044	-0.103	-0.127	-0.114	-0.041	-0.038	-0.030	-0.036	-0.044	-0.017
11.944	0.080	0.085	0.021	-0.046	-0.103	-0.129	-0.111	-0.044	-0.036	-0.028	-0.036	-0.046	-0.019
12.444	0.079	0.061	0.021	-0.044	-0.100	-0.127	-0.108	-0.038	-0.036	-0.028	-0.033	-0.041	-0.017
12.944	0.083	0.062	0.021	-0.044	-0.100	-0.124	-0.106	-0.036	-0.033	-0.028	-0.033	-0.03[illegible]	-0.017
13.444	0.077	0.061	0.021	-0.044	-0.100	-0.121	-0.103	-0.036	-0.036	-0.028	-0.036	-0.041	-0.022
13.944	0.079	0.063	0.021	-0.044	-0.097	-0.119	-0.103	-0.036	-0.036	-0.028	-0.033	-0.03[illegible]	-0.025
14.444	0.037	0.037	0.037	-0.042	-0.096	-0.117	-0.106	-0.036	-0.034	-0.329	-0.034	-0.03[illegible]	-0.026
14.944	0.078	0.062	0.021	-0.041	-0.095	-0.116	-0.109	-0.036	-0.033	-0.030	-0.036	-0.036	-0.027
15.444	0.078	0.061	0.021	-0.041	-0.095	-0.113	-0.103	-0.036	-0.033	-0.028	-0.030	-0.036	-0.030
15.944	0.078	0.060	0.021	-0.041	-0.095	-0.111	-0.100	-0.036	-0.033	-0.030	-0.033	-0.039	-0.033
16.444	0.073	0.059	0.021	-0.020	-0.060	-0.076	-0.065	-0.017	-0.014	-0.012	-0.011	-0.017	-0.014
16.944	0.077	0.061	0.021	-0.022	-0.062	-0.078	-0.068	-0.022	-0.017	-0.020	-0.017	-0.022	-0.019
17.444	0.073	0.058	0.021	-0.044	-0.092	-0.113	-0.103	-0.044	-0.036	-0.038	-0.036	-0.038	-0.038
17.944	0.075	0.058	0.021	-0.041	-0.092	-0.111	-0.103	-0.046	-0.036	-0.041	-0.036	-0.038	-0.038
18.444	0.071	0.055	0.016	-0.044	-0.095	-0.113	-0.108	-0.049	-0.038	-0.044	-0.038	-0.044	-0.041
18.944	0.068	0.052	0.016	-0.046	-0.095	-0.113	-0.114	-0.054	-0.038	-0.046	-0.041	-0.046	-0.041
19.444	0.067	0.052	0.016	-0.044	-0.092	-0.116	-0.108	-0.060	-0.041	-0.052	-0.044	-0.04[illegible]	-0.043
19.944	0.068	0.050	0.010	-0.049	-0.097	-0.122	-0.117	-0.065	-0.044	-0.055	-0.046	-0.046	-0.043
20.444	0.057	0.042	0.005	-0.057	-0.106	-0.127	-0.125	-0.076	-0.052	-0.063	-0.052	-0.054	-0.049
20.944	0.037	0.026	-0.016	-0.073	-0.122	-0.146	-0.144	-0.095	-0.068	-0.079	-0.071	-0.07[illegible]	-0.065
21.444	0.096	-0.101	-0.122	-0.156	-0.186	-0.197	-0.197	-0.165	-0.148	-0.146	-0.140	-0.135	-0.129

Table 1.18 Experimental pressure coefficients c_p for $\alpha = 15.38^{\circ}$, $M_{\infty} = 0.8$ and $Re_D = 5.6 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
x/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.786	0.762	0.322	0.579	0.432	0.304	0.186	0.0[illegible]	0.033	0.002	-0.007	0.002	-0.002
0.482	0.532	0.510	0.441	0.335	0.205	0.070	-0.043	-0.140	-0.199	-0.230	-0.243	-0.247	-0.238
0.731	0.300	0.276	0.208	0.107	-0.016	-0.141	-0.248	-0.332	-0.378	-0.400	-0.386	-0.375	-0.372
0.980	0.069	0.042	-0.016	-0.114	-0.230	-0.351	-0.435	-0.519	-0.543	-0.547	-0.529	-0.509	-0.501
1.238	-0.078	-0.109	-0.167	-0.248	-0.356	-0.449	-0.515	-0.550	-0.530	-0.497	-0.417	-0.380	-0.367
1.500	-0.163	-0.181	-0.234	-0.306	-0.391	-0.466	-0.489	-0.474	-0.423	-0.360	-0.297	-0.251	-0.239
1.944	0.020	0.002	-0.047	-0.118	-0.190	-0.248	-0.266	-0.247	-0.190	-0.127	-0.069	-0.038	-0.020
2.444	0.047	0.033	-0.016	-0.087	-0.159	-0.217	-0.230	-0.207	-0.145	-0.083	-0.043	-0.016	0.011
2.944	0.060	0.046	-0.002	-0.069	-0.141	-0.199	-0.212	-0.181	-0.114	-0.069	-0.047	-0.025	0.020
3.444	0.065	0.050	0.002	-0.065	-0.137	-0.190	-0.199	-0.163	-0.092	-0.069	-0.074	-0.034	0.024
3.944	0.071	0.055	0.011	-0.056	-0.128	-0.181	-0.190	-0.145	-0.078	-0.065	-0.096	-0.042	0.020
4.444	0.072	0.057	0.011	-0.056	-0.128	-0.176	-0.181	-0.132	-0.065	-0.056	-0.109	-0.051	0.007
4.944	0.074	0.058	0.011	-0.056	-0.123	-0.172	-0.172	-0.118	-0.060	-0.051	-0.096	-0.065	-0.007
5.444	0.078	0.060	0.015	-0.052	-0.119	-0.168	-0.163	-0.105	-0.060	-0.051	-0.078	-0.074	-0.020
5.944	0.078	0.062	0.015	-0.051	-0.119	-0.163	-0.158	-0.096	-0.056	-0.051	-0.060	-0.078	-0.029
6.444	0.078	0.061	0.015	-0.051	-0.119	-0.163	-0.158	-0.091	-0.056	-0.051	-0.056	-0.074	-0.033
6.944	0.081	0.065	0.020	-0.047	-0.110	-0.154	-0.149	-0.082	-0.052	-0.047	-0.051	-0.065	-0.033
7.444	0.080	0.062	0.020	-0.047	-0.114	-0.154	-0.145	-0.078	-0.052	-0.047	-0.051	-0.060	-0.033
7.944	0.082	0.065	0.020	-0.043	-0.110	-0.150	-0.141	-0.074	-0.047	-0.047	-0.047	-0.051	-0.029
8.444	0.080	0.063	0.015	-0.047	-0.110	-0.150	-0.136	-0.069	-0.047	-0.047	-0.047	-0.051	-0.029
8.944	0.079	0.062	0.015	-0.047	-0.110	-0.145	-0.132	-0.065	-0.047	-0.042	-0.047	-0.047	-0.029
9.444	0.080	0.060	0.015	-0.051	-0.119	-0.154	-0.141	-0.069	-0.051	-0.051	-0.051	-0.060	-0.033
9.944	0.077	0.060	0.015	-0.047	-0.110	-0.141	-0.127	-0.056	-0.043	-0.042	-0.042	-0.042	-0.020
10.444	0.081	0.064	0.020	-0.041	-0.102	-0.136	-0.120	-0.052	-0.041	-0.039	-0.043	-0.041	-0.016
10.944	0.081	0.065	0.020	-0.037	-0.100	-0.131	-0.113	-0.048	-0.041	-0.037	-0.039	-0.037	-0.012
11.444	0.082	0.065	0.020	-0.041	-0.102	-0.134	-0.116	-0.046	-0.041	-0.041	-0.041	-0.045	-0.021
11.944	0.078	0.062	0.020	-0.041	-0.105	-0.134	-0.111	-0.043	-0.039	-0.039	-0.043	-0.045	-0.023
12.444	0.078	0.062	0.020	-0.039	-0.102	-0.129	-0.109	-0.041	-0.039	-0.037	-0.041	-0.041	-0.019
12.944	0.082	0.065	0.020	-0.037	-0.100	-0.127	-0.104	-0.039	-0.037	-0.034	-0.039	-0.039	-0.019
13.444	0.077	0.063	0.020	-0.039	-0.100	-0.127	-0.104	-0.039	-0.037	-0.034	-0.039	-0.043	-0.025
13.944	0.080	0.065	0.020	-0.039	-0.098	-0.125	-0.102	-0.039	-0.037	-0.034	-0.039	-0.041	-0.028
14.444	0.033	0.033	0.033	-0.038	-0.097	-0.124	-0.101	-0.039	-0.037	-0.034	-0.039	-0.039	-0.029
14.944	0.080	0.064	0.024	-0.037	-0.095	-0.122	-0.100	-0.039	-0.037	-0.034	-0.039	-0.037	-0.030
15.444	0.079	0.062	0.024	-0.039	-0.095	-0.118	-0.095	-0.037	-0.034	-0.034	-0.037	-0.037	-0.030
15.944	0.078	0.061	0.024	-0.037	-0.093	-0.118	-0.095	-0.037	-0.034	-0.034	-0.037	-0.037	-0.032
16.444	0.076	0.062	0.020	-0.016	-0.062	-0.082	-0.061	-0.019	-0.014	-0.016	-0.016	-0.016	-0.014
16.944	0.078	0.064	0.024	-0.019	-0.062	-0.082	-0.066	-0.023	-0.019	-0.021	-0.021	-0.021	-0.018
17.444	0.075	0.060	0.020	-0.039	-0.093	-0.116	-0.095	-0.041	-0.034	-0.037	-0.037	-0.039	-0.034
17.944	0.076	0.061	0.020	-0.037	-0.089	-0.113	-0.095	-0.043	-0.034	-0.037	-0.037	-0.037	-0.034
18.444	0.073	0.056	0.015	-0.041	-0.091	-0.118	-0.097	-0.048	-0.037	-0.041	-0.041	-0.041	-0.036
18.944	0.072	0.057	0.020	-0.039	-0.089	-0.116	-0.098	-0.050	-0.037	-0.041	-0.041	-0.043	-0.039
19.444	0.071	0.056	0.015	-0.043	-0.095	-0.122	-0.104	-0.057	-0.041	-0.046	-0.041	-0.043	-0.036
19.944	0.063	0.049	0.011	-0.050	-0.100	-0.127	-0.111	-0.064	-0.048	-0.050	-0.048	-0.050	-0.043
20.444	0.044	0.033	-0.007	-0.066	-0.116	-0.143	-0.129	-0.082	-0.064	-0.066	-0.063	-0.066	-0.059
20.944	-0.083	-0.092	-0.118	-0.154	-0.186	-0.199	-0.190	-0.160	-0.145	-0.142	-0.136	-0.133	-0.122
21.444	0.074	0.059	0.020	-0.039	-0.093	-0.118	-0.097	-0.046	-0.037	-0.039	-0.039	-0.041	-0.036

Table 1.19 Experimental pressure coefficients c_p for $\alpha = 15.45^{\circ}$, $M_{\infty} = 0.9$ and $Re_D = 5.9 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
x/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.833	0.806	0.743	0.632	0.489	0.373	0.254	0.159	0.101	0.071	0.061	0.067	0.058
0.482	0.579	0.552	0.489	0.387	0.258	0.133	0.021	-0.061	-0.143	-0.164	-0.186	-0.197	-0.190
0.731	0.342	0.313	0.249	0.151	0.029	-0.059	-0.198	-0.285	-0.333	-0.353	-0.359	-0.343	-0.342
0.980	0.091	0.061	0.039	-0.093	-0.203	-0.320	-0.409	-0.466	-0.523	-0.536	-0.538	-0.526	-0.524
1.238	-0.112	-0.143	-0.198	-0.288	-0.396	-0.503	-0.599	-0.670	-0.698	-0.700	-0.696	-0.675	-0.669
1.500	-0.280	-0.303	-0.354	-0.430	-0.529	-0.609	-0.685	-0.724	-0.736	-0.708	-0.509	-0.394	-0.400
1.944	-0.022	-0.038	-0.100	-0.151	-0.199	-0.218	-0.218	-0.162	-0.132	-0.088	-0.026	0.013	0.039
2.444	0.047	0.029	-0.018	-0.089	-0.164	-0.214	-0.226	-0.190	-0.124	-0.069	-0.026	0.009	0.037
2.944	0.064	0.045	0.001	-0.069	-0.148	-0.198	-0.214	-0.170	-0.104	-0.069	-0.053	-0.010	0.025
3.444	0.069	0.051	0.005	-0.065	-0.136	-0.186	-0.199	-0.155	-0.085	-0.069	-0.077	-0.030	0.013
3.944	0.074	0.059	0.019	-0.058	-0.128	-0.178	-0.187	-0.136	-0.077	-0.065	-0.088	-0.045	0.005
4.444	0.077	0.057	0.013	-0.058	-0.128	-0.174	-0.179	-0.174	-0.069	-0.061	-0.088	-0.061	-0.006
4.944	0.078	0.057	0.017	-0.054	-0.128	-0.170	-0.175	-0.112	-0.065	-0.057	-0.081	-0.091	-0.014
5.444	0.081	0.060	0.017	-0.053	-0.120	-0.167	-0.167	-0.100	-0.061	-0.053	-0.069	-0.084	-0.013
5.944	0.082	0.062	0.021	-0.050	-0.120	-0.163	-0.160	-0.072	-0.061	-0.053	-0.061	-0.084	-0.022
6.444	0.080	0.061	0.017	-0.050	-0.120	-0.162	-0.155	-0.088	-0.057	-0.049	-0.057	-0.080	-0.030
6.944	0.085	0.069	0.025	-0.046	-0.112	-0.154	-0.147	-0.084	-0.057	-0.049	-0.049	-0.069	-0.030
7.444	0.083	0.062	0.021	-0.046	-0.112	-0.154	-0.144	-0.080	-0.057	-0.049	-0.045	-0.065	-0.034
7.944	0.085	0.064	0.025	-0.042	-0.108	-0.147	-0.140	-0.076	-0.053	-0.045	-0.041	-0.057	-0.026
8.444	0.083	0.062	0.021	-0.046	-0.112	-0.151	-0.136	-0.069	-0.053	-0.045	-0.041	-0.057	-0.030
8.944	0.082	0.060	0.021	-0.046	-0.112	-0.147	-0.132	-0.069	-0.053	-0.045	-0.038	-0.049	-0.022
9.444	0.082	0.058	0.017	-0.053	-0.120	-0.155	-0.144	-0.073	-0.057	-0.053	-0.042	-0.069	-0.037
9.944	0.077	0.058	0.017	-0.046	-0.112	-0.147	-0.124	-0.061	-0.053	-0.045	-0.034	-0.049	-0.022
10.444	0.083	0.063	0.025	-0.040	-0.106	-0.137	-0.119	-0.070	-0.050	-0.042	-0.032	-0.044	-0.021
10.944	0.085	0.064	0.025	-0.038	-0.104	-0.133	-0.114	-0.068	-0.050	-0.040	-0.029	-0.036	-0.015
11.444	0.084	0.062	0.025	-0.042	-0.108	-0.135	-0.113	-0.066	-0.050	-0.044	-0.030	-0.044	-0.026
11.944	0.081	0.058	0.021	-0.044	-0.108	-0.138	-0.114	-0.066	-0.048	-0.042	-0.032	-0.042	-0.030
12.444	0.080	0.060	0.021	-0.043	-0.106	-0.134	-0.112	-0.066	-0.048	-0.042	-0.031	-0.038	-0.028
12.944	0.084	0.062	0.025	-0.039	-0.104	-0.133	-0.106	-0.062	-0.048	-0.040	-0.027	-0.035	-0.026
13.444	0.079	0.058	0.021	-0.042	-0.106	-0.134	-0.104	-0.062	-0.048	-0.040	-0.029	-0.038	-0.032
13.944	0.081	0.059	0.021	-0.043	-0.104	-0.132	-0.102	-0.056	-0.046	-0.040	-0.029	-0.038	-0.034
14.444	0.081	0.059	0.023	-0.042	-0.103	-0.129	-0.101	-0.054	-0.045	-0.040	-0.032	-0.037	-0.036
14.944	0.081	0.059	0.025	-0.041	-0.102	-0.127	-0.100	-0.052	-0.044	-0.040	-0.034	-0.036	-0.038
15.444	0.080	0.058	0.023	-0.041	-0.100	-0.127	-0.100	-0.050	-0.044	-0.038	-0.032	-0.036	-0.038
15.944	0.079	0.057	0.021	-0.041	-0.100	-0.125	-0.096	-0.050	-0.042	-0.040	-0.034	-0.036	-0.040
16.444	0.079	0.056	0.017	-0.021	-0.066	-0.088	-0.065	-0.027	-0.023	-0.021	-0.019	-0.019	-0.022
16.944	0.080	0.058	0.021	-0.023	-0.066	-0.090	-0.070	-0.031	-0.027	-0.027	-0.026	-0.023	-0.024
17.444	0.076	0.055	0.021	-0.043	-0.098	-0.123	-0.100	-0.048	-0.040	-0.042	-0.044	-0.040	-0.042
17.944	0.077	0.057	0.021	-0.043	-0.096	-0.121	-0.100	-0.048	-0.038	-0.044	-0.048	-0.042	-0.042
18.444	0.074	0.055	0.017	-0.045	-0.098	-0.123	-0.104	-0.050	-0.040	-0.044	-0.052	-0.046	-0.044
18.944	0.071	0.053	0.017	-0.044	-0.098	-0.123	-0.106	-0.050	-0.038	-0.046	-0.056	-0.046	-0.046
19.444	0.071	0.054	0.017	-0.042	-0.094	-0.119	-0.106	-0.050	-0.038	-0.048	-0.060	-0.050	-0.046
19.944	0.072	0.055	0.013	-0.048	-0.098	-0.127	-0.114	-0.052	-0.040	-0.050	-0.064	-0.048	-0.046
20.444	0.065	0.049	0.005	-0.052	-0.104	-0.131	-0.122	-0.060	-0.046	-0.058	-0.072	-0.056	-0.052
20.944	0.047	0.033	-0.006	-0.066	-0.119	-0.147	-0.142	-0.078	-0.066	-0.076	-0.092	-0.076	-0.072
21.444	-0.069	-0.081	-0.116	-0.161	-0.201	-0.218	-0.209	-0.170	-0.161	-0.158	-0.165	-0.151	-0.143

Table 1.20 Experimental pressure coefficients c_p for $\alpha = 15.49^{\circ}$, $M_{\infty} = 0.95$ and $Re_D = 6.0 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
x/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.868	0.849	0.783	0.678	0.552	0.417	0.296	0.212	0.151	0.120	0.116	0.116	0.112
0.482	0.616	0.598	0.532	0.434	0.312	0.181	0.064	-0.020	-0.083	-0.117	-0.127	-0.143	-0.135
0.731	0.382	0.360	0.297	0.198	0.084	-0.035	-0.147	-0.224	-0.280	-0.306	-0.297	-0.275	-0.294
0.980	0.134	0.110	0.053	-0.039	-0.147	-0.261	-0.339	-0.424	-0.469	-0.484	-0.471	-0.462	-0.457
1.238	-0.084	-0.106	-0.161	-0.250	-0.350	-0.458	-0.554	-0.609	-0.639	-0.643	-0.622	-0.614	-0.605
1.500	-0.224	-0.235	-0.290	-0.365	-0.454	-0.543	-0.625	-0.661	-0.684	-0.676	-0.648	-0.626	-0.617
1.944	-0.128	-0.139	-0.198	-0.287	-0.399	-0.506	-0.588	-0.624	-0.580	-0.365	-0.316	-0.217	-0.202
2.444	-0.106	-0.128	-0.190	-0.287	-0.399	-0.480	-0.113	-0.135	-0.095	-0.065	-0.009	0.041	0.089
2.944	0.096	0.080	0.040	-0.020	-0.087	-0.146	-0.165	-0.083	-0.054	-0.039	0.009	0.063	0.106
3.444	0.099	0.088	0.035	-0.032	-0.102	-0.158	-0.169	-0.094	-0.054	-0.058	-0.057	0.030	0.059
3.944	0.093	0.080	0.029	-0.039	-0.109	-0.158	-0.169	-0.102	-0.061	-0.054	-0.116	0.005	0.029
4.444	0.089	0.074	0.024	-0.043	-0.113	-0.165	-0.169	-0.098	-0.057	-0.050	-0.116	-0.024	0.002
4.944	0.086	0.071	0.024	-0.046	-0.117	-0.165	-0.165	-0.091	-0.054	-0.050	-0.087	-0.050	-0.024
5.444	0.088	0.070	0.024	-0.046	-0.113	-0.158	-0.158	-0.083	-0.054	-0.050	-0.072	-0.065	-0.035
5.944	0.086	0.071	0.024	-0.046	-0.113	-0.158	-0.154	-0.090	-0.054	-0.050	-0.061	-0.065	-0.039
6.444	0.084	0.068	0.020	-0.046	-0.113	-0.158	-0.154	-0.076	-0.054	-0.050	-0.061	-0.065	-0.043
6.944	0.088	0.072	0.028	-0.043	-0.109	-0.150	-0.146	-0.069	-0.050	-0.046	-0.054	-0.058	-0.035
7.444	0.086	0.068	0.024	-0.043	-0.109	-0.147	-0.143	-0.069	-0.050	-0.046	-0.050	-0.054	-0.035
7.944	0.087	0.071	0.028	-0.039	-0.106	-0.143	-0.135	-0.061	-0.046	-0.043	-0.050	-0.046	-0.028
8.444	0.086	0.068	0.024	-0.046	-0.109	-0.143	-0.135	-0.058	-0.047	-0.043	-0.050	-0.050	-0.032
8.944	0.084	0.066	0.024	-0.043	-0.106	-0.143	-0.132	-0.054	-0.043	-0.043	-0.050	-0.046	-0.028
9.444	0.085	0.067	0.020	-0.050	-0.113	-0.150	-0.143	-0.058	-0.047	-0.050	-0.057	-0.064	-0.039
9.944	0.081	0.064	0.020	-0.043	-0.106	-0.139	-0.128	-0.050	-0.043	-0.039	-0.050	-0.046	-0.024
10.444	0.086	0.068	0.028	-0.038	-0.100	-0.130	-0.119	-0.047	-0.042	-0.036	-0.045	-0.044	-0.021
10.944	0.087	0.070	0.028	-0.036	-0.096	-0.124	-0.115	-0.043	-0.040	-0.036	-0.043	-0.040	-0.015
11.444	0.087	0.070	0.028	-0.040	-0.100	-0.128	-0.117	-0.043	-0.042	-0.038	-0.047	-0.049	-0.028
11.944	0.083	0.066	0.024	-0.042	-0.100	-0.128	-0.122	-0.043	-0.040	-0.038	-0.047	-0.051	-0.030
12.444	0.083	0.066	0.024	-0.040	-0.100	-0.126	-0.111	-0.042	-0.040	-0.036	-0.045	-0.047	-0.025
12.944	0.087	0.070	0.028	-0.036	-0.096	-0.124	-0.107	-0.040	-0.029	-0.034	-0.041	-0.044	-0.023
13.444	0.082	0.065	0.024	-0.040	-0.096	-0.124	-0.107	-0.042	-0.040	-0.038	-0.043	-0.049	-0.030
13.944	0.083	0.067	0.024	-0.040	-0.098	-0.122	-0.107	-0.042	-0.040	-0.036	-0.043	-0.049	-0.032
14.444	0.029	0.028	0.028	-0.039	-0.097	-0.122	-0.106	-0.043	-0.040	-0.038	-0.043	-0.048	-0.033
14.944	0.083	0.067	0.028	-0.038	-0.096	-0.122	-0.105	-0.043	-0.040	-0.040	-0.043	-0.047	-0.034
15.444	0.082	0.067	0.026	-0.040	-0.096	-0.120	-0.102	-0.045	-0.040	-0.040	-0.039	-0.045	-0.034
15.944	0.081	0.066	0.024	-0.038	-0.096	-0.118	-0.102	-0.047	-0.042	-0.042	-0.039	-0.047	-0.036
16.444	0.077	0.062	0.020	-0.019	-0.064	-0.083	-0.070	-0.028	-0.021	-0.023	-0.021	-0.025	-0.019
16.944	0.081	0.065	0.024	-0.023	-0.066	-0.087	-0.073	-0.034	-0.027	-0.028	-0.025	-0.030	-0.023
17.444	0.076	0.061	0.020	-0.040	-0.096	-0.120	-0.102	-0.057	-0.043	-0.047	-0.039	-0.047	-0.042
17.944	0.078	0.062	0.020	-0.040	-0.094	-0.119	-0.102	-0.057	-0.043	-0.049	-0.040	-0.047	-0.042
18.444	0.076	0.059	0.017	-0.044	-0.098	-0.124	-0.103	-0.062	-0.047	-0.053	-0.041	-0.049	-0.045
18.944	0.073	0.058	0.017	-0.042	-0.096	-0.122	-0.102	-0.064	-0.047	-0.053	-0.041	-0.049	-0.043
19.444	0.073	0.058	0.017	-0.040	-0.094	-0.120	-0.102	-0.066	-0.049	-0.055	-0.043	-0.051	-0.045
19.944	0.076	0.059	0.017	-0.045	-0.102	-0.128	-0.107	-0.074	-0.051	-0.058	-0.045	-0.049	-0.045
20.444	0.070	0.054	0.009	-0.049	-0.105	-0.134	-0.115	-0.081	-0.059	-0.066	-0.053	-0.057	-0.053
20.944	0.056	0.041	-0.002	-0.060	-0.117	-0.147	-0.132	-0.098	-0.076	-0.083	-0.071	-0.077	-0.073
21.444	-0.032	-0.043	-0.083	-0.139	-0.192	-0.223	-0.218	-0.193	-0.175	-0.175	-0.165	-0.162	-0.152

Table 1.21 Experimental pressure coefficients c_p for $\alpha = 15.53^{\circ}$, $M_{\infty} = 1.0$ and $Re_D = 6.1 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
x/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.904	0.889	0.266	0.721	0.599	0.081	0.358	0.267	0.206	0.180	0.173	0.173	0.168
0.482	0.659	0.644	0.578	0.484	0.366	0.237	0.131	0.036	-0.023	-0.048	-0.065	-0.080	-0.072
0.731	0.431	0.413	0.348	0.254	0.143	0.027	-0.072	-0.161	-0.214	-0.235	-0.231	-0.232	-0.232
0.980	0.190	0.169	0.111	0.023	-0.076	-0.190	-0.277	-0.356	-0.399	-0.405	-0.398	-0.388	-0.384
1.238	-0.026	-0.048	-0.104	-0.183	-0.282	-0.385	-0.468	-0.529	-0.562	-0.557	-0.543	-0.533	-0.530
1.500	-0.151	-0.161	-0.218	-0.290	-0.378	-0.466	-0.539	-0.595	-0.615	-0.600	-0.574	-0.554	-0.544
1.944	-0.083	-0.094	-0.150	-0.240	-0.342	-0.452	-0.525	-0.568	-0.547	-0.441	-0.351	-0.288	-0.264
2.444	-0.076	-0.087	-0.157	-0.251	-0.353	-0.462	-0.536	-0.490	-0.320	-0.232	-0.168	-0.136	-0.101
2.944	-0.076	-0.090	-0.157	-0.247	-0.367	-0.473	-0.387	-0.285	-0.207	-0.182	-0.150	-0.101	-0.044
3.444	-0.080	-0.097	-0.168	-0.265	-0.289	-0.299	-0.292	-0.221	-0.168	-0.172	-0.185	-0.076	-0.030
3.944	-0.019	-0.037	-0.076	-0.144	-0.214	-0.253	-0.249	-0.175	-0.118	-0.150	-0.224	-0.037	-0.019
4.444	0.023	0.002	-0.044	-0.112	-0.186	-0.083	-0.157	-0.087	-0.030	-0.065	-0.185	0.035	0.054
4.944	0.129	0.060	0.067	0.005	-0.055	-0.101	-0.086	-0.023	-0.012	-0.016	-0.125	0.027	0.045
5.444	0.140	0.124	0.076	0.013	-0.051	-0.101	-0.086	-0.016	-0.009	-0.009	-0.069	-0.005	0.023
5.944	0.134	0.124	0.074	0.009	-0.058	-0.111	-0.097	-0.026	-0.016	-0.012	-0.026	-0.026	0.006
6.444	0.122	0.119	0.063	-0.005	-0.069	-0.122	-0.115	-0.041	-0.026	-0.016	-0.016	-0.037	-0.016
6.944	0.116	0.109	0.055	-0.012	-0.076	-0.129	-0.118	-0.048	-0.033	-0.023	-0.016	-0.037	-0.030
7.444	0.103	0.095	0.041	-0.027	-0.090	-0.140	-0.129	-0.018	-0.041	-0.033	-0.026	-0.037	-0.033
7.944	0.097	0.086	0.035	-0.030	-0.094	-0.136	-0.132	-0.062	-0.044	-0.041	-0.033	-0.037	-0.030
8.444	0.089	0.074	0.027	-0.044	-0.108	-0.143	-0.136	-0.065	-0.048	-0.044	-0.044	-0.044	-0.041
8.944	0.084	0.067	0.023	-0.041	-0.108	-0.140	-0.132	-0.042	-0.044	-0.044	-0.044	-0.040	-0.033
9.444	0.085	0.065	0.020	-0.051	-0.115	-0.151	-0.136	-0.045	-0.048	-0.055	-0.055	-0.055	-0.044
9.944	0.081	0.062	0.023	-0.044	-0.104	-0.140	-0.125	-0.065	-0.044	-0.044	-0.044	-0.040	-0.041
10.444	0.086	0.072	0.027	-0.036	-0.095	-0.028	-0.114	-0.047	-0.041	-0.038	-0.039	-0.034	-0.027
10.944	0.090	0.077	0.027	-0.034	-0.093	-0.126	-0.109	-0.045	-0.041	-0.038	-0.038	-0.032	-0.020
11.444	0.088	0.074	0.027	-0.040	-0.099	-0.127	-0.111	-0.047	-0.045	-0.043	-0.043	-0.040	-0.031
11.944	0.082	0.067	0.023	-0.040	-0.099	-0.127	-0.111	-0.047	-0.043	-0.043	-0.045	-0.041	-0.031
12.444	0.084	0.067	0.023	-0.040	-0.101	-0.126	-0.109	-0.045	-0.040	-0.041	-0.043	-0.038	-0.027
12.944	0.088	0.071	0.027	-0.036	-0.095	-0.120	-0.104	-0.043	-0.040	-0.038	-0.039	-0.032	-0.022
13.444	0.082	0.064	0.027	-0.038	-0.097	-0.122	-0.104	-0.041	-0.040	-0.038	-0.039	-0.039	-0.027
13.944	0.084	0.071	0.027	-0.038	-0.097	-0.122	-0.102	-0.039	-0.038	-0.036	-0.036	-0.039	-0.029
14.444	0.027	0.027	0.027	-0.037	-0.096	-0.123	-0.102	-0.043	-0.039	-0.038	-0.038	-0.040	-0.031
14.944	0.085	0.071	0.027	-0.036	-0.095	-0.124	-0.102	-0.041	-0.039	-0.040	-0.039	-0.041	-0.032
15.444	0.083	0.067	0.025	-0.040	-0.099	-0.122	-0.104	-0.045	-0.041	-0.041	-0.039	-0.043	-0.036
15.944	0.081	0.063	0.023	-0.040	-0.100	-0.122	-0.102	-0.047	-0.041	-0.043	-0.045	-0.047	-0.038
16.444	0.075	0.060	0.020	-0.020	-0.066	-0.086	-0.070	-0.039	-0.022	-0.025	-0.025	-0.025	-0.020
16.944	0.078	0.064	0.020	-0.024	-0.070	-0.088	-0.073	-0.032	-0.025	-0.029	-0.029	-0.029	-0.023
17.444	0.076	0.059	0.020	-0.042	-0.100	-0.117	-0.098	-0.048	-0.038	-0.043	-0.041	-0.043	-0.038
17.944	0.083	0.061	0.027	-0.031	-0.090	-0.124	-0.097	-0.039	-0.041	-0.038	-0.036	-0.041	-0.038
18.444	0.076	0.069	0.020	-0.042	-0.100	-0.124	-0.102	-0.052	-0.041	-0.045	-0.041	-0.045	-0.041
18.944	0.077	0.065	0.023	-0.036	-0.088	-0.113	-0.097	-0.047	-0.039	-0.043	-0.041	-0.045	-0.041
19.444	0.078	0.066	0.023	-0.036	-0.090	-0.115	-0.097	-0.052	-0.039	-0.047	-0.043	-0.047	-0.043
19.944	0.083	0.064	0.023	-0.042	-0.108	-0.129	-0.102	-0.057	-0.045	-0.049	-0.046	-0.041	-0.040
20.444	0.078	0.057	0.023	-0.040	-0.091	-0.120	-0.102	-0.057	-0.047	-0.049	-0.048	-0.045	-0.041
20.944	0.072	0.054	0.016	-0.043	-0.100	-0.129	-0.113	-0.068	-0.057	-0.061	-0.059	-0.061	-0.057
21.444	0.020	0.013	-0.034	-0.094	-0.154	-0.197	-0.202	-0.190	-0.186	-0.185	-0.177	-0.165	-0.154

Table 1.22 Experimental pressure coefficients c_p for $\alpha = 15.59^{\circ}$, $M_{\infty} = 1.1$ and $Re_D = 6.2 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
x/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.978	0.956	0.893	0.798	0.679	0.540	0.445	0.357	0.299	0.272	0.264	0.263	0.265
0.482	0.738	0.718	0.658	0.570	0.454	0.334	0.231	0.142	0.078	0.052	0.037	0.026	0.032
0.731	0.519	0.497	0.439	0.350	0.242	0.132	0.033	-0.048	-0.104	-0.127	-0.127	-0.120	-0.122
0.980	0.288	0.265	0.214	0.133	0.032	-0.071	-0.157	-0.229	-0.272	-0.282	-0.275	-0.262	-0.259
1.238	0.077	0.054	0.008	-0.064	-0.157	-0.256	-0.332	-0.374	-0.427	-0.420	-0.407	-0.394	-0.391
1.500	-0.031	-0.048	-0.091	-0.160	-0.250	-0.335	-0.407	-0.440	-0.480	-0.466	-0.440	-0.412	-0.400
1.944	0.012	-0.011	-0.054	-0.130	-0.233	-0.232	-0.408	-0.446	-0.424	-0.344	-0.285	-0.205	-0.150
2.444	0.012	-0.008	-0.061	-0.147	-0.246	-0.348	-0.421	-0.427	-0.272	-0.176	-0.137	-0.081	-0.044
2.944	0.012	-0.015	-0.061	-0.153	-0.260	-0.368	-0.411	-0.255	-0.153	-0.133	-0.100	-0.051	0.005
3.444	0.009	-0.015	-0.077	-0.173	-0.276	-0.302	-0.242	-0.170	-0.117	-0.117	-0.133	-0.021	0.025
3.944	0.002	-0.018	-0.077	-0.117	-0.170	-0.203	-0.199	-0.127	-0.090	-0.110	-0.173	0.002	0.027
4.444	0.043	0.028	-0.018	-0.097	-0.150	-0.193	-0.176	-0.100	-0.087	-0.100	-0.213	-0.009	0.009
4.944	0.063	0.047	0.002	-0.077	-0.131	-0.180	-0.166	-0.097	-0.084	-0.081	-0.196	-0.026	-0.018
5.444	0.079	0.064	0.012	-0.048	-0.134	-0.180	-0.173	-0.100	-0.084	-0.074	-0.124	-0.074	-0.044
5.944	0.073	0.055	0.012	-0.058	-0.124	-0.177	-0.163	-0.097	-0.077	-0.077	-0.091	-0.090	-0.071
6.444	0.080	0.065	0.015	-0.051	-0.131	-0.183	-0.176	-0.104	-0.097	-0.077	-0.084	-0.097	-0.080
6.944	0.079	0.069	0.015	-0.054	-0.131	-0.160	-0.183	-0.110	-0.084	-0.077	-0.077	-0.084	-0.077
7.444	0.072	0.053	0.005	-0.064	-0.127	-0.187	-0.166	-0.090	-0.077	-0.067	-0.071	-0.074	-0.071
7.944	0.089	0.075	0.025	-0.054	-0.137	-0.196	-0.176	-0.097	-0.084	-0.074	-0.074	-0.074	-0.064
8.444	0.064	0.047	-0.008	-0.068	-0.157	-0.190	-0.183	-0.104	-0.090	-0.087	-0.084	-0.077	-0.071
8.944	0.052	0.036	-0.018	-0.084	-0.160	-0.206	-0.183	-0.107	-0.094	-0.090	-0.094	-0.087	-0.080
9.444	0.033	0.012	-0.038	-0.114	-0.180	-0.210	-0.176	-0.090	-0.084	-0.081	-0.084	-0.081	-0.071
9.944	0.032	0.015	-0.031	-0.101	-0.117	-0.153	-0.127	-0.064	-0.071	-0.057	-0.054	-0.051	-0.044
10.444	0.063	0.051	0.015	-0.042	-0.117	-0.149	-0.124	-0.063	-0.045	-0.063	-0.070	-0.060	-0.052
10.944	0.075	0.061	0.012	-0.043	-0.116	-0.135	-0.114	-0.055	-0.035	-0.047	-0.058	-0.038	-0.010
11.444	0.060	0.044	0.005	-0.072	-0.092	-0.099	-0.075	-0.045	-0.047	-0.042	-0.052	-0.050	-0.025
11.944	0.062	0.047	0.034	-0.057	-0.090	-0.117	-0.084	-0.032	-0.043	-0.033	-0.038	-0.045	-0.018
12.444	0.078	0.069	0.025	-0.030	-0.092	-0.114	-0.087	-0.030	-0.003	-0.027	-0.028	-0.020	-0.005
12.944	0.116	0.082	0.054	-0.018	0.038	-0.003	0.008	0.013	0.027	0.008	-0.015	0.013	0.038
13.444	0.193	0.180	0.131	0.077	-0.013	-0.052	-0.033	0.023	0.013	0.022	0.013	0.007	0.028
13.944	0.152	0.141	0.088	0.035	-0.039	-0.064	-0.048	0.015	0.008	0.018	0.013	0.002	0.020
14.444	0.025	0.025	0.025	0.020	-0.049	-0.079	-0.063	0.002	-0.005	0.008	0.003	-0.004	0.011
14.944	0.130	0.113	0.072	0.005	-0.060	-0.094	-0.077	-0.012	-0.018	-0.002	0.003	-0.010	0.002
15.444	0.115	0.100	0.055	-0.010	-0.080	-0.119	-0.097	-0.032	-0.040	-0.023	-0.017	-0.030	-0.023
15.944	0.101	0.087	0.038	-0.018	-0.106	-0.140	-0.120	-0.053	-0.058	-0.048	-0.045	-0.053	-0.050
16.444	0.077	0.065	0.015	-0.020	-0.080	-0.102	-0.090	-0.040	-0.037	-0.033	-0.030	-0.026	-0.028
16.944	0.060	0.049	0.002	-0.030	-0.087	-0.105	-0.092	-0.043	-0.040	-0.037	-0.033	-0.030	-0.033
17.444	0.052	0.038	-0.005	-0.067	-0.121	-0.127	-0.114	-0.060	-0.060	-0.058	-0.052	-0.052	-0.053
17.944	0.052	0.031	0.005	-0.057	-0.109	-0.125	-0.115	-0.063	-0.058	-0.062	-0.057	-0.061	-0.058
18.444	0.087	0.055	0.029	-0.060	-0.095	-0.130	-0.104	-0.052	-0.047	-0.053	-0.053	-0.059	-0.055
18.944	0.068	0.045	0.012	-0.023	-0.112	-0.124	-0.105	-0.048	-0.038	-0.045	-0.042	-0.040	-0.038
19.444	0.054	0.025	0.005	-0.049	-0.097	-0.124	-0.094	-0.045	-0.040	-0.040	-0.030	-0.028	-0.023
19.944	0.069	0.028	0.002	0.050	-0.000	-0.000	0.089	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
20.444	0.076	0.038	0.025	-0.059	-0.084	-0.127	-0.095	-0.055	-0.045	-0.057	-0.050	-0.053	-0.055
20.944	0.085	0.057	0.026	-0.042	-0.109	-0.130	-0.107	-0.060	-0.045	-0.063	-0.053	-0.058	-0.055
21.444	0.054	0.027	-0.005	-0.049	-0.124	-0.164	-0.152	-0.150	-0.152	-0.153	-0.120	-0.102	-0.092

Table 1.23 Experimental pressure coefficients c_p for $\alpha = 15.65^{\circ}$, $M_{\infty} = 1.2$ and $Re_D = 6.3 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
x/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	1.020	0.998	0.936	0.845	0.730	0.595	0.503	0.415	0.355	0.331	0.323	0.321	0.323
0.482	0.780	0.762	0.703	0.621	0.506	0.391	0.295	0.204	0.142	0.116	0.101	0.091	0.098
0.731	0.568	0.546	0.489	0.407	0.301	0.194	0.098	0.020	-0.037	-0.062	-0.065	-0.062	-0.062
0.960	0.343	0.322	0.271	0.196	0.099	0.001	-0.084	-0.154	-0.198	-0.220	-0.207	-0.198	-0.191
1.238	0.138	0.118	0.074	0.007	-0.084	-0.176	-0.248	-0.311	-0.343	-0.346	-0.330	-0.318	-0.314
1.500	0.033	0.020	-0.024	-0.091	-0.172	-0.258	-0.327	-0.383	-0.406	-0.396	-0.368	-0.346	-0.336
1.944	0.057	0.033	-0.012	-0.078	-0.179	-0.271	-0.346	-0.393	-0.387	-0.321	-0.251	-0.192	-0.172
2.444	0.051	0.023	-0.021	-0.100	-0.195	-0.290	-0.365	-0.399	-0.292	-0.182	-0.109	-0.084	-0.050
2.944	0.028	0.013	-0.034	-0.122	-0.220	-0.321	-0.400	-0.305	-0.176	-0.144	-0.116	-0.066	-0.006
3.444	0.023	0.004	-0.046	-0.135	-0.236	-0.343	-0.305	-0.172	-0.135	-0.128	-0.131	-0.034	0.017
3.944	0.042	0.016	-0.037	-0.132	-0.232	-0.236	-0.214	-0.138	-0.103	-0.125	-0.182	-0.006	0.023
4.444	0.046	0.024	-0.043	-0.122	-0.150	-0.208	-0.185	-0.106	-0.097	-0.113	-0.226	-0.015	0.001
4.944	0.016	0.013	-0.034	-0.097	-0.169	-0.214	-0.201	-0.119	-0.106	-0.113	-0.232	-0.050	-0.018
5.444	0.078	0.056	-0.002	-0.062	-0.147	-0.185	-0.185	-0.116	-0.097	-0.087	-0.150	-0.081	-0.053
5.944	0.058	0.065	0.013	-0.078	-0.135	-0.195	-0.179	-0.091	-0.065	-0.062	-0.087	-0.062	-0.028
6.444	0.062	0.045	-0.006	-0.072	-0.157	-0.173	-0.144	-0.081	-0.075	-0.078	-0.084	-0.103	-0.078
6.944	0.081	0.048	0.007	-0.065	-0.122	-0.170	-0.157	-0.079	-0.062	-0.065	-0.072	-0.078	-0.056
7.444	0.089	0.076	0.010	-0.053	-0.135	-0.154	-0.110	-0.059	-0.059	-0.059	-0.072	-0.075	-0.062
7.944	0.054	0.032	0.013	-0.053	-0.100	-0.157	-0.141	-0.065	-0.056	-0.053	-0.053	-0.056	-0.037
8.444	0.089	0.062	0.010	-0.059	-0.119	-0.148	-0.135	-0.072	-0.059	-0.065	-0.068	-0.075	-0.068
8.944	0.074	0.075	0.023	-0.028	-0.110	-0.151	-0.132	-0.062	-0.053	-0.046	-0.062	-0.043	-0.037
9.444	0.078	0.066	0.023	-0.059	-0.116	-0.151	-0.128	-0.069	-0.056	-0.065	-0.059	-0.066	-0.046
9.944	0.080	0.062	0.023	-0.053	-0.116	-0.154	-0.116	-0.053	-0.050	-0.046	-0.050	-0.040	-0.031
10.444	0.079	0.061	0.027	-0.043	-0.084	-0.126	-0.108	-0.047	-0.046	-0.043	-0.044	-0.039	-0.030
10.944	0.105	0.081	0.023	-0.027	-0.109	-0.141	-0.108	-0.050	-0.036	-0.042	-0.049	-0.036	-0.020
11.444	0.071	0.054	0.500	-0.054	-0.098	-0.049	0.000	0.018	0.004	0.005	0.015	0.020	0.013
11.944	0.092	0.095	0.111	0.037	-0.030	-0.079	-0.065	-0.009	-0.020	-0.015	-0.006	-0.033	-0.014
12.444	0.167	0.140	0.075	0.023	-0.065	-0.111	-0.100	-0.025	-0.030	-0.028	-0.023	-0.022	-0.014
12.944	0.131	0.104	0.051	-0.007	-0.093	-0.135	-0.111	-0.042	-0.041	-0.033	-0.038	-0.036	-0.027
13.444	0.087	0.089	0.049	-0.039	-0.095	-0.129	-0.106	-0.052	-0.046	-0.044	-0.050	-0.054	-0.039
13.944	0.081	0.052	-0.002	-0.058	-0.129	-0.157	-0.129	-0.062	-0.054	-0.039	-0.039	-0.030	-0.017
14.444	0.023	0.023	0.023	-0.058	-0.103	-0.131	-0.108	-0.052	-0.051	-0.044	-0.044	-0.041	-0.029
14.944	0.076	0.057	0.004	-0.057	-0.078	-0.105	-0.084	-0.042	-0.049	-0.049	-0.049	-0.052	-0.041
15.444	0.077	0.066	0.020	-0.031	-0.093	-0.114	-0.074	-0.039	-0.047	-0.054	-0.057	-0.057	-0.046
15.944	0.079	0.076	0.035	-0.039	-0.060	-0.103	-0.084	-0.046	-0.038	-0.050	-0.052	-0.051	-0.036
16.444	0.076	0.069	0.024	-0.011	-0.049	-0.075	-0.052	-0.015	-0.019	-0.019	-0.019	-0.025	-0.023
16.944	0.097	0.100	0.099	-0.007	-0.027	-0.063	-0.049	-0.012	-0.019	-0.012	-0.011	-0.019	-0.025
17.444	0.112	0.090	0.043	-0.009	-0.086	-0.132	-0.124	-0.058	-0.049	-0.038	-0.028	-0.020	-0.015
17.944	0.092	0.071	0.016	-0.035	-0.133	-0.159	-0.122	-0.055	-0.052	-0.047	-0.036	-0.054	-0.047
18.444	0.061	0.016	-0.028	-0.090	-0.121	-0.126	-0.108	-0.065	-0.065	-0.060	-0.052	-0.060	-0.060
18.944	0.051	0.042	0.007	-0.054	-0.116	-0.149	-0.124	-0.066	-0.054	-0.060	-0.054	-0.062	-0.058
19.444	0.088	0.076	0.016	-0.039	-0.108	-0.108	-0.095	-0.046	-0.039	-0.042	-0.038	-0.033	-0.023
19.944	0.086	0.084	0.075	0.013	-0.068	-0.078	-0.052	-0.023	-0.028	-0.036	-0.039	-0.049	-0.049
20.444	0.068	0.052	0.023	-0.050	-0.095	-0.137	-0.121	-0.062	-0.047	-0.052	-0.047	-0.055	-0.046
20.944	0.090	0.080	0.024	-0.038	-0.119	-0.145	-0.105	-0.050	-0.044	-0.044	-0.039	-0.036	-0.036
21.444	0.084	0.066	0.028	-0.041	-0.070	-0.116	-0.120	-0.116	-0.117	-0.111	-0.089	-0.066	-0.060

Table 1.24 Experimental pressure coefficients c_p for $\alpha = 20^{\circ}$, $M_{\infty} = 0.7$ and $Re_D = 5.2 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
x/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.878	0.337	0.238	0.130	0.360	0.161	-0.146	-0.120	-0.182	-0.198	-0.166	-0.119	-0.073
0.482	0.635	0.596	0.492	0.333	0.138	-0.052	-0.225	-0.329	-0.385	-0.396	-0.380	-0.352	-0.349
0.731	0.413	0.376	0.275	0.123	-0.062	-0.245	-0.387	-0.475	-0.510	-0.495	-0.458	-0.410	-0.401
0.980	0.192	0.158	0.063	-0.079	-0.245	-0.412	-0.538	-0.600	-0.599	-0.552	-0.505	-0.457	-0.433
1.238	0.045	0.016	-0.078	-0.210	-0.350	-0.490	-0.580	-0.595	-0.541	-0.511	-0.458	-0.332	-0.313
1.500	-0.036	-0.063	-0.146	-0.273	-0.397	-0.505	-0.564	-0.537	-0.494	-0.365	-0.255	-0.202	-0.193
1.944	0.086	0.058	-0.026	-0.142	-0.266	-0.333	-0.407	-0.370	-0.276	-0.161	-0.098	-0.010	0.011
2.444	0.113	0.078	0.005	-0.120	-0.245	-0.338	-0.386	-0.339	-0.224	-0.130	-0.083	-0.015	0.037
2.944	0.120	0.086	0.006	-0.115	-0.229	-0.323	-0.350	-0.303	-0.171	-0.125	-0.161	-0.119	-0.073
3.444	0.114	0.090	0.017	-0.105	-0.224	-0.318	-0.339	-0.271	-0.130	-0.114	-0.171	-0.083	0.021
3.944	0.130	0.096	0.016	-0.100	-0.214	-0.302	-0.339	-0.229	-0.109	-0.099	-0.177	-0.083	0.021
4.444	0.133	0.098	0.016	-0.100	-0.209	-0.291	-0.297	-0.198	-0.098	-0.088	-0.151	-0.124	-0.009
4.944	0.133	0.100	0.021	-0.094	-0.203	-0.281	-0.281	-0.172	-0.093	-0.083	-0.098	-0.140	-0.041
5.444	0.132	0.102	0.026	-0.079	-0.193	-0.276	-0.265	-0.156	-0.093	-0.083	-0.083	-0.124	-0.057
5.944	0.133	0.105	0.026	-0.089	-0.193	-0.271	-0.260	-0.151	-0.088	-0.078	-0.083	-0.109	-0.062
6.444	0.135	0.110	0.026	-0.084	-0.188	-0.265	-0.255	-0.141	-0.083	-0.078	-0.083	-0.093	-0.062
6.944	0.135	0.112	0.032	-0.073	-0.183	-0.260	-0.250	-0.130	-0.078	-0.078	-0.078	-0.083	-0.057
7.444	0.135	0.112	0.032	-0.073	-0.183	-0.260	-0.239	-0.130	-0.078	-0.073	-0.067	-0.067	-0.046
7.944	0.138	0.114	0.037	-0.068	-0.172	-0.250	-0.229	-0.109	-0.073	-0.067	-0.067	-0.062	-0.036
8.444	0.134	0.112	0.032	-0.068	-0.178	-0.249	-0.229	-0.109	-0.067	-0.067	-0.067	-0.062	-0.041
8.944	0.133	0.110	0.037	-0.068	-0.172	-0.244	-0.224	-0.104	-0.062	-0.067	-0.067	-0.057	-0.041
9.444	0.131	0.108	0.032	-0.073	-0.172	-0.244	-0.224	-0.099	-0.062	-0.067	-0.072	-0.057	-0.057
9.944	0.135	0.111	0.037	-0.063	-0.172	-0.234	-0.214	-0.088	-0.057	-0.062	-0.067	-0.046	-0.057
10.444	0.137	0.112	0.037	-0.060	-0.165	-0.232	-0.208	-0.084	-0.054	-0.060	-0.065	-0.043	-0.054
10.944	0.137	0.114	0.050	-0.055	-0.162	-0.224	-0.206	-0.076	-0.054	-0.063	-0.068	-0.049	-0.065
11.444	0.134	0.110	0.039	-0.061	-0.165	-0.229	-0.206	-0.076	-0.057	-0.062	-0.073	-0.051	-0.076
11.944	0.136	0.112	0.045	-0.055	-0.160	-0.218	-0.195	-0.071	-0.052	-0.060	-0.068	-0.049	-0.073
12.444	0.134	0.112	0.046	-0.055	-0.160	-0.219	-0.189	-0.068	-0.052	-0.057	-0.068	-0.049	-0.073
12.944	0.140	0.118	0.048	-0.052	-0.154	-0.210	-0.178	-0.065	-0.052	-0.057	-0.065	-0.046	-0.071
13.444	0.136	0.112	0.042	-0.058	-0.154	-0.208	-0.170	-0.063	-0.052	-0.060	-0.065	-0.052	-0.073
13.944	0.130	0.107	0.037	-0.063	-0.157	-0.210	-0.165	-0.063	-0.054	-0.060	-0.068	-0.060	-0.073
14.444	0.132	0.108	0.037	-0.060	-0.154	-0.205	-0.150	-0.060	-0.056	-0.060	-0.068	-0.058	-0.070
14.944	0.133	0.110	0.037	-0.058	-0.151	-0.199	-0.146	-0.057	-0.057	-0.060	-0.068	-0.062	-0.062
15.444	0.132	0.109	0.032	-0.060	-0.149	-0.197	-0.135	-0.055	-0.060	-0.060	-0.068	-0.065	-0.060
15.944	0.135	0.109	0.034	-0.058	-0.146	-0.189	-0.127	-0.052	-0.060	-0.060	-0.068	-0.070	-0.060
16.444	0.130	0.109	0.026	-0.069	-0.151	-0.192	-0.122	-0.055	-0.062	-0.063	-0.068	-0.078	-0.062
16.944	0.129	0.102	0.023	-0.069	-0.146	-0.189	-0.116	-0.052	-0.062	-0.060	-0.065	-0.084	-0.062
17.444	0.134	0.107	0.026	-0.063	-0.143	-0.183	-0.111	-0.049	-0.062	-0.057	-0.062	-0.084	-0.065
17.944	0.135	0.106	0.026	-0.063	-0.138	-0.178	-0.103	-0.049	-0.062	-0.057	-0.060	-0.086	-0.068
18.444	0.133	0.104	0.021	-0.069	-0.141	-0.175	-0.103	-0.046	-0.060	-0.052	-0.054	-0.089	-0.071
18.944	0.137	0.107	0.029	-0.063	-0.135	-0.170	-0.100	-0.046	-0.054	-0.046	-0.049	-0.086	-0.070
19.444	0.138	0.109	0.031	-0.058	-0.127	-0.162	-0.100	-0.044	-0.049	-0.041	-0.041	-0.084	-0.070
19.944	0.147	0.117	0.037	-0.055	-0.125	-0.156	-0.100	-0.038	-0.041	-0.030	-0.028	-0.068	-0.057
20.444	0.152	0.124	0.045	-0.044	-0.114	-0.145	-0.100	-0.033	-0.028	-0.017	-0.014	-0.054	-0.044
20.944	0.154	0.128	0.053	-0.036	-0.103	-0.132	-0.098	-0.025	-0.014	-0.003	-0.001	-0.038	-0.022
21.444	0.160	0.140	0.062	-0.020	-0.089	-0.103	-0.076	-0.003	0.013	0.023	0.029	-0.003	0.297

Table 1.25 Experimental pressure coefficients c_p for $\alpha = 20^\circ$, $M_\infty = 0.8$ and $Re_D = 5.6 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
x/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.910	0.366	0.246	0.164	0.408	0.218	-0.112	-0.072	-0.142	-0.159	-0.164	-0.107	-0.068
0.482	0.663	0.620	0.526	0.371	0.174	-0.006	-0.186	-0.305	-0.374	-0.391	-0.383	-0.361	-0.353
0.731	0.431	0.392	0.299	0.147	-0.041	-0.221	-0.376	-0.475	-0.532	-0.523	-0.493	-0.453	-0.440
0.980	0.195	0.160	0.067	-0.073	-0.247	-0.419	-0.569	-0.651	-0.681	-0.650	-0.598	-0.554	-0.528
1.238	0.029	-0.006	-0.099	-0.240	-0.388	-0.542	-0.657	-0.660	-0.633	-0.557	-0.475	-0.366	-0.339
1.500	-0.078	-0.103	-0.186	-0.324	-0.445	-0.568	-0.630	-0.585	-0.536	-0.382	-0.278	-0.212	-0.195
1.944	0.074	0.046	-0.037	-0.156	-0.278	-0.349	-0.415	-0.379	-0.278	-0.155	-0.090	-0.011	0.011
2.444	0.112	0.080	-0.005	-0.130	-0.256	-0.340	-0.393	-0.344	-0.216	-0.124	-0.094	-0.015	0.034
2.944	0.118	0.086	0.002	-0.112	-0.234	-0.335	-0.370	-0.300	-0.158	-0.133	-0.164	-0.107	-0.067
3.444	0.112	0.095	0.017	-0.100	-0.230	-0.322	-0.335	-0.261	-0.133	-0.116	-0.203	-0.076	0.024
3.944	0.129	0.099	0.024	-0.099	-0.212	-0.304	-0.335	-0.217	-0.111	-0.103	-0.212	-0.076	0.024
4.444	0.132	0.101	0.020	-0.086	-0.208	-0.291	-0.292	-0.192	-0.103	-0.089	-0.164	-0.120	-0.015
4.944	0.133	0.102	0.024	-0.090	-0.203	-0.282	-0.274	-0.156	-0.102	-0.089	-0.107	-0.142	-0.050
5.444	0.132	0.105	0.024	-0.077	-0.195	-0.269	-0.265	-0.147	-0.098	-0.089	-0.094	-0.129	-0.063
5.944	0.134	0.106	0.024	-0.081	-0.195	-0.269	-0.257	-0.138	-0.094	-0.085	-0.094	-0.116	-0.072
6.444	0.135	0.107	0.029	-0.077	-0.190	-0.261	-0.248	-0.134	-0.089	-0.085	-0.094	-0.107	-0.067
6.944	0.134	0.109	0.029	-0.073	-0.186	-0.256	-0.243	-0.125	-0.089	-0.081	-0.085	-0.094	-0.063
7.444	0.134	0.109	0.029	-0.073	-0.186	-0.256	-0.235	-0.125	-0.085	-0.076	-0.081	-0.076	-0.050
7.944	0.138	0.111	0.036	-0.064	-0.173	-0.243	-0.226	-0.112	-0.081	-0.072	-0.076	-0.076	-0.041
8.444	0.133	0.108	0.035	-0.068	-0.181	-0.243	-0.226	-0.112	-0.076	-0.072	-0.076	-0.076	-0.041
8.944	0.133	0.107	0.035	-0.068	-0.177	-0.239	-0.217	-0.103	-0.076	-0.067	-0.072	-0.072	-0.041
9.444	0.131	0.104	0.033	-0.068	-0.177	-0.239	-0.217	-0.099	-0.076	-0.067	-0.076	-0.081	-0.050
9.944	0.134	0.107	0.038	-0.059	-0.172	-0.230	-0.204	-0.094	-0.067	-0.059	-0.072	-0.068	-0.048
10.444	0.135	0.110	0.039	-0.060	-0.166	-0.224	-0.202	-0.093	-0.068	-0.059	-0.068	-0.064	-0.046
10.944	0.136	0.113	0.044	-0.055	-0.166	-0.220	-0.198	-0.089	-0.068	-0.059	-0.068	-0.068	-0.055
11.444	0.133	0.108	0.040	-0.060	-0.168	-0.222	-0.200	-0.086	-0.068	-0.061	-0.073	-0.073	-0.064
11.944	0.135	0.111	0.042	-0.055	-0.163	-0.215	-0.191	-0.082	-0.064	-0.059	-0.068	-0.064	-0.062
12.444	0.134	0.109	0.041	-0.053	-0.163	-0.216	-0.186	-0.082	-0.064	-0.061	-0.068	-0.064	-0.064
12.944	0.139	0.116	0.046	-0.051	-0.157	-0.206	-0.177	-0.075	-0.062	-0.061	-0.066	-0.057	-0.059
13.444	0.135	0.110	0.040	-0.055	-0.159	-0.206	-0.171	-0.073	-0.062	-0.064	-0.068	-0.059	-0.064
13.944	0.128	0.106	0.036	-0.062	-0.161	-0.206	-0.168	-0.071	-0.064	-0.066	-0.073	-0.064	-0.066
14.444	0.131	0.108	0.037	-0.060	-0.160	-0.203	-0.160	-0.067	-0.063	-0.067	-0.073	-0.060	-0.065
14.944	0.134	0.109	0.039	-0.058	-0.159	-0.199	-0.152	-0.064	-0.062	-0.068	-0.073	-0.062	-0.059
15.444	0.132	0.108	0.037	-0.058	-0.154	-0.195	-0.145	-0.062	-0.062	-0.071	-0.073	-0.062	-0.059
15.944	0.136	0.110	0.039	-0.058	-0.152	-0.190	-0.136	-0.057	-0.059	-0.071	-0.073	-0.062	-0.057
16.444	0.130	0.104	0.033	-0.067	-0.156	-0.193	-0.134	-0.057	-0.061	-0.075	-0.075	-0.068	-0.062
16.944	0.130	0.103	0.033	-0.067	-0.154	-0.188	-0.125	-0.053	-0.059	-0.075	-0.073	-0.068	-0.062
17.444	0.135	0.109	0.035	-0.062	-0.150	-0.184	-0.121	-0.050	-0.055	-0.073	-0.068	-0.066	-0.059
17.944	0.136	0.108	0.037	-0.062	-0.143	-0.179	-0.112	-0.048	-0.052	-0.068	-0.066	-0.071	-0.061
18.444	0.134	0.106	0.035	-0.067	-0.145	-0.179	-0.109	-0.048	-0.050	-0.066	-0.062	-0.073	-0.064
18.944	0.138	0.111	0.040	-0.062	-0.138	-0.170	-0.103	-0.041	-0.043	-0.059	-0.055	-0.068	-0.059
19.444	0.141	0.113	0.044	-0.058	-0.129	-0.161	-0.100	-0.037	-0.039	-0.052	-0.046	-0.062	-0.039
19.944	0.150	0.121	0.051	-0.053	-0.125	-0.159	-0.094	-0.032	-0.028	-0.039	-0.034	-0.048	-0.046
20.444	0.156	0.128	0.064	-0.037	-0.111	-0.143	-0.087	-0.023	-0.016	-0.023	-0.019	-0.037	-0.034
20.944	0.161	0.134	0.071	-0.030	-0.098	-0.130	-0.078	-0.012	-0.001	-0.005	-0.003	-0.021	-0.012
21.444	0.168	0.149	0.083	-0.014	-0.082	-0.094	-0.051	0.013	0.027	0.026	0.029	0.015	0.320

Table 1.26 Experimental pressure coefficients c_p for $\alpha = 20^\circ$, $M_\infty = 0.9$ and $Re_D = 5.9 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
x/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.955	0.329	0.270	0.209	0.475	0.294	-0.075	0.013	-0.059	-0.078	-0.147	-0.079	-0.060
0.482	0.705	0.672	0.579	0.429	0.238	0.061	-0.102	-0.222	-0.301	-0.327	-0.324	-0.312	-0.306
0.731	0.470	0.440	0.348	0.202	0.013	-0.156	-0.301	-0.414	-0.477	-0.492	-0.466	-0.447	-0.425
0.980	0.218	0.192	0.104	-0.033	-0.202	-0.363	-0.511	-0.613	-0.665	-0.660	-0.627	-0.592	-0.575
1.238	0.013	-0.013	-0.098	-0.235	-0.387	-0.548	-0.689	-0.778	-0.816	-0.794	-0.757	-0.715	-0.699
1.500	-0.159	-0.193	-0.272	-0.401	-0.533	-0.682	-0.775	-0.686	-0.747	-0.740	-0.558	-0.371	-0.352
1.944	0.017	-0.021	-0.114	-0.250	-0.410	-0.533	-0.612	-0.302	-0.228	-0.155	-0.048	0.061	0.081
2.444	0.105	0.355	-0.030	-0.140	-0.268	-0.375	-0.355	-0.279	-0.179	-0.159	-0.094	0.025	0.058
2.944	0.118	0.087	0.009	-0.114	-0.241	-0.333	-0.320	-0.236	-0.151	-0.151	-0.147	-0.079	-0.058
3.444	0.106	0.105	0.020	-0.100	-0.229	-0.318	-0.306	-0.206	-0.140	-0.132	-0.178	-0.094	-0.025
3.944	0.131	0.104	0.029	-0.095	-0.217	-0.302	-0.306	-0.179	-0.132	-0.132	-0.170	-0.094	-0.025
4.444	0.134	0.105	0.021	-0.099	-0.222	-0.302	-0.268	-0.160	-0.129	-0.128	-0.151	-0.167	-0.064
4.944	0.133	0.106	0.029	-0.095	-0.218	-0.294	-0.253	-0.148	-0.125	-0.128	-0.128	-0.179	-0.071
5.444	0.134	0.110	0.029	-0.091	-0.214	-0.290	-0.237	-0.137	-0.125	-0.125	-0.109	-0.175	-0.071
5.944	0.135	0.110	0.029	-0.091	-0.214	-0.294	-0.225	-0.133	-0.125	-0.125	-0.098	-0.163	-0.067
6.444	0.135	0.108	0.029	-0.095	-0.214	-0.290	-0.213	-0.129	-0.129	-0.125	-0.094	-0.156	-0.067
6.944	0.135	0.110	0.030	-0.095	-0.218	-0.290	-0.206	-0.125	-0.132	-0.128	-0.086	-0.152	-0.063
7.444	0.135	0.110	0.030	-0.095	-0.218	-0.290	-0.198	-0.125	-0.132	-0.129	-0.078	-0.148	-0.059
7.944	0.139	0.113	0.031	-0.095	-0.214	-0.287	-0.187	-0.113	-0.132	-0.132	-0.078	-0.155	-0.060
8.444	0.134	0.110	0.029	-0.107	-0.226	-0.294	-0.179	-0.113	-0.133	-0.133	-0.082	-0.161	-0.071
8.944	0.133	0.106	0.025	-0.107	-0.226	-0.294	-0.171	-0.109	-0.132	-0.133	-0.082	-0.171	-0.079
9.444	0.132	0.104	0.021	-0.115	-0.233	-0.299	-0.171	-0.105	-0.133	-0.133	-0.086	-0.175	-0.094
9.944	0.134	0.107	0.025	-0.107	-0.229	-0.291	-0.160	-0.102	-0.125	-0.121	-0.078	-0.159	-0.090
10.444	0.134	0.108	0.027	-0.115	-0.223	-0.280	-0.147	-0.096	-0.117	-0.111	-0.113	-0.143	-0.084
10.944	0.135	0.110	0.030	-0.105	-0.219	-0.271	-0.147	-0.090	-0.111	-0.105	-0.109	-0.139	-0.092
11.444	0.132	0.106	0.027	-0.105	-0.219	-0.268	-0.155	-0.088	-0.102	-0.099	-0.108	-0.133	-0.104
11.944	0.134	0.108	0.029	-0.099	-0.209	-0.253	-0.149	-0.080	-0.092	-0.088	-0.098	-0.119	-0.100
12.444	0.133	0.108	0.029	-0.095	-0.201	-0.243	-0.155	-0.074	-0.082	-0.078	-0.092	-0.109	-0.093
12.944	0.138	0.115	0.033	-0.083	-0.187	-0.225	-0.155	-0.068	-0.072	-0.068	-0.082	-0.096	-0.092
13.444	0.134	0.109	0.030	-0.083	-0.181	-0.215	-0.161	-0.064	-0.064	-0.064	-0.076	-0.090	-0.096
13.944	0.127	0.107	0.027	-0.079	-0.176	-0.207	-0.171	-0.062	-0.060	-0.060	-0.074	-0.088	-0.096
14.444	0.130	0.109	0.032	-0.070	-0.166	-0.199	-0.175	-0.059	-0.056	-0.058	-0.072	-0.075	-0.090
14.944	0.133	0.111	0.037	-0.061	-0.155	-0.191	-0.177	-0.056	-0.052	-0.056	-0.070	-0.074	-0.088
15.444	0.131	0.111	0.038	-0.055	-0.148	-0.181	-0.179	-0.054	-0.050	-0.058	-0.070	-0.074	-0.084
15.944	0.135	0.114	0.042	-0.049	-0.142	-0.177	-0.180	-0.054	-0.052	-0.058	-0.068	-0.072	-0.082
16.444	0.128	0.107	0.038	-0.055	-0.144	-0.179	-0.184	-0.054	-0.056	-0.064	-0.070	-0.076	-0.084
16.944	0.129	0.109	0.040	-0.053	-0.140	-0.177	-0.182	-0.056	-0.058	-0.066	-0.068	-0.076	-0.082
17.444	0.135	0.114	0.047	-0.045	-0.138	-0.175	-0.181	-0.056	-0.062	-0.068	-0.066	-0.074	-0.082
17.944	0.136	0.116	0.050	-0.043	-0.134	-0.177	-0.173	-0.056	-0.068	-0.074	-0.060	-0.074	-0.080
18.444	0.135	0.115	0.048	-0.047	-0.140	-0.185	-0.171	-0.058	-0.072	-0.080	-0.058	-0.072	-0.078
18.944	0.140	0.121	0.055	-0.041	-0.136	-0.183	-0.156	-0.056	-0.074	-0.082	-0.048	-0.066	-0.072
19.444	0.145	0.126	0.060	-0.039	-0.134	-0.181	-0.146	-0.054	-0.072	-0.080	-0.040	-0.060	-0.064
19.944	0.156	0.135	0.067	-0.037	-0.136	-0.189	-0.131	-0.050	-0.066	-0.074	-0.026	-0.048	-0.046
20.444	0.165	0.149	0.080	-0.019	-0.128	-0.179	-0.112	-0.036	-0.058	-0.060	-0.013	-0.036	-0.027
20.944	0.172	0.151	0.086	-0.017	-0.114	-0.168	-0.084	-0.023	-0.040	-0.043	0.009	-0.019	0.001
21.444	0.182	0.167	0.098	0.001	-0.100	-0.134	-0.041	0.011	-0.007	-0.005	0.045	0.021	0.320

Table 1.27 Experimental pressure coefficients c_p for $\alpha = 20^\circ$, $M_\infty = 0.95$ and $Re_D = 6.0 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.231	0.387	0.058	0.264	0.183	0.521	0.348	-0.009	0.071	-0.001	-0.020	-0.085	0.013	0.020
0.482	0.730	0.709	0.618	0.479	0.286	0.118	-0.045	-0.158	-0.238	-0.264	-0.256	-0.252	-0.245
0.731	0.506	0.480	0.391	0.257	0.064	-0.096	-0.242	-0.347	-0.420	-0.431	-0.409	-0.391	-0.372
0.980	0.258	0.235	0.150	0.028	-0.151	-0.301	-0.446	-0.543	-0.606	-0.599	-0.565	-0.533	-0.514
1.238	0.048	0.024	-0.056	-0.207	-0.340	-0.487	-0.625	-0.714	-0.758	-0.734	-0.692	-0.656	-0.642
1.500	-0.139	-0.157	-0.227	-0.339	-0.490	-0.614	-0.730	-0.801	-0.816	-0.766	-0.707	-0.638	-0.620
1.944	-0.016	-0.034	-0.122	-0.258	-0.428	-0.567	-0.726	-0.779	-0.736	-0.479	-0.343	-0.183	-0.158
2.444	0.078	-0.045	-0.130	-0.260	-0.454	-0.626	-0.225	-0.303	-0.292	-0.234	-0.118	0.121	0.147
2.944	0.125	-0.057	-0.155	-0.298	-0.133	-0.470	-0.012	-0.132	-0.245	-0.278	-0.085	0.013	0.020
3.444	0.150	0.050	-0.030	-0.180	-0.191	-0.257	-0.249	-0.132	-0.118	-0.256	-0.132	0.017	0.053
3.944	0.155	0.138	0.061	-0.042	-0.191	-0.272	-0.249	-0.143	-0.121	-0.100	-0.191	0.017	0.053
4.444	0.148	0.127	0.047	-0.060	-0.195	-0.268	-0.253	-0.136	-0.107	-0.103	-0.154	-0.082	-0.034
4.944	0.142	0.129	0.044	-0.064	-0.199	-0.275	-0.253	-0.125	-0.103	-0.111	-0.122	-0.122	-0.081
5.444	0.139	0.119	0.043	-0.064	-0.195	-0.272	-0.238	-0.118	-0.103	-0.103	-0.103	-0.129	-0.092
5.944	0.140	0.118	0.040	-0.068	-0.191	-0.264	-0.227	-0.118	-0.103	-0.100	-0.096	-0.118	-0.092
6.444	0.139	0.115	0.038	-0.068	-0.188	-0.257	-0.234	-0.114	-0.103	-0.092	-0.039	-0.103	-0.081
6.944	0.138	0.117	0.041	-0.071	-0.184	-0.253	-0.223	-0.111	-0.103	-0.092	-0.081	-0.096	-0.070
7.444	0.138	0.117	0.041	-0.071	-0.184	-0.253	-0.213	-0.111	-0.100	-0.089	-0.078	-0.085	-0.060
7.944	0.140	0.117	0.044	-0.060	-0.177	-0.246	-0.205	-0.096	-0.096	-0.085	-0.074	-0.085	-0.052
8.444	0.136	0.113	0.040	-0.068	-0.180	-0.249	-0.209	-0.096	-0.096	-0.089	-0.078	-0.092	-0.056
8.944	0.135	0.111	0.038	-0.068	-0.180	-0.242	-0.202	-0.092	-0.096	-0.085	-0.078	-0.096	-0.056
9.444	0.133	0.106	0.035	-0.075	-0.184	-0.245	-0.202	-0.093	-0.096	-0.089	-0.081	-0.103	-0.067
9.944	0.134	0.109	0.039	-0.064	-0.180	-0.235	-0.191	-0.089	-0.092	-0.085	-0.078	-0.100	-0.060
10.444	0.135	0.110	0.042	-0.065	-0.171	-0.226	-0.183	-0.085	-0.089	-0.079	-0.073	-0.096	-0.057
10.944	0.137	0.114	0.044	-0.059	-0.169	-0.224	-0.181	-0.083	-0.087	-0.079	-0.075	-0.098	-0.062
11.444	0.133	0.107	0.038	-0.065	-0.175	-0.228	-0.184	-0.083	-0.087	-0.081	-0.081	-0.103	-0.070
11.944	0.135	0.110	0.041	-0.063	-0.168	-0.217	-0.173	-0.079	-0.079	-0.076	-0.077	-0.094	-0.066
12.444	0.134	0.108	0.039	-0.061	-0.168	-0.219	-0.171	-0.077	-0.075	-0.072	-0.075	-0.090	-0.066
12.944	0.140	0.116	0.045	-0.057	-0.158	-0.205	-0.164	-0.072	-0.068	-0.068	-0.073	-0.079	-0.060
13.444	0.132	0.109	0.038	-0.065	-0.158	-0.204	-0.160	-0.072	-0.064	-0.068	-0.073	-0.079	-0.066
13.944	0.128	0.104	0.032	-0.070	-0.158	-0.205	-0.160	-0.070	-0.060	-0.066	-0.077	-0.079	-0.070
14.444	0.131	0.107	0.034	-0.067	-0.155	-0.202	-0.155	-0.067	-0.056	-0.064	-0.075	-0.070	-0.068
14.944	0.134	0.110	0.035	-0.063	-0.151	-0.198	-0.151	-0.064	-0.051	-0.062	-0.073	-0.068	-0.068
15.444	0.131	0.109	0.034	-0.053	-0.145	-0.192	-0.143	-0.062	-0.049	-0.060	-0.072	-0.066	-0.068
15.944	0.135	0.111	0.037	-0.059	-0.142	-0.189	-0.139	-0.058	-0.045	-0.057	-0.070	-0.062	-0.066
16.444	0.128	0.109	0.030	-0.065	-0.145	-0.190	-0.139	-0.059	-0.047	-0.059	-0.072	-0.062	-0.068
16.944	0.129	0.106	0.030	-0.065	-0.142	-0.185	-0.134	-0.057	-0.045	-0.055	-0.068	-0.059	-0.064
17.444	0.135	0.117	0.036	-0.057	-0.136	-0.181	-0.128	-0.053	-0.045	-0.053	-0.062	-0.053	-0.060
17.944	0.136	0.112	0.038	-0.050	-0.128	-0.175	-0.119	-0.051	-0.043	-0.049	-0.059	-0.051	-0.057
18.444	0.134	0.113	0.036	-0.054	-0.132	-0.175	-0.117	-0.047	-0.043	-0.047	-0.055	-0.047	-0.053
18.944	0.142	0.119	0.045	-0.040	-0.121	-0.162	-0.105	-0.040	-0.042	-0.040	-0.045	-0.040	-0.043
19.444	0.147	0.125	0.053	-0.031	-0.113	-0.153	-0.094	-0.030	-0.038	-0.034	-0.034	-0.032	-0.034
19.944	0.161	0.137	0.063	-0.023	-0.110	-0.151	-0.085	-0.021	-0.028	-0.021	-0.019	-0.015	-0.017
20.444	0.171	0.155	0.082	0.001	-0.095	-0.134	-0.066	-0.004	-0.015	-0.006	0.001	-0.000	0.003
20.944	0.180	0.160	0.092	0.013	-0.076	-0.111	-0.042	0.016	0.003	0.016	0.024	0.022	0.033
21.444	0.195	0.172	0.105	0.032	-0.057	-0.068	0.001	0.050	0.038	0.055	0.066	0.064	0.366

Table 1.28 Experimental pressure coefficients c_p for $\alpha = 20^\circ$, $M_\infty = 1.00$ and $Re_D = 6.1 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	1.022	0.327	0.238	0.154	0.564	0.401	-0.091	0.129	0.061	0.041	-0.151	-0.029	-0.001
0.482	0.781	0.752	0.663	0.528	0.335	0.178	0.020	-0.092	-0.164	-0.196	-0.196	-0.182	-0.175
0.731	0.554	0.529	0.443	0.313	0.120	-0.029	-0.171	-0.277	-0.341	-0.359	-0.342	-0.325	-0.307
0.980	0.312	0.290	0.219	0.091	-0.088	-0.228	-0.370	-0.469	-0.522	-0.523	-0.492	-0.457	-0.440
1.238	0.103	0.082	0.006	-0.113	-0.277	-0.413	-0.544	-0.633	-0.675	-0.655	-0.617	-0.575	-0.562
1.500	-0.070	-0.084	-0.151	-0.261	-0.413	-0.528	-0.641	-0.717	-0.734	-0.689	-0.631	-0.572	-0.552
1.944	0.027	0.009	-0.071	-0.198	-0.375	-0.514	-0.655	-0.717	-0.713	-0.571	-0.398	-0.276	-0.252
2.444	-0.008	0.005	-0.085	-0.220	-0.410	-0.563	-0.715	-0.733	-0.491	-0.370	-0.300	-0.116	-0.060
2.944	-0.001	-0.019	-0.109	-0.250	-0.437	-0.608	-0.095	-0.438	-0.418	-0.356	-0.151	-0.029	-0.001
3.444	-0.008	-0.030	-0.135	-0.285	-0.465	-0.639	-0.387	-0.325	-0.355	-0.453	-0.384	-0.071	-0.022
3.944	-0.011	-0.043	-0.144	-0.292	-0.469	-0.343	-0.387	-0.193	-0.234	-0.443	-0.276	-0.071	-0.022
4.444	-0.015	-0.050	-0.123	-0.163	-0.116	-0.298	-0.193	-0.102	-0.091	-0.119	-0.178	0.063	0.072
4.944	0.103	0.063	-0.029	-0.135	-0.120	-0.189	-0.133	-0.075	-0.053	-0.043	-0.144	-0.015	0.016
5.444	0.182	0.148	-0.015	-0.124	-0.127	-0.193	-0.133	-0.034	-0.039	-0.043	-0.084	-0.074	-0.043
5.944	0.192	0.171	0.105	0.006	-0.148	-0.193	-0.154	-0.064	-0.050	-0.046	-0.050	-0.088	-0.071
6.444	0.189	0.169	0.100	-0.001	-0.148	-0.196	-0.172	-0.078	-0.060	-0.057	-0.053	-0.074	-0.060
6.944	0.179	0.164	0.098	-0.005	-0.158	-0.207	-0.186	-0.088	-0.067	-0.067	-0.064	-0.067	-0.067
7.444	0.179	0.164	0.098	-0.005	-0.158	-0.207	-0.200	-0.088	-0.074	-0.071	-0.067	-0.064	-0.060
7.944	0.161	0.143	0.076	-0.019	-0.158	-0.224	-0.200	-0.075	-0.074	-0.074	-0.070	-0.064	-0.057
8.444	0.147	0.128	0.062	-0.043	-0.169	-0.235	-0.207	-0.095	-0.077	-0.078	-0.074	-0.071	-0.064
8.944	0.139	0.117	0.049	-0.054	-0.169	-0.235	-0.200	-0.092	-0.074	-0.074	-0.074	-0.071	-0.064
9.444	0.134	0.109	0.035	-0.071	-0.172	-0.235	-0.196	-0.088	-0.077	-0.078	-0.077	-0.074	-0.067
9.944	0.132	0.107	0.033	-0.068	-0.169	-0.224	-0.186	-0.085	-0.074	-0.074	-0.074	-0.074	-0.067
10.444	0.137	0.109	0.034	-0.071	-0.156	-0.218	-0.174	-0.083	-0.070	-0.068	-0.068	-0.070	-0.061
10.944	0.141	0.116	0.038	-0.065	-0.158	-0.216	-0.172	-0.083	-0.072	-0.072	-0.070	-0.072	-0.065
11.444	0.137	0.112	0.036	-0.067	-0.165	-0.221	-0.183	-0.083	-0.075	-0.075	-0.074	-0.081	-0.075
11.944	0.135	0.115	0.043	-0.058	-0.160	-0.216	-0.178	-0.083	-0.075	-0.072	-0.072	-0.075	-0.070
12.444	0.132	0.113	0.045	-0.056	-0.160	-0.221	-0.179	-0.083	-0.073	-0.070	-0.070	-0.075	-0.070
12.944	0.139	0.118	0.053	-0.047	-0.155	-0.210	-0.172	-0.078	-0.070	-0.065	-0.066	-0.068	-0.063
13.444	0.130	0.109	0.047	-0.053	-0.158	-0.210	-0.167	-0.076	-0.070	-0.068	-0.068	-0.070	-0.067
13.944	0.128	0.103	0.039	-0.062	-0.162	-0.209	-0.163	-0.074	-0.070	-0.070	-0.072	-0.075	-0.070
14.444	0.134	0.104	0.039	-0.062	-0.161	-0.210	-0.160	-0.074	-0.070	-0.070	-0.073	-0.072	-0.066
14.944	0.139	0.106	0.038	-0.062	-0.160	-0.210	-0.158	-0.074	-0.070	-0.070	-0.074	-0.074	-0.070
15.444	0.136	0.111	0.034	-0.064	-0.164	-0.210	-0.158	-0.072	-0.070	-0.072	-0.075	-0.075	-0.072
15.944	0.133	0.115	0.034	-0.067	-0.169	-0.216	-0.160	-0.074	-0.070	-0.074	-0.075	-0.074	-0.074
16.444	0.123	0.109	0.027	-0.071	-0.173	-0.218	-0.160	-0.074	-0.073	-0.075	-0.079	-0.075	-0.075
16.944	0.120	0.103	0.029	-0.073	-0.166	-0.216	-0.153	-0.074	-0.072	-0.075	-0.077	-0.074	-0.074
17.444	0.125	0.103	0.033	-0.067	-0.166	-0.210	-0.149	-0.070	-0.068	-0.068	-0.072	-0.068	-0.068
17.944	0.124	0.098	0.030	-0.069	-0.162	-0.205	-0.131	-0.061	-0.059	-0.068	-0.070	-0.063	-0.063
18.444	0.123	0.094	0.025	-0.073	-0.160	-0.185	-0.128	-0.067	-0.063	-0.065	-0.068	-0.061	-0.061
18.944	0.136	0.104	0.033	-0.058	-0.135	-0.191	-0.117	-0.051	-0.047	-0.052	-0.052	-0.047	-0.047
19.444	0.138	0.112	0.044	-0.040	-0.124	-0.164	-0.094	-0.036	-0.036	-0.041	-0.039	-0.032	-0.032
19.944	0.155	0.135	0.046	-0.049	-0.126	-0.166	-0.076	-0.020	-0.014	-0.020	-0.018	-0.011	-0.009
20.444	0.172	0.158	0.083	-0.002	-0.092	-0.130	-0.049	0.005	0.011	0.003	0.005	0.012	0.016
20.944	0.187	0.167	0.101	0.020	-0.065	-0.090	-0.013	0.034	0.041	0.034	0.034	0.040	0.050
21.444	0.206	0.184	0.117	0.045	-0.034	-0.034	0.036	0.079	0.087	0.080	0.084	0.092	0.375

Table 1.29 Experimental pressure coefficients c_p for $\alpha = 20^\circ$, $M_\infty = 1.1$ and $Re_D = 6.2 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
x/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	1.081	0.423	0.333	0.266	0.079	0.494	0.002	0.236	0.171	0.150	0.157	0.053	0.081
0.482	0.845	0.810	0.734	0.605	0.447	0.278	0.129	0.025	-0.043	-0.072	-0.066	-0.064	-0.056
0.731	0.627	0.603	0.522	0.398	0.250	0.080	-0.050	-0.147	-0.211	-0.231	-0.215	-0.202	-0.186
0.980	0.395	0.373	0.298	0.185	0.043	-0.105	-0.238	-0.330	-0.380	-0.383	-0.351	-0.326	-0.306
1.238	0.191	0.169	0.095	-0.011	-0.145	-0.281	-0.400	-0.486	-0.523	-0.506	-0.467	-0.436	-0.422
1.500	0.049	0.032	-0.034	-0.132	-0.250	-0.375	-0.484	-0.557	-0.581	-0.542	-0.487	-0.435	-0.419
1.944	0.109	0.100	0.015	-0.096	-0.240	-0.385	-0.511	-0.587	-0.584	-0.477	-0.315	-0.199	-0.173
2.444	0.076	0.090	0.020	-0.110	-0.265	-0.428	-0.566	-0.649	-0.432	-0.286	-0.224	-0.053	-0.001
2.944	0.086	0.066	-0.014	-0.145	-0.292	-0.467	-0.450	-0.414	-0.351	-0.280	-0.254	0.053	0.079
3.444	0.076	0.425	0.055	-0.025	-0.160	-0.320	-0.378	-0.260	-0.315	-0.383	-0.315	-0.004	0.044
3.944	0.070	0.047	-0.047	-0.181	-0.344	-0.496	-0.378	-0.173	-0.225	-0.455	-0.254	-0.004	0.044
4.444	0.059	0.035	-0.063	-0.201	-0.361	-0.236	-0.173	-0.138	-0.170	-0.231	-0.228	-0.004	0.012
4.944	0.053	0.025	0.002	-0.077	-0.187	-0.262	-0.199	-0.157	-0.140	-0.121	-0.208	-0.095	-0.050
5.444	0.140	0.107	0.032	-0.070	-0.181	-0.278	-0.235	-0.160	-0.121	-0.108	-0.150	-0.144	-0.111
5.944	0.131	0.114	0.027	-0.067	-0.187	-0.284	-0.258	-0.144	-0.131	-0.121	-0.127	-0.163	-0.140
6.444	0.127	0.107	0.022	-0.083	-0.194	-0.284	-0.254	-0.147	-0.131	-0.127	-0.124	-0.144	-0.137
6.944	0.124	0.108	0.030	-0.080	-0.194	-0.297	-0.271	-0.131	-0.121	-0.114	-0.131	-0.105	-0.118
7.444	0.124	0.108	0.030	-0.080	-0.194	-0.297	-0.238	-0.131	-0.114	-0.118	-0.098	-0.114	-0.098
7.944	0.127	0.095	0.025	-0.090	-0.210	-0.268	-0.212	-0.118	-0.111	-0.121	-0.108	-0.111	-0.102
8.444	0.128	0.102	0.019	-0.093	-0.204	-0.281	-0.228	-0.118	-0.127	-0.134	-0.121	-0.140	-0.118
8.944	0.113	0.102	0.028	-0.086	-0.197	-0.284	-0.235	-0.131	-0.121	-0.115	-0.131	-0.113	-0.121
9.444	0.109	0.080	0.009	-0.096	-0.200	-0.291	-0.225	-0.121	-0.111	-0.108	-0.101	-0.108	-0.085
9.944	0.095	0.077	0.012	-0.093	-0.201	-0.281	-0.173	-0.092	-0.092	-0.076	-0.085	-0.069	-0.079
10.444	0.099	0.082	0.017	-0.084	-0.174	-0.215	-0.157	-0.077	-0.077	-0.072	-0.070	-0.070	-0.055
10.944	0.130	0.109	0.035	-0.061	-0.170	-0.223	-0.171	-0.079	-0.070	-0.070	-0.065	-0.070	-0.047
11.444	0.106	0.097	0.029	-0.068	-0.169	-0.213	-0.152	-0.067	-0.073	-0.073	-0.078	-0.084	-0.082
11.944	0.106	0.079	0.013	-0.090	-0.187	-0.183	-0.131	-0.071	-0.068	-0.063	-0.072	-0.079	-0.077
12.444	0.109	0.085	0.012	-0.085	-0.174	-0.196	-0.132	-0.060	-0.055	-0.053	-0.057	-0.070	-0.060
12.944	0.151	0.129	0.050	-0.024	-0.164	-0.198	-0.151	-0.059	-0.040	-0.008	-0.060	-0.022	-0.045
13.444	0.128	0.114	0.058	-0.046	-0.115	-0.126	-0.089	0.023	0.018	0.010	-0.005	-0.003	-0.000
13.944	0.188	0.107	0.026	-0.078	-0.169	-0.116	-0.069	-0.014	-0.013	-0.017	-0.010	-0.030	-0.020
14.444	0.189	0.147	0.074	-0.029	-0.121	-0.148	-0.095	-0.029	-0.028	-0.029	-0.023	-0.032	-0.020
14.944	0.190	0.187	0.121	0.020	-0.073	-0.180	-0.131	-0.045	-0.042	-0.042	-0.035	-0.047	-0.037
15.444	0.167	0.156	0.088	-0.015	-0.105	-0.196	-0.146	-0.067	-0.065	-0.067	-0.052	-0.065	-0.054
15.944	0.158	0.138	0.066	-0.041	-0.135	-0.217	-0.152	-0.087	-0.082	-0.082	-0.072	-0.079	-0.074
16.444	0.151	0.128	0.059	-0.044	-0.132	-0.247	-0.187	-0.097	-0.090	-0.089	-0.092	-0.082	-0.082
16.944	0.129	0.120	0.046	-0.054	-0.150	-0.254	-0.186	-0.091	-0.084	-0.082	-0.094	-0.075	-0.060
17.444	0.113	0.095	0.027	-0.078	-0.175	-0.223	-0.154	-0.064	-0.064	-0.077	-0.082	-0.064	-0.065
17.944	0.134	0.104	0.017	-0.088	-0.185	-0.212	-0.126	-0.079	-0.082	-0.097	-0.080	-0.084	-0.070
18.444	0.111	0.095	0.022	-0.081	-0.182	-0.227	-0.142	-0.096	-0.095	-0.107	-0.102	-0.094	-0.059
18.944	0.103	0.091	0.013	-0.085	-0.190	-0.227	-0.136	-0.097	-0.095	-0.100	-0.099	-0.084	-0.082
19.444	0.109	0.087	0.010	-0.083	-0.174	-0.233	-0.144	-0.084	-0.085	-0.104	-0.100	-0.087	-0.079
19.944	0.096	0.094	0.028	-0.061	-0.155	-0.198	-0.119	-0.081	-0.084	-0.095	-0.092	-0.088	-0.084
20.444	0.102	0.084	0.008	-0.083	-0.167	-0.195	-0.131	-0.081	-0.077	-0.095	-0.095	-0.082	-0.084
20.944	0.115	0.076	0.003	-0.081	-0.172	-0.185	-0.122	-0.084	-0.082	-0.095	-0.090	-0.080	-0.082
21.444	0.111	0.079	0.012	-0.084	-0.180	-0.212	-0.119	-0.062	-0.038	-0.037	-0.043	-0.005	0.027

Table 1.30 Experimental pressure coefficients c_p for $\alpha = 20^\circ$, $M_\infty = 1.2$ and $Re_D = 6.3 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
x/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	1.125	0.470	0.376	0.314	0.163	0.555	0.095	0.298	0.228	0.203	0.210	0.069	0.100
0.482	0.889	0.863	0.779	0.653	0.505	0.340	0.192	0.088	0.017	-0.011	-0.028	-0.001	0.001
0.731	0.675	0.651	0.571	0.450	0.311	0.145	0.020	-0.077	-0.147	-0.166	-0.157	-0.139	-0.132
0.980	0.447	0.426	0.352	0.244	0.112	-0.033	-0.160	-0.250	-0.301	-0.308	-0.278	-0.253	-0.228
1.238	0.238	0.218	0.148	0.045	-0.074	-0.204	-0.315	-0.396	-0.434	-0.426	-0.383	-0.361	-0.342
1.500	0.121	0.109	0.039	-0.055	-0.164	-0.284	-0.395	-0.468	-0.499	-0.475	-0.414	-0.377	-0.355
1.944	0.148	0.132	0.053	-0.052	-0.177	-0.318	-0.433	-0.511	-0.529	-0.456	-0.293	-0.197	-0.163
2.444	0.105	0.115	0.050	-0.070	0.161	-0.355	-0.479	-0.570	-0.508	-0.296	-0.216	-0.076	-0.017
2.944	0.115	0.095	0.023	-0.102	-0.236	-0.396	-0.495	-0.514	-0.354	-0.317	-0.222	0.060	0.100
3.444	0.105	0.075	0.005	-0.135	-0.265	-0.414	-0.510	-0.297	-0.323	-0.425	-0.315	-0.024	0.017
3.944	0.097	0.072	-0.008	-0.133	-0.276	-0.442	-0.510	-0.222	-0.252	-0.472	-0.327	-0.024	0.017
4.444	0.126	0.080	-0.005	-0.130	-0.289	-0.417	-0.172	-0.160	-0.199	-0.317	-0.281	-0.021	-0.008
4.944	0.087	0.068	-0.015	-0.145	-0.289	-0.265	-0.172	-0.145	-0.162	-0.141	-0.266	-0.092	-0.052
5.444	0.082	0.048	-0.046	-0.149	-0.177	-0.262	-0.191	-0.151	-0.125	-0.095	-0.145	-0.120	-0.095
5.944	0.077	0.079	0.017	-0.086	-0.202	-0.281	-0.207	-0.129	-0.110	-0.101	-0.114	-0.135	-0.120
6.444	0.129	0.118	0.031	-0.080	-0.198	-0.268	-0.210	-0.126	-0.116	-0.119	-0.120	-0.139	-0.126
6.944	0.139	0.110	0.013	-0.096	-0.205	-0.253	-0.222	-0.117	-0.098	-0.110	-0.110	-0.113	-0.117
7.444	0.139	0.110	0.013	-0.096	-0.205	-0.253	-0.173	-0.117	-0.095	-0.107	-0.095	-0.099	-0.009
7.944	0.119	0.106	0.033	-0.068	-0.183	-0.241	-0.197	-0.095	-0.092	-0.091	-0.095	-0.092	-0.089
8.444	0.138	0.108	0.023	-0.086	-0.186	-0.241	-0.163	-0.085	-0.085	-0.085	-0.093	-0.092	-0.089
8.944	0.112	0.090	0.023	-0.071	-0.161	-0.241	-0.176	-0.083	-0.089	-0.091	-0.086	-0.081	-0.089
9.444	0.131	0.107	0.034	-0.068	-0.167	-0.228	-0.148	-0.089	-0.089	-0.085	-0.092	-0.092	-0.089
9.944	0.136	0.116	0.038	-0.068	-0.167	-0.238	-0.176	-0.080	-0.082	-0.082	-0.076	-0.080	-0.082
10.444	0.143	0.125	0.033	-0.067	-0.167	-0.206	-0.143	-0.080	-0.082	-0.074	-0.075	-0.071	-0.070
10.944	0.149	0.108	0.046	-0.056	-0.135	-0.226	-0.170	-0.086	-0.080	-0.078	-0.081	-0.070	-0.062
11.444	0.119	0.101	0.026	-0.070	-0.172	-0.228	-0.162	-0.064	-0.036	-0.011	-0.060	-0.009	-0.068
11.944	0.140	0.126	0.063	-0.027	-0.122	-0.155	-0.063	-0.011	-0.023	-0.038	-0.011	-0.047	-0.012
12.444	0.150	0.123	0.048	-0.056	-0.146	-0.179	-0.121	-0.052	-0.060	-0.063	-0.057	-0.057	-0.054
12.944	0.183	0.164	0.096	0.004	-0.096	-0.207	-0.148	-0.068	-0.068	-0.071	-0.070	-0.076	-0.076
13.444	0.150	0.146	0.084	-0.014	-0.115	-0.230	-0.175	-0.088	-0.084	-0.074	-0.086	-0.083	-0.086
13.944	0.143	0.133	0.063	-0.046	-0.134	-0.249	-0.180	-0.081	-0.077	-0.071	-0.068	-0.066	-0.088
14.444	0.128	0.113	0.046	-0.063	-0.151	-0.257	-0.165	-0.079	-0.081	-0.080	-0.076	-0.073	-0.080
14.944	0.112	0.093	0.030	-0.080	-0.168	-0.266	-0.140	-0.076	-0.085	-0.089	-0.084	-0.081	-0.067
15.444	0.108	0.089	0.002	-0.109	-0.196	-0.178	-0.122	-0.080	-0.093	-0.100	-0.092	-0.092	-0.084
15.944	0.117	0.093	0.027	-0.073	-0.149	-0.202	-0.108	-0.072	-0.079	-0.090	-0.097	-0.095	-0.092
16.444	0.128	0.100	0.027	-0.060	-0.181	-0.182	-0.131	-0.073	-0.066	-0.074	-0.092	-0.085	-0.084
16.944	0.144	0.106	0.038	-0.049	-0.120	-0.162	-0.084	-0.040	-0.059	-0.055	-0.039	-0.054	-0.046
17.444	0.161	0.148	0.084	-0.022	-0.123	-0.202	-0.132	-0.078	-0.077	-0.081	-0.070	-0.065	-0.063
17.944	0.141	0.122	0.054	-0.054	-0.135	-0.212	-0.153	-0.092	-0.097	-0.098	-0.089	-0.084	-0.086
18.444	0.121	0.107	0.038	-0.059	-0.151	-0.265	-0.175	-0.102	-0.081	-0.085	-0.076	-0.073	-0.068
18.944	0.100	0.084	0.023	-0.080	-0.175	-0.234	-0.103	-0.081	-0.095	-0.101	-0.094	-0.092	-0.089
19.444	0.082	0.061	-0.008	-0.111	-0.186	-0.199	-0.124	-0.083	-0.073	-0.092	-0.095	-0.086	-0.089
19.944	0.110	0.111	0.036	-0.064	-0.165	-0.167	-0.108	-0.064	-0.057	-0.063	-0.063	-0.090	-0.044
20.444	0.121	0.095	0.023	-0.072	-0.173	-0.212	-0.148	-0.075	-0.063	-0.073	-0.076	-0.081	-0.081
20.944	0.126	0.117	0.053	-0.027	-0.135	-0.206	-0.143	-0.091	-0.081	-0.079	-0.083	-0.067	-0.067
21.444	0.140	0.109	0.036	-0.062	-0.173	-0.214	-0.142	-0.065	-0.054	-0.061	-0.047	-0.035	0.020

Table 1.31 Experimental pressure coefficients c_p for α 25°, $M_\infty = 0.7$ and $Re_D = 5.2 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.446	0.395	0.263	0.096	0.275	0.016	-0.329	-0.355	-0.412	-0.392	-0.302	-0.223	-0.119
0.482	0.760	0.707	0.559	0.343	0.082	-0.167	-0.392	-0.527	-0.579	-0.554	-0.506	-0.441	-0.427
0.731	0.548	0.495	0.352	0.141	-0.114	-0.355	-0.549	-0.655	-0.667	-0.612	-0.553	-0.452	-0.438
0.980	0.330	0.280	0.143	-0.058	-0.292	-0.517	-0.690	-0.762	-0.725	-0.654	-0.517	-0.457	-0.428
1.238	0.171	0.129	-0.010	-0.199	-0.407	-0.606	-0.737	-0.737	-0.672	-0.627	-0.370	-0.301	-0.261
1.500	0.072	0.032	-0.095	-0.278	-0.470	-0.638	-0.732	-0.678	-0.589	-0.381	-0.261	-0.171	-0.156
1.944	0.164	0.119	-0.005	-0.189	-0.381	-0.476	-0.606	-0.549	-0.381	-0.219	-0.130	-0.020	0.032
2.444	0.180	0.140	0.020	-0.180	-0.370	-0.528	-0.580	-0.491	-0.276	-0.177	-0.172	-0.067	0.047
2.944	0.187	0.141	0.021	-0.173	-0.360	-0.502	-0.535	-0.424	-0.198	-0.188	-0.298	-0.223	-0.119
3.444	0.195	0.150	0.025	-0.160	-0.349	-0.485	-0.502	-0.356	-0.167	-0.157	-0.266	-0.203	0.011
3.944	0.202	0.152	0.026	-0.152	-0.334	-0.465	-0.502	-0.282	-0.151	-0.120	-0.188	-0.202	0.011
4.444	0.204	0.152	0.026	-0.147	-0.328	-0.455	-0.424	-0.256	-0.146	-0.115	-0.120	-0.223	-0.067
4.944	0.204	0.154	0.032	-0.147	-0.323	-0.444	-0.403	-0.251	-0.146	-0.120	-0.109	-0.171	-0.088
5.444	0.206	0.155	0.032	-0.141	-0.318	-0.439	-0.388	-0.256	-0.141	-0.110	-0.109	-0.135	-0.093
5.944	0.205	0.156	0.037	-0.136	-0.313	-0.434	-0.378	-0.240	-0.135	-0.110	-0.104	-0.124	-0.093
6.444	0.205	0.158	0.037	-0.131	-0.312	-0.423	-0.372	-0.219	-0.125	-0.105	-0.099	-0.114	-0.078
6.944	0.206	0.161	0.037	-0.126	-0.302	-0.418	-0.367	-0.204	-0.120	-0.099	-0.099	-0.119	-0.067
7.444	0.206	0.161	0.037	-0.126	-0.302	-0.418	-0.356	-0.204	-0.109	-0.094	-0.104	-0.119	-0.057
7.944	0.208	0.166	0.037	-0.121	-0.292	-0.402	-0.351	-0.177	-0.104	-0.094	-0.120	-0.113	-0.052
8.444	0.205	0.164	0.037	-0.126	-0.297	-0.397	-0.351	-0.177	-0.099	-0.094	-0.099	-0.114	-0.062
8.944	0.202	0.162	0.037	-0.121	-0.297	-0.392	-0.344	-0.162	-0.094	-0.094	-0.104	-0.104	-0.067
9.444	0.201	0.159	0.032	-0.126	-0.297	-0.386	-0.344	-0.156	-0.099	-0.105	-0.109	-0.104	-0.078
9.944	0.204	0.162	0.037	-0.121	-0.291	-0.375	-0.328	-0.141	-0.094	-0.099	-0.104	-0.089	-0.073
10.444	0.206	0.164	0.040	-0.120	-0.280	-0.369	-0.319	-0.122	-0.092	-0.098	-0.106	-0.089	-0.073
10.944	0.206	0.166	0.037	-0.115	-0.280	-0.362	-0.305	-0.103	-0.092	-0.098	-0.106	-0.100	-0.031
11.444	0.203	0.161	0.034	-0.117	-0.260	-0.354	-0.297	-0.100	-0.100	-0.103	-0.114	-0.112	-0.092
11.944	0.205	0.162	0.037	-0.112	-0.267	-0.343	-0.270	-0.087	-0.098	-0.101	-0.116	-0.110	-0.089
12.444	0.204	0.161	0.041	-0.112	-0.264	-0.338	-0.251	-0.090	-0.097	-0.098	-0.116	-0.113	-0.092
12.944	0.207	0.165	0.045	-0.104	-0.251	-0.324	-0.227	-0.084	-0.098	-0.106	-0.116	-0.108	-0.087
13.444	0.204	0.159	0.040	-0.109	-0.245	-0.316	-0.206	-0.082	-0.100	-0.117	-0.108	-0.113	-0.092
13.944	0.199	0.154	0.037	-0.109	-0.240	-0.316	-0.192	-0.087	-0.103	-0.111	-0.106	-0.110	-0.097
14.444	0.200	0.155	0.040	-0.102	-0.232	-0.313	-0.185	-0.092	-0.104	-0.105	-0.103	-0.115	-0.095
14.944	0.200	0.156	0.044	-0.096	-0.224	-0.310	-0.173	-0.098	-0.106	-0.098	-0.100	-0.119	-0.095
15.444	0.199	0.156	0.043	-0.093	-0.219	-0.300	-0.173	-0.106	-0.106	-0.093	-0.087	-0.116	-0.095
15.944	0.203	0.157	0.049	-0.085	-0.216	-0.300	-0.176	-0.114	-0.106	-0.090	-0.079	-0.116	-0.095
16.444	0.196	0.152	0.043	-0.093	-0.221	-0.308	-0.195	-0.128	-0.103	-0.087	-0.079	-0.118	-0.097
16.944	0.196	0.153	0.044	-0.090	-0.221	-0.310	-0.214	-0.146	-0.098	-0.085	-0.071	-0.116	-0.095
17.444	0.201	0.159	0.050	-0.085	-0.221	-0.311	-0.234	-0.154	-0.095	-0.082	-0.071	-0.111	-0.092
17.944	0.200	0.161	0.054	-0.082	-0.221	-0.313	-0.252	-0.165	-0.089	-0.082	-0.076	-0.105	-0.089
18.444	0.198	0.159	0.050	-0.087	-0.229	-0.319	-0.276	-0.165	-0.087	-0.082	-0.076	-0.102	-0.087
18.944	0.200	0.164	0.055	-0.088	-0.229	-0.317	-0.293	-0.165	-0.081	-0.079	-0.063	-0.095	-0.081
19.444	0.202	0.166	0.057	-0.085	-0.229	-0.313	-0.309	-0.152	-0.079	-0.082	-0.063	-0.089	-0.079
19.944	0.210	0.173	0.063	-0.085	-0.235	-0.310	-0.311	-0.138	-0.071	-0.077	-0.068	-0.078	-0.068
20.444	0.220	0.180	0.075	-0.077	-0.226	-0.297	-0.300	-0.119	-0.060	-0.071	-0.065	-0.063	-0.057
20.944	0.218	0.184	0.078	-0.071	-0.213	-0.278	-0.291	-0.095	-0.049	-0.060	-0.057	-0.057	-0.041
21.444	0.214	0.192	0.088	-0.055	-0.197	-0.237	-0.248	-0.063	-0.030	-0.036	-0.041	-0.030	0.258

Table 1.32 Experimental pressure coefficients c_p for $\alpha = 25°$, $M_\infty = 0.8$ and $Re_D = 5.6 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.470	0.408	0.272	0.390	0.340	0.080	-0.287	-0.296	-0.364	-0.352	-0.046	-0.221	-0.125
0.482	0.788	0.736	0.597	0.182	0.135	-0.116	-0.344	-0.494	-0.570	-0.561	-0.523	-0.467	-0.457
0.731	0.547	0.519	0.381	-0.037	-0.076	-0.322	-0.528	-0.661	-0.714	-0.670	-0.615	-0.519	-0.501
0.980	0.337	0.291	0.159	-0.209	-0.269	-0.506	-0.717	-0.827	-0.845	-0.771	-0.689	-0.568	-0.536
1.238	0.158	0.113	-0.015	-0.315	-0.422	-0.648	-0.840	-0.823	-0.806	-0.631	-0.413	-0.318	-0.299
1.500	0.039	-0.002	-0.129	-0.205	-0.515	-0.718	-0.814	-0.753	-0.601	-0.382	-0.264	-0.177	-0.159
1.944	0.148	0.104	-0.019	-0.190	-0.400	-0.516	-0.634	-0.538	-0.374	-0.212	-0.137	-0.011	0.035
2.444	0.175	0.135	0.010	-0.174	-0.378	-0.542	-0.599	-0.481	-0.260	-0.190	-0.194	-0.063	0.043
2.944	0.181	0.137	0.016	0.121	-0.357	-0.507	-0.545	-0.392	-0.199	-0.212	-0.308	-0.221	-0.124
3.444	0.195	0.145	0.025	-0.143	-0.343	-0.481	-0.493	-0.305	-0.177	-0.190	-0.347	-0.204	-0.002
3.944	0.199	0.151	0.029	-0.143	-0.322	-0.455	-0.493	-0.235	-0.159	-0.190	-0.264	-0.204	-0.002
4.444	0.201	0.153	0.033	-0.139	-0.317	-0.438	-0.409	-0.208	-0.164	-0.142	-0.155	-0.243	-0.094
4.944	0.203	0.154	0.040	-0.139	-0.308	-0.433	-0.397	-0.213	-0.164	-0.137	-0.124	-0.199	-0.111
5.444	0.204	0.156	0.034	-0.139	-0.300	-0.424	-0.379	-0.208	-0.150	-0.124	-0.124	-0.160	-0.111
5.944	0.205	0.157	0.036	-0.130	-0.300	-0.424	-0.366	-0.199	-0.146	-0.124	-0.124	-0.146	-0.107
6.444	0.204	0.162	0.036	-0.125	-0.295	-0.411	-0.357	-0.177	-0.142	-0.124	-0.120	-0.133	-0.094
6.944	0.205	0.166	0.039	-0.125	-0.291	-0.402	-0.352	-0.169	-0.137	-0.120	-0.120	-0.133	-0.085
7.444	0.205	0.166	0.039	-0.125	-0.291	-0.402	-0.339	-0.169	-0.129	-0.115	-0.124	-0.133	-0.072
7.944	0.207	0.168	0.044	-0.125	-0.283	-0.380	-0.335	-0.151	-0.124	-0.115	-0.133	-0.138	-0.072
8.444	0.203	0.166	0.041	-0.121	-0.291	-0.376	-0.335	-0.151	-0.120	-0.115	-0.120	-0.138	-0.080
8.944	0.201	0.162	0.042	-0.126	-0.287	-0.367	-0.331	-0.142	-0.115	-0.111	-0.124	-0.133	-0.089
9.444	0.199	0.160	0.038	-0.121	-0.287	-0.371	-0.326	-0.142	-0.115	-0.120	-0.133	-0.142	-0.102
9.944	0.201	0.162	0.043	-0.116	-0.282	-0.358	-0.313	-0.129	-0.107	-0.115	-0.124	-0.120	-0.093
10.444	0.206	0.163	0.053	-0.110	-0.269	-0.349	-0.299	-0.118	-0.100	-0.111	2.254	-0.109	-0.093
10.944	0.206	0.165	0.048	-0.112	-0.265	-0.338	-0.284	-0.107	-0.097	-0.109	-0.120	-0.109	-0.102
11.444	0.202	0.160	0.047	-0.105	-0.262	-0.335	-0.276	-0.103	-0.100	-0.111	-0.122	-0.116	-0.111
11.944	0.204	0.162	0.051	-0.103	-0.251	-0.322	-0.251	-0.091	-0.093	-0.104	-0.120	-0.111	-0.109
12.444	0.202	0.160	0.050	-0.094	-0.247	-0.320	-0.234	-0.087	-0.093	-0.102	-0.118	-0.109	-0.109
12.944	0.207	0.164	0.053	-0.096	-0.233	-0.308	-0.209	-0.078	-0.091	-0.104	-0.113	-0.105	-0.104
13.444	0.204	0.157	0.047	-0.094	-0.231	-0.304	-0.191	-0.078	-0.091	-0.106	-0.109	-0.107	-0.109
13.944	0.197	0.153	0.044	-0.085	-0.231	-0.306	-0.181	-0.080	-0.093	-0.104	-0.106	-0.111	-0.113
14.444	0.199	0.154	0.046	-0.065	-0.227	-0.304	-0.175	-0.083	-0.094	-0.101	-0.104	-0.110	-0.114
14.944	0.200	0.155	0.048	-0.078	-0.224	-0.302	-0.168	-0.087	-0.095	-0.097	-0.102	-0.107	-0.115
15.444	0.199	0.154	0.047	-0.076	-0.222	-0.300	-0.168	-0.096	-0.097	-0.097	-0.095	-0.109	-0.118
15.944	0.203	0.156	0.051	-0.085	-0.222	-0.298	-0.175	-0.105	-0.097	-0.095	-0.091	-0.109	-0.118
16.444	0.196	0.151	0.045	-0.087	-0.233	-0.307	-0.188	-0.121	-0.102	-0.095	-0.091	-0.114	-0.120
16.944	0.195	0.152	0.047	-0.083	-0.235	-0.307	-0.206	-0.134	-0.104	-0.095	-0.084	-0.114	-0.118
17.444	0.201	0.158	0.053	-0.083	-0.238	-0.309	-0.224	-0.148	-0.102	-0.093	-0.082	-0.111	-0.113
17.944	0.200	0.160	0.057	-0.092	-0.235	-0.307	-0.238	-0.157	-0.102	-0.091	-0.084	-0.109	-0.111
18.444	0.198	0.159	0.056	-0.092	-0.244	-0.316	-0.263	-0.168	-0.100	-0.091	-0.084	-0.109	-0.106
18.944	0.201	0.163	0.060	-0.092	-0.242	-0.311	-0.278	-0.175	-0.095	-0.088	-0.075	-0.102	-0.102
19.444	0.203	0.166	0.067	-0.094	-0.240	-0.304	-0.294	-0.164	-0.088	-0.086	-0.070	-0.095	-0.102
19.944	0.212	0.174	0.074	-0.080	-0.242	-0.309	-0.299	-0.154	-0.079	-0.077	-0.066	-0.082	-0.093
20.444	0.224	0.181	0.087	-0.076	-0.229	-0.293	-0.294	-0.132	-0.066	-0.066	-0.061	-0.068	-0.084
20.944	0.222	0.186	0.091	-0.060	-0.208	-0.277	-0.274	-0.105	-0.052	-0.055	-0.050	-0.055	-0.066
21.444	0.216	0.192	0.102	0.033	-0.193	-0.225	-0.233	-0.062	-0.025	-0.028	-0.023	-0.019	0.247

Table 1.33 Experimental pressure coefficients c_p for $\alpha = 25^o$, $M_\infty = 0.9$ and $Re_D = 5.9 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.470	0.360	0.285	0.144	0.423	0.181	-0.210	-0.194	-0.267	-0.259	-0.290	-0.178	-0.152
0.482	0.634	0.785	0.654	0.463	0.215	-0.014	-0.241	-0.391	-0.479	-0.481	-0.450	-0.412	-0.398
0.731	0.611	0.569	0.438	0.256	0.002	-0.229	-0.429	-0.575	-0.655	-0.642	-0.600	-0.527	-0.505
0.980	0.371	0.328	0.208	0.029	-0.202	-0.421	-0.625	-0.767	-0.832	-0.792	-0.742	-0.654	-0.630
1.238	0.170	0.127	0.013	-0.164	-0.375	-0.591	-0.791	-0.915	-0.968	-0.911	-0.831	-0.746	-0.718
1.500	0.010	-0.033	-0.149	-0.319	-0.521	-0.726	-0.863	-0.792	-0.950	-0.813	-0.640	-0.313	-0.329
1.944	0.108	0.066	-0.056	-0.242	-0.471	-0.653	-0.950	-0.461	-0.420	-0.455	-0.113	0.052	0.008
2.444	0.155	0.115	-0.005	-0.190	-0.467	-0.625	-0.328	-0.318	-0.298	-0.263	-0.198	0.017	0.053
2.944	0.175	0.132	0.021	-0.157	-0.352	-0.532	-0.340	-0.233	-0.217	-0.260	-0.286	-0.176	-0.148
3.444	0.195	0.259	0.025	-0.145	-0.326	-0.467	-0.363	-0.202	-0.213	-0.206	-0.279	-0.194	-0.117
3.944	0.203	0.155	0.034	-0.134	-0.310	-0.436	-0.363	-0.187	-0.194	-0.202	-0.240	-0.194	-0.117
4.444	0.205	0.158	0.035	-0.134	-0.314	-0.428	-0.313	-0.148	-0.190	-0.198	-0.233	-0.226	-0.148
4.944	0.207	0.158	0.040	-0.126	-0.306	-0.416	-0.290	-0.164	-0.190	-0.194	-0.217	-0.220	-0.136
5.444	0.210	0.159	0.041	-0.122	-0.303	-0.412	-0.263	-0.148	-0.186	-0.182	-0.206	-0.205	-0.113
5.944	0.209	0.169	0.041	-0.126	-0.299	-0.409	-0.240	-0.140	-0.186	-0.175	-0.198	-0.197	-0.106
6.444	0.209	0.166	0.041	-0.122	-0.295	-0.393	-0.217	-0.137	-0.182	-0.175	-0.198	-0.193	-0.106
6.944	0.210	0.170	0.044	-0.118	-0.295	-0.389	-0.206	-0.125	-0.179	-0.171	-0.198	-0.209	-0.113
7.444	0.210	0.170	0.044	-0.118	-0.295	-0.389	-0.186	-0.125	-0.171	-0.167	-0.202	-0.205	-0.114
7.944	0.210	0.172	0.048	-0.107	-0.280	-0.359	-0.186	-0.114	-0.163	-0.163	-0.194	-0.197	-0.117
8.444	0.205	0.168	0.042	-0.107	-0.287	-0.366	-0.194	-0.114	-0.155	-0.156	-0.171	-0.189	-0.125
8.944	0.204	0.165	0.044	-0.107	-0.283	-0.355	-0.206	-0.110	-0.144	-0.144	-0.160	-0.174	-0.125
9.444	0.202	0.161	0.039	-0.114	-0.279	-0.356	-0.225	-0.110	-0.133	-0.140	-0.148	-0.170	-0.137
9.944	0.205	0.163	0.045	-0.099	-0.272	-0.344	-0.245	-0.110	-0.113	-0.125	-0.133	-0.147	-0.129
10.444	0.207	0.166	0.054	-0.099	-0.256	-0.332	-0.271	-0.108	-0.102	-0.109	-0.118	-0.129	-0.120
10.944	0.207	0.170	0.053	-0.093	-0.248	-0.317	-0.301	-0.108	-0.096	-0.106	-0.108	-0.127	-0.126
11.444	0.203	0.169	0.060	-0.097	-0.244	-0.320	-0.340	-0.114	-0.092	-0.106	-0.111	-0.129	-0.136
11.944	0.205	0.169	0.055	-0.091	-0.231	-0.312	-0.358	-0.110	-0.084	-0.100	-0.114	-0.123	-0.134
12.444	0.203	0.164	0.053	-0.091	-0.227	-0.312	-0.376	-0.112	-0.088	-0.100	-0.120	-0.123	-0.134
12.944	0.209	0.169	0.056	-0.085	-0.215	-0.307	-0.383	-0.114	-0.099	-0.104	-0.126	-0.122	-0.128
13.444	0.204	0.164	0.053	-0.093	-0.215	-0.304	-0.387	-0.114	-0.102	-0.112	-0.132	-0.127	-0.134
13.944	0.198	0.158	0.048	-0.095	-0.221	-0.312	-0.379	-0.116	-0.116	-0.122	-0.146	-0.133	-0.144
14.444	0.199	0.160	0.051	-0.091	-0.223	-0.316	0.005	-0.118	-0.131	-0.132	-0.155	-0.138	-0.140
14.944	0.200	0.162	0.054	-0.087	-0.225	-0.320	-0.329	-0.120	-0.145	-0.141	-0.165	-0.137	-0.135
15.444	0.197	0.162	0.053	-0.087	-0.227	-0.319	-0.297	-0.120	-0.159	-0.155	-0.179	-0.137	-0.135
15.944	0.202	0.169	0.056	-0.087	-0.235	-0.321	-0.274	-0.118	-0.169	-0.165	-0.185	-0.139	-0.131
16.444	0.196	0.158	0.049	-0.095	-0.251	-0.327	-0.256	-0.118	-0.179	-0.175	-0.191	-0.145	-0.131
16.944	0.197	0.159	0.049	-0.097	-0.251	-0.323	-0.237	-0.110	-0.183	-0.175	-0.187	-0.145	-0.125
17.444	0.204	0.166	0.055	-0.093	-0.257	-0.321	-0.227	-0.104	-0.175	-0.171	-0.175	-0.145	-0.121
17.944	0.202	0.167	0.058	-0.091	-0.253	-0.311	-0.217	-0.098	-0.165	-0.163	-0.163	-0.143	-0.120
18.444	0.201	0.166	0.056	-0.097	-0.261	-0.311	-0.225	-0.090	-0.149	-0.151	-0.146	-0.143	-0.118
18.944	0.206	0.170	0.062	-0.089	-0.251	-0.297	-0.224	-0.034	-0.131	-0.137	-0.118	-0.135	-0.114
19.444	0.208	0.173	0.068	-0.081	-0.245	-0.281	-0.234	-0.074	-0.112	-0.120	-0.096	-0.123	-0.108
19.944	0.220	0.184	0.074	-0.067	-0.243	-0.284	-0.246	-0.055	-0.090	-0.098	-0.082	-0.101	-0.092
20.444	0.234	0.198	0.091	-0.047	-0.221	-0.256	-0.248	-0.051	-0.062	-0.072	-0.067	-0.080	-0.076
20.944	0.233	0.202	0.096	-0.043	-0.191	-0.235	-0.235	-0.033	-0.037	-0.044	-0.047	-0.058	-0.051
21.444	0.232	0.201	0.109	-0.013	-0.168	-0.187	-0.205	-0.003	-0.001	-0.005	-0.009	-0.011	0.263

Table 1.34 Experimental pressure coefficients c_p for $\alpha = 25^o$, $M_\infty = 0.95$ and $Re_D = 6.0 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.466	0.345	0.270	0.128	0.469	0.238	-0.158	-0.125	-0.201	-0.198	-0.147	0.002	-0.016
0.482	0.867	0.821	0.695	0.510	0.265	0.040	-0.172	-0.319	-0.405	-0.408	-0.377	-0.343	-0.333
0.731	0.646	0.602	0.480	0.307	0.054	-0.165	-0.354	-0.497	-0.580	-0.572	-0.534	-0.471	-0.448
0.980	0.410	0.368	0.252	0.080	-0.144	-0.355	-0.551	-0.684	-0.754	-0.724	-0.672	-0.594	-0.567
1.238	0.204	0.164	0.052	-0.111	-0.326	-0.522	-0.711	-0.840	-0.896	-0.847	-0.781	-0.689	-0.669
1.500	0.028	-0.009	-0.122	-0.280	-0.479	-0.665	-0.835	-0.950	-0.995	-0.902	-0.781	-0.638	-0.614
1.944	0.110	0.071	-0.042	-0.218	-0.442	-0.628	-0.853	-1.001	-0.991	-0.630	-0.446	-0.190	-0.096
2.444	0.175	0.055	-0.055	-0.240	-0.482	-0.712	-0.405	-0.569	-0.602	-0.593	-0.268	0.089	0.138
2.944	0.210	0.041	-0.082	-0.280	-0.497	-0.723	-0.159	-0.282	-0.296	-0.637	-0.144	0.002	-0.012
3.444	0.225	0.089	-0.005	-0.120	-0.253	-0.307	-0.231	-0.199	-0.183	-0.285	-0.220	-0.001	0.037
3.944	0.228	0.182	0.078	-0.060	-0.271	-0.380	-0.231	-0.213	-0.147	-0.143	-0.278	-0.001	0.037
4.444	0.221	0.175	0.062	-0.097	-0.289	-0.413	-0.336	-0.149	-0.154	-0.132	-0.147	-0.176	-0.128
4.944	0.215	0.172	0.065	-0.112	-0.282	-0.395	-0.322	-0.155	-0.132	-0.154	-0.138	-0.161	-0.165
5.444	0.217	0.170	0.061	-0.104	-0.271	-0.369	-0.300	-0.144	-0.121	-0.147	-0.147	-0.147	-0.158
5.944	0.215	0.170	0.052	-0.112	-0.271	-0.387	-0.293	-0.144	-0.118	-0.136	-0.140	-0.143	-0.147
6.444	0.213	0.174	0.050	-0.104	-0.260	-0.387	-0.282	-0.140	-0.114	-0.129	-0.129	-0.132	-0.128
6.944	0.214	0.176	0.052	-0.101	-0.260	-0.362	-0.271	-0.133	-0.114	-0.121	-0.122	-0.121	-0.121
7.444	0.214	0.176	0.052	-0.101	-0.260	-0.362	-0.256	-0.133	-0.103	-0.114	-0.118	-0.110	-0.110
7.944	0.215	0.178	0.057	-0.090	-0.249	-0.347	-0.249	-0.126	-0.107	-0.110	-0.122	-0.107	-0.103
8.444	0.209	0.174	0.052	-0.097	-0.253	-0.355	-0.245	-0.126	-0.103	-0.110	-0.118	-0.110	-0.107
8.944	0.207	0.171	0.056	-0.097	-0.253	-0.351	-0.242	-0.118	-0.103	-0.110	-0.114	-0.110	-0.107
9.444	0.205	0.165	0.052	-0.100	-0.257	-0.355	-0.246	-0.122	-0.107	-0.114	-0.114	-0.114	-0.114
9.944	0.206	0.166	0.056	-0.093	-0.253	-0.355	-0.235	-0.122	-0.107	-0.114	-0.111	-0.110	-0.107
10.444	0.209	0.168	0.059	-0.093	-0.241	-0.342	-0.225	-0.115	-0.105	-0.109	-0.107	-0.104	-0.104
10.944	0.209	0.170	0.059	-0.091	-0.241	-0.333	-0.214	-0.113	-0.107	-0.111	-0.109	-0.107	-0.108
11.444	0.203	0.163	0.054	-0.097	-0.244	-0.340	-0.214	-0.115	-0.115	-0.115	-0.113	-0.115	-0.113
11.944	0.206	0.165	0.057	-0.091	-0.235	-0.338	-0.205	-0.111	-0.115	-0.115	-0.109	-0.111	-0.109
12.444	0.204	0.163	0.055	-0.093	-0.243	-0.348	-0.203	-0.111	-0.115	-0.114	-0.111	-0.113	-0.110
12.944	0.210	0.170	0.059	-0.087	-0.233	-0.342	-0.197	-0.111	-0.115	-0.114	-0.109	-0.107	-0.104
13.444	0.206	0.169	0.053	-0.093	-0.235	-0.344	-0.196	-0.111	-0.113	-0.115	-0.109	-0.111	-0.108
13.944	0.200	0.159	0.047	-0.099	-0.243	-0.346	-0.203	-0.111	-0.109	-0.114	-0.109	-0.116	-0.109
14.444	0.202	0.161	0.050	-0.093	-0.243	-0.334	-0.200	-0.111	-0.112	-0.113	-0.108	-0.115	-0.105
14.944	0.205	0.162	0.052	-0.087	-0.244	-0.323	-0.205	-0.111	-0.115	-0.111	-0.107	-0.115	-0.105
15.444	0.200	0.163	0.051	-0.089	-0.243	-0.327	-0.205	-0.111	-0.115	-0.109	-0.106	-0.115	-0.103
15.944	0.206	0.166	0.055	-0.086	-0.239	-0.329	-0.205	-0.110	-0.111	-0.105	-0.102	-0.115	-0.101
16.444	0.198	0.160	0.048	-0.093	-0.244	-0.340	-0.212	-0.108	-0.107	-0.105	-0.102	-0.116	-0.103
16.944	0.198	0.159	0.050	-0.091	-0.241	-0.331	-0.216	-0.106	-0.103	-0.101	-0.100	-0.113	-0.098
17.444	0.205	0.166	0.057	-0.086	-0.235	-0.308	-0.214	-0.102	-0.098	-0.096	-0.094	-0.105	-0.094
17.944	0.203	0.168	0.060	-0.080	-0.228	-0.304	-0.211	-0.096	-0.092	-0.090	-0.092	-0.105	-0.088
18.444	0.203	0.167	0.058	-0.082	-0.228	-0.284	-0.203	-0.091	-0.087	-0.085	-0.089	-0.099	-0.085
18.944	0.208	0.173	0.068	-0.069	-0.213	-0.278	-0.194	-0.081	-0.077	-0.075	-0.079	-0.088	-0.075
19.444	0.212	0.177	0.074	-0.059	-0.198	-0.244	-0.177	-0.068	-0.068	-0.068	-0.066	-0.077	-0.066
19.944	0.225	0.188	0.083	-0.061	-0.203	-0.254	-0.167	-0.055	-0.053	-0.053	-0.051	-0.058	-0.049
20.444	0.241	0.202	0.102	-0.035	-0.179	-0.235	-0.151	-0.036	-0.036	-0.036	-0.036	-0.040	-0.030
20.944	0.243	0.208	0.111	-0.023	-0.151	-0.205	-0.115	-0.012	-0.015	-0.012	-0.017	-0.017	-0.002
21.444	0.246	0.211	0.122	-0.002	-0.128	-0.156	-0.064	0.026	0.022	0.026	0.026	0.028	0.296

Table 1.35 Experimental pressure coefficients c_p for $\alpha = 25^o$, $M_\infty = 1.0$ and $Re_D = 6.1 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.498	0.375	0.317	0.175	0.516	0.297	-0.231	-0.060	-0.133	-0.130	-0.268	-0.112	-0.095
0.482	0.904	0.861	0.740	0.560	0.316	0.105	-0.106	-0.252	-0.331	-0.331	-0.307	-0.272	-0.262
0.731	0.691	0.648	0.531	0.361	0.110	-0.092	-0.284	-0.422	-0.501	-0.494	-0.456	-0.397	-0.376
0.980	0.458	0.419	0.308	0.142	-0.085	-0.280	-0.472	-0.600	-0.671	-0.640	-0.596	-0.519	-0.491
1.236	0.255	0.219	0.114	-0.047	-0.259	-0.444	-0.626	-0.754	-0.813	-0.761	-0.704	-0.612	-0.592
1.500	0.074	0.039	-0.060	-0.212	-0.413	-0.581	-0.748	-0.858	-0.907	-0.818	-0.722	-0.574	-0.550
1.944	0.155	0.119	0.016	-0.159	-0.385	-0.573	-0.769	-0.910	-0.962	-0.665	-0.478	-0.258	-0.185
2.444	0.140	0.102	-0.015	-0.185	-0.427	-0.636	-0.842	-0.924	-0.691	-0.731	-0.645	-0.178	-0.071
2.944	0.112	0.070	-0.040	-0.226	-0.462	-0.678	-0.235	-0.548	-0.553	-0.874	-0.269	-0.112	-0.091
3.444	0.100	0.059	-0.070	-0.255	-0.489	-0.709	-0.479	-0.353	-0.488	-0.703	-0.485	-0.109	-0.067
3.944	0.097	0.047	-0.076	-0.267	-0.514	-0.692	-0.479	-0.294	-0.303	-0.311	-0.489	-0.109	-0.067
4.444	0.089	0.037	-0.092	-0.289	-0.186	-0.357	-0.221	-0.217	-0.161	-0.161	-0.270	-0.130	-0.091
4.944	0.083	0.030	-0.092	-0.296	-0.207	-0.298	-0.116	-0.092	-0.088	-0.109	-0.162	-0.154	-0.119
5.444	0.180	0.123	0.002	-0.159	-0.207	-0.312	-0.158	-0.092	-0.077	-0.095	-0.099	-0.151	-0.119
5.944	0.251	0.206	0.041	-0.173	-0.235	-0.224	-0.228	-0.092	-0.102	-0.081	-0.078	-0.105	-0.102
6.444	0.255	0.216	0.108	-0.026	-0.235	-0.315	-0.224	-0.095	-0.105	-0.085	-0.078	-0.081	-0.095
6.944	0.253	0.223	0.114	-0.026	-0.238	-0.322	-0.270	-0.102	-0.102	-0.105	-0.092	-0.084	-0.084
7.444	0.253	0.223	0.114	-0.026	-0.238	-0.322	-0.242	-0.102	-0.102	-0.105	-0.102	-0.091	-0.078
7.944	0.240	0.212	0.103	-0.043	-0.228	-0.336	-0.221	-0.095	-0.105	-0.105	-0.109	-0.102	-0.081
8.444	0.224	0.195	0.089	-0.061	-0.252	-0.329	-0.231	-0.095	-0.105	-0.109	-0.116	-0.109	-0.098
8.944	0.218	0.184	0.079	-0.071	-0.242	-0.336	-0.214	-0.106	-0.105	-0.112	-0.116	-0.102	-0.102
9.444	0.211	0.173	0.067	-0.092	-0.245	-0.336	-0.218	-0.109	-0.105	-0.116	-0.112	-0.109	-0.112
9.944	0.210	0.170	0.064	-0.089	-0.238	-0.325	-0.204	-0.109	-0.105	-0.112	-0.105	-0.098	-0.105
10.444	0.212	0.170	0.062	-0.094	-0.239	-0.316	-0.201	-0.108	-0.104	-0.107	-0.107	-0.099	-0.099
10.944	0.213	0.173	0.059	-0.092	-0.234	-0.320	-0.198	-0.108	-0.107	-0.111	-0.111	-0.104	-0.099
11.444	0.208	0.167	0.054	-0.098	-0.241	-0.316	-0.209	-0.113	-0.113	-0.116	-0.116	-0.111	-0.109
11.944	0.210	0.170	0.057	-0.092	-0.234	-0.318	-0.207	-0.113	-0.114	-0.116	-0.113	-0.109	-0.108
12.444	0.206	0.168	0.057	-0.094	-0.248	-0.326	-0.203	-0.113	-0.113	-0.116	-0.113	-0.109	-0.108
12.944	0.210	0.173	0.067	-0.085	-0.232	-0.320	-0.194	-0.110	-0.109	-0.113	-0.108	-0.104	-0.102
13.444	0.203	0.164	0.062	-0.085	-0.243	-0.322	-0.191	-0.110	-0.106	-0.113	-0.108	-0.106	-0.106
13.944	0.198	0.159	0.056	-0.091	-0.241	-0.322	-0.189	-0.110	-0.107	-0.111	-0.110	-0.111	-0.108
14.444	0.201	0.162	0.057	-0.089	-0.242	-0.319	-0.190	-0.110	-0.108	-0.112	-0.110	-0.110	-0.110
14.944	0.204	0.165	0.059	-0.087	-0.243	-0.316	-0.191	-0.111	-0.109	-0.113	-0.110	-0.111	-0.104
15.444	0.200	0.163	0.057	-0.087	-0.243	-0.322	-0.194	-0.113	-0.109	-0.113	-0.110	-0.113	-0.108
15.944	0.208	0.166	0.057	-0.087	-0.241	-0.324	-0.196	-0.117	-0.111	-0.111	-0.112	-0.113	-0.109
16.444	0.202	0.162	0.048	-0.094	-0.252	-0.331	-0.203	-0.119	-0.113	-0.115	-0.113	-0.116	-0.113
16.944	0.197	0.161	0.045	-0.098	-0.236	-0.324	-0.209	-0.117	-0.111	-0.111	-0.112	-0.115	-0.108
17.444	0.199	0.163	0.055	-0.092	-0.237	-0.318	-0.209	-0.113	-0.107	-0.108	-0.108	-0.111	-0.104
17.944	0.194	0.159	0.055	-0.091	-0.232	-0.313	-0.202	-0.108	-0.100	-0.100	-0.099	-0.104	-0.099
18.444	0.190	0.154	0.047	-0.100	-0.230	-0.304	-0.194	-0.095	-0.093	-0.091	-0.092	-0.100	-0.090
18.944	0.197	0.159	0.054	-0.091	-0.223	-0.300	-0.175	-0.079	-0.089	-0.086	-0.083	-0.091	-0.081
19.444	0.205	0.166	0.064	-0.078	-0.207	-0.297	-0.194	-0.079	-0.072	-0.074	-0.068	-0.075	-0.068
19.944	0.225	0.186	0.079	-0.069	-0.211	-0.266	-0.153	-0.050	-0.054	-0.049	-0.045	-0.054	-0.045
20.444	0.242	0.206	0.106	-0.036	-0.185	-0.226	-0.126	-0.027	-0.027	-0.029	-0.027	-0.031	-0.020
20.944	0.247	0.215	0.118	-0.015	-0.140	-0.196	-0.097	0.003	0.003	0.002	-0.002	-0.002	0.014
21.444	0.251	0.221	0.129	0.011	-0.113	-0.122	-0.040	0.046	0.048	0.047	0.044	0.049	0.304

Table 1.36 Experimental pressure coefficients c_p for $\alpha = 25^o$, $M_\infty = 1.1$ and $Re_D = 6.2 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.560	0.469	0.414	0.280	0.009	0.400	-0.128	0.061	-0.037	-0.007	0.025	-0.014	0.019
0.482	0.964	0.926	0.810	0.640	0.433	0.214	0.019	-0.118	-0.192	-0.199	-0.172	-0.140	-0.135
0.731	0.758	0.721	0.607	0.449	0.245	0.025	-0.147	-0.281	-0.354	-0.352	-0.315	-0.263	-0.248
0.980	0.534	0.500	0.393	0.239	0.051	-0.147	-0.323	-0.446	-0.513	-0.488	-0.445	-0.374	-0.353
1.238	0.338	0.307	0.202	0.055	-0.122	-0.306	-0.469	-0.586	-0.646	-0.602	-0.548	-0.461	-0.447
1.500	0.157	0.129	0.031	-0.119	-0.259	-0.430	-0.576	-0.681	-0.730	-0.654	-0.591	-0.435	-0.415
1.944	0.237	0.205	0.105	-0.044	-0.233	-0.430	-0.602	-0.730	-0.785	-0.553	-0.373	-0.182	-0.121
2.444	0.225	0.195	0.095	-0.065	-0.260	-0.485	-0.664	-0.779	-0.574	-0.618	-0.383	-0.108	-0.001
2.944	0.198	0.161	0.056	-0.109	-0.299	-0.521	-0.500	-0.450	-0.458	-0.732	-0.441	-0.017	0.015
3.444	0.185	0.150	0.037	-0.125	-0.325	-0.550	-0.404	-0.326	-0.357	-0.599	-0.441	-0.062	-0.014
3.944	0.180	0.141	0.018	-0.152	-0.357	-0.573	-0.404	-0.242	-0.296	-0.313	-0.490	-0.062	-0.014
4.444	0.171	0.128	0.002	-0.171	-0.377	-0.537	-0.242	-0.229	-0.250	-0.215	-0.273	-0.263	-0.177
4.944	0.164	0.120	0.002	-0.181	-0.384	-0.329	-0.274	-0.245	-0.199	-0.202	-0.205	-0.241	-0.222
5.444	0.155	0.120	-0.014	-0.184	-0.325	-0.420	-0.313	-0.226	-0.182	-0.189	-0.192	-0.211	-0.219
5.944	0.201	0.168	0.047	-0.103	-0.292	-0.479	-0.316	-0.216	-0.186	-0.178	-0.173	-0.192	-0.206
6.444	0.197	0.155	0.037	-0.119	-0.299	-0.501	-0.319	-0.200	-0.186	-0.160	-0.163	-0.160	-0.154
6.944	0.194	0.154	0.033	-0.122	-0.295	-0.485	-0.397	-0.164	-0.176	-0.160	-0.160	-0.137	-0.144
7.444	0.194	0.154	0.033	-0.122	-0.295	-0.485	-0.245	-0.164	-0.150	-0.160	-0.147	-0.137	-0.131
7.944	0.190	0.147	0.037	-0.119	-0.305	-0.384	-0.186	-0.121	-0.150	-0.164	-0.166	-0.153	-0.141
8.444	0.204	0.154	0.030	-0.126	-0.302	-0.365	-0.199	-0.121	-0.147	-0.163	-0.166	-0.166	-0.157
8.944	0.197	0.158	0.049	-0.106	-0.272	-0.394	-0.225	-0.160	-0.160	-0.157	-0.166	-0.163	-0.167
9.444	0.184	0.150	0.043	-0.103	-0.249	-0.394	-0.225	-0.157	-0.140	-0.131	-0.137	-0.111	-0.144
9.944	0.197	0.162	0.053	-0.099	-0.259	-0.394	-0.183	-0.125	-0.124	-0.124	-0.108	-0.111	-0.082
10.444	0.203	0.176	0.066	-0.081	-0.238	-0.338	-0.189	-0.117	-0.109	-0.114	-0.105	-0.087	-0.091
10.944	0.191	0.164	0.055	-0.096	-0.248	-0.333	-0.173	-0.114	-0.110	-0.121	-0.132	-0.114	-0.126
11.444	0.178	0.145	0.038	-0.111	-0.266	-0.340	-0.194	-0.111	-0.115	-0.124	-0.130	-0.134	-0.113
11.944	0.183	0.149	0.041	-0.113	-0.250	-0.325	-0.161	-0.107	-0.115	-0.119	-0.125	-0.122	-0.126
12.444	0.167	0.131	0.023	-0.132	-0.297	-0.285	-0.156	-0.101	-0.104	-0.109	-0.117	-0.107	-0.116
12.944	0.200	0.148	0.038	-0.123	-0.249	-0.300	-0.156	-0.101	-0.110	-0.112	-0.105	-0.104	-0.099
13.444	0.205	0.173	0.063	-0.098	-0.256	-0.315	-0.174	-0.109	-0.070	-0.082	-0.104	-0.077	-0.096
13.944	0.190	0.158	0.066	-0.079	-0.184	-0.285	-0.122	-0.027	-0.027	-0.040	-0.043	-0.075	-0.049
14.444	0.221	0.185	0.085	-0.066	-0.196	-0.257	-0.115	-0.051	-0.051	-0.060	-0.061	-0.075	-0.048
14.944	0.251	0.211	0.103	-0.052	-0.209	-0.229	-0.117	-0.076	-0.075	-0.079	-0.078	-0.087	-0.074
15.444	0.274	0.231	0.114	-0.031	-0.164	-0.288	-0.183	-0.101	-0.098	-0.089	-0.087	-0.097	-0.089
15.944	0.263	0.231	0.134	-0.002	-0.143	-0.328	-0.203	-0.123	-0.117	-0.109	-0.097	-0.102	-0.096
16.444	0.231	0.196	0.097	-0.044	-0.194	-0.353	-0.233	-0.138	-0.125	-0.126	-0.115	-0.112	-0.104
16.944	0.212	0.177	0.074	-0.066	-0.219	-0.378	-0.246	-0.136	-0.119	-0.124	-0.122	-0.114	-0.106
17.444	0.202	0.169	0.066	-0.078	-0.233	-0.365	-0.204	-0.109	-0.100	-0.107	-0.105	-0.107	-0.094
17.944	0.215	0.186	0.076	-0.069	-0.234	-0.306	-0.164	-0.112	-0.107	-0.114	-0.112	-0.120	-0.099
18.444	0.206	0.169	0.066	-0.083	-0.238	-0.335	-0.198	-0.126	-0.119	-0.121	-0.127	-0.135	-0.116
18.944	0.200	0.175	0.056	-0.090	-0.256	-0.355	-0.216	-0.136	-0.137	-0.136	-0.137	-0.147	-0.131
19.444	0.171	0.156	0.057	-0.091	-0.256	-0.342	-0.221	-0.149	-0.145	-0.152	-0.152	-0.159	-0.144
19.944	0.164	0.134	0.031	-0.110	-0.270	-0.360	-0.231	-0.136	-0.117	-0.134	-0.147	-0.142	-0.136
20.444	0.157	0.137	0.027	-0.110	-0.246	-0.303	-0.214	-0.126	-0.112	-0.119	-0.137	-0.135	-0.131
20.944	0.175	0.138	0.035	-0.108	-0.263	-0.308	-0.221	-0.121	-0.109	-0.114	-0.124	-0.122	-0.111
21.444	0.177	0.144	0.042	-0.102	-0.254	-0.352	-0.188	-0.076	-0.043	-0.037	-0.042	-0.023	0.166

Table 1.37 Experimental pressure coefficients c_p for $\alpha = 25^o$, $M_\infty = 1.2$ and $Re_D = 6.3 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	1.215	0.549	0.453	0.324	0.141	0.464	-0.061	0.126	0.052	0.045	0.081	0.001	0.025
0.482	1.006	0.972	0.857	0.690	0.491	0.279	0.083	-0.048	-0.125	-0.135	-0.107	-0.079	-0.070
0.731	0.800	0.768	0.657	0.501	0.308	0.095	-0.073	-0.200	-0.280	-0.280	-0.247	-0.200	-0.188
0.980	0.577	0.549	0.446	0.297	0.120	-0.070	-0.241	-0.358	-0.428	-0.409	-0.367	-0.302	-0.291
1.238	0.380	0.355	0.253	0.112	-0.052	-0.225	-0.381	-0.492	-0.551	-0.518	-0.469	-0.389	-0.371
1.500	0.213	0.192	0.102	-0.021	-0.167	-0.328	-0.467	-0.572	-0.625	-0.570	-0.507	-0.376	-0.358
1.944	0.265	0.246	0.141	0.004	-0.167	-0.347	-0.505	-0.619	-0.684	-0.570	-0.355	-0.194	-0.138
2.444	0.213	0.230	0.130	-0.030	0.138	-0.399	-0.557	-0.671	-0.554	-0.573	-0.395	-0.147	-0.017
2.944	0.220	0.199	0.102	-0.055	-0.230	-0.430	-0.505	-0.461	-0.440	-0.635	-0.485	0.001	0.025
3.444	0.213	0.175	0.075	-0.080	-0.255	-0.455	-0.471	-0.337	-0.351	-0.620	-0.531	-0.126	-0.061
3.944	0.203	0.168	0.062	-0.090	-0.270	-0.474	-0.471	-0.262	-0.292	-0.373	-0.516	-0.126	-0.061
4.444	0.216	0.178	0.063	-0.096	-0.292	-0.486	-0.263	-0.213	-0.267	-0.227	-0.262	-0.274	-0.200
4.944	0.190	0.169	0.064	-0.102	-0.292	-0.508	-0.269	-0.231	-0.236	-0.203	-0.197	-0.225	-0.188
5.444	0.186	0.147	0.028	-0.133	-0.317	-0.514	-0.232	-0.197	-0.202	-0.193	-0.178	-0.197	-0.213
5.944	0.179	0.145	0.026	-0.133	-0.323	-0.514	-0.191	-0.169	-0.190	-0.212	-0.188	-0.191	-0.191
6.444	0.177	0.152	0.033	-0.130	-0.304	-0.449	-0.213	-0.179	-0.175	-0.197	-0.181	-0.175	-0.176
6.944	0.186	0.153	0.036	-0.124	-0.301	-0.455	-0.197	-0.157	-0.125	-0.144	-0.160	-0.144	-0.145
7.444	0.186	0.153	0.036	-0.124	-0.301	-0.455	-0.182	-0.157	-0.119	-0.126	-0.129	-0.132	-0.120
7.944	0.204	0.184	0.059	-0.071	-0.242	-0.387	-0.201	-0.123	-0.132	-0.122	-0.119	-0.138	-0.120
8.444	0.197	0.173	0.057	-0.093	-0.255	-0.377	-0.180	-0.123	-0.141	-0.129	-0.129	-0.123	-0.126
8.944	0.215	0.159	0.057	-0.083	-0.245	-0.365	-0.207	-0.123	-0.129	-0.132	-0.123	-0.120	-0.117
9.444	0.194	0.171	0.060	-0.077	-0.245	-0.384	-0.173	-0.126	-0.129	-0.132	-0.132	-0.126	-0.126
9.944	0.206	0.180	0.069	-0.071	-0.226	-0.371	-0.188	-0.126	-0.116	-0.123	-0.126	-0.113	-0.129
10.444	0.202	0.184	0.061	-0.086	-0.252	-0.342	-0.167	-0.121	-0.119	-0.122	-0.121	-0.116	-0.116
10.944	0.220	0.170	0.068	-0.077	-0.239	-0.337	-0.188	-0.132	-0.119	-0.120	-0.124	-0.103	-0.108
11.444	0.195	0.164	0.050	-0.096	-0.247	-0.362	-0.177	-0.126	-0.117	-0.111	-0.122	-0.108	-0.124
11.944	0.211	0.180	0.077	-0.069	-0.221	-0.353	-0.148	-0.099	-0.069	-0.086	-0.086	-0.065	-0.067
12.444	0.215	0.185	0.074	-0.074	-0.234	-0.275	-0.095	-0.078	-0.079	-0.092	-0.084	-0.094	-0.081
12.944	0.235	0.191	0.082	-0.059	-0.199	-0.259	-0.139	-0.092	-0.096	-0.111	-0.106	-0.121	-0.111
13.444	0.227	0.195	0.087	-0.061	-0.213	-0.315	-0.159	-0.113	-0.111	-0.119	-0.122	-0.130	-0.124
13.944	0.224	0.203	0.106	-0.038	-0.187	-0.343	-0.196	-0.125	-0.135	-0.133	-0.121	-0.130	-0.126
14.444	0.225	0.210	0.100	-0.049	-0.200	-0.359	-0.200	-0.131	-0.127	-0.128	-0.113	-0.115	-0.115
14.944	0.227	0.217	0.094	-0.059	-0.212	-0.375	-0.185	-0.127	-0.119	-0.124	-0.105	-0.106	-0.102
15.444	0.187	0.164	0.068	-0.080	-0.220	-0.366	-0.164	-0.123	-0.133	-0.146	-0.122	-0.130	-0.111
15.944	0.190	0.155	0.042	-0.104	-0.244	-0.311	-0.151	-0.126	-0.141	-0.149	-0.143	-0.153	-0.147
16.444	0.193	0.142	0.039	-0.108	-0.263	-0.326	-0.166	-0.119	-0.109	-0.127	-0.129	-0.135	-0.119
16.944	0.229	0.155	0.053	-0.098	-0.258	-0.291	-0.099	-0.087	-0.098	-0.101	-0.098	-0.103	-0.094
17.444	0.221	0.195	0.097	-0.048	-0.199	-0.287	-0.195	-0.121	-0.119	-0.119	-0.114	-0.127	-0.119
17.944	0.214	0.191	0.090	-0.054	-0.180	-0.353	-0.185	-0.126	-0.128	-0.130	-0.127	-0.125	-0.121
18.444	0.190	0.155	0.054	-0.085	-0.242	-0.361	-0.199	-0.140	-0.141	-0.140	-0.132	-0.135	-0.123
18.944	0.179	0.156	0.057	-0.090	-0.255	-0.338	-0.211	-0.140	-0.135	-0.136	-0.135	-0.122	-0.118
19.444	0.175	0.126	0.025	-0.119	-0.269	-0.353	-0.159	-0.110	-0.112	-0.122	-0.141	-0.130	-0.137
19.944	0.191	0.152	0.048	-0.091	-0.250	-0.305	-0.161	-0.097	-0.093	-0.090	-0.105	-0.073	-0.059
20.444	0.190	0.168	0.055	-0.082	-0.237	-0.298	-0.167	-0.095	-0.097	-0.108	-0.125	-0.125	-0.127
20.944	0.189	0.151	0.047	-0.090	-0.242	-0.249	-0.182	-0.118	-0.114	-0.113	-0.125	-0.124	-0.122
21.444	0.225	0.188	0.084	-0.056	-0.229	-0.324	-0.217	-0.107	-0.089	-0.082	-0.084	-0.068	-0.012

Table 1.38 Experimental pressure coefficients c_p for $\alpha = 30^o$, $M_\infty = 0.7$ and $Re_D = 5.2 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.518	0.460	0.275	0.049	0.167	-0.172	-0.537	-0.626	-0.668	-0.598	-0.375	-0.359	-0.198
0.482	0.872	0.807	0.617	0.344	0.016	-0.313	-0.600	-0.757	-0.787	-0.724	-0.631	-0.525	-0.501
0.731	0.676	0.611	0.426	0.155	-0.177	-0.496	-0.746	-0.866	-0.845	-0.771	-0.573	-0.499	-0.458
0.980	0.470	0.408	0.227	-0.031	-0.339	-0.642	-0.881	-0.955	-0.866	-0.807	-0.526	-0.442	-0.407
1.238	0.305	0.243	0.067	-0.184	-0.465	-0.742	-0.927	-0.898	-0.830	-0.578	-0.364	-0.275	-0.250
1.500	0.196	0.136	-0.036	-0.278	-0.542	-0.789	-0.928	-0.829	-0.793	-0.590	-0.260	-0.161	-0.135
1.944	0.256	0.197	0.021	-0.226	-0.496	-0.637	-0.866	-0.757	-0.444	-0.250	-0.161	-0.052	0.041
2.444	0.265	0.210	0.035	-0.220	-0.506	-0.737	-0.818	-0.637	-0.292	-0.213	-0.245	-0.166	0.044
2.944	0.270	0.209	0.037	-0.226	-0.496	-0.716	-0.750	-0.538	-0.214	-0.198	-0.375	-0.359	-0.199
3.444	0.280	0.212	0.040	-0.210	-0.480	-0.690	-0.715	-0.455	-0.240	-0.161	-0.260	-0.379	-0.057
3.944	0.283	0.216	0.039	-0.200	-0.464	-0.664	-0.715	-0.386	-0.193	-0.156	-0.182	-0.379	-0.057
4.444	0.284	0.216	0.038	-0.199	-0.465	-0.653	-0.652	-0.371	-0.156	-0.166	-0.140	-0.260	-0.094
4.944	0.286	0.216	0.040	-0.199	-0.460	-0.648	-0.631	-0.355	-0.172	-0.151	-0.140	-0.213	-0.125
5.444	0.288	0.218	0.042	-0.194	-0.455	-0.638	-0.610	-0.345	-0.162	-0.145	-0.146	-0.192	-0.120
5.944	0.288	0.217	0.042	-0.189	-0.455	-0.633	-0.590	-0.314	-0.135	-0.140	-0.140	-0.198	-0.104
6.444	0.287	0.219	0.041	-0.184	-0.449	-0.627	-0.579	-0.303	-0.130	-0.130	-0.146	-0.229	-0.094
6.944	0.287	0.218	0.042	-0.178	-0.439	-0.622	-0.553	-0.287	-0.125	-0.135	-0.161	-0.260	-0.109
7.444	0.287	0.218	0.042	-0.178	-0.439	-0.622	-0.521	-0.287	-0.125	-0.125	-0.177	-0.213	-0.120
7.944	0.289	0.218	0.053	-0.162	-0.418	-0.590	-0.495	-0.256	-0.120	-0.125	-0.120	-0.187	-0.130
8.444	0.285	0.216	0.043	-0.168	-0.413	-0.585	-0.479	-0.256	-0.120	-0.125	-0.140	-0.177	-0.146
8.944	0.284	0.215	0.044	-0.162	-0.397	-0.559	-0.437	-0.214	-0.115	-0.125	-0.140	-0.151	-0.156
9.444	0.280	0.213	0.043	-0.162	-0.387	-0.549	-0.417	-0.199	-0.109	-0.125	-0.135	-0.135	-0.172
9.944	0.282	0.214	0.049	-0.152	-0.371	-0.522	-0.381	-0.172	-0.099	-0.114	-0.120	-0.119	-0.167
10.444	0.205	0.216	0.053	-0.144	-0.351	-0.507	-0.356	-0.135	-0.095	-0.113	-0.114	-0.121	-0.162
10.944	0.283	0.218	0.054	-0.136	-0.337	-0.493	-0.331	-0.119	-0.097	-0.113	-0.116	-0.137	-0.165
11.444	0.280	0.219	0.060	-0.136	-0.332	-0.491	-0.342	-0.127	-0.106	-0.122	-0.124	-0.140	-0.173
11.944	0.281	0.223	0.063	-0.131	-0.318	-0.483	-0.331	-0.146	-0.111	-0.116	-0.122	-0.129	-0.170
12.444	0.280	0.224	0.063	-0.128	-0.316	-0.504	-0.379	-0.160	-0.138	-0.129	-0.135	-0.132	-0.176
12.944	0.283	0.228	0.065	-0.126	-0.313	-0.510	-0.374	-0.167	-0.130	-0.178	-0.124	-0.135	-0.181
13.444	0.279	0.223	0.056	-0.131	-0.318	-0.531	-0.377	-0.186	-0.143	-0.173	-0.122	-0.148	-0.192
13.944	0.273	0.219	0.048	-0.134	-0.332	-0.545	-0.428	-0.205	-0.154	-0.167	-0.135	-0.161	-0.205
14.444	0.274	0.219	0.046	-0.134	-0.344	-0.553	-0.460	-0.223	-0.173	-0.166	-0.131	-0.160	-0.205
14.944	0.274	0.219	0.044	-0.134	-0.356	-0.561	-0.471	-0.241	-0.192	-0.165	-0.127	-0.159	-0.202
15.444	0.273	0.218	0.040	-0.139	-0.366	-0.550	-0.479	-0.249	-0.152	-0.162	-0.127	-0.159	-0.194
15.944	0.275	0.220	0.044	-0.139	-0.375	-0.532	-0.468	-0.246	-0.146	-0.159	-0.132	-0.158	-0.184
16.444	0.269	0.214	0.040	-0.150	-0.389	-0.518	-0.460	-0.230	-0.138	-0.157	-0.119	-0.156	-0.184
16.944	0.268	0.214	0.044	-0.152	-0.386	-0.491	-0.439	-0.208	-0.130	-0.148	-0.122	-0.151	-0.184
17.444	0.273	0.218	0.054	-0.147	-0.381	-0.464	-0.420	-0.184	-0.122	-0.146	-0.135	-0.143	-0.184
17.944	0.273	0.219	0.062	-0.144	-0.364	-0.440	-0.396	-0.165	-0.114	-0.138	-0.113	-0.130	-0.186
18.444	0.270	0.218	0.063	-0.147	-0.362	-0.435	-0.377	-0.149	-0.111	-0.135	-0.100	-0.127	-0.187
18.944	0.273	0.222	0.072	-0.139	-0.345	-0.424	-0.363	-0.144	-0.111	-0.127	-0.100	-0.124	-0.179
19.444	0.275	0.226	0.077	-0.131	-0.332	-0.423	-0.358	-0.141	-0.111	-0.124	-0.114	-0.124	-0.168
19.944	0.283	0.234	0.082	-0.128	-0.327	-0.442	-0.363	-0.144	-0.111	-0.119	-0.095	-0.116	-0.154
20.444	0.291	0.240	0.090	-0.114	-0.308	-0.437	-0.347	-0.149	-0.108	-0.114	-0.095	-0.111	-0.143
20.944	0.291	0.245	0.093	-0.104	-0.292	-0.440	-0.345	-0.149	-0.100	-0.108	-0.119	-0.105	-0.127
21.444	0.279	0.250	0.097	-0.085	-0.284	-0.407	-0.323	-0.141	-0.084	-0.087	-0.095	-0.079	0.168

Table 1.39 Experimental pressure coefficients c_p for $\alpha = 30^\circ$, $M_\infty = 0.8$ and $Re_D = 5.6 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.533	0.135	0.288	0.080	0.247	-0.076	-0.488	-0.577	-0.629	-0.566	-0.413	-0.345	-0.220
0.482	0.935	0.840	0.664	0.404	0.078	-0.239	-0.536	-0.731	-0.805	-0.747	-0.690	-0.582	-0.566
0.731	0.704	0.638	0.467	0.208	-0.116	-0.432	-0.702	-0.893	-0.933	-0.851	-0.738	-0.600	-0.558
0.980	0.487	0.426	0.255	0.011	-0.296	-0.603	-0.881	-1.060	-1.043	-0.982	-0.664	-0.556	-0.496
1.238	0.307	0.246	0.077	-0.161	-0.445	-0.743	-1.012	-1.037	-1.007	-0.680	-0.405	-0.292	-0.269
1.500	0.180	0.122	-0.041	-0.280	-0.555	-0.848	-1.035	-0.932	-0.810	-0.461	-0.247	-0.156	-0.142
1.944	0.246	0.186	0.011	-0.232	-0.529	-0.704	-0.926	-0.643	-0.406	-0.278	-0.155	-0.042	0.043
2.444	0.260	0.203	0.030	-0.220	-0.520	-0.777	-0.834	-0.502	-0.279	-0.260	-0.291	-0.143	0.033
2.944	0.266	0.208	0.033	-0.223	-0.497	-0.737	-0.730	-0.419	-0.230	-0.238	-0.414	-0.344	-0.221
3.444	0.275	0.212	0.040	-0.210	-0.484	-0.698	-0.669	-0.353	-0.265	-0.230	-0.340	-0.366	-0.124
3.944	0.284	0.218	0.044	-0.192	-0.458	-0.667	-0.669	-0.296	-0.221	-0.208	-0.261	-0.366	-0.124
4.444	0.287	0.221	0.044	-0.192	-0.458	-0.658	-0.555	-0.278	-0.190	-0.177	-0.199	-0.318	-0.137
4.944	0.288	0.223	0.046	-0.188	-0.454	-0.649	-0.516	-0.265	-0.212	-0.177	-0.182	-0.265	-0.124
5.444	0.290	0.223	0.048	-0.183	-0.450	-0.645	-0.480	-0.252	-0.195	-0.173	-0.191	-0.252	-0.129
5.944	0.291	0.223	0.048	-0.183	-0.445	-0.636	-0.458	-0.235	-0.182	-0.168	-0.195	-0.252	-0.116
6.444	0.289	0.223	0.049	-0.174	-0.441	-0.627	-0.436	-0.221	-0.168	-0.154	-0.199	-0.274	-0.116
6.944	0.290	0.225	0.050	-0.170	-0.432	-0.623	-0.423	-0.226	-0.164	-0.164	-0.213	-0.313	-0.133
7.444	0.290	0.225	0.050	-0.170	-0.432	-0.623	-0.397	-0.226	-0.169	-0.155	-0.226	-0.265	-0.146
7.944	0.290	0.227	0.062	-0.157	-0.411	-0.582	-0.383	-0.195	-0.155	-0.155	-0.173	-0.230	-0.164
8.444	0.286	0.225	0.051	-0.157	-0.406	-0.582	-0.375	-0.195	-0.144	-0.151	-0.168	-0.239	-0.190
8.944	0.286	0.224	0.051	-0.148	-0.393	-0.556	-0.356	-0.186	-0.133	-0.151	-0.155	-0.221	-0.199
9.444	0.282	0.221	0.052	-0.143	-0.384	-0.547	-0.352	-0.182	-0.129	-0.142	-0.147	-0.182	-0.208
9.944	0.284	0.222	0.060	-0.130	-0.367	-0.521	-0.325	-0.177	-0.116	-0.129	-0.129	-0.147	-0.199
10.444	0.286	0.223	0.068	-0.128	-0.349	-0.498	-0.312	-0.159	-0.102	-0.115	-0.116	-0.141	-0.190
10.944	0.285	0.224	0.071	-0.121	-0.340	-0.484	-0.301	-0.132	-0.105	-0.118	-0.122	-0.153	-0.192
11.444	0.281	0.224	0.073	-0.124	-0.335	-0.482	-0.298	-0.136	-0.116	-0.127	-0.138	-0.162	-0.194
11.944	0.282	0.226	0.074	-0.119	-0.322	-0.475	-0.285	-0.141	-0.121	-0.125	-0.145	-0.157	-0.188
12.444	0.280	0.224	0.074	-0.121	-0.322	-0.489	-0.278	-0.145	-0.143	-0.140	-0.161	-0.164	-0.194
12.944	0.284	0.229	0.077	-0.121	-0.317	-0.495	-0.260	-0.145	-0.155	-0.179	-0.172	-0.166	-0.199
13.444	0.280	0.222	0.068	-0.135	-0.329	-0.505	-0.276	-0.157	-0.168	-0.168	-0.184	-0.177	-0.213
13.944	0.274	0.218	0.060	-0.142	-0.338	-0.526	-0.285	-0.170	-0.191	-0.197	-0.197	-0.191	-0.224
14.444	0.275	0.219	0.060	-0.144	-0.347	-0.533	-0.305	-0.182	-0.209	-0.202	-0.198	-0.195	-0.215
14.944	0.276	0.220	0.060	-0.146	-0.355	-0.539	-0.322	-0.193	-0.227	-0.208	-0.200	-0.200	-0.212
15.444	0.273	0.219	0.055	-0.149	-0.362	-0.535	-0.335	-0.200	-0.206	-0.208	-0.188	-0.213	-0.203
15.944	0.277	0.221	0.058	-0.149	-0.369	-0.519	-0.340	-0.207	-0.197	-0.204	-0.191	-0.222	-0.194
16.444	0.270	0.216	0.054	-0.160	-0.381	-0.519	-0.365	-0.209	-0.190	-0.199	-0.168	-0.233	-0.197
16.944	0.269	0.218	0.057	-0.158	-0.381	-0.501	-0.369	-0.204	-0.172	-0.186	-0.163	-0.233	-0.197
17.444	0.275	0.222	0.067	-0.149	-0.376	-0.483	-0.362	-0.193	-0.161	-0.172	-0.172	-0.222	-0.199
17.944	0.273	0.223	0.074	-0.140	-0.363	-0.458	-0.355	-0.182	-0.145	-0.161	-0.139	-0.206	-0.199
18.444	0.271	0.221	0.073	-0.142	-0.361	-0.453	-0.351	-0.168	-0.143	-0.150	-0.123	-0.188	-0.197
18.944	0.274	0.224	0.082	-0.131	-0.345	-0.437	-0.340	-0.159	-0.139	-0.140	-0.125	-0.170	-0.188
19.444	0.276	0.228	0.089	-0.119	-0.327	-0.428	-0.326	-0.145	-0.136	-0.136	-0.143	-0.157	-0.179
19.944	0.286	0.235	0.095	-0.119	-0.327	-0.441	-0.317	-0.136	-0.136	-0.129	-0.138	-0.141	-0.161
20.444	0.296	0.242	0.108	-0.099	-0.306	-0.423	-0.294	-0.127	-0.136	-0.125	-0.127	-0.132	-0.150
20.944	0.294	0.246	0.111	-0.094	-0.288	-0.419	-0.282	-0.118	-0.134	-0.120	-0.148	-0.123	-0.131
21.444	0.280	0.249	0.116	-0.078	-0.277	-0.378	-0.244	-0.102	-0.116	-0.102	-0.123	-0.096	0.162

Table 1.40 Experimental pressure coefficients c_p for $\alpha = 30^\circ$, $M_\infty = 0.9$ and $Re_D = 5.9 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.544	0.432	0.312	0.133	0.351	0.044	-0.375	-0.448	-0.509	-0.459	-0.458	-0.290	-0.260
0.482	0.950	0.892	0.730	0.488	0.179	-0.117	-0.406	-0.598	-0.676	-0.644	-0.585	-0.502	-0.491
0.731	0.746	0.690	0.530	0.293	-0.017	-0.309	-0.572	-0.761	-0.848	-0.798	-0.739	-0.621	-0.583
0.980	0.522	0.471	0.317	0.091	-0.198	-0.478	-0.744	-0.934	-1.013	-0.943	-0.893	-0.703	-0.684
1.238	0.332	0.277	0.127	-0.091	-0.360	-0.628	-0.882	-1.068	-1.090	-1.085	-0.909	-0.766	-0.751
1.500	0.182	0.129	-0.014	-0.230	-0.499	-0.752	-0.997	-0.987	-1.060	-1.022	-0.748	-0.416	-0.364
1.944	0.236	0.181	0.029	-0.199	-0.491	-0.702	-0.943	-0.648	-0.703	-0.893	-0.394	0.063	0.134
2.444	0.250	0.200	0.045	-0.220	-0.526	-0.690	-0.432	-0.367	-0.427	-0.828	-0.448	0.029	0.031
2.944	0.253	0.188	0.050	-0.230	-0.503	-0.685	-0.525	-0.325	-0.335	-0.290	-0.459	-0.286	-0.259
3.444	0.270	0.209	0.055	-0.205	-0.434	-0.675	-0.557	-0.260	-0.274	-0.244	-0.309	-0.288	-0.225
3.944	0.281	0.217	0.057	-0.172	-0.441	-0.609	-0.557	-0.210	-0.655	-0.217	-0.209	-0.286	-0.225
4.444	0.287	0.220	0.056	-0.164	-0.426	-0.629	-0.414	-0.179	-0.209	-0.202	-0.205	-0.198	-0.221
4.944	0.289	0.224	0.064	-0.157	-0.422	-0.602	-0.403	-0.183	-0.197	-0.183	-0.194	-0.186	-0.210
5.444	0.294	0.227	0.064	-0.153	-0.414	-0.602	-0.361	-0.167	-0.167	-0.171	-0.179	-0.159	-0.186
5.944	0.294	0.228	0.068	-0.149	-0.407	-0.579	-0.337	-0.171	-0.159	-0.164	-0.171	-0.148	-0.171
6.444	0.293	0.230	0.071	-0.138	-0.403	-0.583	-0.330	-0.159	-0.151	-0.156	-0.167	-0.140	-0.167
6.944	0.295	0.233	0.074	-0.134	-0.391	-0.552	-0.322	-0.163	-0.148	-0.152	-0.167	-0.160	-0.164
7.444	0.295	0.233	0.074	-0.134	-0.391	-0.552	-0.314	-0.163	-0.144	-0.144	-0.175	-0.152	-0.160
7.944	0.294	0.235	0.086	-0.122	-0.364	-0.534	-0.319	-0.183	-0.132	-0.140	-0.144	-0.136	-0.160
8.444	0.288	0.234	0.074	-0.134	-0.368	-0.537	-0.321	-0.183	-0.136	-0.140	-0.140	-0.144	-0.167
8.944	0.287	0.232	0.078	-0.130	-0.360	-0.529	-0.321	-0.209	-0.133	-0.144	-0.144	-0.159	-0.167
9.444	0.285	0.228	0.075	-0.137	-0.360	-0.529	-0.329	-0.228	-0.140	-0.151	-0.152	-0.163	-0.175
9.944	0.284	0.230	0.081	-0.130	-0.352	-0.525	-0.326	-0.232	-0.140	-0.144	-0.144	-0.148	-0.163
10.444	0.287	0.233	0.081	-0.140	-0.338	-0.514	-0.330	-0.217	-0.139	-0.141	-0.135	-0.141	-0.162
10.944	0.287	0.235	0.082	-0.133	-0.340	-0.518	-0.320	-0.197	-0.151	-0.145	-0.141	-0.151	-0.156
11.444	0.283	0.230	0.077	-0.136	-0.342	-0.532	-0.316	-0.197	-0.165	-0.157	-0.159	-0.165	-0.172
11.944	0.284	0.232	0.079	-0.132	-0.332	-0.526	-0.300	-0.184	-0.167	-0.155	-0.161	-0.169	-0.168
12.444	0.284	0.231	0.077	-0.131	-0.340	-0.539	-0.292	-0.179	-0.177	-0.175	-0.171	-0.173	-0.168
12.944	0.288	0.235	0.079	-0.129	-0.334	-0.520	-0.276	-0.171	-0.173	-0.195	-0.179	-0.173	-0.166
13.444	0.284	0.229	0.073	-0.131	-0.336	-0.516	-0.266	-0.147	-0.175	-0.195	-0.177	-0.177	-0.169
13.944	0.278	0.223	0.068	-0.133	-0.344	-0.502	-0.266	-0.167	-0.176	-0.193	-0.183	-0.181	-0.170
14.444	0.279	0.224	0.071	-0.128	-0.345	-0.486	0.003	-0.172	-0.182	-0.190	-0.181	-0.175	-0.165
14.944	0.281	0.225	0.074	-0.123	-0.345	-0.470	-0.261	-0.178	-0.187	-0.187	-0.179	-0.177	-0.163
15.444	0.279	0.226	0.074	-0.121	-0.347	-0.466	-0.261	-0.186	-0.179	-0.181	-0.167	-0.177	-0.163
15.944	0.284	0.229	0.079	-0.117	-0.344	-0.458	-0.269	-0.197	-0.171	-0.175	-0.169	-0.171	-0.164
16.444	0.275	0.222	0.074	-0.125	-0.351	-0.453	-0.283	-0.207	-0.165	-0.169	-0.153	-0.171	-0.165
16.944	0.276	0.222	0.076	-0.125	-0.345	-0.453	-0.289	-0.215	-0.159	-0.161	-0.147	-0.163	-0.163
17.444	0.282	0.230	0.084	-0.121	-0.336	-0.433	-0.292	-0.215	-0.151	-0.152	-0.157	-0.155	-0.159
17.944	0.281	0.231	0.089	-0.115	-0.321	-0.431	-0.301	-0.210	-0.145	-0.143	-0.143	-0.149	-0.157
18.444	0.280	0.229	0.086	-0.123	-0.323	-0.429	-0.301	-0.201	-0.143	-0.139	-0.124	-0.145	-0.152
18.944	0.283	0.234	0.092	-0.109	-0.309	-0.428	-0.293	-0.185	-0.139	-0.134	-0.126	-0.136	-0.144
19.444	0.287	0.239	0.098	-0.105	-0.293	-0.430	-0.281	-0.161	-0.135	-0.130	-0.143	-0.130	-0.140
19.944	0.297	0.248	0.103	-0.105	-0.302	-0.435	-0.273	-0.142	-0.128	-0.121	-0.143	-0.118	-0.126
20.444	0.313	0.259	0.121	-0.081	-0.281	-0.423	-0.254	-0.116	-0.116	-0.111	-0.122	-0.108	-0.110
20.944	0.309	0.262	0.122	-0.073	-0.259	-0.393	-0.221	-0.088	-0.098	-0.098	-0.124	-0.092	-0.088
21.444	0.300	0.256	0.128	-0.049	-0.241	-0.328	-0.186	-0.056	-0.062	-0.068	-0.094	-0.056	0.189

Table 1.41 Experimental pressure coefficients c_p for $\alpha = 30^o$, $M_\infty = 0.95$ and $Re_D = 6.0 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.551	0.427	0.321	0.146	0.400	0.110	-0.332	-0.365	-0.438	-0.386	-0.404	-0.201	-0.143
0.482	0.979	0.926	0.769	0.535	0.232	-0.049	-0.329	-0.514	-0.601	-0.564	-0.510	-0.433	-0.420
0.731	0.779	0.727	0.573	0.344	0.039	-0.238	-0.485	-0.667	-0.761	-0.716	-0.662	-0.557	-0.518
0.980	0.558	0.509	0.360	0.142	-0.140	-0.402	-0.656	-0.831	-0.925	-0.861	-0.807	-0.641	-0.616
1.238	0.363	0.313	0.167	-0.038	-0.304	-0.551	-0.791	-0.965	-1.052	-1.003	-0.362	-0.710	-0.693
1.500	0.204	0.156	0.017	-0.185	-0.443	-0.679	-0.903	-1.066	-1.137	-1.097	-0.877	-0.649	-0.602
1.944	0.250	0.201	0.052	-0.163	-0.443	-0.668	-0.939	-1.110	-1.042	-0.926	-0.835	-0.274	-0.092
2.444	0.200	0.195	0.035	-0.180	-0.486	-0.759	-0.936	-0.627	-0.660	-1.045	-0.732	-0.096	0.006
2.944	0.295	0.163	0.009	-0.233	-0.516	-0.785	-0.332	-0.449	-0.536	-0.599	-0.405	-0.198	-0.143
3.444	0.300	0.157	0.045	-0.240	-0.519	-0.716	-0.329	-0.289	-0.307	-0.269	-0.456	-0.307	-0.176
3.944	0.300	0.189	0.020	-0.222	-0.264	-0.362	-0.329	-0.234	-0.234	-0.244	-0.248	-0.307	-0.176
4.444	0.301	0.244	0.095	-0.170	-0.406	-0.625	-0.343	-0.205	-0.213	-0.186	-0.183	-0.212	-0.238
4.944	0.297	0.236	0.079	-0.141	-0.417	-0.635	-0.321	-0.194	-0.187	-0.172	-0.158	-0.154	-0.176
5.444	0.301	0.239	0.071	-0.134	-0.366	-0.519	-0.347	-0.169	-0.158	-0.190	-0.165	-0.143	-0.147
5.944	0.299	0.239	0.080	-0.130	-0.395	-0.614	-0.292	-0.154	-0.147	-0.157	-0.161	-0.147	-0.158
6.444	0.297	0.237	0.077	-0.141	-0.377	-0.581	-0.311	-0.153	-0.141	-0.153	-0.154	-0.147	-0.165
6.944	0.301	0.245	0.077	-0.123	-0.373	-0.534	-0.281	-0.143	-0.143	-0.150	-0.154	-0.147	-0.165
7.444	0.301	0.245	0.077	-0.123	-0.373	-0.534	-0.285	-0.143	-0.147	-0.143	-0.158	-0.136	-0.154
7.944	0.300	0.246	0.091	-0.119	-0.351	-0.519	-0.263	-0.147	-0.136	-0.146	-0.143	-0.125	-0.147
8.444	0.293	0.243	0.081	-0.115	-0.366	-0.545	-0.270	-0.147	-0.140	-0.139	-0.136	-0.140	-0.154
8.944	0.291	0.239	0.087	-0.126	-0.351	-0.530	-0.260	-0.161	-0.136	-0.150	-0.135	-0.154	-0.154
9.444	0.287	0.235	0.080	-0.130	-0.362	-0.527	-0.267	-0.176	-0.143	-0.157	-0.150	-0.165	-0.165
9.944	0.288	0.235	0.089	-0.123	-0.362	-0.541	-0.256	-0.183	-0.140	-0.146	-0.150	-0.154	-0.158
10.444	0.289	0.236	0.091	-0.129	-0.351	-0.510	-0.257	-0.177	-0.135	-0.144	-0.139	-0.148	-0.162
10.944	0.288	0.238	0.088	-0.123	-0.353	-0.533	-0.251	-0.171	-0.141	-0.146	-0.141	-0.154	-0.156
11.444	0.284	0.233	0.088	-0.133	-0.353	-0.509	-0.261	-0.173	-0.152	-0.154	-0.156	-0.165	-0.162
11.944	0.286	0.235	0.086	-0.125	-0.352	-0.529	-0.250	-0.165	-0.147	-0.146	-0.154	-0.165	-0.158
12.444	0.286	0.233	0.085	-0.127	-0.344	-0.529	-0.257	-0.160	-0.159	-0.161	-0.156	-0.169	-0.158
12.944	0.290	0.239	0.088	-0.118	-0.339	-0.511	-0.250	-0.156	-0.150	-0.174	-0.156	-0.165	-0.152
13.444	0.287	0.232	0.091	-0.121	-0.337	-0.511	-0.257	-0.158	-0.150	-0.174	-0.150	-0.169	-0.154
13.944	0.280	0.228	0.074	-0.125	-0.331	-0.494	-0.259	-0.158	-0.167	-0.172	-0.152	-0.173	-0.156
14.444	0.282	0.230	0.076	-0.121	-0.335	-0.486	-0.260	-0.158	-0.177	-0.170	-0.150	-0.170	-0.150
14.944	0.284	0.231	0.078	-0.116	-0.339	-0.477	-0.266	-0.158	-0.186	-0.168	-0.148	-0.167	-0.152
15.444	0.280	0.230	0.076	-0.112	-0.329	-0.468	-0.265	-0.160	-0.182	-0.166	-0.137	-0.165	-0.150
15.944	0.285	0.233	0.080	-0.112	-0.327	-0.453	-0.268	-0.159	-0.177	-0.165	-0.139	-0.162	-0.148
16.444	0.278	0.227	0.074	-0.122	-0.337	-0.447	-0.268	-0.161	-0.171	-0.163	-0.141	-0.162	-0.148
16.944	0.278	0.227	0.075	-0.122	-0.331	-0.430	-0.261	-0.163	-0.162	-0.159	-0.139	-0.156	-0.145
17.444	0.283	0.233	0.085	-0.118	-0.333	-0.432	-0.257	-0.160	-0.152	-0.151	-0.143	-0.150	-0.141
17.944	0.281	0.234	0.088	-0.110	-0.327	-0.419	-0.244	-0.158	-0.143	-0.144	-0.139	-0.145	-0.135
18.444	0.281	0.231	0.086	-0.118	-0.323	-0.408	-0.238	-0.152	-0.134	-0.137	-0.115	-0.137	-0.132
18.944	0.286	0.237	0.095	-0.106	-0.316	-0.410	-0.222	-0.141	-0.120	-0.126	-0.103	-0.128	-0.122
19.444	0.288	0.241	0.102	-0.099	-0.308	-0.410	-0.205	-0.130	-0.109	-0.116	-0.105	-0.117	-0.113
19.944	0.302	0.251	0.108	-0.101	-0.318	-0.415	-0.197	-0.113	-0.094	-0.099	-0.103	-0.102	-0.094
20.444	0.316	0.267	0.127	-0.074	-0.292	-0.404	-0.173	-0.094	-0.075	-0.083	-0.081	-0.085	-0.077
20.944	0.315	0.269	0.133	-0.061	-0.256	-0.376	-0.148	-0.066	-0.057	-0.060	-0.068	-0.064	-0.049
21.444	0.308	0.264	0.139	-0.033	-0.211	-0.307	-0.113	-0.025	-0.021	-0.025	-0.030	-0.021	0.203

Table 1.42 Experimental pressure coefficients c_p for $\alpha = 30^o$, $M_\infty = 1.0$ and $Re_D = 6.1 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.584	0.460	0.368	0.202	0.091	0.172	-0.392	-0.294	-0.369	-0.318	-0.442	-0.259	-0.213
0.482	1.014	0.962	0.809	0.565	0.289	0.020	-0.259	-0.437	-0.526	-0.491	-0.432	-0.360	-0.345
0.731	0.819	0.766	0.617	0.399	0.100	-0.165	-0.406	-0.587	-0.692	-0.637	-0.588	-0.486	-0.446
0.980	0.602	0.553	0.410	0.203	-0.074	-0.325	-0.570	-0.741	-0.838	-0.778	-0.723	-0.570	-0.544
1.238	0.409	0.360	0.221	0.027	-0.235	-0.472	-0.702	-0.866	-0.963	-0.914	-0.799	-0.634	-0.620
1.500	0.248	0.201	0.068	-0.120	-0.375	-0.597	-0.810	-0.968	-1.046	-1.005	-0.786	-0.594	-0.550
1.944	0.290	0.242	0.104	-0.099	-0.378	-0.600	-0.846	-1.013	-1.011	-0.907	-0.636	-0.346	-0.178
2.444	0.260	0.225	0.080	-0.135	-0.423	-0.674	-0.901	-0.786	-0.751	-0.917	-0.505	-0.323	-0.140
2.944	0.243	0.191	0.047	-0.180	-0.458	-0.708	-0.395	-0.675	-0.577	-0.893	-0.448	-0.259	-0.213
3.444	0.235	0.170	0.025	-0.200	-0.483	-0.733	-0.727	-0.591	-0.518	-0.539	-0.667	-0.479	-0.342
3.944	0.225	0.164	0.013	-0.212	-0.504	-0.758	-0.727	-0.472	-0.414	-0.372	-0.362	-0.475	-0.342
4.444	0.214	0.153	-0.005	-0.236	-0.521	-0.681	-0.339	-0.340	-0.310	-0.310	-0.302	-0.331	-0.279
4.944	0.208	0.145	-0.008	-0.243	-0.524	-0.517	-0.207	-0.196	-0.220	-0.237	-0.264	-0.262	-0.220
5.444	0.213	0.141	-0.022	-0.254	-0.231	-0.435	-0.113	-0.088	-0.140	-0.178	-0.184	-0.214	-0.178
5.944	0.306	0.204	0.013	-0.250	-0.298	-0.388	-0.172	-0.099	-0.119	-0.143	-0.132	-0.147	-0.169
6.444	0.331	0.280	0.132	-0.057	-0.308	-0.406	-0.259	-0.141	-0.143	-0.112	-0.094	-0.103	-0.074
6.944	0.326	0.282	0.139	-0.036	-0.332	-0.479	-0.308	-0.137	-0.150	-0.122	-0.094	-0.081	-0.067
7.444	0.326	0.282	0.139	-0.036	-0.332	-0.479	-0.266	-0.137	-0.129	-0.143	-0.126	-0.095	-0.074
7.944	0.313	0.268	0.127	-0.064	-0.325	-0.454	-0.210	-0.116	-0.116	-0.133	-0.128	-0.119	-0.098
8.444	0.305	0.261	0.108	-0.085	-0.346	-0.479	-0.238	-0.116	-0.133	-0.122	-0.132	-0.131	-0.126
8.944	0.307	0.259	0.106	-0.096	-0.298	-0.548	-0.228	-0.137	-0.126	-0.129	-0.118	-0.123	-0.123
9.444	0.306	0.254	0.107	-0.092	-0.322	-0.500	-0.186	-0.130	-0.123	-0.147	-0.132	-0.140	-0.133
9.944	0.293	0.242	0.101	-0.078	-0.346	-0.441	-0.196	-0.134	-0.116	-0.140	-0.146	-0.137	-0.133
10.444	0.295	0.241	0.092	-0.110	0.335	-0.479	-0.203	-0.146	-0.125	-0.134	-0.131	-0.133	-0.134
10.944	0.297	0.246	0.099	-0.112	-0.331	-0.495	-0.196	-0.133	-0.131	-0.145	-0.129	-0.144	-0.142
11.444	0.288	0.237	0.097	-0.107	-0.340	-0.483	-0.198	-0.137	-0.136	-0.150	-0.154	-0.160	-0.154
11.944	0.286	0.235	0.097	-0.101	-0.320	-0.472	-0.196	-0.133	-0.136	-0.142	-0.157	-0.156	-0.152
12.444	0.283	0.231	0.091	-0.110	-0.327	-0.487	-0.214	-0.158	-0.147	-0.149	-0.152	-0.158	-0.154
12.944	0.288	0.241	0.096	-0.110	-0.327	-0.487	-0.219	-0.148	-0.134	-0.163	-0.145	-0.156	-0.147
13.444	0.286	0.235	0.090	-0.118	-0.335	-0.447	-0.207	-0.144	-0.138	-0.165	-0.147	-0.162	-0.151
13.944	0.283	0.233	0.085	-0.116	-0.322	-0.429	-0.228	-0.151	-0.158	-0.157	-0.152	-0.165	-0.152
14.444	0.287	0.236	0.087	-0.112	-0.320	-0.435	-0.230	-0.153	-0.163	-0.158	-0.151	-0.165	-0.152
14.944	0.291	0.239	0.090	-0.109	-0.318	-0.440	-0.250	-0.155	-0.168	-0.159	-0.150	-0.165	-0.152
15.444	0.283	0.235	0.089	-0.103	-0.315	-0.448	-0.266	-0.160	-0.170	-0.161	-0.147	-0.162	-0.152
15.944	0.284	0.233	0.092	-0.094	-0.326	-0.447	-0.282	-0.164	-0.172	-0.157	-0.152	-0.164	-0.152
16.444	0.276	0.224	0.083	-0.107	-0.333	-0.444	-0.295	-0.164	-0.170	-0.161	-0.148	-0.165	-0.156
16.944	0.278	0.226	0.081	-0.110	-0.327	-0.448	-0.300	-0.162	-0.168	-0.163	-0.145	-0.163	-0.154
17.444	0.282	0.233	0.090	-0.110	-0.322	-0.444	-0.293	-0.158	-0.161	-0.157	-0.150	-0.156	-0.147
17.944	0.275	0.232	0.092	-0.107	-0.318	-0.431	-0.279	-0.151	-0.154	-0.154	-0.146	-0.153	-0.142
18.444	0.271	0.223	0.088	-0.114	-0.324	-0.421	-0.257	-0.139	-0.145	-0.147	-0.119	-0.144	-0.135
18.944	0.278	0.226	0.091	-0.114	-0.313	-0.405	-0.221	-0.124	-0.127	-0.131	-0.103	-0.129	-0.122
19.444	0.285	0.233	0.091	-0.101	-0.291	-0.390	-0.196	-0.106	-0.113	-0.120	-0.103	-0.119	-0.111
19.944	0.300	0.248	0.103	-0.107	-0.307	-0.383	-0.207	-0.095	-0.095	-0.104	-0.101	-0.099	-0.090
20.444	0.320	0.268	0.133	-0.080	-0.268	-0.372	-0.164	-0.074	-0.063	-0.072	-0.069	-0.074	-0.065
20.944	0.319	0.276	0.147	-0.035	-0.243	-0.291	-0.124	-0.038	-0.041	-0.046	-0.051	-0.048	-0.032
21.444	0.311	0.266	0.145	-0.026	-0.216	-0.284	-0.081	0.005	0.007	-0.002	-0.009	0.002	0.222

Table 1.43 Experimental pressure coefficients c_p for $\alpha = 30^o$, $M_\infty = 1.1$ and $Re_D = 6.2 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
x/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.274	0.544	0.470	0.304	0.002	0.290	-0.121	-0.147	-0.218	-0.173	-0.124	-0.160	-0.102
0.482	1.074	1.027	0.882	0.670	0.411	0.139	-0.111	-0.287	-0.367	-0.335	-0.283	-0.215	-0.202
0.731	0.884	0.836	0.696	0.490	0.241	-0.033	-0.251	-0.423	-0.510	-0.474	-0.426	-0.331	-0.299
0.980	0.674	0.629	0.495	0.300	0.065	-0.186	-0.407	-0.569	-0.656	-0.604	-0.553	-0.413	-0.390
1.238	0.426	0.443	0.313	0.128	-0.093	-0.323	-0.531	-0.686	-0.770	-0.724	-0.650	-0.464	-0.468
1.500	0.326	0.283	0.160	-0.014	-0.223	-0.443	-0.631	-0.774	-0.851	-0.805	-0.605	-0.448	-0.416
1.944	0.370	0.326	0.201	0.012	-0.217	-0.456	-0.660	-0.816	-0.828	-0.702	-0.520	-0.250	-0.089
2.444	0.355	0.300	0.190	-0.015	-0.250	-0.511	-0.712	-0.676	-0.611	-0.737	-0.790	-0.241	-0.072
2.944	0.323	0.276	0.147	-0.060	-0.286	-0.544	-0.645	-0.550	-0.465	-0.808	-0.641	-0.160	-0.101
3.444	0.315	0.260	0.128	-0.080	-0.310	-0.566	-0.612	-0.465	-0.426	-0.520	-0.576	-0.409	-0.280
3.944	0.304	0.250	0.109	-0.093	-0.338	-0.589	-0.612	-0.430	-0.406	-0.370	-0.352	-0.409	-0.280
4.444	0.294	0.236	0.095	-0.112	-0.354	-0.609	-0.400	-0.407	-0.371	-0.332	-0.322	-0.364	-0.348
4.944	0.287	0.229	0.092	-0.122	-0.367	-0.622	-0.339	-0.345	-0.364	-0.341	-0.322	-0.338	-0.325
5.444	0.273	0.224	0.076	-0.132	-0.377	-0.615	-0.293	-0.293	-0.325	-0.338	-0.313	-0.315	-0.290
5.944	0.274	0.215	0.070	-0.138	-0.384	-0.586	-0.251	-0.264	-0.283	-0.299	-0.300	-0.296	-0.270
6.444	0.270	0.214	0.066	-0.142	-0.387	-0.576	-0.231	-0.219	-0.244	-0.254	-0.264	-0.254	-0.235
6.944	0.268	0.211	0.062	-0.145	-0.335	-0.565	-0.264	-0.186	-0.202	-0.208	-0.212	-0.215	-0.183
7.444	0.268	0.211	0.062	-0.145	-0.335	-0.564	-0.274	-0.186	-0.163	-0.170	-0.186	-0.189	-0.160
7.944	0.303	0.235	0.100	-0.096	-0.331	-0.563	-0.254	-0.202	-0.182	-0.176	-0.166	-0.169	-0.160
8.444	0.297	0.241	0.093	-0.106	-0.351	-0.586	-0.238	-0.202	-0.231	-0.199	-0.179	-0.179	-0.183
8.944	0.280	0.238	0.105	-0.099	-0.348	-0.589	-0.218	-0.215	-0.208	-0.215	-0.202	-0.195	-0.199
9.444	0.271	0.220	0.088	-0.116	-0.344	-0.569	-0.215	-0.199	-0.173	-0.199	-0.202	-0.215	-0.186
9.944	0.289	0.227	0.085	-0.102	-0.282	-0.553	-0.209	-0.160	-0.153	-0.173	-0.176	-0.179	-0.147
10.444	0.285	0.238	0.103	-0.084	-0.298	-0.548	-0.089	-0.169	-0.142	-0.154	-0.157	-0.167	-0.142
10.944	0.285	0.240	0.112	-0.088	-0.317	-0.529	-0.184	-0.151	-0.147	-0.165	-0.156	-0.177	-0.151
11.444	0.269	0.227	0.094	-0.108	-0.335	-0.529	-0.188	-0.161	-0.157	-0.170	-0.179	-0.190	-0.171
11.944	0.259	0.213	0.083	-0.123	-0.352	-0.519	-0.184	-0.146	-0.147	-0.154	-0.177	-0.179	-0.169
12.444	0.244	0.196	0.060	-0.145	-0.362	-0.469	-0.166	-0.136	-0.135	-0.150	-0.169	-0.169	-0.162
12.944	0.252	0.196	0.058	-0.145	-0.359	-0.380	-0.141	-0.126	-0.127	-0.164	-0.157	-0.164	-0.154
13.444	0.261	0.204	0.062	-0.138	-0.337	-0.315	-0.162	-0.139	-0.134	-0.152	-0.156	-0.167	-0.161
13.944	0.259	0.209	0.072	-0.121	-0.295	-0.420	-0.189	-0.149	-0.122	-0.100	-0.134	-0.132	-0.132
14.444	0.294	0.236	0.089	-0.095	-0.280	-0.385	-0.195	-0.126	-0.115	-0.102	-0.120	-0.110	-0.102
14.944	0.328	0.262	0.106	-0.069	-0.265	-0.350	-0.134	-0.102	-0.107	-0.104	-0.105	-0.107	-0.099
15.444	0.324	0.284	0.142	-0.047	-0.255	-0.358	-0.157	-0.100	-0.105	-0.109	-0.114	-0.122	-0.110
15.944	0.327	0.280	0.142	-0.054	-0.255	-0.370	-0.177	-0.121	-0.125	-0.124	-0.126	-0.135	-0.127
16.444	0.326	0.277	0.130	-0.063	-0.244	-0.384	-0.236	-0.149	-0.147	-0.147	-0.141	-0.147	-0.142
16.944	0.311	0.276	0.137	-0.046	-0.260	-0.412	-0.291	-0.179	-0.165	-0.154	-0.142	-0.149	-0.144
17.444	0.304	0.269	0.132	-0.054	-0.261	-0.479	-0.288	-0.177	-0.172	-0.166	-0.141	-0.144	-0.137
17.944	0.317	0.271	0.134	-0.056	-0.268	-0.507	-0.248	-0.177	-0.184	-0.179	-0.159	-0.154	-0.146
18.444	0.306	0.262	0.125	-0.066	-0.290	-0.516	-0.246	-0.174	-0.185	-0.189	-0.157	-0.169	-0.159
18.944	0.303	0.263	0.131	-0.069	-0.303	-0.496	-0.237	-0.166	-0.179	-0.189	-0.156	-0.179	-0.169
19.444	0.285	0.257	0.126	-0.069	-0.302	-0.492	-0.229	-0.166	-0.177	-0.192	-0.172	-0.189	-0.182
19.944	0.274	0.241	0.109	-0.093	-0.312	-0.497	-0.239	-0.174	-0.177	-0.189	-0.196	-0.190	-0.189
20.444	0.252	0.235	0.097	-0.096	-0.310	-0.494	-0.243	-0.174	-0.169	-0.174	-0.191	-0.174	-0.174
20.944	0.238	0.194	0.067	-0.125	-0.339	-0.475	-0.191	-0.142	-0.140	-0.139	-0.152	-0.130	-0.122
21.444	0.229	0.178	0.043	-0.155	-0.366	-0.447	-0.127	-0.084	-0.067	-0.058	-0.074	-0.035	0.195

Table 1.44 Experimental pressure coefficients c_p for $\alpha = 30^o$, $M_\infty = 1.2$ and $Re_D = 6.3 \cdot 10^5$

Coordinates	Polar angle, Φ, deg.												
x/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.065	0.600	0.528	0.353	0.066	0.365	-0.194	-0.067	-0.147	-0.110	-0.058	-0.135	-0.079
0.482	1.117	1.072	0.930	0.726	0.473	0.211	-0.039	-0.207	-0.295	-0.268	-0.212	-0.147	-0.132
0.731	0.926	0.880	0.743	0.546	0.305	0.043	-0.170	-0.334	-0.431	-0.401	-0.354	-0.268	-0.241
0.980	0.715	0.672	0.542	0.358	0.131	-0.104	-0.312	-0.467	-0.564	-0.524	-0.472	-0.348	-0.327
1.238	0.525	0.485	0.358	0.185	-0.024	-0.241	-0.434	-0.576	-0.669	-0.639	-0.561	-0.423	-0.408
1.500	0.352	0.312	0.197	0.034	-0.155	-0.352	-0.524	-0.650	-0.743	-0.710	-0.617	-0.407	-0.380
1.944	0.401	0.356	0.237	0.063	-0.149	-0.368	-0.548	-0.687	-0.718	-0.663	-0.614	-0.268	-0.129
2.444	0.375	0.335	0.220	0.045	-0.155	-0.414	-0.595	-0.616	-0.555	-0.642	-0.778	-0.268	-0.095
2.944	0.347	0.309	0.188	0.004	-0.211	-0.445	-0.555	-0.411	-0.437	-0.698	-0.611	-0.135	-0.079
3.444	0.335	0.290	0.165	-0.025	-0.240	-0.461	-0.545	-0.383	-0.397	-0.494	-0.487	-0.407	-0.284
3.944	0.333	0.284	0.145	-0.036	-0.258	-0.483	-0.545	-0.425	-0.382	-0.354	-0.317	-0.407	-0.284
4.444	0.336	0.286	0.144	-0.043	-0.267	-0.495	-0.384	-0.374	-0.357	-0.314	-0.293	-0.305	-0.312
4.944	0.317	0.280	0.146	-0.049	-0.273	-0.510	-0.316	-0.318	-0.329	-0.311	-0.293	-0.277	-0.253
5.444	0.318	0.261	0.118	-0.071	-0.292	-0.511	-0.281	-0.265	-0.289	-0.302	-0.299	-0.284	-0.247
5.944	0.306	0.262	0.116	-0.068	-0.292	-0.517	-0.260	-0.262	-0.261	-0.277	-0.296	-0.290	-0.259
6.444	0.302	0.259	0.116	-0.071	-0.298	-0.514	-0.235	-0.219	-0.243	-0.252	-0.259	-0.256	-0.231
6.944	0.300	0.254	0.109	-0.074	-0.299	-0.510	-0.213	-0.203	-0.212	-0.218	-0.240	-0.237	-0.213
7.444	0.300	0.254	0.109	-0.074	-0.299	-0.510	-0.194	-0.203	-0.199	-0.209	-0.215	-0.225	-0.191
7.944	0.291	0.254	0.106	-0.083	-0.314	-0.476	-0.191	-0.182	-0.199	-0.202	-0.206	-0.203	-0.194
8.444	0.287	0.247	0.106	-0.083	-0.280	-0.467	-0.238	-0.182	-0.181	-0.191	-0.200	-0.182	-0.182
8.944	0.303	0.254	0.099	-0.092	-0.283	-0.473	-0.263	-0.166	-0.162	-0.178	-0.185	-0.175	-0.163
9.444	0.302	0.252	0.119	-0.052	-0.270	-0.483	-0.275	-0.219	-0.169	-0.169	-0.175	-0.185	-0.169
9.944	0.303	0.267	0.130	-0.049	-0.267	-0.498	-0.253	-0.219	-0.196	-0.181	-0.163	-0.166	-0.157
10.444	0.310	0.270	0.131	-0.051	-0.276	-0.492	-0.199	-0.203	-0.246	-0.224	-0.187	-0.183	-0.169
10.944	0.312	0.261	0.125	-0.057	-0.276	-0.482	-0.172	-0.163	-0.198	-0.240	-0.214	-0.199	-0.166
11.444	0.286	0.243	0.107	-0.080	-0.298	-0.450	-0.150	-0.172	-0.185	-0.211	-0.243	-0.224	-0.194
11.944	0.305	0.260	0.121	-0.070	-0.293	-0.417	-0.142	-0.124	-0.132	-0.164	-0.202	-0.189	-0.153
12.444	0.304	0.255	0.115	-0.074	-0.281	-0.375	-0.134	-0.118	-0.119	-0.148	-0.162	-0.173	-0.127
12.944	0.319	0.269	0.132	-0.056	-0.255	-0.382	-0.153	-0.124	-0.111	-0.148	-0.151	-0.159	-0.146
13.444	0.297	0.266	0.128	-0.056	-0.265	-0.377	-0.139	-0.124	-0.120	-0.140	-0.140	-0.146	-0.143
13.944	0.309	0.258	0.129	-0.049	-0.265	-0.394	-0.160	-0.150	-0.144	-0.149	-0.146	-0.159	-0.138
14.444	0.318	0.272	0.140	-0.038	-0.256	-0.430	-0.200	-0.178	-0.172	-0.169	-0.158	-0.160	-0.170
14.944	0.326	0.287	0.152	-0.027	-0.247	-0.466	-0.252	-0.206	-0.200	-0.189	-0.170	-0.167	-0.169
15.444	0.318	0.285	0.144	-0.046	-0.257	-0.485	-0.268	-0.234	-0.235	-0.224	-0.162	-0.169	-0.150
15.944	0.281	0.251	0.116	-0.064	-0.261	-0.439	-0.247	-0.226	-0.248	-0.250	-0.202	-0.204	-0.183
16.444	0.292	0.230	0.101	-0.072	-0.271	-0.351	-0.198	-0.191	-0.208	-0.216	-0.226	-0.208	-0.186
16.944	0.295	0.241	0.108	-0.077	-0.286	-0.318	-0.164	-0.129	-0.157	-0.165	-0.192	-0.197	-0.174
17.444	0.279	0.245	0.109	-0.075	-0.287	-0.295	-0.151	-0.140	-0.173	-0.162	-0.197	-0.204	-0.201
17.944	0.292	0.261	0.128	-0.056	-0.268	-0.357	-0.212	-0.159	-0.173	-0.164	-0.189	-0.186	-0.194
18.444	0.273	0.219	0.085	-0.096	-0.305	-0.437	-0.259	-0.174	-0.176	-0.162	-0.165	-0.173	-0.174
18.944	0.283	0.243	0.109	-0.069	-0.263	-0.458	-0.270	-0.193	-0.213	-0.186	-0.146	-0.165	-0.158
19.444	0.308	0.283	0.155	-0.019	-0.230	-0.476	-0.275	-0.204	-0.213	-0.196	-0.159	-0.180	-0.166
19.944	0.282	0.238	0.104	-0.075	-0.281	-0.474	-0.238	-0.204	-0.209	-0.204	-0.196	-0.205	-0.174
20.444	0.265	0.237	0.091	-0.083	-0.291	-0.453	-0.206	-0.190	-0.194	-0.213	-0.243	-0.212	-0.191
20.944	0.274	0.243	0.120	-0.059	-0.278	-0.444	-0.179	-0.150	-0.143	-0.173	-0.210	-0.175	-0.158
21.444	0.295	0.251	0.117	-0.074	-0.287	-0.413	-0.156	-0.135	-0.120	-0.132	-0.167	-0.116	-0.052

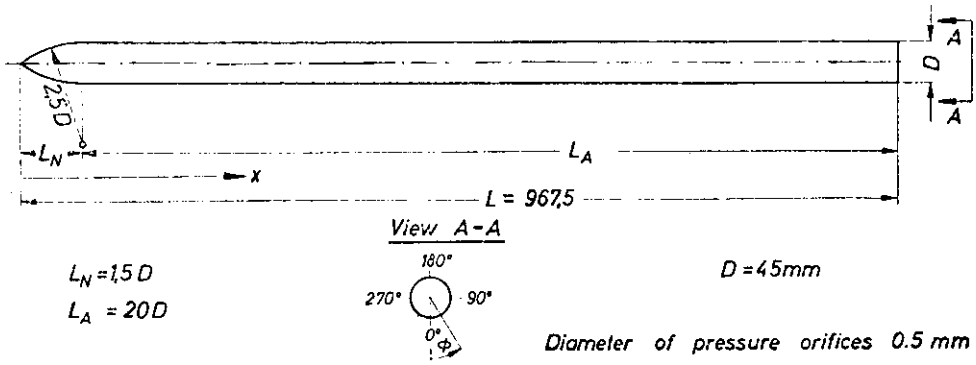
Table 1.45 Normal-force-, pitching-moment-, axial-force- and base pressure coefficients. Continued.

M_∞	$Re_D \cdot 10^{-5}$	α [°]	C_N	C_m	C_A	c_{p_B}
0.5	4.1	-4.09	0.206188	-1.169099	-0.376733	-0.109928
		-2.04	0.081813	-0.532010	-0.353991	-0.092644
		-1.01	0.027462	-0.204207	-0.349708	-0.089633
		-0.50	0.003432	-0.050764	-0.346691	-0.089789
		0.01	-0.020423	0.102677	-0.349372	-0.089633
		0.52	-0.046643	0.236303	-0.350519	-0.091930
		1.03	-0.070241	0.399688	-0.352741	-0.089789
		2.06	-0.122431	0.717606	-0.354329	-0.092087
		4.11	-0.258115	1.405656	-0.384979	-0.109928
		6.17	-0.420294	2.015942	-0.407352	-0.125318
		8.24	-0.616665	2.741194	-0.426986	-0.141174
		12.41	-1.131036	4.038480	-0.425871	-0.176576
		16.56	-1.429215	6.126560	-0.361032	-0.213362
		0.01	-0.017570	0.092408	-0.347957	-0.087777
0.7	5.2	-4.16	0.223801	-1.204304	-0.372477	-0.110844
		-2.07	0.097425	-0.544705	-0.346925	-0.091552
		-1.03	0.042029	-0.208631	-0.343157	-0.089967
		-0.51	0.017187	-0.061814	-0.343207	-0.090033
		-0.01	0.017123	-0.061766	-0.331495	-0.089024
		0.53	-0.034055	0.250114	-0.343485	-0.088859
		1.05	-0.060155	0.391075	-0.345551	-0.090677
		2.09	-0.117390	0.715252	-0.352219	-0.093370
		4.19	-0.250630	1.395700	-0.380462	-0.109843
		6.29	-0.420437	2.070992	-0.403916	-0.127394
		8.42	-0.626951	2.849541	-0.419063	-0.142293
		12.72	-1.192703	4.439419	-0.417336	-0.180135
		17.06	-1.870858	6.089602	-0.406442	-0.193275
		0.01	-0.007638	0.091079	-0.342660	-0.088694
0.8	5.6	-4.20	0.233361	-1.214491	-0.376944	-0.123177
		-2.09	0.102183	-0.545536	-0.352035	-0.105156
		-1.04	0.046924	-0.226844	-0.346403	-0.100972
		-0.51	0.020245	-0.077726	-0.346179	-0.100815
		0.01	-0.003602	0.071232	-0.345777	-0.100121
		0.53	-0.031551	0.225607	-0.347088	-0.100815
		1.06	-0.058271	0.400141	-0.348230	-0.100815
		2.11	-0.115051	0.704062	-0.354582	-0.105347
		4.22	-0.253365	1.386158	-0.383788	-0.123458
		6.35	-0.427997	2.088426	-0.406387	-0.140587
		8.50	-0.643296	2.869537	-0.423153	-0.155760
		12.88	-1.233683	4.528792	-0.424949	-0.192289
		17.35	-2.307506	6.445725	-0.428194	-0.210127
		0.01	-0.003609	0.071384	-0.345610	-0.101298
0.9	5.9	-4.23	0.241710	-1.211722	-0.392799	-0.130045
		-2.10	0.107552	-0.564361	-0.364270	-0.107617
		-1.05	0.050211	-0.246651	-0.359887	-0.105190
		-0.52	0.018963	-0.072510	-0.357234	-0.100747
		0.01	-0.003213	0.066956	-0.356423	-0.103730
		0.53	-0.029087	0.215725	-0.358774	-0.106150
		1.07	-0.059948	0.386981	-0.360139	-0.106442
		2.12	-0.117329	0.680966	-0.365564	-0.108695
		4.25	-0.257576	1.355987	-0.396568	-0.130379
		6.41	-0.437418	2.079790	-0.420346	-0.147293
		8.58	-0.661175	2.840806	-0.436212	-0.164470
		13.04	-1.290536	4.619712	-0.448297	-0.202575
		17.61	-2.132769	6.594131	-0.444206	-0.219845
		0.01	-0.004470	0.071425	-0.359111	-0.105628
0.95	6.0	-4.25	0.258479	-1.190104	-0.451433	-0.139959
		-2.11	0.116739	-0.519823	-0.424364	-0.118509
		-1.05	0.057460	-0.198662	-0.418195	-0.114490
		-0.52	0.026753	-0.031799	-0.416792	-0.113429
		0.01	0.001137	0.105246	-0.415529	-0.112851
		0.54	-0.025952	0.259263	-0.416416	-0.113731
		1.07	-0.055139	0.413373	-0.417842	-0.113822
		2.13	-0.118092	0.739046	-0.426800	-0.120359
		4.27	-0.262948	1.410029	-0.458203	-0.142293
		6.44	-0.453682	2.154644	-0.482850	-0.162184
		8.64	-0.688014	2.957833	-0.508505	-0.177382
		13.15	-1.339462	4.884258	-0.525875	-0.217724
		17.83	-2.258474	7.356373	-0.514791	-0.235532
		0.01	0.001092	0.101447	-0.415030	-0.112959
1.0	6.1	-4.27	0.274307	-1.208779	-0.565377	-0.189901
		-2.12	0.127796	-0.497394	-0.531112	-0.160711
		-1.05	0.064841	-0.198683	-0.521497	-0.153796
		-0.52	0.032394	-0.055068	-0.519960	-0.152670
		0.01	0.002379	0.076445	-0.508735	-0.146330
		0.54	-0.029058	0.232566	-0.508228	-0.145930
		1.07	-0.060885	0.366167	-0.526504	-0.154516
		2.13	-0.124715	0.664769	-0.523587	-0.157937
		4.28	-0.262829	1.359870	-0.564080	-0.187387
		6.48	-0.474220	2.181377	-0.606847	-0.219359
		8.70	-0.710558	3.118226	-0.635495	-0.241682
		13.24	-1.374322	5.125033	-0.640081	-0.274269
		18.03	-2.345746	7.984025	-0.638739	-0.290929
		0.01	-0.001056	0.086711	-0.517161	-0.151333

Table 1.45 Concluded

M_∞	$Re_D \cdot 10^{-5}$	α [°]	C_N	C_m	C_A	C_{p_B}
1.05	6.2	-4.29	0.275399	-1.308653	-0.677240	-0.239056
		-2.12	0.133000	-0.507411	-0.628928	-0.197801
		-1.06	0.065646	-0.195466	-0.616079	-0.186531
		-0.52	0.031261	-0.056943	-0.621176	-0.193139
		0.01	-0.000832	0.069905	-0.623980	-0.196358
		0.54	-0.035145	0.208711	-0.626282	-0.198141
		1.07	-0.067227	0.343418	-0.628413	-0.200269
		2.15	-0.134996	0.667542	-0.641888	-0.210738
		4.31	-0.281203	1.476795	-0.671814	-0.233206
		6.51	-0.476774	2.338841	-0.711540	-0.262215
		8.77	-0.729312	3.421954	-0.717600	-0.256206
		13.39	-1.437805	5.690879	-0.729402	-0.288965
		18.27	-2.458763	8.807719	-0.724308	-0.304422
		0.01	0.000177	0.073829	-0.621610	-0.194092
1.1	6.3	-4.30	0.278711	-1.342815	-0.740618	-0.274547
		-2.13	0.131304	-0.525921	-0.705039	-0.247895
		-1.06	0.066574	-0.176465	-0.695542	-0.240585
		-0.52	0.035046	-0.025543	-0.694079	-0.238979
		0.01	0.002656	0.119996	-0.694148	-0.239985
		0.55	-0.027806	0.280402	-0.693270	-0.238955
		1.08	-0.059261	0.444635	-0.696337	-0.241077
		2.16	-0.125178	0.784775	-0.707187	-0.249419
		4.34	-0.276322	1.603051	-0.743226	-0.275428
		6.55	-0.474476	2.514315	-0.772690	-0.294041
		8.80	-0.729064	3.482094	-0.799365	-0.309068
		13.45	-1.441085	5.804121	-0.789726	-0.325034
		18.43	-2.555811	9.183960	-0.787591	-0.346987
		0.01	0.004749	0.116167	-0.685473	-0.234085
1.2	6.3	-4.34	0.275249	-1.479808	-0.752892	-0.240845
		-2.15	0.125348	-0.646294	-0.719312	-0.213961
		-1.07	0.061057	-0.201679	-0.711848	-0.206358
		-0.53	0.029620	-0.110165	-0.710933	-0.205571
		0.01	-0.000599	0.050296	-0.710305	-0.205948
		0.55	-0.031998	0.232467	-0.711836	-0.206168
		1.09	-0.063302	0.414459	-0.713624	-0.207409
		2.17	-0.128960	0.804056	-0.725229	-0.216511
		4.37	-0.279316	1.699646	-0.761628	-0.240891
		6.60	-0.484611	2.626107	-0.787777	-0.260329
		8.87	-0.751931	3.669907	-0.806235	-0.276803
		13.60	-1.521209	6.125628	-0.823618	-0.300923
		18.87	-2.806717	10.633547	-0.813040	-0.322559
		0.00	-0.001317	0.028794	-0.709105	-0.206874

Figure 1.1 Body geometry and coordinates of pressure orifices



Coordinates of pressure orifices (constant Φ)

Nr.	x[mm]	$\frac{x}{D}$
1	11,25	0,251
2	21,74	0,482
3	32,94	0,731
4	44,11	0,980
5	55,74	1,238
6	67,50	1,500
7	87,50	1,944
8	110,0	2,444
9	132,5	2,944
10	155,0	3,444
11	177,5	3,944
12	200,0	4,444

Nr.	x[mm]	$\frac{x}{D}$
13	222,5	4,944
14	245,0	5,444
15	267,5	5,944
16	290,0	6,444
17	312,5	6,944
18	335,0	7,444
19	357,5	7,944
20	380,0	8,444
21	402,5	8,944
22	425,0	9,444
23	447,5	9,944
24	470,0	10,444

Nr.	x[mm]	$\frac{x}{D}$
25	492,5	10,944
26	515,0	11,444
27	537,5	11,944
28	560,0	12,444
29	582,5	12,944
30	605,0	13,444
31	627,5	13,944
32	650,0	14,444
33	672,5	14,944
34	695,0	15,444
35	717,5	15,944
36	740,0	16,444

Nr.	x[mm]	$\frac{x}{D}$
37	762,5	16,944
38	785,0	17,444
39	807,5	17,944
40	830,0	18,444
41	852,5	18,944
42	875,0	19,444
43	897,5	19,944
44	920,0	20,444
45	942,5	20,944
46	965,0	21,444

Figure 1.2 Model supports I and II

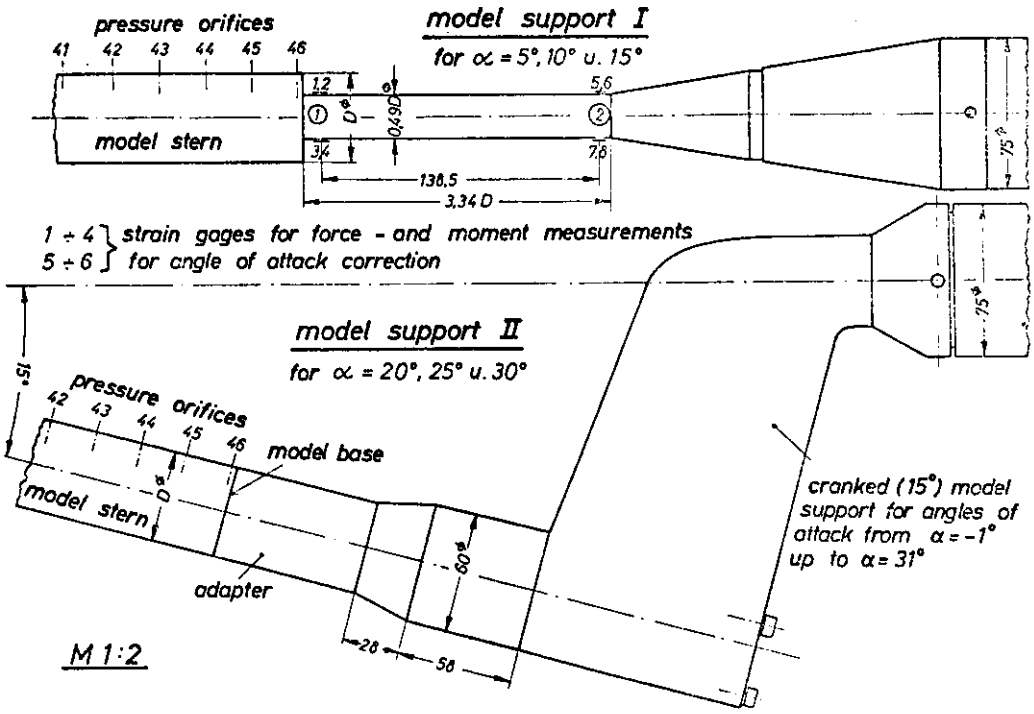
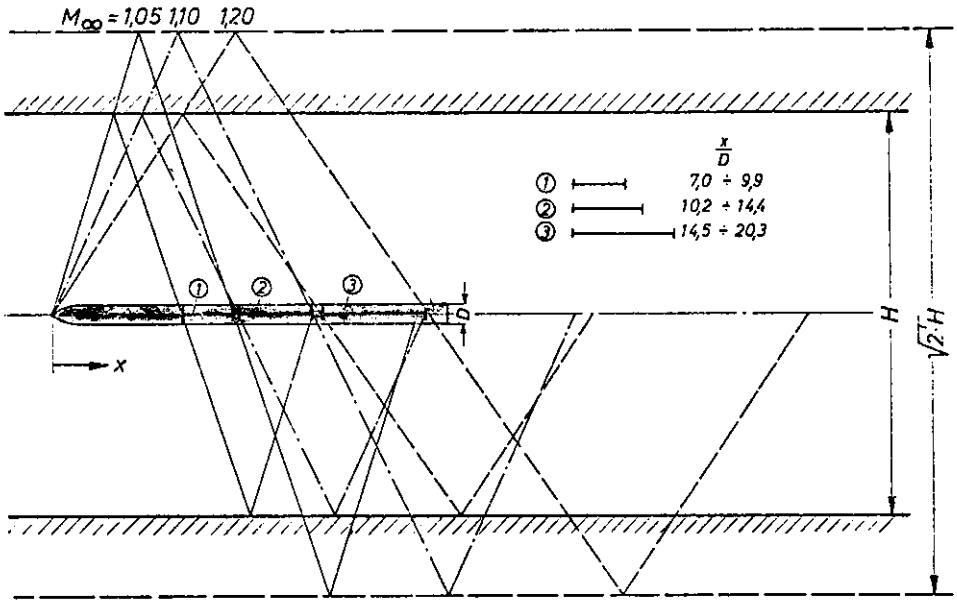


Figure 1.3 Reflection pattern of model head waves



H = Height of the test section
$\sqrt{2} \cdot H$ = Diagonal of the square test section

Figure 1.4 Normal-force coefficients

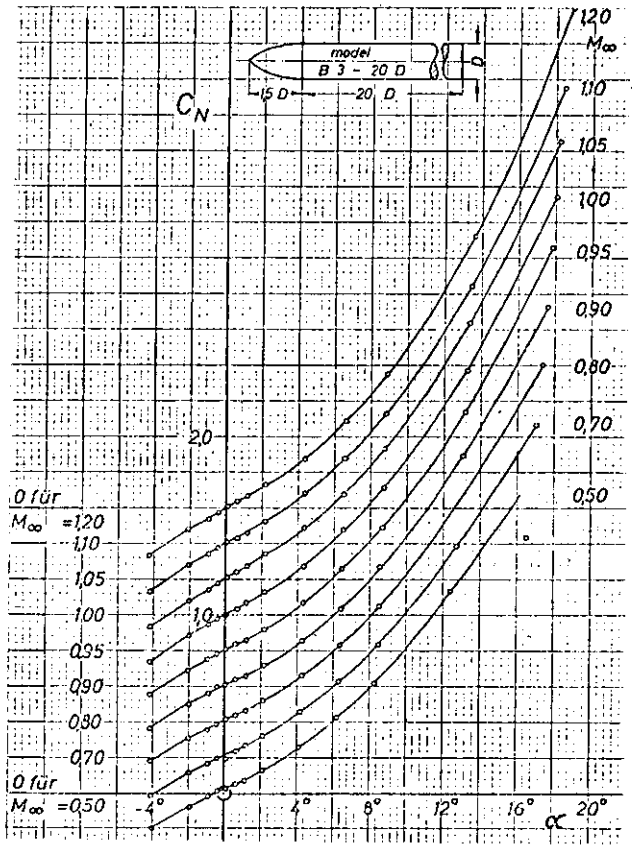


Figure 1.5 Pitching-moment coefficients

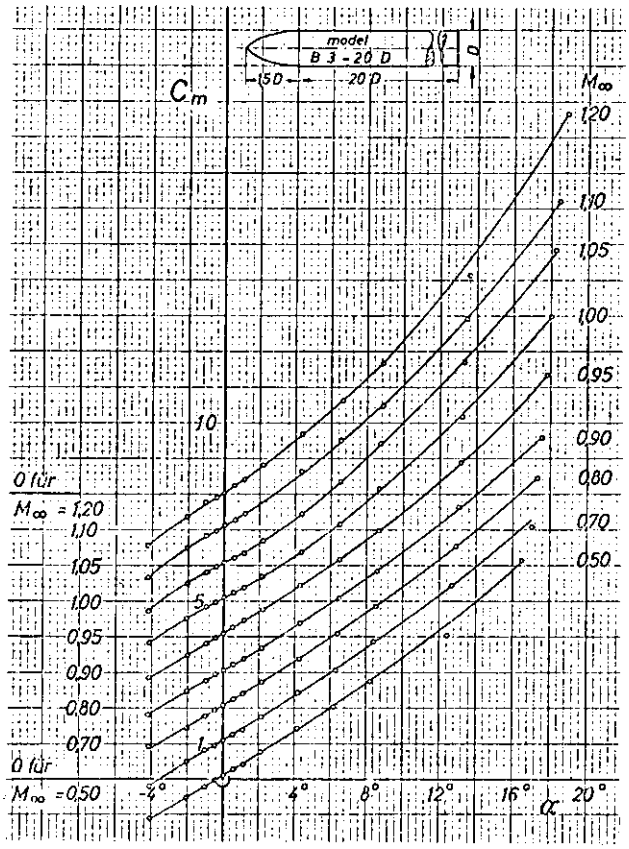


Figure 1.6 Axial-force coefficients

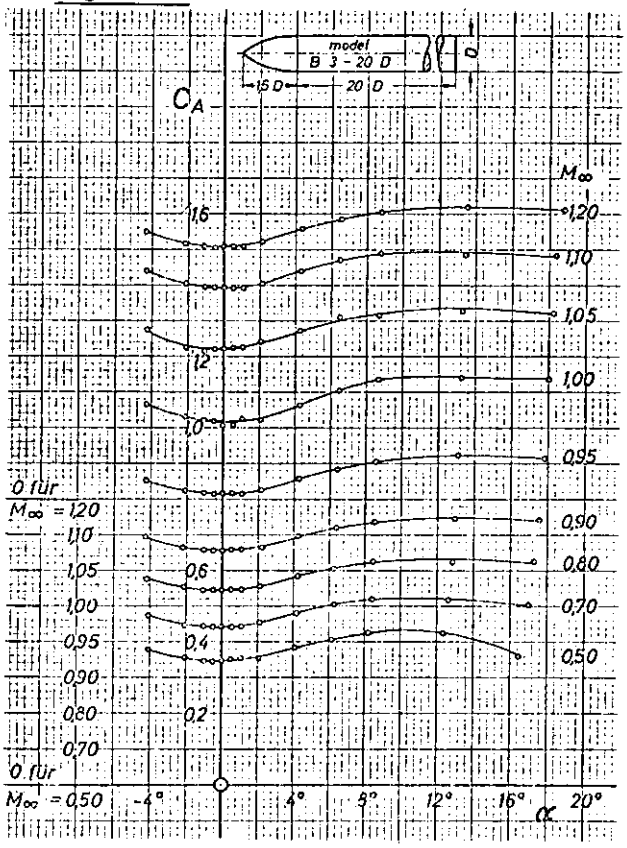


Figure 1.7 Base pressure coefficients

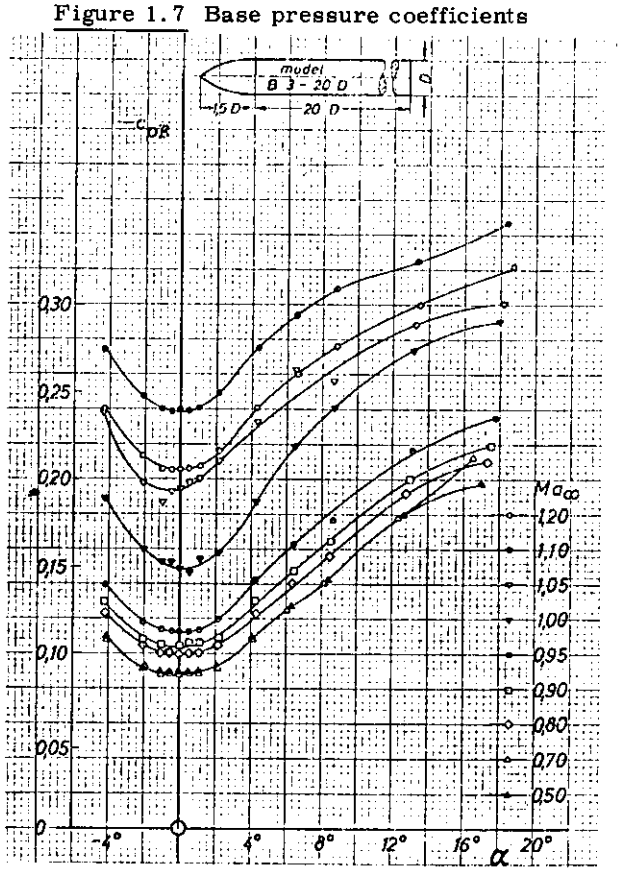


Figure 1.8 Longitudinal distributions of pressure coefficient

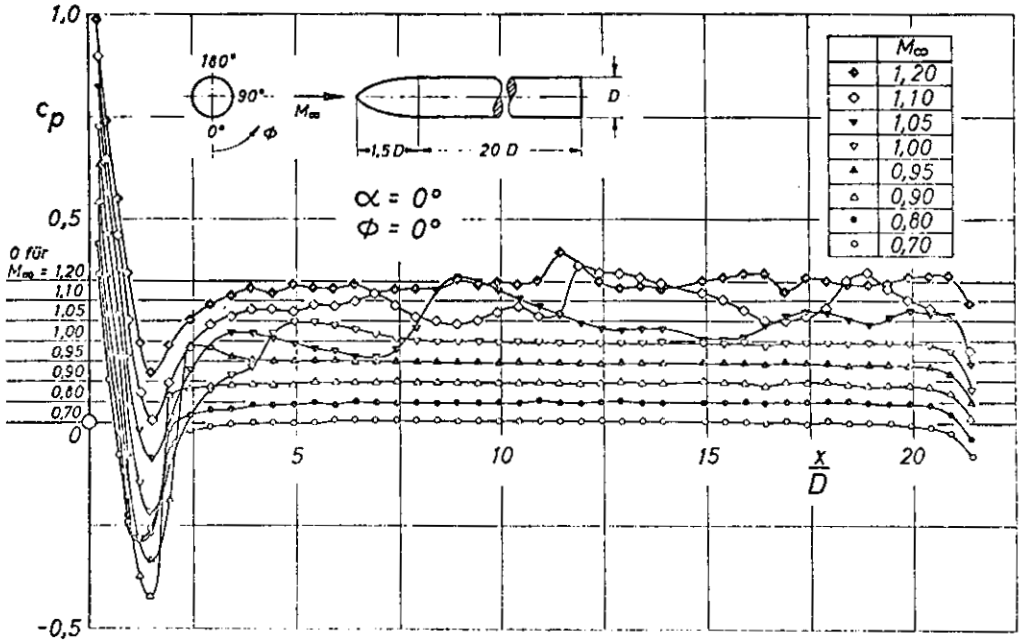


Figure 1.9 Longitudinal distributions of pressure coefficient

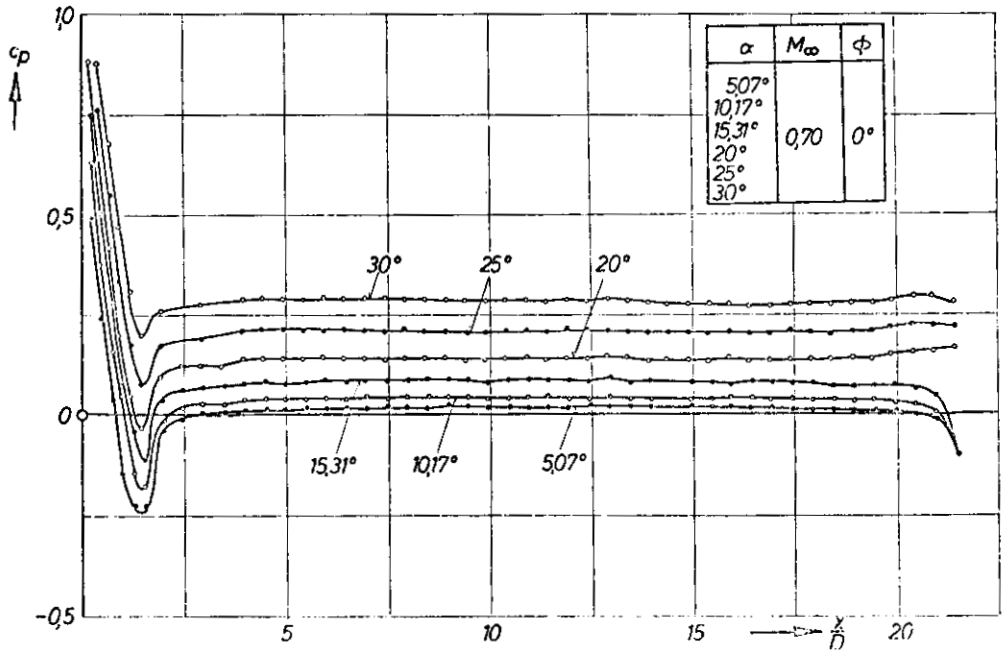


Figure 1.10 Longitudinal distributions of pressure coefficients

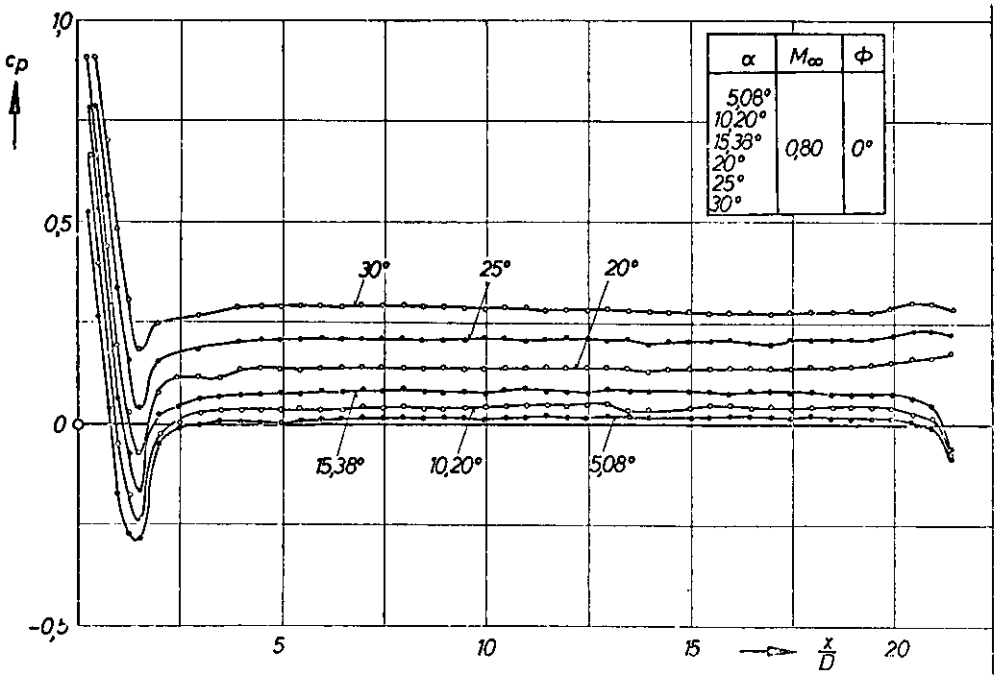


Figure 1.11 Longitudinal distributions of pressure coefficient

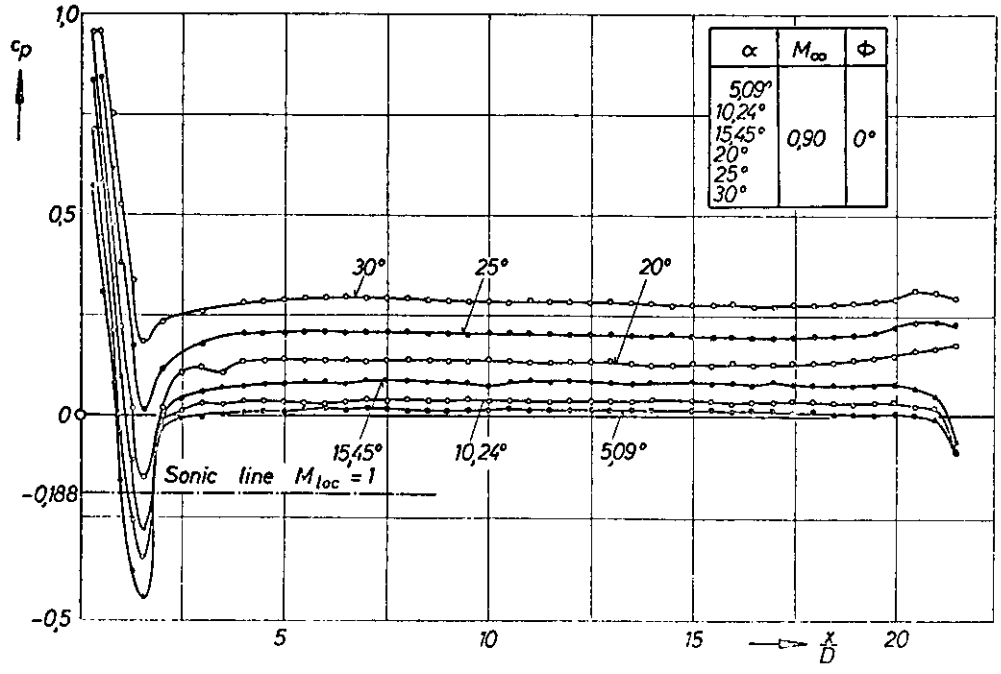


Figure 1.12 Longitudinal distributions of pressure coefficient

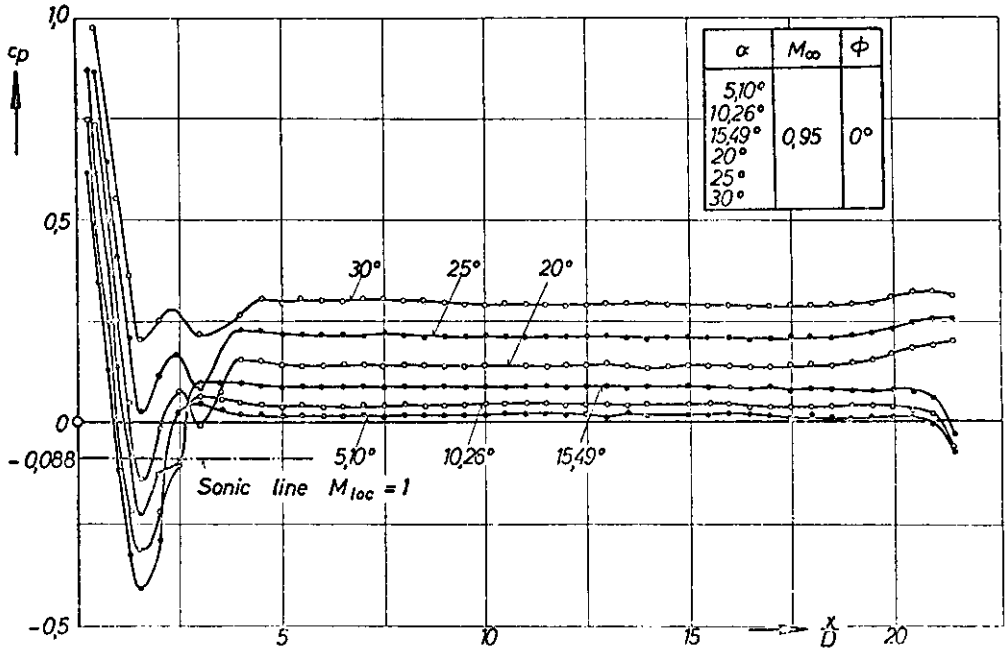


Figure 1.13 Longitudinal distributions of pressure coefficient

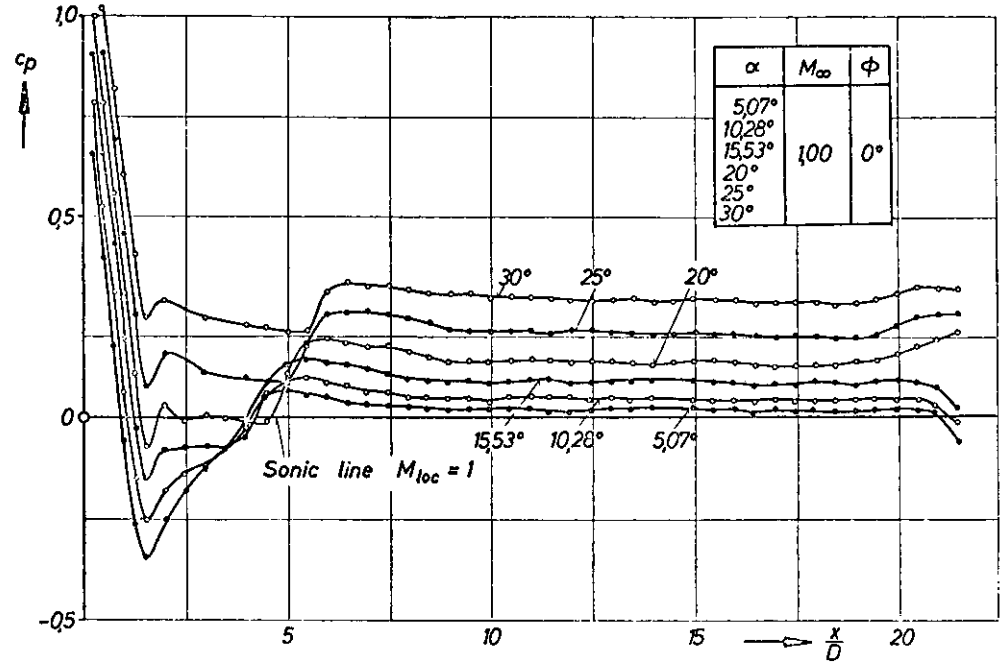


Figure 1.14 Longitudinal distributions of pressure coefficient

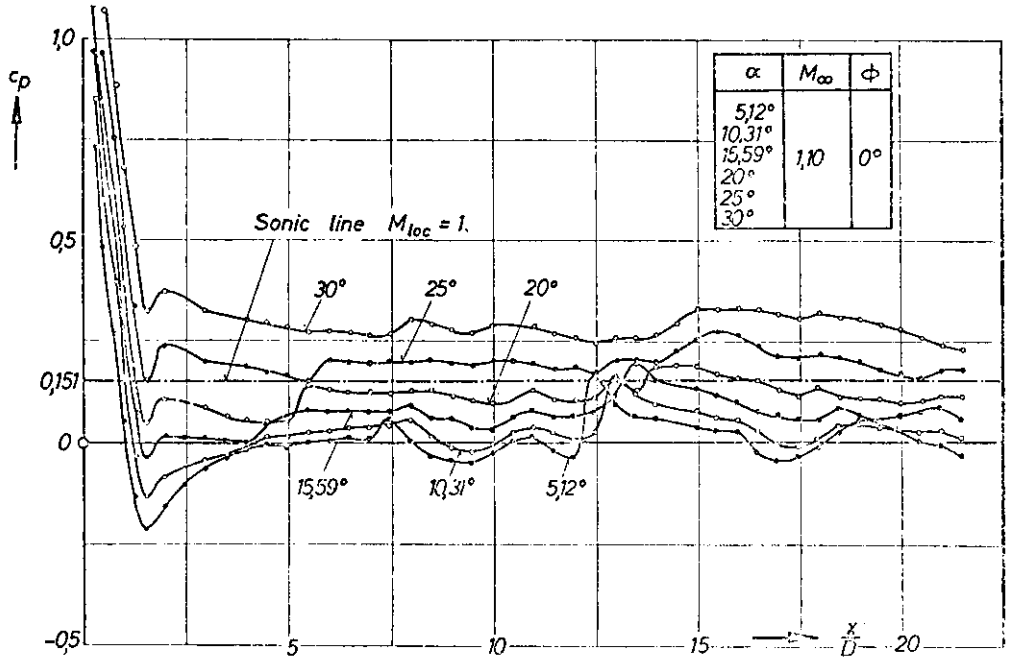


Figure 1.15 Longitudinal distributions of pressure coefficient

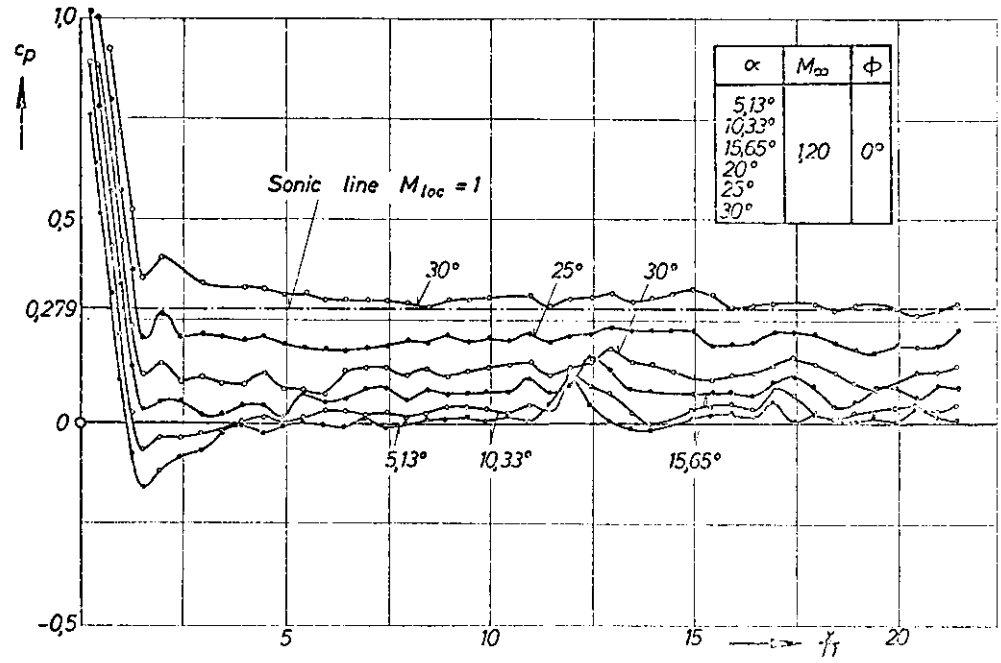
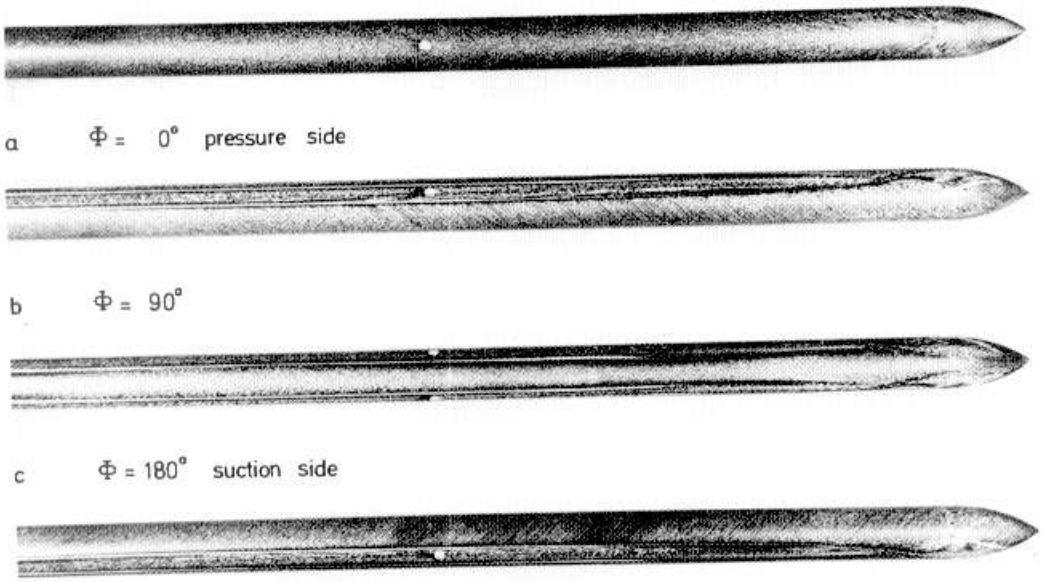


Figure 1.16 Oil flow picture for $M_\infty = 0.7$, $Re_D = 5.7 \cdot 10^5$, $\alpha = 25^0$



a $\Phi = 0°$ pressure side

b $\Phi = 90°$

c $\Phi = 180°$ suction side

d $\Phi = 270°$

AR-138

2. MBB - Body of Revolution No. 3

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Introduction

The present data set contains selected results from surface pressure and force measurements on Body No. 3 of 5 parabolic bodies of revolution, which differ only by the shape of their afterbody. Details of the model geometry are given in Fig. 2-1. The presented data were taken during three test phases with the following aims:

Phase 1: Surface pressure measurements on 5 parabolic bodies of revolution. Variation of Mach number, Reynolds number, and incidence; transition free (Results: Table 2-4, 2-5)

Phase 2: Surface pressure measurements on 3 bodies of revolution (No. 1, 3, and 5) with check of repeatability, and chord force measurements. Further, variations of Mach number, Reynolds number, and incidence were made; transition was fixed by carborundum (Results: Table 2-6, 2-7, and 2-8).

Phase 3: Forebody drag force measurements with different aftbody contours. Pressure measurements on test section wall with and without model. Variation of Mach number and Reynolds number; transition fixed by carborundum (Results: Table 2-9, 2-10).

The flow conditions included here are listed in Table 2-1. In Phase 1 the tests were performed without fixed transition. In Phase 2 and 3, however, the transition were fixed at about 5 % L in order to have a turbulent boundary layer on the whole surface; moreover, forebody drag measurements without fixed transition did not allow significant interpretation.

The included data are neither corrected for blockage nor axial pressure gradients. But it should be emphasized that pressure measurements on the upper and lower test section wall have indicated some possible errors

a) for the static pressure p_∞ dependent on Mach and Reynolds number

b) for the drag due to an axial pressure gradient in the tunnel depending on model, Mach, and Reynolds number (Reference [14]).

However, pressure measurements on the center-line and on the side walls did not indicate any gradients, except at $Ma_\infty = 0.5$. These errors which probably occur in all transonic windtunnels and which usually lie within the limitations of the measuring equipment are not essential for standard force and pressure measurements.

1. General Description

1.1 Model Designation or Name	MBB - Body - of Revolution No. 3
1.2 Model Type (e.g., Full Span	body of revolution
1.4 Additional Remarks	

2. Model Geometry

2.2 Body Data (Detail Description of Body Geometry)	forebody: x = 0 to x = 0,5 L cubic shape;
	cylindrical part: x = 0,5 L to 0,6875 L;
	aftbody: x = 0,6875 L to 0,967 L cubic shape
	sting diameter: 3,0 cm
	theoretical body length: L = 80 cm
	body diameter: D = 12 cm
	actual length: 77,4 cm
	analytical form: see Fig. 2-1 [12], [13]

2.4 Cross Sectional Area Development — see Fig. 2-1

2.5 Fabrication Tolerances/Waviness

2.6 Additional Remarks

3. Wind Tunnel

3.1 Designation — 1 x 1 Meter Transonic Wind Tunnel,

3.2 Type of Tunnel

3.2.1 Continuous or Blowdown. Indicate Minimum Run Time if Applicable — continuous, closed circuit

3.2.2 Stagnation Pressure — 0.4 bar up to 1.6 bar

3.2.3 Stagnation Temperature — ambient

3.3 Test Section

3.3.1 Shape of Test Section — square

3.3.2 Size of Test Section (Width, Height, Length) — 1 meter, 1 meter, 3 meter

3.3.3 Type of Test Section Walls Closed, Open, Slotted, Perforated — perforated,

Open Area Ratio (Give Range if Variable) — 6 % ,

Slot/Hole Geometry (e.g., 30-Degree Slanted Holes) — 30 degree slanted holes,

Treatment of Side Wall Boundary Layer — four walls are perforated and plenum suction is applied to adjust free stream conditions.

Full span models
Half-model testing — In case of 2-D and half-model-testing solid end plates (Ø 0.57 m) are used.

3.4 Flow Field (Empty Test Section)

3.4.1 Reference Static Pressure — plenum pressure, calibrated against side wall static pressure and lancet-probe [3] in the empty tunnel,

3.4.2 Flow Angularity — $\Delta\alpha = \Delta\beta < \pm\ 0.05$ wedge probe calibration

3.4.3 Mach Number Distribution
3.4.4 Pressure Gradient — see Chapter A5 Fig. 5.5 and Ref. [1], [2], [3] also see 3.5.4

3.4.5 Turbulence/Noise Level — low turbulence level (measurements are in progress) [10]
low noise level ($\sqrt{n\,F(n)} < 0.001$) [8]

3.4.6 Side Wall Boundary Layer

Ma	0.5	0.8	1.0	1.2
δ	8.0	7.4	6.7	6.5 cm

3.5 Freestream Mach Number (or Velocity)

3.5.1 Range — transonic Ma = 0.5 - 1.2; supersonic Ma = 1.3 - 2.0

3.5.2 Pressures Used to Determine Mach Number (e.g., Settling Chamber Total Pressure and Plenum Chamber Pressure) — transonic range: settling chamber total pressure/ and plenum chamber pressure. Dependence between plenum pressure and free stream static pressure has been calibrated by lancet-probe and side-wall static pressure [3]

3.5.3 Accuracy of Mach Number Determination (Δ Ma) — ΔMa = ± 0.003

3.5.4 Maximum Mach Number Variation in x, y, z-Direction (Empty Tunnel; Specify at What Mach Number)

Ma	0.5	0.8	1.0	1.2
ΔMa(x-direct.)	0.005	0.003	0.006	0.015
(z-direct.)		0.003		
∂Ma/∂(x/L)	0.0037			

Maximum Variation of Flow Direction — ± 0.05°

Maximum Mach Number Variation During a Run — ΔMa = ± 0.001

3.6 Reynolds Number Range	Ma 0.5 1.0 2.0
3.6.1 Unit Reynolds Number Range. (Give Range at Representative Mach Numbers; 1/m)	Re_{MAX} $1.7 \cdot 10^7$ $1.8 \cdot 10^7$ $1.2 \cdot 10^7$ Re_{MIN} $0.27 \cdot 10^7$ $0.42 \cdot 10^7$ $0.5 \cdot 10^7$
3.6.2 Means of Varying Reynolds Number (e.g., by Pressurization)	pressurization
3.7 Temperature Range and Dewpoint. Can Temperature be Controlled?	$T_o \approx 310$ K (ambient), no $t_{Dewpoint} \approx 250$ K
3.8 Model Attitudes	2-D and sheared wings: total 25° ($\pm$ 0.02^o) half-models: total incidence 25° ($\pm$ 0.02^o) complete models: total incidence: 30° ($\pm$ 0.02^o) *
3.8.1 Angle of Attack, Yaw, Roll	total yaw : 15° ($\pm$ 0.1^o) total roll : 360° ($\pm$ 0.1^o)
3.8.2 Accuracy in Determining Angles	* range can be extended by cranked stings
3.9 Organization Operating the Tunnel and Location of Tunnel	Deutsche Forschungs- und Versuchsanstalt für Luft- und Raumfahrt E.V. Bunsenstrasse 10 34 Göttingen (FRG)
3.10 Who is to be Contacted for Additional Information	Dr.-Ing. W. Lorenz-Meyer Address: see 3.9
3.11 Literature Concerning this Facility	Ref. [1] - [7]
3.12 Additional Remarks	-

4. Tests

4.1 Type of Tests	surface pressure distribution oil flow pictures, force measurements complete model and forebody alone, top wall static pressure
4.2 Blockage	1.13 %
4.3 Test Conditions	
4.3.1 Angle of Attack	-3°; 0°; 3°; 5°
4.3.2 Mach Number	0.5 to 1.2
4.3.3 Dynamic Pressure	0.06 bar to 0.53 bar
4.3.4 Reynolds Number	$5 \cdot 10^6$ to $16 \cdot 10^6$ (related to theoretical body length)
4.3.5 Stagnation Temperature	ambient (~ 310)
4.4 Transition	
4.4.1 Free or Fixed	free (Run No. 1-24, 163 - 165) fixed (Run No. 89 - 100, 130 - 147)
4.4.2 Position of Free Transition	unknown
4.4.3 Position of Fixed Transition, Width of Strips, Size and Type of Roughness Elements	Run 130 - 147 : Carborundum . 180 K (~ 95 μm) x = 6.2 % L l = 6 mm density ~ 50 % Run 89 - 100 : Carborundum 150 K (~ 110 μm) x = 5 % L l = 5 mm density ~ 50 %
4.4.4 Were Checks Made to Determine if Transition Occured at Trip Locations?	No
4.6 Were Different Sized Models Used in Wind-Tunnel Investigation? If so, Indicate Sizes	5 aftbody configurations were tested, which differ in length of cylindrical part (see Fig. 2-1 and Table 2-3)

4.7 Areas and Lengths Used to Form Coefficients	area: cross section $S = \pi D^2/4 = 113.09\ cm^2$ for Run No. 130 - 147, 163 - 165 cross section S = 112.81 cm for Run No. 89 - 100 base area: $S_B = 7.54\ cm^2$ length: reference length L = 80 cm
4.8 References on Tests	[11] - [15]
4.9 Related Reports	[11] - [15]

5. Instrumentation

5.1 Surface Pressure Measurements	
5.1.2 Pressure Orifices on Fuselage. Location and Number	see Fig. 2-2 and Table 2-2, 2-3
5.1.4 Geometry of Orifices	0.2 mm in diameter
5.1.5 Type of Pressure Transducer and Scanning Devices Used. Indicate Range and Accuracy	CEC differential pressure transducers ± 5 and ± 10 psid; Scanivalve Type MJ 48 accuracy ± 0.3 % FS
5.2 Force Measurements	
5.2.1 Type and Location of Balance	TASK 1.25 MK IV internal balance position see Fig. 2-3 (Run No. 130 - 147)
5.2.2 Forces and Moments that Can be Measured. Maximum Loads and Accuracy	axial force; 340 N; 1 % FS
5.2.3 Forces and Moments on Components.	Fore body axial force (Run No. 89 - 100)
Type and Location of Balance	normal-force spring element, internally mounted (see: Fig. 2-4)
Maximum Loads and Accuracy.	50 N; ± 0.02 N
5.4 Surface Flow Visualization	
5.4.1 Indicate Method Used to Determine	a Titanium dioxyd - oil suspension is sprayed over the black painted model. Then the model is exposed for ≈ 10s to the flow of a Free-Jet-Blow-Down-Facility of 0.75 m x 0.75 m test-section size. This facility is different from that described in 3.
- Streamline pattern - Boundary-layer transition	

6. Data

6.1 Accuracy	
6.1.1 Pressure Coefficients	± 1 % assuming worst possible combination of errors including an error of $\Delta Ma = \pm 0.002$, evaluated at $Ma_\infty = 0.8$ and max. c_p
6.1.2 Aerodynamic Coefficients	± 0.5 %
6.1.4 Repeatability	within 1 %, compare Run No. 10 and 163; see Ref. [11]
6.2 Wall Interference Corrections	standard wall corrections were not applied to these tests;
6.2.5 Reference on Wall-Interference Corrections	[5], [6], [14], [15]

6.3 Data Presentation	Run No. 130 - 147: axial force, base drag corrected drag of complete body Run No. 89 - 100: forebody axial force, internal pressure force, "forebody" drag
6.3.1 Aerodynamic Coefficients	Table 2-8, 2-10
6.3.2 Surface Pressure Coefficients	Fig. 2-5, 2-6, 2-7, 2-8, 2-9 and Table 2-4, 2-5, 2-6, 2-7, 2-9, 2-10
6.3.3 Flow Conditions for - Aerodynamic Coefficient data and Pressure data	Table 2-1
6.3.6 Wall Interference Corrections Included?	No, but see Fig. 2-14, 2-15, 2-16, 2-17, 2-18
6.3.7 Aeroelastic Corrections Included ?	No
6.3.8 Other Corrections?	see Ref. [14], [15]
6.3.9 Additional Remarks	No
6.4 Were Tests Carried Out in Different Facilities on the Current Model? If so, What Facilities. Are Data Included in Present Data Base?	It is planned, to rebuild the current model for tests in AEDC 4 T and/or 16T. Contact: E.R. Thompson, Arnold Air Force Base, Tullahoma, Tenn. 37389

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[12] Aulehla, F. Besigk, G. — Reynolds-Number Effects on Fore- and Aftbody Pressure Drag. AGARD CP 150 No. 12 (1974).

[13] Aulehla, F. Besigk, G. — Fore- and Aftbody Flow Field Interaction with Consideration of Reynolds Number-Effects. AGARD CP 208 No. II-F (1975).

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[15] Aulehla, F. — Drag Measurement in Transonic Wind Tunnels. AGARD Specialist's Meeting on Aircraft Performance Prediction Methods, Paris (1977), Paper No. 7.

8. List of Symbols

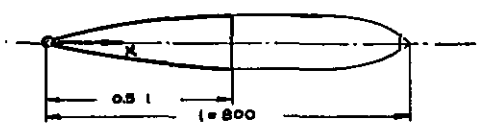
$c_p = (p - p_\infty)/q_\infty$	surface pressure coefficient on body shape
$c_{pi} = (p_i - p_\infty)/q_\infty$	internal pressure coefficient in the model
$c_{pw} = (p_w - p_\infty)/q_\infty$	surface pressure coefficient on top test section wall
$C_X = X/q_\infty \cdot S$	measured axial force coefficient
$C_B = (p_i - p_\infty)S_B/q_\infty \cdot S$	base drag coefficient
$C_{X_{corr}}$	corrected axial force coefficient either by base drag or by internal pressure drag
D	body diameter (= 12 cm)
DP	measured value of surface pressure (Volt)
L	theoretical body length (= 80 cm)
l	width of carborundum strips (mm)
Ma	free stream Mach number
p	pressure
q	dynamic pressure
Re_L	Reynolds number based on theoretical body length
$S = \pi D^2/4$	body face area (= 113,09 or 112,81 cm^2 Phase 2 or 3 resp.)
$S_B =$	base area (= 7,54 cm^2)
T	temperature (K)
X	axial force
x	axial coordinate from apex (cm)
α	angle of attack
δ	side wall boundary layer thickness (pitot pressure = 0,999 p_o)

Indices

0	stagnation condition	w	on the wall
∞	free stream	B	model base
i	in the model		

Table: 2-1 Flow Conditions Included in DATA BASE (MBB-Body-of-Revolution No. 3)

	α [°]	p_0 [mm Hg]	Ma	0.5	0.6	0.8	0.85	0.90	0.95	0.98	1.05	1.10	1.20	Transition
Phase 1	-3	735				164								free
	0	735		13	11	10(163)	7	6	5	4	3	2	1	"
	3	735				165	8							"
	5	735		14	12		9							"
	0	300		15	16	17	18	19						free
	0	1200		24	23	22	21	20						"
Phase 2	-3	735		144	139	134	138							fixed (180K)
	0	735		143	140	133	137							"
	3	735		142	141	135	136							"
	-3	300				131								fixed (180K)
	0	300				130								"
	3	300				132								"
	-3	1160				146								fixed (180K)
	0	1160				145								"
	3	1160				147								"
Phase 3	Ma	Model	$Re \cdot 10^{-6}$	5.0	8.0	10.0	14.0							
	0.8	empty		89	90	91	92							fixed (150K)
	0.8	Shape 3		97	98	99	100							"

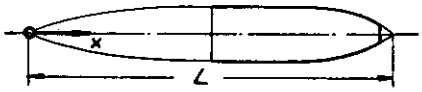


	test point	x/l	nominal value (mm)	actual value (mm)
	Apex	0	0.0	0.0
Upper surface	1	0.025	20.0	20.78
	2	0.075	60.0	60.58
	3	0.125	100.0	100.40
	4	0.175	140.0	140.40
	5	0.2125	170.0	170.28
	6	0.25	200.0	200.06
	7	0.2675	230.0	230.16
	8	0.325	260.0	260.28
	9	0.3625	290.0	290.28
	10	0.4	320.0	320.27
	11	0.4375	350.0	350.30
	12	0.475	380.0	380.27
	junction	0.5	400.0	400.30

Table 2-2: Position of Pressure Orifices, Forebody

Controll orifices on lower surface

x/l = 0.025 0.2875 0.81875
0.175 0.75625



test point	x/l	x-nominal value	actual value (mm) Shape 1	Shape 2	Shape 3	Shape 4	Shape 5
junction		400.0	400.30	400.30	400.30	400.30	400.30
13	0.525	420.0	420.20	420.30	420.18	420.28	420.70
14	0.575	460.0	460.30	460.30	460.34	461.26	460.50
15	0.6125	490.0	490.30	490.30	490.34	490.30	490.50
16	0.64375	515.0	515.18	515.18	515.36	515.31	515.70
17	0.675	540.0	540.24	540.30	540.32	540.30	540.50
18	0.7	560.0	560.32	560.34	560.60	560.20	560.30
19	0.71875	575.0	575.50	575.34	575.36	575.30	575.40
20	0.7375	590.0	590.30	590.36	590.42	590.28	590.30
21	0.75625	605.0	605.18	605.30	605.51	605.26	605.50
22	0.775	620.0	620.22	620.90	620.56	620.26	620.60
23	0.79375	635.0	635.20	635.30	635.36	635.26	635.60
24	0.80625	645.0	645.37	645.14	645.42	645.24	645.30
25	0.81875	655.0	655.14	655.22	655.38	655.00	655.40
26	0.83125	665.0	665.32	665.20	665.29	664.98	665.80
27	0.84375	675.0	675.06	675.10	675.12	674.88	675.40
28	0.85625	685.0	685.16	685.02	685.10	684.96	685.70
29	0.86875	695.0	694.86	694.96	695.18	694.90	695.40
30	0.88125	705.0	704.84	704.92	705.06	704.82	705.30
31	0.89375	715.0	714.92	714.88	715.07	714.84	715.20
32	0.90625	725.0	724.82	724.92	724.96	724.78	725.10
33	0.91875	735.0	734.66	734.82	734.88	734.84	734.90
34	0.93125	745.0		744.76	744.76	744.60	744.55
35	0.94375	755.0			754.60	754.58	754.30
36	0.95625	765.0				764.42	764.10
37	0.96875	775.0					774.1
position of shape end			758.51	768.96	774.20	779.36	785.03

Table 2-3: Position of Pressure Orifices, Aftbody (1 to 5)

Measurements on MBB-Body-of-Revolution

Body No. 3

Position of body static pressure orifices rel. to model apex [cm]

2.08	6.06	10.04	14.04	17.03	20.01	23.02	26.03	29.03	32.03
35.03	38.03	42.02	46.03	49.03	51.54	54.03	56.06	57.54	59.04
60.55	62.06	63.54	64.54	65.54	66.53	67.51	68.51	69.52	70.51
71.51	72.50	73.49	74.48	75.46	0.00	0.00	2.08	14.04	23.02
60.55	65.54								

Constants & calibration:

Reference area S = 113.094 cm^2

Chord length L = 80 cm

Cal. of pressure pickup EP = 24.71 mm Hg/Volt

Cal. of chord force elem. EX = 0.183 kp/Volt

Table 2-4: Calibration and Geometrical Data, Test Phase 1

Run No. 1 Ma = 1.20
$\alpha = 0^o$ $Re_L = 11.2 \cdot 10^6$

X/L	DP	CP
0.026	6.857	0.57689
0.076	3.949	0.34197
0.125	2.127	0.19466
0.175	0.700	0.07934
0.213	-0.004	0.02246
0.250	-0.594	-0.02521
0.288	-0.965	-0.05517
0.325	-1.246	-0.07787
0.363	-1.565	-0.10362
0.400	-1.798	-0.12239
0.438	-1.646	-0.11012
0.475	-1.220	-0.07572
0.525	-1.018	-0.05941
0.575	-0.774	-0.03971
0.613	-0.650	-0.02969
0.644	-0.532	-0.02016
0.675	-0.646	-0.02935
0.701	-0.947	-0.05365
0.719	-0.991	-0.05718
0.738	-1.601	-0.10638
0.757	-1.941	-0.13379
0.776	-2.381	-0.16926
0.794	-2.955	-0.21551
0.807	-3.170	-0.23286
0.819	-2.190	
0.832	-3.504	-0.25972
0.844	-4.015	-0.30092
0.856	-3.955	-0.29608
0.869	-4.358	-0.32869
0.881	-4.696	-0.35598
0.894	-1.748	-0.11822
0.906	-1.014	-0.05901
0.919	-0.874	-0.04772
0.931	-0.834	-0.04450
0.943	-0.790	-0.04096
0.000	-0.479	-0.01587
0.000	-0.473	-0.01539
0.026	6.388	0.53836
0.175	0.637	0.07420
0.288	-1.331	-0.08467
0.757	-2.154	-0.15112
0.819	-2.844	-0.20685

Run No. 2 Ma = 1.10
$\alpha = 0^o$ $Re_L = 11 \cdot 10^6$

X/L	DP	CP
0.026	6.724	0.59460
0.076	3.749	0.34255
0.125	1.898	0.18576
0.175	0.497	0.06710
0.213	-0.307	-0.00098
0.250	-0.653	-0.03027
0.288	-0.982	-0.05812
0.325	-1.386	-0.09231
0.363	-1.716	-0.12026
0.400	-2.072	-0.15040
0.438	-2.227	-0.16355
0.475	-2.218	-0.16282
0.525	-2.097	-0.15259
0.575	-2.135	-0.15581
0.613	-2.104	-0.15321
0.644	-0.967	-0.05689
0.675	-0.404	-0.00921
0.701	-0.253	0.00358
0.719	-0.286	0.00079
0.738	-0.829	-0.04521
0.757	-1.388	-0.09256
0.776	-1.857	-0.13225
0.794	-2.443	-0.18188
0.807	-2.971	-0.22662
0.819	-2.245	
0.832	-3.745	-0.29206
0.844	-4.179	-0.32875
0.856	-4.654	-0.36897
0.869	-4.907	-0.39037
0.881	-3.405	-0.26322
0.894	-1.089	-0.06715
0.906	-0.684	-0.03286
0.919	-0.548	-0.02135
0.931	-0.506	-0.01780
0.943	-0.507	-0.01789
0.000	-0.153	0.01207
0.000	-0.159	0.01156
0.026	6.311	0.55926
0.175	0.228	0.04432
0.288	-1.099	-0.06803
0.757	-1.216	-0.07795
0.819	-3.451	-0.26723

Run No. 3 Ma = 1.05
$\alpha = 0^o$ $Re_L = 10.8 \cdot 10^6$

X/L	DP	CP
0.026	6.324	0.57789
0.076	3.360	0.31876
0.125	1.452	0.15199
0.175	-0.017	0.02360
0.213	-0.910	-0.05444
0.250	-1.588	-0.11371
0.288	-2.131	-0.16119
0.325	-2.509	-0.19421
0.363	-2.306	-0.17646
0.400	-2.382	-0.18313
0.438	-2.395	-0.18427
0.475	-2.100	-0.15849
0.525	-1.551	-0.11049
0.575	-0.789	-0.04388
0.613	-0.480	-0.01687
0.644	0.006	0.02561
0.675	0.136	0.03697
0.701	0.033	0.02797
0.719	-0.263	0.00210
0.738	-0.871	-0.05105
0.757	-0.958	-0.05866
0.776	-1.640	-0.11827
0.794	-2.336	-0.17919
0.807	-2.808	-0.22047
0.819	-2.048	
0.832	-3.593	-0.28911
0.844	-4.082	-0.33179
0.856	-4.601	-0.37721
0.869	-4.778	-0.39274
0.881	-2.151	-0.16301
0.894	-0.607	-0.02800
0.906	-0.211	0.00663
0.919	-0.111	0.01538
0.931	-0.115	0.01502
0.943	-0.113	0.01520
0.000	0.123	0.03585
0.000	0.126	0.03611
0.026	5.916	0.54292
0.175	-0.305	-0.00161
0.288	-2.277	-0.17423
0.757	-1.523	-0.10823
0.819	-3.112	-0.24738

Run No. 4 Ma = 0.98
$\alpha = 0^o$ $Re_L = 10.7 \cdot 10^6$

X/L	DP	CP
0.026	5.303	0.51740
0.076	2.446	0.25330
0.125	0.666	0.08877
0.175	-0.664	-0.03416
0.213	-1.458	-0.10753
0.250	-1.932	-0.15134
0.288	-2.275	-0.18300
0.325	-2.438	-0.19806
0.363	-2.438	-0.19806
0.400	-2.273	-0.18282
0.438	-0.679	-0.03556
0.475	-0.279	0.00142
0.525	-0.302	-0.00070
0.575	-0.337	-0.00393
0.613	-0.372	-0.00717
0.644	-0.377	-0.00763
0.675	-0.475	-0.01668
0.701	-0.628	-0.03082
0.719	-1.021	-0.06716
0.738	-1.814	-0.14045
0.757	-2.376	-0.19239
0.776	-2.960	-0.24633
0.794	-3.613	-0.30668
0.807	-4.067	-0.34868
0.819	-2.880	
0.832	-4.796	-0.41612
0.844	-4.911	-0.42669
0.856	-1.843	-0.14313
0.869	-0.477	-0.01686
0.881	-0.093	0.01862
0.894	0.092	0.03571
0.906	0.178	0.04366
0.919	0.185	0.04430
0.931	0.218	0.04735
0.943	0.220	0.04754
0.000	0.564	0.07933
0.000	0.560	0.07897
0.026	4.913	0.48137
0.175	-0.905	-0.05648
0.288	-2.347	-0.18986
0.757	-2.372	-0.19226
0.819	-4.542	-0.39310

Table 2-5: Pressure Data (Run 1 to 24), Test Phase 1

Run No. 5 Ma = 0.95
$\alpha = 0^o$ $Re_L = 10.6 \cdot 10^6$

X/L	DP	CP
0.026	4.953	0.49835
0.076	2.176	0.23444
0.125	0.462	0.07160
0.175	-0.671	-0.03603
0.213	-1.528	-0.11743
0.250	-1.937	-0.15623
0.288	-2.241	-0.18510
0.325	-2.211	-0.18231
0.363	-1.722	-0.13584
0.400	-1.413	-0.10649
0.438	-1.126	-0.07924
0.475	-0.623	-0.03146
0.525	*-0.490*	*-0.01882*
0.575	-0.475	-0.01739
0.613	-0.516	-0.02128
0.644	-0.537	-0.02327
0.675	-0.676	-0.03651
0.701	-0.877	-0.05560
0.719	-1.314	-0.09715
0.738	-2.102	-0.17204
0.757	-2.637	-0.22295
0.776	-3.188	-0.27533
0.794	-3.802	-0.33379
0.807	-4.229	-0.37451
0.819	-2.890	
0.832	-4.924	-0.44054
0.844	-4.668	-0.41607
0.856	-1.699	-0.13379
0.869	-0.422	-0.01240
0.881	0.132	0.04027
0.894	*0.493*	*0.07458*
0.906	0.700	0.09424
0.919	0.806	0.10430
0.931	0.871	0.11048
0.943	0.894	0.11266
0.000	1.119	0.13400
0.000	1.122	0.13430
0.026	4.581	0.46283
0.175	-1.025	-0.06962
0.288	-2.234	-0.18444
0.757	-2.616	-0.22079
0.819	-4.696	-0.41844

Run No. 6 Ma = 0.90
$\alpha = 0^o$ $Re_L = 10.3 \cdot 10^6$

X/L	DP	CP
0.026	4.378	0.47097
0.076	1.766	0.20954
0.125	0.203	0.05286
0.175	-0.905	-0.05813
0.213	-1.457	-0.11345
0.250	-1.758	-0.14358
0.288	-1.874	-0.15523
0.325	-1.729	-0.14068
0.363	-1.614	-0.12922
0.400	-1.408	-0.10850
0.438	-1.145	-0.08217
0.475	-0.766	-0.04420
0.525	*-0.659*	*-0.03348*
0.575	-0.640	-0.03158
0.613	-0.691	-0.03668
0.644	-0.736	-0.04120
0.675	-0.906	-0.05822
0.701	-1.149	-0.08259
0.719	-1.583	-0.12604
0.738	-2.207	-0.18869
0.757	-2.625	-0.23040
0.776	-3.115	-0.27940
0.794	-3.592	-0.32726
0.807	-3.738	-0.34193
0.819	-2.102	
0.832	-3.018	-0.26973
0.844	-2.575	-0.22524
0.856	-2.048	-0.17278
0.869	-1.363	-0.10406
0.881	-0.634	-0.03099
0.894	*0.082*	*0.04077*
0.906	0.706	0.10323
0.919	1.128	0.14542
0.931	1.346	0.16731
0.943	1.436	0.17642
0.000	1.520	0.18487
0.000	1.518	0.18465
0.026	3.993	0.43269
0.175	-1.151	-0.08282
0.288	-1.970	-0.16488
0.757	-2.600	-0.22804
0.819	-3.148	-0.28308

Run No. 7 Ma = 0.85
$\alpha = 0^o$ $Re_L = 10 \cdot 10^6$

X/L	DP	CP
0.026	3.906	0.45251
0.076	1.501	0.19596
0.125	0.100	0.04664
0.175	-0.847	-0.05425
0.213	-1.293	-0.10181
0.250	-1.530	-0.12699
0.288	-1.615	-0.13609
0.325	-1.517	-0.12569
0.363	-1.438	-0.11736
0.400	-1.283	-0.10064
0.438	-1.062	-0.07707
0.475	-0.760	-0.04497
0.525	*-0.662*	*-0.03451*
0.575	-0.653	-0.03355
0.613	-0.698	-0.03834
0.644	-0.744	-0.04325
0.675	-0.903	-0.06020
0.701	-1.120	-0.08335
0.719	-1.487	-0.12238
0.738	-1.955	-0.17217
0.757	-2.267	-0.20542
0.776	-2.575	-0.23827
0.794	-2.786	-0.26084
0.807	-2.857	-0.26845
0.819	-1.597	
0.832	-2.630	-0.24403
0.844	-2.392	-0.21878
0.856	-2.031	-0.18026
0.869	-1.465	-0.12002
0.881	-0.835	-0.05292
0.894	-0.147	0.02032
0.906	0.495	0.08866
0.919	0.996	0.14197
0.931	1.276	0.17183
0.943	1.397	0.18485
0.000	1.472	0.19276
0.000	1.473	0.19274
0.026	3.534	0.41247
0.175	-1.087	-0.07979
0.288	-1.699	-0.14494
0.757	-2.215	-0.19987
0.819	-2.655	-0.24681

Run No. 8 Ma = 0.85
$\alpha = 3^o$ $Re_L = 10 \cdot 10^6$

X/L	DP	CP
0.026	3.276	0.38526
0.076	0.946	0.13671
0.125	-0.396	-0.00619
0.175	-1.247	-0.09689
0.213	-1.601	-0.13464
0.250	-1.766	-0.15228
0.288	-1.778	-0.15362
0.325	-1.624	-0.13717
0.363	-1.479	-0.12171
0.400	-1.287	-0.10112
0.438	-1.057	-0.07663
0.475	-0.753	-0.04425
0.525	*-0.654*	*-0.03368*
0.575	-0.648	-0.03305
0.613	-0.702	-0.03880
0.644	-0.749	-0.04381
0.675	-0.914	-0.06138
0.701	-1.132	-0.08453
0.719	-1.474	-0.12104
0.738	-1.886	-0.16495
0.757	-2.149	-0.19287
0.776	-2.366	-0.21579
0.794	-2.483	-0.22829
0.807	-2.458	-0.22543
0.819	-1.278	
0.832	-2.063	-0.18333
0.844	-1.748	-0.14993
0.856	-1.322	-0.10464
0.869	-0.746	-0.04337
0.881	-0.148	0.02025
0.894	*0.421*	*0.08084*
0.906	0.887	0.13044
0.919	1.168	0.16028
0.931	1.280	0.17233
0.943	1.333	0.17795
0.000	1.444	0.18973
0.000	1.444	0.18973
0.026	4.153	0.47809
0.175	-0.670	-0.03534
0.288	-1.558	-0.13000
0.757	-2.296	-0.20841
0.819	-3.159	-0.30037

Table 2-5: (Continued)

Run No. 9 Ma = 0.85
$\alpha = 5^{o}$ $Re_L = 10 \cdot 10^6$

X/L	DP	CP
0.026	2.861	0.34075
0.076	0.579	0.09766
0.125	-0.703	-0.03895
0.175	-1.481	-0.12203
0.213	-1.781	-0.15407
0.250	-1.888	-0.16552
0.288	-1.856	-0.16210
0.325	-1.651	-0.14014
0.363	-1.488	-0.12277
0.400	-1.269	-0.09937
0.438	-1.024	-0.07322
0.475	-0.729	-0.04176
0.525	-0.629	-0.03108
0.575	-0.624	-0.03054
0.613	-0.682	-0.03673
0.644	-0.736	-0.04245
0.675	-0.900	-0.05997
0.701	-1.117	-0.08304
0.719	-1.440	-0.11750
0.738	-1.813	-0.15713
0.757	-2.043	-0.18173
0.776	-2.215	-0.19996
0.794	-2.259	-0.20457
0.807	-2.201	-0.19833
0.819	-1.101	
0.832	-1.763	-0.15170
0.844	-1.448	-0.11808
0.856	-1.056	-0.07640
0.869	-0.545	-0.02201
0.881	-0.049	0.03076
0.894	0.407	0.07933
0.906	0.771	0.11810
0.919	1.001	0.14253
0.931	1.087	0.15156
0.943	1.118	0.15504
0.000	1.285	0.17288
0.000	1.282	0.17249
0.026	4.574	0.52284
0.175	-0.366	-0.00296
0.288	-1.396	-0.11273
0.757	-2.292	-0.20821
0.819	-3.394	-0.32558

Run No. 10 Ma = 0.80
$\alpha = 0^{o}$ $Re_L = 9.8 \cdot 10^6$

X/L	DP	CP
0.026	3.487	0.43755
0.076	1.276	0.18480
0.125	0.038	0.04314
0.175	-0.779	-0.05028
0.213	-1.156	-0.09336
0.250	-1.358	-0.11643
0.288	-1.428	-0.12438
0.325	-1.356	-0.11621
0.363	-1.286	-0.10824
0.400	-1.159	-0.09368
0.438	-0.971	-0.07216
0.475	-0.724	-0.04395
0.525	-0.646	-0.03502
0.575	-0.629	-0.03308
0.613	-0.678	-0.03865
0.644	-0.716	-0.04301
0.675	-0.860	-0.05946
0.701	-1.051	-0.08130
0.719	-1.351	-0.11554
0.738	-1.739	-0.15993
0.757	-1.989	-0.18849
0.776	-2.222	-0.21525
0.794	-2.400	-0.23540
0.807	-2.461	-0.24256
0.819	-1.352	
0.832	-2.316	-0.22589
0.844	-2.150	-0.20686
0.856	-1.889	-0.17713
0.869	-1.433	-0.12506
0.881	-0.903	-0.06447
0.894	-0.318	0.00242
0.906	0.310	0.07424
0.919	0.843	0.13514
0.931	1.176	0.17321
0.943	1.323	0.19001
0.000	1.388	0.19751
0.000	1.390	0.19780
0.026	3.126	0.39626
0.175	-1.008	-0.07651
0.288	-1.506	-0.13351
0.757	-1.930	-0.18186
0.819	-2.318	-0.22618

Run No. 11 Ma = 0.6
$\alpha = 0^{o}$ $Re_L = 8.3 \cdot 10^6$

X/L	DP	CP
0.026	2.046	0.39168
0.076	0.679	0.15894
0.125	-0.086	0.02866
0.175	-0.486	-0.03946
0.213	-0.744	-0.08342
0.250	-0.860	-0.10323
0.288	-0.902	-0.11035
0.325	-0.860	-0.10319
0.363	-0.821	-0.09647
0.400	-0.754	-0.08512
0.438	-0.649	-0.06728
0.475	-0.503	-0.04235
0.525	-0.467	-0.03622
0.575	-0.459	-0.03483
0.613	-0.486	-0.03949
0.644	-0.508	-0.04324
0.675	-0.595	-0.05802
0.701	-0.705	-0.07680
0.719	-0.870	-0.10498
0.738	-1.073	-0.13948
0.757	-1.209	-0.16274
0.776	-1.323	-0.18216
0.794	-1.421	-0.19890
0.807	-1.461	-0.20575
0.819	-0.750	
0.832	-1.408	-0.19662
0.844	-1.345	-0.18601
0.856	-1.231	-0.16648
0.869	-1.007	-0.12833
0.881	-0.726	-0.08048
0.894	-0.396	-0.02418
0.906	-0.004	0.04264
0.919	0.389	0.10966
0.931	0.718	0.16577
0.943	0.895	0.19596
0.000	0.952	0.20561
0.000	0.948	0.20493
0.026	1.823	0.35437
0.175	-0.658	-0.06886
0.288	-0.943	-0.11751
0.757	-1.163	-0.15495
0.819	-1.408	-0.19682

Run No. 12 Ma = 0.6
$\alpha = 5^{o}$ $Re_L = 8.3 \cdot 10^6$

X/L	DP	CP
0.026	1.395	0.28066
0.076	0.111	0.06220
0.125	-0.549	-0.05015
0.175	-0.907	-0.11103
0.213	-1.031	-0.13216
0.250	-1.073	-0.13931
0.288	-1.055	-0.13634
0.325	-0.968	-0.12153
0.363	-0.879	-0.10631
0.400	-0.755	-0.08520
0.438	-0.635	-0.06473
0.475	-0.485	-0.03925
0.525	-0.443	-0.03210
0.575	-0.434	-0.03057
0.613	-0.458	-0.03468
0.644	-0.478	-0.03805
0.675	-0.559	-0.05184
0.701	-0.655	-0.06823
0.719	-0.802	-0.09324
0.738	-0.966	-0.12116
0.757	-1.057	-0.13663
0.776	-1.129	-0.14892
0.794	-1.163	-0.15470
0.807	-1.154	-0.15317
0.819	-0.532	
0.832	-1.013	-0.12917
0.844	-0.900	-0.10986
0.856	-0.749	-0.08420
0.869	-0.510	-0.04351
0.881	-0.252	0.00043
0.894	0.024	0.04739
0.906	0.298	0.09402
0.919	0.538	0.13481
0.931	0.699	0.16225
0.943	0.770	0.17438
0.000	0.874	0.19201
0.000	0.873	0.19184
0.026	2.473	0.46401
0.175	-0.250	0.00076
0.288	-0.758	-0.08564
0.757	-1.247	-0.16892
0.819	-1.732	-0.25130

Table 2-5: (Continued)

Run No. 13 Ma = 0.5
$\alpha = 0^o$ $Re_L = 7.2 \cdot 10^6$

X/L	DP	CP
0.026	1.455	0.37701
0.076	0.465	0.15139
0.125	-0.084	0.02622
0.175	-0.420	-0.05042
0.213	-0.562	-0.08282
0.250	-0.642	-0.10109
0.288	-0.675	-0.10873
0.325	-0.651	-0.10325
0.363	-0.627	-0.09769
0.400	-0.548	-0.07964
0.438	-0.458	-0.05916
0.475	-0.369	-0.03878
0.525	-0.353	-0.03513
0.575	-0.347	-0.03376
0.613	-0.370	-0.03899
0.644	-0.386	-0.04264
0.675	-0.450	-0.05728
0.701	-0.526	-0.07453
0.719	-0.649	-0.10257
0.738	-0.789	-0.13459
0.757	-0.883	-0.15600
0.776	-0.962	-0.17389
0.794	-1.031	-0.18958
0.807	-1.056	-0.19545
0.819	-0.535	
0.832	-1.022	-0.18750
0.844	-0.977	-0.17724
0.856	-0.901	-0.15990
0.869	-0.742	-0.12367
0.881	-0.554	-0.08091
0.894	-0.323	-0.02820
0.906	-0.047	0.03467
0.919	0.247	0.10168
0.931	0.503	0.15995
0.943	0.658	0.19525
0.000	0.705	0.20593
0.000	0.704	0.20579
0.026	1.301	0.34181
0.175	-0.491	-0.06641
0.288	-0.706	-0.11543
0.757	-0.852	-0.14858
0.819	-1.026	-0.18819

Run No. 14 Ma = 0.5
$\alpha = 5^o$ $Re_L = 7.3 \cdot 10^6$

X/L	DP	CP
0.026	0.971	0.26663
0.076	0.053	0.05746
0.125	-0.419	-0.05018
0.175	-0.676	-0.10879
0.213	-0.760	-0.12787
0.250	-0.791	-0.13496
0.288	-0.776	-0.13159
0.325	-0.718	-0.11838
0.363	-0.664	-0.10609
0.400	-0.546	-0.07919
0.438	-0.457	-0.05896
0.475	-0.360	-0.03682
0.525	-0.337	-0.03154
0.575	-0.328	-0.02949
0.613	-0.349	-0.03430
0.644	-0.363	-0.03749
0.675	-0.416	-0.04959
0.701	-0.483	-0.06489
0.719	-0.586	-0.08848
0.738	-0.702	-0.11498
0.757	-0.768	-0.12993
0.776	-0.814	-0.14043
0.794	-0.840	-0.14637
0.807	-0.839	-0.14614
0.819	-0.379	
0.832	-0.747	-0.12521
0.844	-0.671	-0.10777
0.856	-0.563	-0.08310
0.869	-0.400	-0.04590
0.881	-0.218	-0.00437
0.894	-0.020	0.04082
0.906	0.185	0.08758
0.919	0.373	0.13046
0.931	0.505	0.16054
0.943	0.577	0.17686
0.000	0.660	0.19575
0.000	0.660	0.19583
0.026	1.776	0.45017
0.175	-0.190	0.00208
0.288	-0.556	-0.08131
0.757	-0.912	-0.16250
0.819	-1.257	-0.24093

Run No. 15 Ma = 0.5
$\alpha = 0^o$ $Re_L = 3.0 \cdot 10^6$

X/L	DP	CP
0.026	0.607	0.38518
0.076	0.207	0.16133
0.125	-0.016	0.03641
0.175	-0.154	-0.04092
0.213	-0.211	-0.07290
0.250	-0.243	-0.09088
0.288	-0.256	-0.09822
0.325	-0.247	-0.09317
0.363	-0.234	-0.08588
0.400	-0.209	-0.07186
0.438	-0.187	-0.05952
0.475	-0.147	-0.03708
0.525	-0.126	-0.02528
0.575	-0.111	-0.01687
0.613	-0.124	-0.02418
0.644	-0.133	-0.02923
0.675	-0.157	-0.04269
0.701	-0.189	-0.06067
0.719	-0.237	-0.08761
0.738	-0.295	-0.12021
0.757	-0.332	-0.14097
0.776	-0.367	-0.16069
0.794	-0.391	-0.17424
0.807	-0.399	-0.17873
0.819	-0.163	
0.832	-0.384	-0.17036
0.844	-0.362	-0.15793
0.856	-0.328	-0.13878
0.869	-0.268	-0.10500
0.881	-0.191	-0.06186
0.894	-0.098	-0.00963
0.906	0.012	0.05211
0.919	0.130	0.11832
0.931	0.234	0.17658
0.943	0.301	0.21426
0.000	0.330	0.23047
0.000	0.330	0.23047
0.026	0.541	0.34881
0.175	-0.181	-0.05614
0.288	-0.271	-0.10662
0.757	-0.324	-0.13635
0.819	-0.383	-0.16944

Run No. 16 Ma = 0.6
$\alpha = 0^o$ $Re_L = 3.5 \cdot 10^6$

X/L	DP	CP
0.026	0.851	0.39929
0.076	0.299	0.16837
0.125	-0.015	0.03704
0.175	-0.204	-0.04207
0.213	-0.285	-0.07597
0.250	-0.334	-0.09648
0.288	-0.350	-0.10329
0.325	-0.335	-0.09695
0.363	-0.319	-0.09025
0.400	-0.283	-0.07513
0.438	-0.256	-0.06380
0.475	-0.202	-0.04124
0.525	-0.150	-0.01943
0.575	-0.153	-0.02066
0.613	-0.167	-0.02649
0.644	-0.181	-0.03237
0.675	-0.216	-0.04694
0.701	-0.260	-0.06530
0.719	-0.328	-0.09370
0.738	-0.413	-0.12908
0.757	-0.466	-0.15114
0.776	-0.514	-0.17126
0.794	-0.552	-0.18705
0.807	-0.563	-0.19172
0.819	-0.245	
0.832	-0.540	-0.18219
0.844	-0.508	-0.16883
0.856	-0.455	-0.14669
0.869	-0.367	-0.11000
0.881	-0.256	-0.06363
0.894	-0.120	-0.00681
0.906	0.034	0.05752
0.919	0.194	0.12439
0.931	0.326	0.17955
0.943	0.400	0.21047
0.000	0.425	0.22092
0.000	0.426	0.22140
0.026	0.758	0.36018
0.175	-0.249	-0.06077
0.288	-0.374	-0.11302
0.757	-0.452	-0.14569
0.819	-0.540	-0.18249

Table 2-5: (Continued)

Run No. 17 Ma = 0.8
$\alpha = 0^o$ $Re_L = 4.2 \cdot 10^6$

X/L	DP	CP
0.026	1.435	0.44141
0.076	0.548	0.19251
0.125	0.016	0.04329
0.175	-0.316	-0.04980
0.213	-0.463	-0.09097
0.250	-0.549	-0.11522
0.288	-0.577	-0.12316
0.325	-0.554	-0.11681
0.363	-0.517	-0.10639
0.400	-0.452	-0.08818
0.438	-0.408	-0.07584
0.475	-0.254	-0.03260
0.525	-0.218	-0.02249
0.575	-0.224	-0.02417
0.613	-0.246	-0.03036
0.644	-0.262	-0.03486
0.675	-0.322	-0.05177
0.701	-0.398	-0.07314
0.719	-0.524	-0.10858
0.738	-0.682	-0.15308
0.757	-0.785	-0.18198
0.776	-0.883	-0.20954
0.794	-0.949	-0.22811
0.807	-0.972	-0.23437
0.819	-0.471	
0.832	-0.911	-0.21720
0.844	-0.838	-0.19668
0.856	-0.719	-0.16329
0.869	-0.535	-0.11157
0.881	-0.319	-0.05085
0.894	-0.071	0.01884
0.906	0.181	0.08967
0.919	0.396	0.15009
0.931	0.521	0.18523
0.943	0.575	0.20031
0.000	0.589	0.20424
0.000	0.590	0.20453
0.026	1.295	0.40267
0.175	-0.382	-0.06857
0.288	-0.605	-0.13121
0.757	-0.765	-0.17617
0.819	-0.914	-0.21794

Run No. 18 Ma = 0.85
$\alpha = 0^o$ $Re_L = 4.3 \cdot 10^6$

X/L	DP	CP
0.026	1.619	0.45808
0.076	0.640	0.20283
0.125	0.045	0.04772
0.175	-0.335	-0.05142
0.213	-0.510	-0.09705
0.250	-0.608	-0.12262
0.288	-0.643	-0.13177
0.325	-0.615	-0.12451
0.363	-0.569	-0.11251
0.400	-0.491	-0.09213
0.438	-0.442	-0.07935
0.475	-0.263	-0.03264
0.525	-0.213	-0.01958
0.575	-0.224	-0.02243
0.613	-0.251	-0.02945
0.644	-0.272	-0.03489
0.675	-0.336	-0.05153
0.701	-0.426	-0.07491
0.719	-0.576	-0.11393
0.738	-0.776	-0.16612
0.757	-0.901	-0.19860
0.776	-1.028	-0.23170
0.794	-1.114	-0.25414
0.807	-1.140	-0.26077
0.819	-0.565	
0.832	-1.047	-0.23679
0.844	-0.943	-0.20946
0.856	-0.780	-0.16724
0.869	-0.548	-0.10683
0.881	-0.288	-0.03908
0.894	-0.005	0.03443
0.906	0.262	0.10418
0.919	0.463	0.15658
0.931	0.572	0.18498
0.943	0.611	0.19510
0.000	0.629	0.19998
0.000	0.626	0.19907
0.026	1.471	0.41936
0.175	-0.409	-0.07064
0.288	-0.676	-0.14024
0.757	-0.881	-0.19378
0.819	-1.054	-0.23884

Run No. 19 Ma = 0.90
$\alpha = 0^o$ $Re_L = 4.4 \cdot 10^6$

X/L	DP	CP
0.026	1.806	0.47569
0.076	0.748	0.21610
0.125	0.089	0.05440
0.175	-0.349	-0.05314
0.213	-0.565	-0.10615
0.250	-0.688	-0.13636
0.288	-0.734	-0.14761
0.325	-0.696	-0.13826
0.363	-0.633	-0.12274
0.400	-0.538	-0.09943
0.438	-0.474	-0.08370
0.475	-0.267	-0.03292
0.525	-0.202	-0.01697
0.575	-0.219	-0.02116
0.613	-0.247	-0.02807
0.644	-0.268	-0.03325
0.675	-0.337	-0.05022
0.701	-0.432	-0.07363
0.719	-0.611	-0.11768
0.738	-0.873	-0.18223
0.757	-1.034	-0.22187
0.776	-1.247	-0.27434
0.794	-1.397	-0.31114
0.807	-1.445	-0.32262
0.819	-0.733	
0.832	-1.199	-0.26196
0.844	-1.021	-0.21805
0.856	-0.789	-0.16126
0.869	-0.503	-0.09098
0.881	-0.203	-0.01731
0.894	0.091	0.05489
0.906	0.349	0.11827
0.919	0.519	0.16003
0.931	0.600	0.17984
0.943	0.625	0.18598
0.000	0.647	0.19141
0.000	0.647	0.19128
0.026	1.657	0.43913
0.175	-0.430	-0.07292
0.288	-0.769	-0.15597
0.757	-1.032	-0.22061
0.819	-1.253	-0.27504

Run No. 20 Ma = 0,90
$\alpha = 0^o$ $Re_L = 16 \cdot 10^6$

X/L	DP	CP
0.026	7.394	0.48680
0.076	2.922	0.21196
0.125	0.323	0.05237
0.175	-1.494	-0.05918
0.213	-2.420	-0.11606
0.250	-2.931	-0.14738
0.288	-3.092	-0.15732
0.325	-2.863	-0.14342
0.363	-2.674	-0.13174
0.400	-2.351	-0.11184
0.438	-1.887	-0.08330
0.475	-1.287	-0.04647
0.525	-1.103	-0.03517
0.575	-1.101	-0.03503
0.613	-1.181	-0.03992
0.644	-1.243	-0.04374
0.675	-1.523	-0.06093
0.701	-1.909	-0.08462
0.719	-2.619	-0.12821
0.738	-3.665	-0.19235
0.757	-4.352	-0.23461
0.776	-5.137	-0.28276
0.794	-6.064	-0.33970
0.807	-6.512	-0.36698
0.819	-3.691	
0.832	-5.034	-0.27659
0.844	-4.361	-0.23517
0.856	-3.572	-0.18678
0.869	-2.414	-0.11568
0.881	-1.208	-0.04165
0.894	0.003	0.03266
0.906	1.116	0.10113
0.919	1.930	0.15106
0.931	2.393	0.17927
0.943	2.596	0.19168
0.000	2.751	0.20126
0.000	2.756	0.20137
0.026	6.549	0.43432
0.175	-1.844	-0.08063
0.288	-3.253	-0.16718
0.757	-4.328	-0.23305
0.819	-5.397	-0.29863

Table 2-5: (Continued)

Run No. 21 Ma = 0.85
$\alpha = 0^{o}$ $Re_L = 16.3 \cdot 10^6$

X/L	DP	CP
0.026	6.557	0.46360
0.076	2.480	0.19798
0.125	0.147	0.04561
0.175	-1.410	-0.05590
0.213	-2.150	-0.10404
0.250	-2.553	-0.13028
0.288	-2.682	-0.13870
0.325	-2.558	-0.13065
0.363	-2.381	-0.11906
0.400	-2.148	-0.10393
0.438	-1.765	-0.07902
0.475	-1.285	-0.04771
0.525	-1.132	-0.03776
0.575	-1.140	-0.03827
0.613	-1.215	-0.04321
0.644	-1.273	-0.04698
0.675	-1.539	-0.06426
0.701	-1.893	-0.08734
0.719	-2.494	-0.12660
0.738	-3.281	-0.17799
0.757	-3.799	-0.21198
0.776	-4.306	-0.24505
0.794	-4.682	-0.26973
0.807	-4.846	-0.28041
0.819	-2.684	
0.832	-4.522	-0.25915
0.844	-4.106	-0.23183
0.856	-3.566	-0.19674
0.869	-2.629	-0.13561
0.881	-1.576	-0.06685
0.894	-0.439	0.00731
0.906	0.695	0.08129
0.919	1.641	0.14285
0.931	2.216	0.18041
0.943	2.475	0.19738
0.000	2.613	0.20638
0.000	2.609	0.20625
0.026	5.800	0.41422
0.175	-1.721	-0.07628
0.288	-2.815	-0.14759
0.757	-3.724	-0.20693
0.819	-4.604	-0.26420

Run No. 22 Ma = 0.80
$\alpha = 0^{o}$ $Re_L = 15.6 \cdot 10^6$

X/L	DP	CP
0.026	5.708	0.43816
0.076	2.115	0.18671
0.125	0.058	0.04280
0.175	-1.315	-0.05314
0.213	-1.931	-0.09625
0.250	-2.272	-0.12012
0.288	-2.388	-0.12825
0.325	-2.255	-0.11900
0.363	-2.139	-0.11094
0.400	-1.950	-0.09769
0.438	-1.609	-0.07381
0.475	-1.225	-0.04698
0.525	-1.101	-0.03830
0.575	-1.103	-0.03848
0.613	-1.168	-0.04308
0.644	-1.217	-0.04647
0.675	-1.459	-0.06345
0.701	-1.771	-0.08534
0.719	-2.277	-0.12073
0.738	-2.911	-0.16522
0.757	-3.329	-0.19448
0.776	-3.722	-0.22217
0.794	-4.018	-0.24311
0.807	-4.131	-0.25096
0.819	-2.286	
0.832	-3.935	-0.23703
0.844	-3.669	-0.21839
0.856	-3.289	-0.19178
0.869	-2.532	-0.13858
0.881	-1.637	-0.07587
0.894	-0.660	-0.00746
0.906	0.393	0.06634
0.919	1.349	0.13331
0.931	1.999	0.17875
0.943	2.311	0.20062
0.000	2.448	0.21010
0.000	2.454	0.21052
0.026	5.130	0.39777
0.175	-1.590	-0.07252
0.288	-2.516	-0.13728
0.757	-3.242	-0.18797
0.819	-4.008	-0.24185

Run No. 23 Ma = 0.60
$\alpha = 0^{o}$ $Re_L = 13 \cdot 10^6$

X/L	DP	CP
0.026	3.344	0.39190
0.076	1.124	0.16047
0.125	-0.102	0.03268
0.175	-0.885	-0.04897
0.213	-1.232	-0.08514
0.250	-1.427	-0.10546
0.288	-1.492	-0.11228
0.325	-1.434	-0.10623
0.363	-1.370	-0.09949
0.400	-1.286	-0.09072
0.438	-1.102	-0.07150
0.475	-0.881	-0.04856
0.525	-0.819	-0.04213
0.575	-0.820	-0.04220
0.613	-0.863	-0.04666
0.644	-0.897	-0.05025
0.675	-1.039	-0.06510
0.701	-1.222	-0.08409
0.719	-1.493	-0.11235
0.738	-1.823	-0.14677
0.757	-2.043	-0.16980
0.776	-2.232	-0.18953
0.794	-2.392	-0.20625
0.807	-2.456	-0.21299
0.819	-1.313	
0.832	-2.386	-0.20564
0.844	-2.274	-0.19417
0.856	-2.122	-0.17811
0.869	-1.745	-0.13885
0.881	-1.296	-0.09198
0.894	-0.746	-0.03454
0.906	-0.112	0.03163
0.919	0.543	0.10001
0.931	1.112	0.15941
0.943	1.453	0.19501
0.000	1.595	0.20975
0.000	1.599	0.21024
0.026	2.976	0.35383
0.175	-1.053	-0.06660
0.288	-1.562	-0.11966
0.757	-1.976	-0.16295
0.819	-2.421	-0.20929

Run No. 24 Ma = 0.5
$\alpha = 0^{o}$ $Re_L = 11.4 \cdot 10^6$

X/L	DP	CP
0.026	2.389	0.37827
0.076	0.786	0.15496
0.125	-0.100	0.03143
0.175	-0.663	-0.04707
0.213	-0.910	-0.08153
0.250	-1.045	-0.10040
0.288	-1.093	-0.10709
0.325	-1.060	-0.10259
0.363	-1.014	-0.09599
0.400	-0.953	-0.08747
0.438	-0.825	-0.06968
0.475	-0.671	-0.04819
0.525	-0.631	-0.04261
0.575	-0.630	-0.04246
0.613	-0.666	-0.04747
0.644	-0.688	-0.05061
0.675	-0.791	-0.06493
0.701	-0.920	-0.08293
0.719	-1.113	-0.10984
0.738	-1.347	-0.14249
0.757	-1.499	-0.16371
0.776	-1.630	-0.18200
0.794	-1.739	-0.19722
0.807	-1.787	-0.20392
0.819	-0.949	
0.832	-1.740	-0.19730
0.844	-1.664	-0.18666
0.856	-1.564	-0.17268
0.869	-1.306	-0.13670
0.881	-0.981	-0.09148
0.894	-0.609	-0.03949
0.906	-0.155	0.02376
0.919	0.327	0.09096
0.931	0.756	0.15086
0.943	1.042	0.19069
0.000	1.158	0.20699
0.000	1.156	0.20672
0.026	2.119	0.34097
0.175	-0.788	-0.06463
0.288	-1.147	-0.11474
0.757	-1.439	-0.15537
0.819	-1.767	-0.20123

Table 2-5: (Concluded)

Measurements on MBB-Body-of-Revolution

Body No. 3

Position of body static pressure orifices rel. to model apex [cm]

2.08	6.06	10.04	14.04	17.03	20.01	23.02	26.03	29.03	32.03
35.03	38.03	42.02	46.03	49.03	51.54	54.03	56.06	57.54	59.04
60.55	62.06	63.54	64.54	65.54	66.53	67.51	68.51	69.52	70.51
71.51	72.50	73.49	74.48	75.46	0.0	0.0	2.08	14.04	23.02
60.55	65.54	4.00	8.00	12.00	0.0				

Constants & calibration:

Reference area $S = 113.094\ cm^2$

Base area $S_B = 7.54\ cm^2$

Chord length $L = 80\ cm$

Cal of pressure pickup $EP = 22.02$ mm Hg/Volt

Cal of chord force elem. $EX = 0.184$ kp/Volt

Table 2-6: Calibration and Geometrical Data, Test Phase 2

	X/L	DP	CP
1	0.026	1.511	0.41578
2	0.076	0.562	0.17907
3	0.125	-0.018	0.03425
4	0.175	-0.371	-0.05395
5	0.213	-0.529	-0.09343
6	0.250	-0.610	-0.11377
7	0.288	-0.643	-0.12191
8	0.325	-0.604	-0.11227
9	0.363	-0.566	-0.10282
10	0.400	-0.512	-0.08930
11	0.438	-0.420	-0.06627
12	0.475	-0.299	-0.03604
13	0.525	-0.263	-0.02704
14	0.575	-0.262	-0.02679
15	0.613	-0.277	-0.03053
16	0.644	-0.310	-0.03884
17	0.675	-0.366	-0.05285
18	0.701	-0.450	-0.07383
19	0.719	-0.581	-0.10666
20	0.738	-0.742	-0.14706
21	0.757	-0.848	-0.17347
22	0.776	-0.944	-0.19754
23	0.794	-1.002	-0.21224
24	0.807	-1.012	-0.21469
25	0.819	-0.991	-0.20943
26	0.832	-0.938	-0.19621
27	0.844	-0.829	-0.16890
28	0.856	-0.692	-0.13467
29	0.869	-0.493	-0.08477
30	0.881	-0.263	-0.02715
31	0.894	-0.008	0.03671
32	0.906	0.231	0.09655
33	0.919	0.423	0.14459
34	0.931	0.531	0.17158
35	0.943	0.574	0.18229
36	0.0	0.614	0.19224
37	0.0	0.613	0.19194
38	0.026	1.527	0.42019
39	0.175	-0.374	-0.05470
40	0.288	-0.642	-0.12166
41	0.757	-0.846	-0.17250
42	0.819	-1.016	-0.21491
43	0.050	0.992	0.28633
44	0.100	0.251	0.10133
45	0.150	-0.214	-0.01465
46	0.0	0.612	0.19128

Run No. 130 Ma = 0.8

$\alpha = 0^o$ $Re_L = 4.4 \cdot 10^6$

	X/L	DP	CP
1	0.026	1.791	0.48148
2	0.076	0.815	0.24021
3	0.125	0.195	0.08694
4	0.175	-0.200	-0.01075
5	0.213	-0.392	-0.05828
6	0.250	-0.508	-0.08699
7	0.288	-0.568	-0.10181
8	0.325	-0.548	-0.09699
9	0.363	-0.532	-0.09301
10	0.400	-0.499	-0.08486
11	0.438	-0.408	-0.06231
12	0.475	-0.292	-0.03361
13	0.525	-0.259	-0.02545
14	0.575	-0.253	-0.02395
15	0.613	-0.265	-0.02694
16	0.644	-0.302	-0.03613
17	0.675	-0.357	-0.04978
18	0.701	-0.444	-0.07135
19	0.719	-0.583	-0.10588
20	0.738	-0.764	-0.15081
21	0.757	-0.889	-0.18185
22	0.776	-1.016	-0.21336
23	0.794	-1.111	-0.23703
24	0.807	-1.145	-0.24546
25	0.819	-1.156	-0.24834
26	0.832	-1.136	-0.24332
27	0.844	-1.058	-0.22394
28	0.856	-0.956	-0.19866
29	0.869	-0.771	-0.15283
30	0.881	-0.552	-0.09842
31	0.894	-0.283	-0.03161
32	0.906	-0.001	0.03847
33	0.919	0.261	0.10358
34	0.931	0.447	0.14985
35	0.943	0.541	0.17326
36	0.0	0.595	0.18669
37	0.0	0.594	0.18654
38	0.026	1.274	0.35574
39	0.175	-0.531	-0.09344
40	0.288	-0.709	-0.13772
41	0.757	-0.790	-0.15790
42	0.819	-0.835	-0.16918
43	0.050	1.246	0.34900
44	0.100	0.479	0.15800
45	0.150	-0.024	0.03274
46	0.0	0.593	0.18649

Run No. 131 Ma = 0.8

$\alpha = -3^o$ $Re_L = 4.4 \cdot 10^6$

Table 2-7: Pressure Data (Run 130 to 147 , and 163 to 165), Test Phase 2

Run No. 132 Ma = 0.8
$\alpha = +3^{o}$ $Re_L = 4.3 \cdot 10^6$

	X/L	DP	CP
1	0.026	1.257	0.35219
2	0.076	0.330	0.12100
3	0.125	-0.219	-0.01588
4	0.175	-0.523	-0.09167
5	0.213	-0.647	-0.12265
6	0.250	-0.698	-0.13534
7	0.288	-0.704	-0.13678
8	0.325	-0.639	-0.12054
9	0.363	-0.584	-0.10693
10	0.400	-0.515	-0.08970
11	0.438	-0.416	-0.06499
12	0.475	-0.296	-0.03507
13	0.525	-0.260	-0.02610
14	0.575	-0.258	-0.02560
15	0.613	-0.273	-0.02936
16	0.644	-0.306	-0.03755
17	0.675	-0.363	-0.05176
18	0.701	-0.443	-0.07176
19	0.719	-0.563	-0.10167
20	0.738	-0.703	-0.13659
21	0.757	-0.786	-0.15729
22	0.776	-0.853	-0.17399
23	0.794	-0.878	-0.18023
24	0.807	-0.855	-0.17449
25	0.819	-0.815	-0.16447
26	0.832	-0.735	-0.14452
27	0.844	-0.610	-0.11339
28	0.856	-0.461	-0.07625
29	0.869	-0.264	-0.02711
30	0.881	-0.059	0.02403
31	0.894	0.146	0.07515
32	0.906	0.322	0.11904
33	0.919	0.442	0.14896
34	0.931	0.504	0.16442
35	0.943	0.530	0.17088
36	0.0	0.591	0.18604
37	0.0	0.590	0.18592
38	0.026	1.788	0.48453
39	0.175	-0.203	-0.01188
40	0.288	-0.555	-0.09968
41	0.757	-0.876	-0.17984
42	0.819	-1.173	-0.25380
43	0.050	0.743	0.22403
44	0.100	0.028	0.04573
45	0.150	-0.396	-0.06004
46	0.0	0.590	0.18584

Run No. 133 Ma = 0.8
$\alpha = 0^{o}$ $Re_L = 10 \cdot 10^6$

	X/L	DP	CP
1	0.026	3.658	0.41220
2	0.076	1.307	0.17223
3	0.125	-0.123	0.02624
4	0.175	-0.995	-0.06280
5	0.213	-1.404	-0.10460
6	0.250	-1.605	-0.12505
7	0.288	-1.670	-0.13168
8	0.325	-1.578	-0.12237
9	0.363	-1.484	-0.11280
10	0.400	-1.380	-0.10214
11	0.438	-1.106	-0.07419
12	0.475	-0.823	-0.04522
13	0.525	-0.745	-0.03723
14	0.575	-0.759	-0.03866
15	0.613	-0.774	-0.04022
16	0.644	-0.850	-0.04796
17	0.675	-0.998	-0.06303
18	0.701	-1.198	-0.08346
19	0.719	-1.539	-0.11825
20	0.738	-1.952	-0.16037
21	0.757	-2.211	-0.18674
22	0.776	-2.447	-0.21105
23	0.794	-2.620	-0.22857
24	0.807	-2.669	-0.23348
25	0.819	-2.637	-0.23027
26	0.832	-2.509	-0.21725
27	0.844	-2.269	-0.19265
28	0.856	-1.960	-0.16120
29	0.869	-1.438	-0.10784
30	0.881	-0.846	-0.04749
31	0.894	-0.192	0.01921
32	0.906	0.468	0.08656
33	0.919	1.012	0.14207
34	0.931	1.324	0.17384
35	0.943	1.459	0.18750
36	0.0	1.578	0.19947
37	0.0	1.582	0.19984
38	0.026	3.682	0.41386
39	0.175	-0.988	-0.06187
40	0.288	-1.690	-0.13332
41	0.757	-2.202	-0.18570
42	0.819	-2.739	-0.24033
43	0.050	2.405	0.28383
44	0.100	0.537	0.09352
45	0.150	-0.646	-0.02705
46	0.0	1.574	0.19914

Run No. 134 Ma = 0.8
$\alpha = -3^{o}$ $Re_L = 10 \cdot 10^6$

	X/L	DP	CP
1	0.026	4.314	0.47859
2	0.076	1.936	0.23610
3	0.125	0.421	0.08173
4	0.175	-0.547	-0.01701
5	0.213	-1.048	-0.06809
6	0.250	-1.322	-0.09600
7	0.288	-1.455	-0.10954
8	0.325	-1.412	-0.10513
9	0.363	-1.380	-0.10192
10	0.400	-1.317	-0.09556
11	0.438	-1.056	-0.06889
12	0.475	-0.787	-0.04146
13	0.525	-0.710	-0.03362
14	0.575	-0.717	-0.03430
15	0.613	-0.743	-0.03694
16	0.644	-0.808	-0.04359
17	0.675	-0.962	-0.05929
18	0.701	-1.156	-0.07907
19	0.719	-1.521	-0.11633
20	0.738	-1.971	-0.16226
21	0.757	-2.279	-0.19355
22	0.776	-2.588	-0.22505
23	0.794	-2.849	-0.25173
24	0.807	-2.960	-0.26302
25	0.819	-2.998	-0.26685
26	0.832	-2.950	-0.26218
27	0.844	-2.797	-0.24636
28	0.856	-2.579	-0.22417
29	0.869	-2.088	-0.17396
30	0.881	-1.559	-0.12009
31	0.894	-0.885	-0.05142
32	0.906	-0.157	0.02277
33	0.919	0.547	0.09455
34	0.931	1.082	0.14910
35	0.943	1.357	0.17716
36	0.0	1.530	0.19484
37	0.0	1.535	0.19545
38	0.026	3.051	0.35015
39	0.175	-1.393	-0.10320
40	0.288	-1.841	-0.14895
41	0.757	-2.044	-0.16985
42	0.819	-2.242	-0.19003
43	0.050	3.037	0.34860
44	0.100	1.116	0.15260
45	0.150	-0.158	0.02268
46	0.0	1.530	0.19498

Run No. 135 Ma = 0.8
$\alpha = 3^{o}$ $Re_L = 10 \cdot 10^6$

	X/L	DP	CP
1	0.026	3.009	0.34534
2	0.076	0.734	0.11350
3	0.125	-0.614	-0.02381
4	0.175	-1.386	-0.10251
5	0.213	-1.719	-0.13636
6	0.250	-1.827	-0.14733
7	0.288	-1.827	-0.14737
8	0.325	-1.667	-0.13116
9	0.363	-1.522	-0.11622
10	0.400	-1.371	-0.10079
11	0.438	-1.092	-0.07244
12	0.475	-0.807	-0.04340
13	0.525	-0.725	-0.03503
14	0.575	-0.729	-0.03543
15	0.613	-0.753	-0.03791
16	0.644	-0.829	-0.04561
17	0.675	-0.982	-0.06117
18	0.701	-1.190	-0.08233
19	0.719	-1.494	-0.11334
20	0.738	-1.838	-0.14816
21	0.757	-2.053	-0.17010
22	0.776	-2.224	-0.18747
23	0.794	-2.299	-0.19509
24	0.807	-2.269	-0.19196
25	0.819	-2.177	-0.18249
26	0.832	-1.983	-0.16283
27	0.844	-1.690	-0.13315
28	0.856	-1.317	-0.09521
29	0.869	-0.798	-0.04242
30	0.881	-0.267	0.01160
31	0.894	0.269	0.06618
32	0.906	0.745	0.11463
33	0.919	1.084	0.14908
34	0.931	1.262	0.16706
35	0.943	1.329	0.17383
36	0.0	1.528	0.19410
37	0.0	1.528	0.19421
38	0.026	4.354	0.48150
39	0.175	-0.544	-0.01658
40	0.288	-1.463	-0.11006
41	0.757	-2.274	-0.19255
42	0.819	-3.161	-0.28281
43	0.050	1.773	0.21906
44	0.100	-0.004	0.03834
45	0.150	-1.095	-0.07261
46	0.0	1.529	0.19414

Table 2-7: (Continued)

Run No. 136 Ma = 0.85
$\alpha = 3^o$ $Re_L = 10 \cdot 10^6$

	X/L	DP	CP
1	0.026	3.413	0.36060
2	0.076	0.920	0.12346
3	0.125	-0.614	-0.02237
4	0.175	-1.512	-0.10775
5	0.213	-1.897	-0.14429
6	0.250	-2.049	-0.15876
7	0.288	-2.049	-0.15890
8	0.325	-1.856	-0.14043
9	0.363	-1.688	-0.12440
10	0.400	-1.495	-0.10609
11	0.438	-1.169	-0.07509
12	0.475	-0.847	-0.04447
13	0.525	-0.745	-0.03479
14	0.575	-0.746	-0.03488
15	0.613	-0.790	-0.03904
16	0.644	-0.864	-0.04608
17	0.675	-1.045	-0.06328
18	0.701	-1.280	-0.08561
19	0.719	-1.660	-0.12168
20	0.738	-2.090	-0.16249
21	0.757	-2.357	-0.18791
22	0.776	-2.571	-0.20817
23	0.794	-2.652	-0.21590
24	0.807	-2.607	-0.21171
25	0.819	-2.448	-0.19656
26	0.832	-2.193	-0.17225
27	0.844	-1.795	-0.13452
28	0.856	-1.345	-0.09173
29	0.869	-0.745	-0.03472
30	0.881	-0.136	0.02306
31	0.894	0.448	0.07850
32	0.906	0.912	0.12254
33	0.919	1.209	0.15090
34	0.931	1.343	0.16355
35	0.943	1.408	0.16969
36	0.0	1.609	0.18867
37	0.0	1.617	0.18931
38	0.026	4.867	0.49737
39	0.175	-0.578	-0.01885
40	0.288	-1.649	-0.12046
41	0.757	-2.567	-0.20750
42	0.819	-3.630	-0.30851
43	0.050	2.065	0.23189
44	0.100	0.087	0.04424
45	0.150	-1.162	-0.07429
46	0.0	1.606	0.18836

Run No. 137 Ma = 0.85
$\alpha = 0^o$ $Re_L = 10 \cdot 10^6$

	X/L	DP	CP
1	0.026	4.116	0.42711
2	0.076	1.540	0.18255
3	0.125	-0.073	0.02908
4	0.175	-1.079	-0.06663
5	0.213	-1.569	-0.11328
6	0.250	-1.789	-0.13419
7	0.288	-1.881	-0.14297
8	0.325	-1.751	-0.13057
9	0.363	-1.656	-0.12150
10	0.400	-1.510	-0.10766
11	0.438	-1.200	-0.07816
12	0.475	-0.860	-0.04581
13	0.525	-0.767	-0.03694
14	0.575	-0.769	-0.03714
15	0.613	-0.801	-0.04017
16	0.644	-0.876	-0.04730
17	0.675	-1.044	-0.06327
18	0.701	-1.286	-0.08630
19	0.719	-1.690	-0.12470
20	0.738	-2.189	-0.17218
21	0.757	-2.523	-0.20387
22	0.776	-2.826	-0.23282
23	0.794	-3.038	-0.25294
24	0.807	-3.072	-0.25622
25	0.819	-3.016	-0.25098
26	0.832	-2.826	-0.23286
27	0.844	-2.491	-0.20083
28	0.856	-2.077	-0.16157
29	0.869	-1.446	-0.10150
30	0.881	-0.750	-0.03531
31	0.894	-0.011	0.03497
32	0.906	0.663	0.09908
33	0.919	1.178	0.14808
34	0.931	1.445	0.17341
35	0.943	1.538	0.18219
36	0.0	1.674	0.19516
37	0.0	1.667	0.19450
38	0.026	4.151	0.43073
39	0.175	-1.070	-0.06571
40	0.288	-1.885	-0.14317
41	0.757	-2.496	-0.20132
42	0.819	-3.130	-0.26151
43	0.050	2.736	0.29592
44	0.100	0.675	0.10020
45	0.150	-0.669	-0.02758
46	0.0	1.665	0.19434

Run No. 138 Ma = 0.85
$\alpha = -3^o$ $Re_L = 10 \cdot 10^6$

	X/L	DP	CP
1	0.026	4.835	0.49497
2	0.076	2.222	0.24679
3	0.125	0.525	0.08582
4	0.175	-0.579	-0.01896
5	0.213	-1.158	-0.07393
6	0.250	-1.474	-0.10392
7	0.288	-1.643	-0.11987
8	0.325	-1.590	-0.11478
9	0.363	-1.538	-0.10979
10	0.400	-1.482	-0.10453
11	0.438	-1.166	-0.07459
12	0.475	-0.822	-0.04200
13	0.525	-0.741	-0.03432
14	0.575	-0.737	-0.03393
15	0.613	-0.757	-0.03581
16	0.644	-0.832	-0.04291
17	0.675	-0.991	-0.05801
18	0.701	-1.219	-0.07962
19	0.719	-1.643	-0.11983
20	0.738	-2.200	-0.17255
21	0.757	-2.582	-0.20868
22	0.776	-2.977	-0.24607
23	0.794	-3.304	-0.27705
24	0.807	-3.438	-0.28980
25	0.819	-3.476	-0.29340
26	0.832	-3.392	-0.28549
27	0.844	-3.153	-0.26284
28	0.856	-2.809	-0.23025
29	0.869	-2.210	-0.17354
30	0.881	-1.537	-0.10969
31	0.894	-0.756	-0.03569
32	0.906	0.045	0.04028
33	0.919	0.747	0.10678
34	0.931	1.231	0.15762
35	0.943	1.447	0.17316
36	0.0	1.622	0.18975
37	0.0	1.632	0.19044
38	0.026	3.484	0.36596
39	0.175	-1.500	-0.10619
40	0.288	-2.069	-0.16000
41	0.757	-2.352	-0.18684
42	0.819	-2.546	-0.20522
43	0.050	3.434	0.36129
44	0.100	1.307	0.15974
45	0.150	-0.130	0.02366
46	0.0	1.623	0.18989

Run No. 139 Ma = 0.6
$\alpha = -3^o$ $Re_L = 8.3 \cdot 10^6$

	X/L	DP	CP
1	0.026	2.572	0.43287
2	0.076	1.077	0.20649
3	0.125	0.169	0.06891
4	0.175	-0.398	-0.01704
5	0.213	-0.680	-0.05973
6	0.250	-0.826	-0.08184
7	0.288	-0.905	-0.09379
8	0.325	-0.894	-0.09219
9	0.363	-0.881	-0.09020
10	0.400	-0.862	-0.08726
11	0.438	-0.703	-0.06321
12	0.475	-0.561	-0.04170
13	0.525	-0.528	-0.03664
14	0.575	-0.538	-0.03815
15	0.613	-0.548	-0.03966
16	0.644	-0.595	-0.04680
17	0.675	-0.712	-0.06452
18	0.701	-0.803	-0.07837
19	0.719	-1.007	-0.10931
20	0.738	-1.242	-0.14479
21	0.757	-1.407	-0.16956
22	0.776	-1.559	-0.19280
23	0.794	-1.700	-0.21389
24	0.807	-1.750	-0.22135
25	0.819	-1.777	-0.22565
26	0.832	-1.763	-0.22353
27	0.844	-1.702	-0.21445
28	0.856	-1.617	-0.20147
29	0.869	-1.385	-0.16645
30	0.881	-1.114	-0.12543
31	0.894	-0.762	-0.07206
32	0.906	-0.337	-0.00775
33	0.919	0.132	0.06328
34	0.931	0.567	0.12909
35	0.943	0.866	0.17435
36	0.0	1.043	0.20112
37	0.0	1.040	0.20067
38	0.026	1.737	0.30614
39	0.175	-0.899	-0.09275
40	0.288	-1.146	-0.13020
41	0.757	-1.234	-0.14352
42	0.819	-1.373	-0.16466
43	0.050	1.758	0.30954
44	0.100	0.586	0.13204
45	0.150	-0.169	0.01767
46	0.0	1.033	0.19992

Table 2-7: (Continued)

Run No. 140 Ma = 0.6
$\alpha = 0^{o}$ $Re_L = 8.3 \cdot 10^6$

	X/L	DP	CP
1	0.026	2.135	0.36660
2	0.076	0.678	0.14596
3	0.125	-0.172	0.01726
4	0.175	-0.666	-0.05754
5	0.213	-0.901	-0.09314
6	0.250	-1.005	-0.10898
7	0.288	-1.045	-0.11482
8	0.325	-0.995	-0.10732
9	0.363	-0.949	-0.10043
10	0.400	-0.906	-0.09392
11	0.438	-0.741	-0.06889
12	0.475	-0.588	-0.04576
13	0.525	-0.549	-0.03985
14	0.575	-0.554	-0.04061
15	0.613	-0.566	-0.04251
16	0.644	-0.604	-0.04815
17	0.675	-0.695	-0.06203
18	0.701	-0.805	-0.07862
19	0.719	-0.990	-0.10664
20	0.738	-1.203	-0.13899
21	0.757	-1.340	-0.15965
22	0.776	-1.460	-0.17782
23	0.794	-1.550	-0.19145
24	0.807	-1.577	-0.19575
25	0.819	-1.563	-0.19362
26	0.832	-1.505	-0.18477
27	0.844	-1.398	-0.16853
28	0.856	-1.261	-0.14791
29	0.869	-1.004	-0.10889
30	0.881	-0.700	-0.06284
31	0.894	-0.330	-0.00671
32	0.906	0.088	0.05662
33	0.919	0.487	0.11708
34	0.931	0.795	0.16374
35	0.943	0.952	0.18747
36	0.0	1.058	0.20359
37	0.0	1.051	0.20253
38	0.026	2.166	0.37143
39	0.175	-0.659	-0.05651
40	0.288	-1.039	-0.11406
41	0.757	-1.330	-0.15823
42	0.819	-1.638	-0.20478
43	0.050	1.323	0.24377
44	0.100	0.214	0.07572
45	0.150	-0.468	-0.02763
46	0.0	1.054	0.20301

Run No. 141 Ma = 0.6
$\alpha = 3^{o}$ $Re_L = 8.3 \cdot 10^6$

	X/L	DP	CP
1	0.026	1.692	0.30024
2	0.076	0.306	0.08978
3	0.125	-0.481	-0.02980
4	0.175	-0.906	-0.09435
5	0.213	-1.089	-0.12218
6	0.250	-1.142	-0.13030
7	0.288	-1.142	-0.13016
8	0.325	-1.059	-0.11748
9	0.363	-0.984	-0.10609
10	0.400	-0.909	-0.09468
11	0.438	-0.739	-0.06889
12	0.475	-0.587	-0.04582
13	0.525	-0.540	-0.03876
14	0.575	-0.539	-0.03861
15	0.613	-0.549	-0.04010
16	0.644	-0.589	-0.04617
17	0.675	-0.672	-0.05880
18	0.701	-0.779	-0.07510
19	0.719	-0.943	-0.09997
20	0.738	-1.124	-0.12739
21	0.757	-1.230	-0.14360
22	0.776	-1.313	-0.15619
23	0.794	-1.361	-0.16356
24	0.807	-1.355	-0.16260
25	0.819	-1.299	-0.15409
26	0.832	-1.220	-0.14200
27	0.844	-1.088	-0.12209
28	0.856	-0.914	-0.09576
29	0.869	-0.654	-0.05607
30	0.881	-0.357	-0.01096
31	0.894	-0.019	0.04043
32	0.906	0.313	0.09087
33	0.919	0.605	0.13521
34	0.931	0.789	0.16327
35	0.943	0.873	0.17598
36	0.0	1.023	0.19878
37	0.0	1.021	0.19847
38	0.026	2.594	0.43771
39	0.175	-0.387	-0.01553
40	0.288	-0.902	-0.09378
41	0.757	-1.390	-0.16803
42	0.819	-1.871	-0.24132
43	0.050	0.907	0.18135
44	0.100	-0.130	0.02354
45	0.150	-0.746	-0.07013
46	0.0	1.021	0.19859

Run No. 142 Ma = 0.5
$\alpha = 3^{o}$ $Re_L = 7.3 \cdot 10^6$

	X/L	DP	CP
1	0.026	1.196	0.28852
2	0.076	0.191	0.08424
3	0.125	-0.373	-0.03052
4	0.175	-0.670	-0.09101
5	0.213	-0.799	-0.11719
6	0.250	-0.839	-0.12536
7	0.288	-0.836	-0.12475
8	0.325	-0.777	-0.11266
9	0.363	-0.726	-0.10236
10	0.400	-0.671	-0.09110
11	0.438	-0.551	-0.06682
12	0.475	-0.444	-0.04499
13	0.525	-0.409	-0.03796
14	0.575	-0.408	-0.03772
15	0.613	-0.417	-0.03955
16	0.644	-0.444	-0.04505
17	0.675	-0.505	-0.05748
18	0.701	-0.580	-0.07276
19	0.719	-0.691	-0.09547
20	0.738	-0.818	-0.12117
21	0.757	-0.895	-0.13688
22	0.776	-0.954	-0.14877
23	0.794	-0.986	-0.15544
24	0.807	-0.974	-0.15287
25	0.819	-0.944	-0.14688
26	0.832	-0.888	-0.13545
27	0.844	-0.792	-0.11590
28	0.856	-0.677	-0.09247
29	0.869	-0.489	-0.05419
30	0.881	-0.285	-0.01265
31	0.894	-0.050	0.03521
32	0.906	0.179	0.08182
33	0.919	0.413	0.12953
34	0.931	0.567	0.16081
35	0.943	0.648	0.17719
36	0.0	0.756	0.19915
37	0.0	0.753	0.19864
38	0.026	1.862	0.42435
39	0.175	-0.291	-0.01384
40	0.288	-0.661	-0.08913
41	0.757	-1.016	-0.16137
42	0.819	-1.350	-0.22893
43	0.050	0.623	0.17205
44	0.100	-0.123	0.02035
45	0.150	-0.562	-0.06895
46	0.0	0.755	0.19887

Run No. 143 Ma = 0.5
$\alpha = 0^{o}$ $Re_L = 7.4 \cdot 10^6$

	X/L	DP	CP
1	0.026	1.513	0.35225
2	0.076	0.463	0.13934
3	0.125	-0.144	0.01614
4	0.175	-0.495	-0.05507
5	0.213	-0.661	-0.08885
6	0.250	-0.736	-0.10397
7	0.288	-0.762	-0.10935
8	0.325	-0.734	-0.10367
9	0.363	-0.701	-0.09698
10	0.400	-0.669	-0.09047
11	0.438	-0.551	-0.06643
12	0.475	-0.449	-0.04575
13	0.525	-0.418	-0.03952
14	0.575	-0.422	-0.04033
15	0.613	-0.430	-0.04198
16	0.644	-0.460	-0.04805
17	0.675	-0.523	-0.06084
18	0.701	-0.603	-0.07714
19	0.719	-0.736	-0.10401
20	0.738	-0.883	-0.13396
21	0.757	-0.976	-0.15272
22	0.776	-1.058	-0.16939
23	0.794	-1.129	-0.18395
24	0.807	-1.139	-0.18615
25	0.819	-1.132	-0.18459
26	0.832	-1.100	-0.17795
27	0.844	-1.024	-0.16252
28	0.856	-0.922	-0.14193
29	0.869	-0.747	-0.10628
30	0.881	-0.537	-0.06374
31	0.894	-0.278	-0.01108
32	0.906	0.010	0.04739
33	0.919	0.306	0.10752
34	0.931	0.549	0.15688
35	0.943	0.683	0.18411
36	0.0	0.776	0.20291
37	0.0	0.771	0.20189
38	0.026	1.541	0.35841
39	0.175	-0.491	-0.05439
40	0.288	-0.772	-0.11138
41	0.757	-0.973	-0.15240
42	0.819	-1.186	-0.19570
43	0.050	0.928	0.23390
44	0.100	0.126	0.07095
45	0.150	-0.356	-0.02699
46	0.0	0.771	0.20200

Table 2-7: (Continued)

Run No. 144 Ma = 0.5
$\alpha = -3^{o}$ $Re_L = 7.4 \cdot 10^6$

	X/L	DP	CP
1	0.026	1.831	0.41726
2	0.076	0.750	0.19771
3	0.125	0.104	0.06649
4	0.175	-0.294	-0.01437
5	0.213	-0.497	-0.05562
6	0.250	-0.607	-0.07798
7	0.288	-0.661	-0.08905
8	0.325	-0.651	-0.08694
9	0.363	-0.644	-0.08559
10	0.400	-0.631	-0.08278
11	0.438	-0.521	-0.06059
12	0.475	-0.423	-0.04060
13	0.525	-0.401	-0.03608
14	0.575	-0.408	-0.03751
15	0.613	-0.417	-0.03938
16	0.644	-0.450	-0.04608
17	0.675	-0.518	-0.05993
18	0.701	-0.599	-0.07639
19	0.719	-0.746	-0.10639
20	0.738	-0.909	-0.13954
21	0.757	-1.025	-0.16300
22	0.776	-1.130	-0.18438
23	0.794	-1.225	-0.20370
24	0.807	-1.261	-0.21118
25	0.819	-1.276	-0.21419
26	0.832	-1.270	-0.21284
27	0.844	-1.229	-0.20454
28	0.856	-1.166	-0.19173
29	0.869	-1.017	-0.16157
30	0.881	-0.829	-0.12321
31	0.894	-0.587	-0.07400
32	0.906	-0.288	-0.01320
33	0.919	0.050	0.05552
34	0.931	0.381	0.12279
35	0.943	0.613	0.17003
36	0.0	0.764	0.20073
37	0.0	0.761	0.20012
38	0.026	1.218	0.29323
39	0.175	-0.669	-0.09063
40	0.288	-0.847	-0.12694
41	0.757	-0.891	-0.13601
42	0.819	-0.989	-0.15582
43	0.050	1.236	0.29682
44	0.100	0.398	0.12628
45	0.150	-0.131	0.01871
46	0.0	0.764	0.20081

Run No. 145 Ma = 0.8
$\alpha = 0^{o}$ $Re_L = 15 \cdot 10^6$

	X/L	DP	CP
1	0.026	5.822	0.41706
2	0.076	2.025	0.17022
3	0.125	-0.201	0.02571
4	0.175	-1.612	-0.06599
5	0.213	-2.282	-0.10951
6	0.250	-2.553	-0.12713
7	0.288	-2.668	-0.13475
8	0.325	-2.510	-0.12440
9	0.363	-2.384	-0.11621
10	0.400	-2.241	-0.10692
11	0.438	-1.759	-0.07558
12	0.475	-1.306	-0.04607
13	0.525	-1.227	-0.04097
14	0.575	-1.213	-0.04006
15	0.613	-1.293	-0.04524
16	0.644	-1.387	-0.05136
17	0.675	-1.633	-0.06735
18	0.701	-1.932	-0.08679
19	0.719	-2.485	-0.12267
20	0.738	-3.142	-0.16527
21	0.757	-3.532	-0.19072
22	0.776	-3.907	-0.21503
23	0.794	-4.201	-0.23424
24	0.807	-4.308	-0.24122
25	0.819	-4.280	-0.23923
26	0.832	-4.088	-0.22676
27	0.844	-3.703	-0.20170
28	0.856	-3.274	-0.17414
29	0.869	-2.430	-0.11921
30	0.881	-1.504	-0.05900
31	0.894	-0.439	0.01022
32	0.906	0.661	0.08169
33	0.919	1.583	0.14152
34	0.931	2.174	0.17993
35	0.943	2.417	0.19578
36	0.0	2.636	0.21001
37	0.0	2.634	0.20994
38	0.026	5.632	0.40466
39	0.175	-1.590	-0.06460
40	0.288	-2.714	-0.13767
41	0.757	-3.523	-0.19026
42	0.819	-4.502	-0.25387
43	0.050	3.761	0.28307
44	0.100	0.864	0.09491
45	0.150	-0.949	-0.02292
46	0.0	2.641	0.21031

Run No. 146 Ma = 0.8
$\alpha = -3^{o}$ $Re_L = 15 \cdot 10^6$

	X/L	DP	CP
1	0.026	6.895	0.48430
2	0.076	3.032	0.23494
3	0.125	0.665	0.08180
4	0.175	-0.895	-0.01917
5	0.213	-1.693	-0.07085
6	0.250	-2.112	-0.09797
7	0.288	-2.349	-0.11331
8	0.325	-2.251	-0.10694
9	0.363	-2.207	-0.10414
10	0.400	-2.161	-0.10120
11	0.438	-1.694	-0.07093
12	0.475	-1.243	-0.04172
13	0.525	-1.179	-0.03757
14	0.575	-1.207	-0.03943
15	0.613	-1.226	-0.04065
16	0.644	-1.342	-0.04817
17	0.675	-1.569	-0.06286
18	0.701	-1.885	-0.08342
19	0.719	-2.472	-0.12149
20	0.738	-3.203	-0.16873
21	0.757	-3.682	-0.19981
22	0.776	-4.192	-0.23303
23	0.794	-4.560	-0.25665
24	0.807	-4.790	-0.27115
25	0.819	-4.873	-0.27682
26	0.832	-4.806	-0.27244
27	0.844	-4.545	-0.25553
28	0.856	-4.274	-0.23796
29	0.869	-3.514	-0.18873
30	0.881	-2.632	-0.13175
31	0.894	-1.587	-0.06410
32	0.906	-0.387	0.01369
33	0.919	0.797	0.09035
34	0.931	1.742	0.15160
35	0.943	2.247	0.18428
36	0.0	2.573	0.20539
37	0.0	2.583	0.20603
38	0.026	4.736	0.34514
39	0.175	-2.232	-0.10579
40	0.288	-2.961	-0.15302
41	0.757	-3.292	-0.17472
42	0.819	-3.726	-0.20270
43	0.050	4.813	0.35055
44	0.100	1.766	0.15326
45	0.150	-0.212	0.02503
46	0.0	2.570	0.20523

Run No. 147 Ma = 0.8
$\alpha = 3^{o}$ $Re_L = 15 \cdot 10^6$

	X/L	DP	CP
1	0.026	4.774	0.34797
2	0.076	1.054	0.10707
3	0.125	-1.021	-0.02742
4	0.175	-2.263	-0.10793
5	0.213	-2.782	-0.14169
6	0.250	-2.939	-0.15197
7	0.288	-2.941	-0.15198
8	0.325	-2.691	-0.13561
9	0.363	-2.458	-0.12049
10	0.400	-2.240	-0.10649
11	0.438	-1.757	-0.07513
12	0.475	-1.307	-0.04598
13	0.525	-1.211	-0.03976
14	0.575	-1.206	-0.03949
15	0.613	-1.251	-0.04234
16	0.644	-1.380	-0.05072
17	0.675	-1.609	-0.06555
18	0.701	-1.922	-0.08578
19	0.719	-2.421	-0.11811
20	0.738	-2.992	-0.15514
21	0.757	-3.324	-0.17686
22	0.776	-3.617	-0.19586
23	0.794	-3.720	-0.20264
24	0.807	-3.689	-0.20061
25	0.819	-3.564	-0.19241
26	0.832	-3.254	-0.17230
27	0.844	-2.781	-0.14162
28	0.856	-2.251	-0.10709
29	0.869	-1.433	-0.05417
30	0.881	-0.590	0.00050
31	0.894	0.307	0.05862
32	0.906	1.119	0.11131
33	0.919	1.732	0.15088
34	0.931	2.058	0.17209
35	0.943	2.202	0.18138
36	0.0	2.560	0.20448
37	0.0	2.552	0.20407
38	0.026	6.744	0.47629
39	0.175	-0.897	-0.01941
40	0.288	-2.378	-0.11530
41	0.757	-3.651	-0.19787
42	0.819	-5.172	-0.29639
43	0.050	2.779	0.21889
44	0.100	-0.035	0.03645
45	0.150	-1.745	-0.07447
46	0.0	2.546	0.20385

Table 2-7: (Continued)

Run No. 163 Ma = 0.804
$\alpha = 0^{o}$ $Re_L = 10 \cdot 10^6$

	X/L	DP	CP
1	0.026	3.675	0.41188
2	0.076	1.264	0.16699
3	0.125	-0.165	0.02185
4	0.175	-1.054	-0.06845
5	0.213	-1.432	-0.10685
6	0.250	-1.596	-0.12351
7	0.288	-1.663	-0.13031
8	0.325	-1.585	-0.12239
9	0.363	-1.484	-0.11213
10	0.400	-1.352	-0.09872
11	0.438	-1.152	-0.07841
12	0.475	-0.822	-0.04489
13	0.525	-0.729	-0.03544
14	0.575	-0.751	-0.03768
15	0.613	-0.772	-0.03981
16	0.644	-0.847	-0.04743
17	0.675	-0.994	-0.06238
18	0.701	-1.192	-0.08247
19	0.719	-1.532	-0.11700
20	0.738	-1.962	-0.16068
21	0.757	-2.238	-0.18871
22	0.776	-2.479	-0.21319
23	0.794	-2.653	-0.23087
24	0.807	-2.705	-0.23615
25	0.819	-2.666	-0.23219
26	0.832	-2.532	-0.21858
27	0.844	-2.288	-0.19379
28	0.856	-1.981	-0.16261
29	0.869	-1.439	-0.10756
30	0.881	-0.834	-0.04611
31	0.894	-0.162	0.02215
32	0.906	0.502	0.08959
33	0.919	1.049	0.14515
34	0.931	1.350	0.17573
35	0.943	1.472	0.18812
36	0.0	1.600	0.20112
37	0.0	1.596	0.20071
38	0.026	3.781	0.42265
39	0.175	-0.985	-0.06144
40	0.288	-1.690	-0.13305
41	0.757	-2.208	-0.18567
42	0.819	-2.746	-0.24031
43	0.050	2.354	0.27770
44	0.100	0.527	0.09213
45	0.150	-0.651	-0.02752
46	0.0	1.597	0.20081

Run No. 164 Ma = 0.801
$\alpha = -3^{o}$ $Re_L = 10 \cdot 10^6$

	X/L	DP	CP
1	0.026	4.350	0.48142
2	0.076	1.884	0.23046
3	0.125	0.378	0.07720
4	0.175	-0.622	-0.02457
5	0.213	-1.084	-0.07158
6	0.250	-1.370	-0.10069
7	0.288	-1.504	-0.11433
8	0.325	-1.471	-0.11097
9	0.363	-1.379	-0.10160
10	0.400	-1.305	-0.09407
11	0.438	-1.113	-0.07453
12	0.475	-0.778	-0.04044
13	0.525	-0.700	-0.03250
14	0.575	-0.722	-0.03474
15	0.613	-0.738	-0.03637
16	0.644	-0.807	-0.04339
17	0.675	-0.947	-0.05764
18	0.701	-1.149	-0.07820
19	0.719	-1.506	-0.11453
20	0.738	-1.986	-0.16338
21	0.757	-2.300	-0.19533
22	0.776	-2.615	-0.22739
23	0.794	-2.883	-0.25466
24	0.807	-2.991	-0.26565
25	0.819	-3.035	-0.27013
26	0.832	-2.987	-0.26525
27	0.844	-2.821	-0.24835
28	0.856	-2.598	-0.22566
29	0.869	-2.108	-0.17579
30	0.881	-1.546	-0.11860
31	0.894	-0.875	-0.05031
32	0.906	-0.122	0.02632
33	0.919	0.597	0.09949
34	0.931	1.141	0.15485
35	0.943	1.365	0.17764
36	0.0	1.562	0.19769
37	0.0	1.563	0.19779
38	0.026	3.113	0.35553
39	0.175	-1.388	-0.10252
40	0.288	-1.845	-0.14903
41	0.757	-2.052	-0.17009
42	0.819	-2.272	-0.19248
43	0.050	3.004	0.34444
44	0.100	1.116	0.15230
45	0.150	-0.148	0.02367
46	0.0	1.561	0.19759

Run No. 165 Ma = 0.800
$\alpha = 3^{o}$ $Re_L = 10 \cdot 10^6$

	X/L	DP	CP
1	0.026	3.039	0.34863
2	0.076	0.681	0.10822
3	0.125	-0.641	-0.02657
4	0.175	-1.379	-0.10181
5	0.213	-1.717	-0.13627
6	0.250	-1.830	-0.14779
7	0.288	-1.820	-0.14677
8	0.325	-1.680	-0.13250
9	0.363	-1.534	-0.11761
10	0.400	-1.354	-0.09926
11	0.438	-1.137	-0.07714
12	0.475	-0.813	-0.04410
13	0.525	-0.717	-0.03432
14	0.575	-0.732	-0.03585
15	0.613	-0.755	-0.03819
16	0.644	-0.832	-0.04604
17	0.675	-0.977	-0.06083
18	0.701	-1.181	-0.08162
19	0.719	-1.484	-0.11252
20	0.738	-1.866	-0.15146
21	0.757	-2.079	-0.17318
22	0.776	-2.252	-0.19082
23	0.794	-2.329	-0.19867
24	0.807	-2.298	-0.19551
25	0.819	-2.208	-0.18633
26	0.832	-2.018	-0.16696
27	0.844	-1.718	-0.13637
28	0.856	-1.355	-0.09936
29	0.869	-0.834	-0.04625
30	0.881	-0.288	0.00942
31	0.894	0.274	0.06672
32	0.906	0.763	0.11658
33	0.919	1.106	0.15155
34	0.931	1.279	0.16919
35	0.943	1.345	0.17592
36	0.0	1.551	0.19692
37	0.0	1.549	0.19672
38	0.026	4.413	0.48872
39	0.175	-0.553	-0.01760
40	0.288	-1.479	-0.11201
41	0.757	-2.292	-0.19490
42	0.819	-3.154	-0.28278
43	0.050	1.728	0.21497
44	0.100	-0.009	0.03787
45	0.150	-1.066	-0.06990
46	0.0	1.545	0.19631

Table 2-7 : (Concluded)

Table: 2-8 Drag Data for Complete Model (Shape 3) at Zero Incidence (Test Phase 2)

Run	α	Ma	p_0	C_X	C_B	C_{Xcorr}
130	0	0,8	300	0,0623	-0,0128	0,0751
133	0	0,80	735	0,0531	-0,0133	0,0664
137	0	0,85	735	0,0541	-0,0129	0,067
140	0	0,60	735	0,0536	-0,0135	0,0671
143	0	0,50	735	0,0555	-0,0135	0,0690
145	0	0,80	1152	0,0493	-0,0140	0,0633
163	0	0,804	734	0,0503	-0,0134	0,0637

MEASUREMENTS ON MBB-BODY-OF-REVOLUTION
POSITION OF WALL STATIC PRESSURE REL. TO MODEL APEX

XBM (CM)

-20.70	-18.34	-15.93	-6.32	-3.83	-1.37
5.95	10.58	13.16	22.53	25.07	27.57
36.88	39.37	41.86	51.31	53.70	56.27
65.59	,68.11	70.54	79.94	82.48	84.94

CONSTANTS & CALIBRATION

REFERENCE AREA S = 112.81 CM**2
CHORD LENGTH L = 80.00 CM

CAL.OF PRESS.TRD. AP = 93.25 MMWS/VOLT
CAL.OF CHORD FORCE AX = 0.5868 VOLT/KP

Table 2-9: Calibration and Geometrical Data, Test Phase 3

MEASUREMENTS ON MBB-BODY-OF-REVOLUTION

RESULTS RUN NO 89

A) FORCE MEASUREMTS. CX CXCORR CPI MA REL

0.0			0.80050	0.552E 07
0.0			0.80050	0.552E 07

B) STATIC WALL PRESSURE

X/L	CPWALL
-0.2587	0.0049
-0.2292	0.0018
-0.1991	0.0021
-0.0790	0.0054
-0.0479	0.0029
-0.0171	0.0060
0.0731	0.0028
0.1322	0.0047
0.1645	0.0003
0.2816	0.0039
0.3134	-0.0008
0.3446	0.0171
0.4610	0.0115
0.4921	0.0066
0.5232	-0.0020
0.6414	0.0059
0.6712	0.0061
0.7034	0.0163
0.8199	0.0165
0.8514	0.0121
0.8817	0.0144
0.9992	0.0160
1.0310	0.0156
1.0617	0.0113

AVERAGE CPA = 0.00788 AVARAGE SCATTER AS = 0.00606

Table 2-10: Force and Pressure Data, Test Phase 3 (Run 89 to 100)

MEASUREMENTS ON MBB-BODY-OF-REVOLUTION

RESULTS RUN NO 90

A) FORCE MEASUREMTS. CX CXCORR CPI MA REL

0.0			0.80019	0.812E 07
0.0			0.79988	0.811E 07

B) STATIC WALL PRESSURE

X/L	CPWALL
-0.2587	0.0006
-0.2292	-0.0003
-0.1991	-0.0006
-0.0790	0.0031
-0.0479	-0.0018
-0.0171	0.0046
0.0731	-0.0018
0.1322	0.0024
0.1645	-0.0037
0.2816	-0.0025
0.3134	-0.0116
0.3446	0.0123
0.4610	0.0100
0.4921	0.0026
0.5232	0.0037
0.6414	0.0070
0.6712	0.0041
0.7034	0.0189
0.8199	0.0100
0.8514	0.0016
0.8817	0.0082
0.9992	0.0134
1.0310	0.0124
1.0617	0.0087

AVERAGE CPA = 0.00441 AVARAGE SCATTER AS = 0.00674

Table 2-10: (Continued)

MEASUREMENTS ON MBB-BODY-OF-REVOLUTION

RESULTS RUN NO 91

A) FORCE MEASUREMTS. CX CXCORR CPI MA REL

0.0			0.80050	0.995E 07
0.0			0.80050	0.994E 07

B) STATIC WALL PRESSURE

X/L	CPWALL
-0.2587	0.0001
-0.2292	-0.0026
-0.1991	0.0005
-0.0790	0.0028
-0.0479	-0.0029
-0.0171	0.0076
0.0731	-0.0034
0.1322	-0.0007
0.1645	-0.0082
0.2816	-0.0073
0.3134	-0.0129
0.3446	0.0075
0.4610	0.0148
0.4921	0.0042
0.5232	0.0005
0.6414	0.0029
0.6712	0.0025
0.7034	0.0191
0.8199	0.0085
0.8514	0.0015
0.8817	0.0116
0.9992	0.0106
1.0310	0.0130
1.0617	0.0086

AVERAGE CPA = 0.00341 AVARAGE SCATTER AS = 0.00769

Table 2-10 : (Continued)

MEASUREMENTS ON MBB-BODY-OF-REVOLUTION

RESULTS RUN NO 92

A) FORCE MEASUREMTS. CX CXCORR CPI MA REL

0.0			0.80003	0.135E 08
0.0			0.80065	0.135E 08

B) STATIC WALL PRESSURE

X/L	CPWALL
-0.2587	-0.0063
-0.2292	-0.0059
-0.1991	-0.0038
-0.0790	0.0009
-0.0479	-0.0076
-0.0171	0.0039
0.0731	-0.0061
0.1322	-0.0056
0.1645	-0.0140
0.2816	-0.0090
0.3134	-0.0154
0.3446	0.0104
0.4610	0.0132
0.4921	0.0011
0.5232	0.0020
0.6414	-0.0034
0.6712	0.0005
0.7034	0.0179
0.8199	0.0050
0.8514	0.0028
0.8817	0.0092
0.9992	0.0137
1.0310	0.0084
1.0617	0.0054

AVERAGE CPA = 0.00075 AVARAGE SCATTER AS = 0.00874

Table 2-10 :(Continued)

MEASUREMENTS ON MEB-BODY-OF-REVOLUTION

RESULTS RUN NO 97

A) FORCE MEASUREMTS. CX

CX	CXCORR	CPI	MA	REL
-0.07205	-0.04295	-0.02911	0.80142	0.540E 07
-0.07209	-0.04290	-0.02919	0.80126	0.540E 07

B) STATIC WALL PRESSURE

X/L	CPWALL
-0.2587	0.0080
-0.2292	0.0050
-0.1991	0.0047
-0.0790	0.0100
-0.0479	0.0068
-0.0171	0.0108
0.0731	0.0041
0.1322	0.0091
0.1645	0.0023
0.2816	0.0053
0.3134	-0.0071
0.3446	0.0269
0.4610	0.0126
0.4921	0.0073
0.5232	0.0005
0.6414	0.0050
0.6712	0.0042
0.7034	0.0071
0.8199	0.0069
0.8514	0.0008
0.8817	0.0083
0.9992	0.0099
1.0310	0.0094
1.0617	0.0066

AVERAGE CPA = 0.00714 AVARAGE SCATTER AS = 0.00592

Table 2-10: (Continued)

MEASUREMENTS ON MEB-BODY-OF-REVOLUTION

RESULTS RUN NO 98

A) FORCE MEASUREMTS. CX

CX	CXCORR	CPI	MA	REL
-0.06688	-0.03619	-0.03070	0.80111	0.825E 07
-0.06699	-0.03639	-0.03060	0.80080	0.825E 07

B) STATIC WALL PRESSURE

X/L	CPWALL
-0.2587	0.0030
-0.2292	0.0008
-0.1991	0.0064
-0.0790	0.0080
-0.0479	0.0035
-0.0171	0.0129
0.0731	0.0024
0.1322	0.0037
0.1645	0.0027
0.2816	0.0042
0.3134	-0.0135
0.3446	0.0317
0.4610	0.0102
0.4921	0.0053
0.5232	0.0002
0.6414	0.0006
0.6712	0.0020
0.7034	0.0068
0.8199	0.0043
0.8514	-0.0021
0.8817	0.0042
0.9992	0.0078
1.0310	0.0069
1.0617	0.0035

AVERAGE CPA = 0.00503 AVARAGE SCATTER AS = 0.00756

Table 2-10: (Continued)

MEASUREMENTS ON MBB-BODY-OF-REVOLUTION

RESULTS RUN NO 99

A) FORCE MEASUREMTS. CX

CX	CXCORR	CPI	MA	REL
-0.06290	-0.03322	-0.02968	0.80034	0.100E 08
-0.06300	-0.03293	-0.03007	0.80050	0.100E 08

B) STATIC WALL PRESSURE

X/L	CPWALL
-0.2587	-0.0004
-0.2292	-0.0018
-0.1991	0.0041
-0.0790	0.0033
-0.0479	0.0006
-0.0171	0.0104
0.0731	0.0011
0.1322	0.0013
0.1645	0.0006
0.2816	-0.0039
0.3134	-0.0159
0.3446	0.0229
0.4610	0.0128
0.4921	0.0079
0.5232	-0.0065
0.6414	-0.0004
0.6712	0.0001
0.7034	0.0154
0.8199	0.0029
0.8514	-0.0028
0.8817	0.0060
0.9992	0.0060
1.0310	0.0075
1.0617	0.0018

AVERAGE CPA = 0.00316 AVARAGE SCATTER AS = 0.00771

Table 2-10: (Continued)

MEASUREMENTS ON MBB-BODY-OF-REVOLUTION

RESULTS RUN NO 100

A) FORCE MEASUREMTS. CX

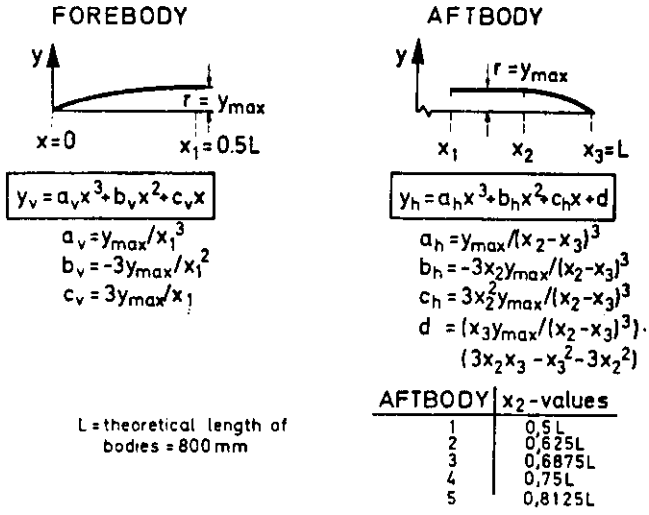
CX	CXCORR	CPI	MA	REL
-0.05718	-0.02794	-0.02924	0.80050	0.140E 08
-0.05683	-0.02806	-0.02877	0.80065	0.140E 08

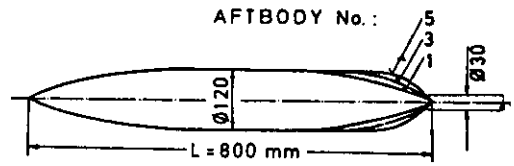
B) STATIC WALL PRESSURE

X/L	CPWALL
-0.2587	-0.0045
-0.2292	-0.0098
-0.1991	0.0036
-0.0790	0.0027
-0.0479	-0.0040
-0.0171	0.0102
0.0731	-0.0033
0.1322	-0.0102
0.1645	-0.0047
0.2816	-0.0027
0.3134	-0.0235
0.3446	0.0259
0.4610	0.0157
0.4921	0.0041
0.5232	0.0035
0.6414	-0.0052
0.6712	-0.0053
0.7034	0.0138
0.8199	0.0006
0.8514	-0.0054
0.8817	0.0033
0.9992	0.0055
1.0310	0.0047
1.0617	0.0001

AVERAGE CPA = 0.00066 AVARAGE SCATTER AS = 0.00985

Table 2-10: (Concluded)





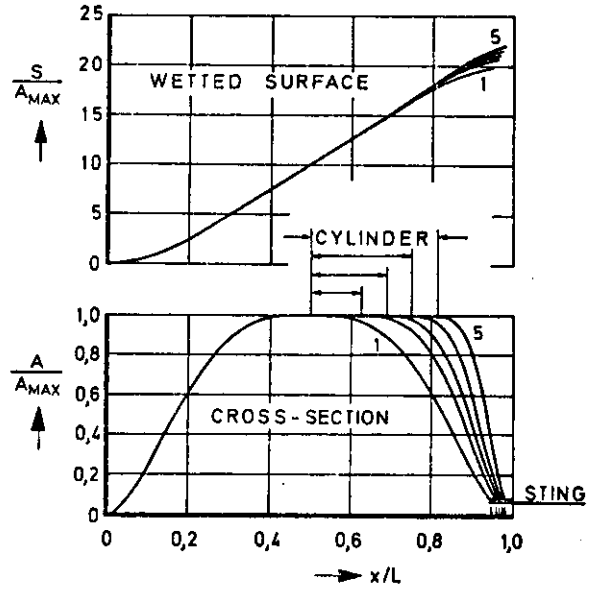


Fig. 2-1: Model Geometry

a) Analytical Form

b) Shape of Aftbody 1, 3, and 5

c) Wetted Surface and Cross Section Distribution

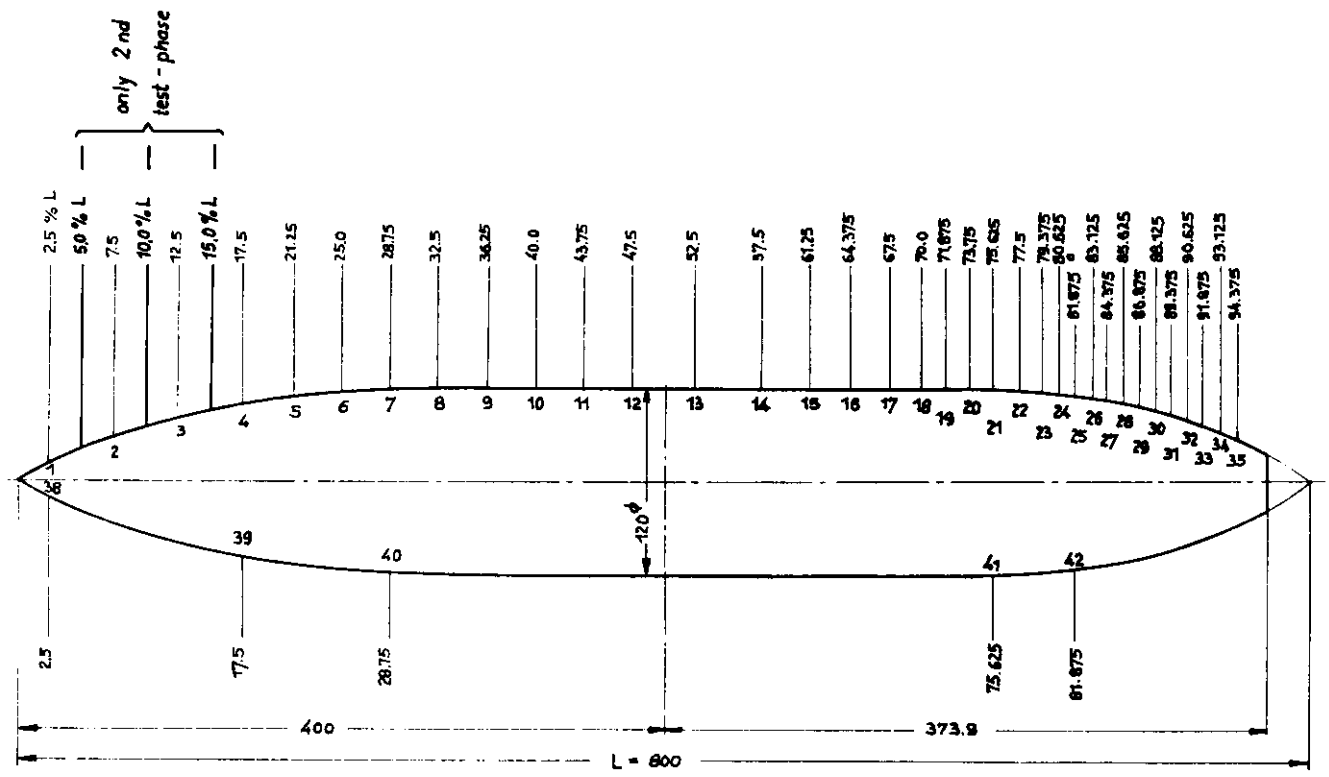


Fig. 2-2: Position of Pressure Orifices (5 %, 10 %, 15 % L only during Test Phase 2)

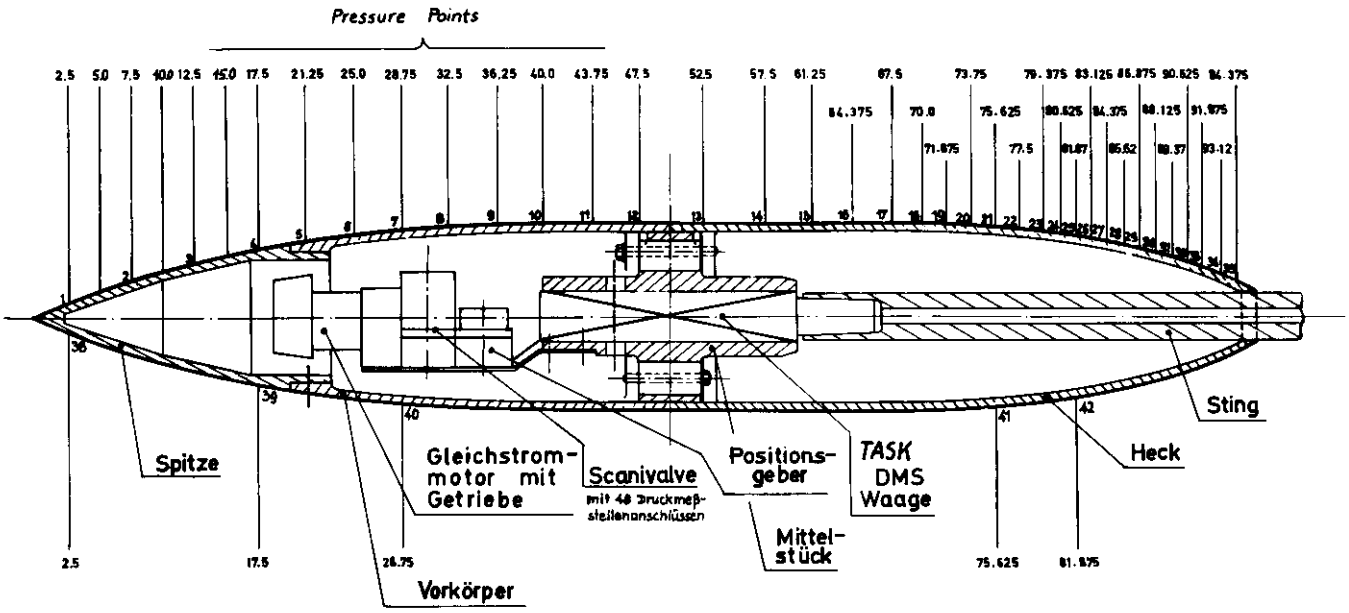


Fig. 2-3: Test Setup for Complete Model with Scanivalve, TASK-Balance, and Sting

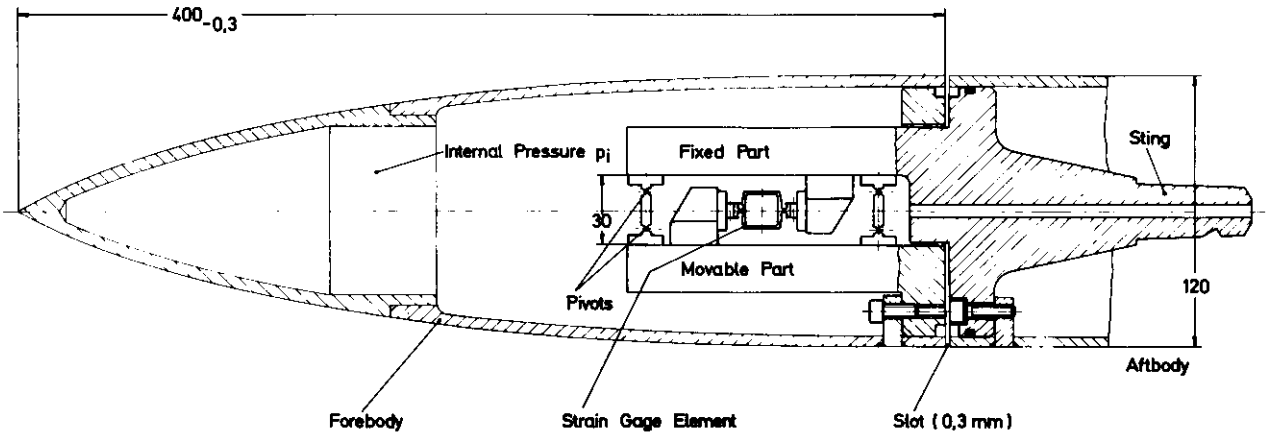


Fig. 2-4: Forebody Drag Measurement Setup (chord force balance)

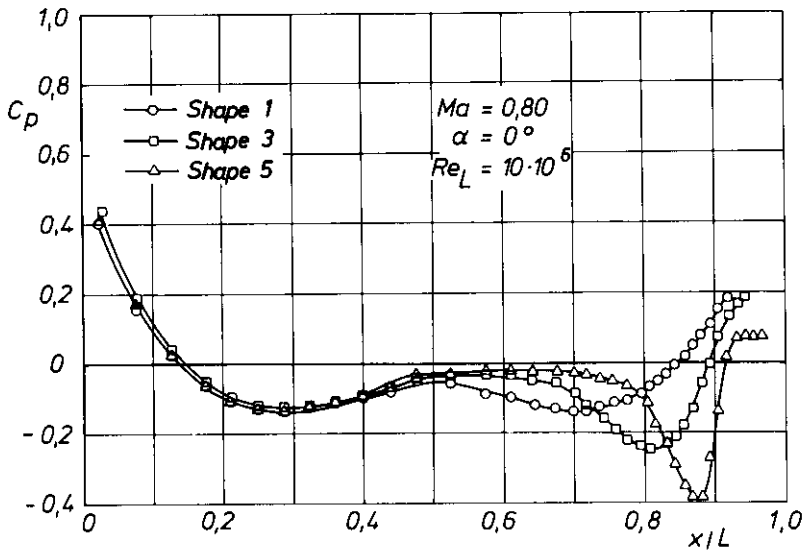


Fig. 2-5: Comparison of Pressure Distribution of Shape 1, 3, and 5 at Ma = 0.8, Zero Angle of Attack, and $10 \cdot 10^6$ Chord Reynolds Number.

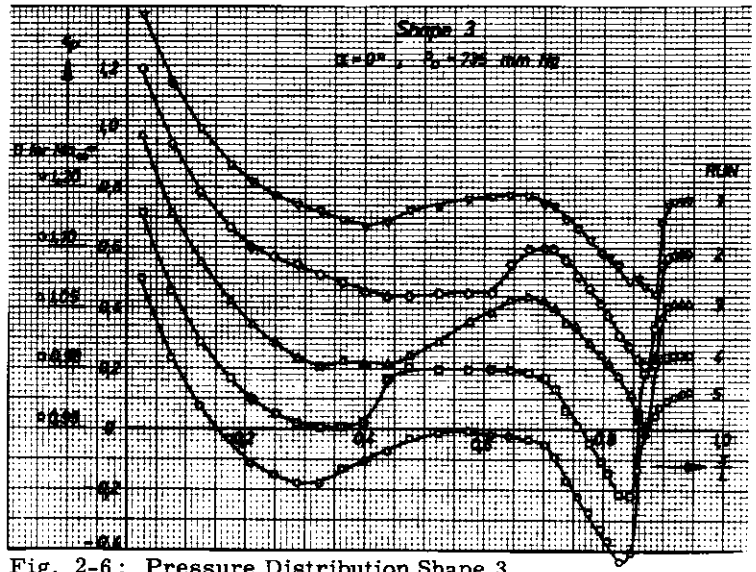


Fig. 2-6: Pressure Distribution Shape 3
c_p (x/L; Ma); α = 0

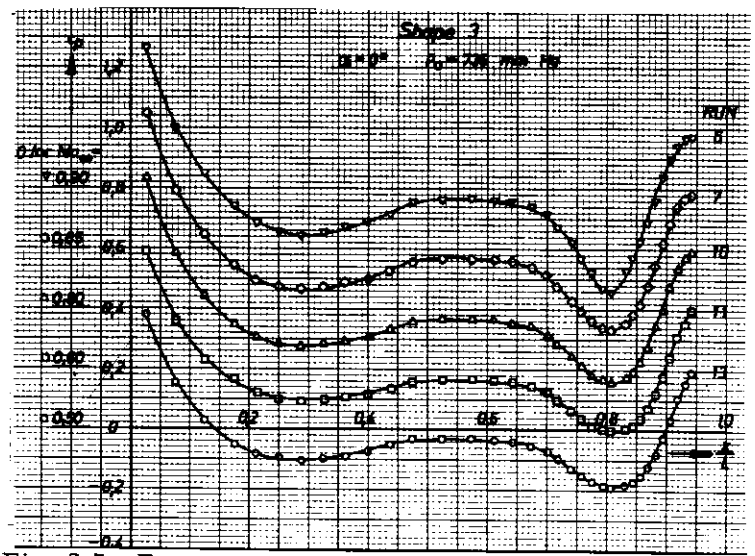


Fig. 2-7: Pressure Distribution Shape 3
c_p (x/L; Ma); α = 0

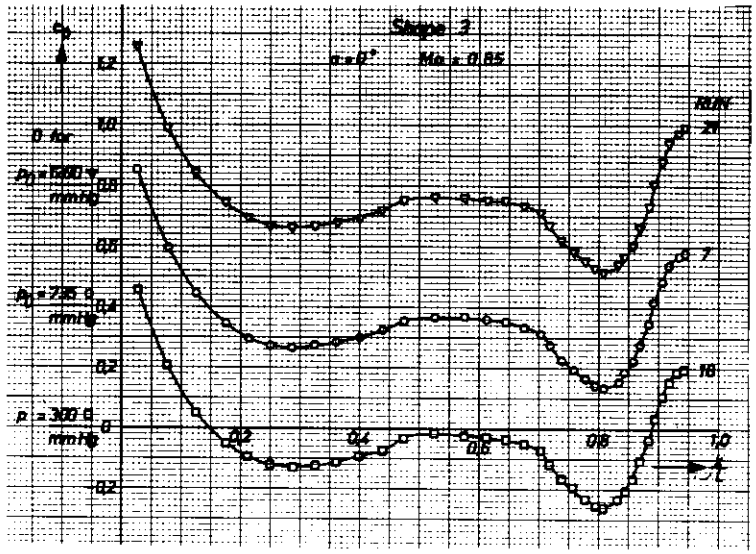


Fig. 2-8: Pressure Distribution Shape 3
c_p (x/L; p_0) α = 0; Ma = 0.85

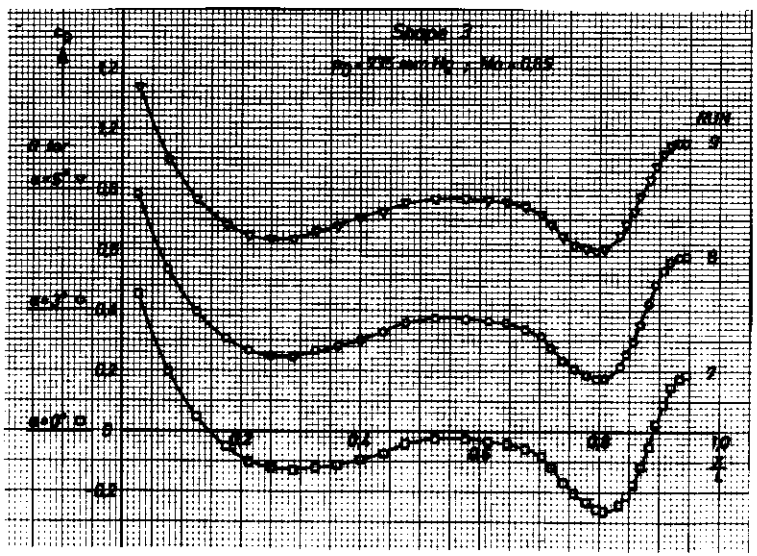


Fig. 2-9: Pressure Distribution Shape 3
c_p (x/L; α); p_0 = 735 mm Hg; Ma = 0.85

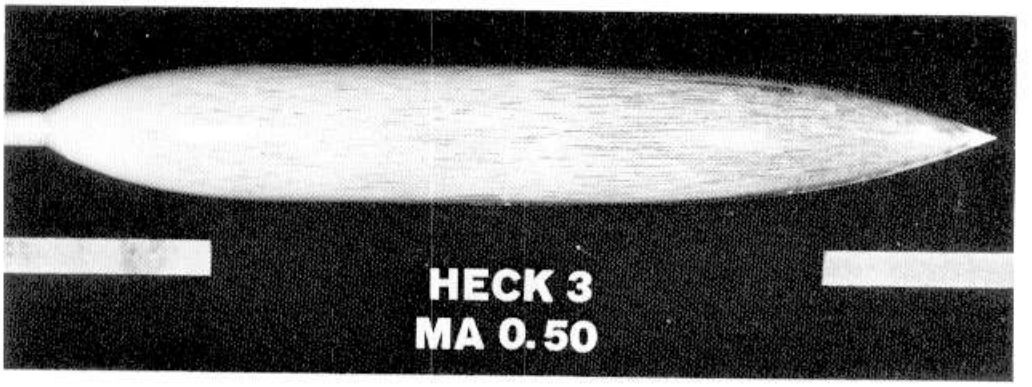


Fig. 2-10: Oilflow Picture Shape 3; Ma = 0.5; α = 0

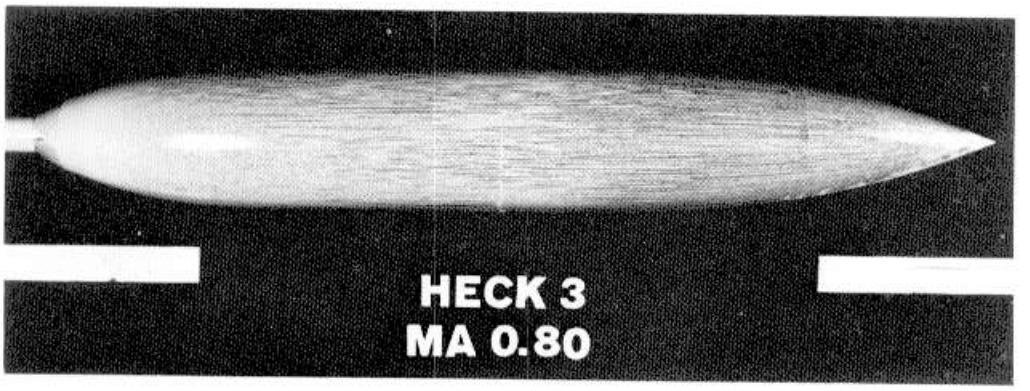


Fig. 2-11: Oilflow Picture Shape 3; Ma = 0.8; α = 0

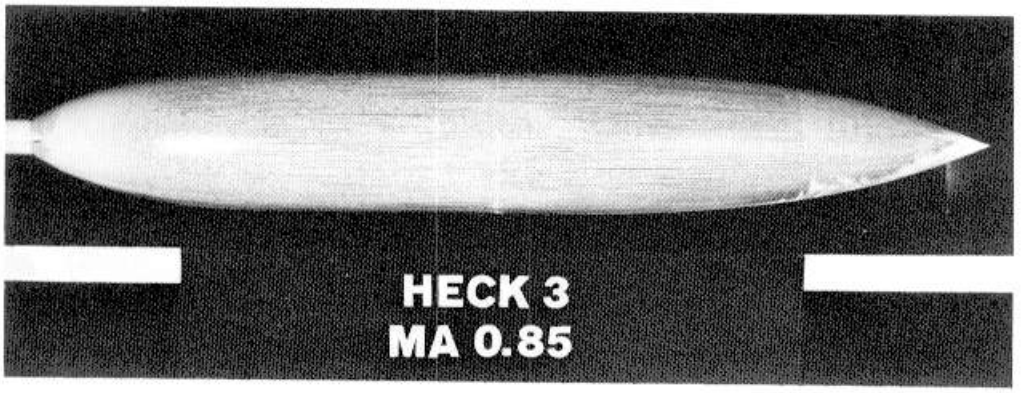


Fig. 2-12: Oilflow Picture Shape 3; Ma = 0.85; α = 0

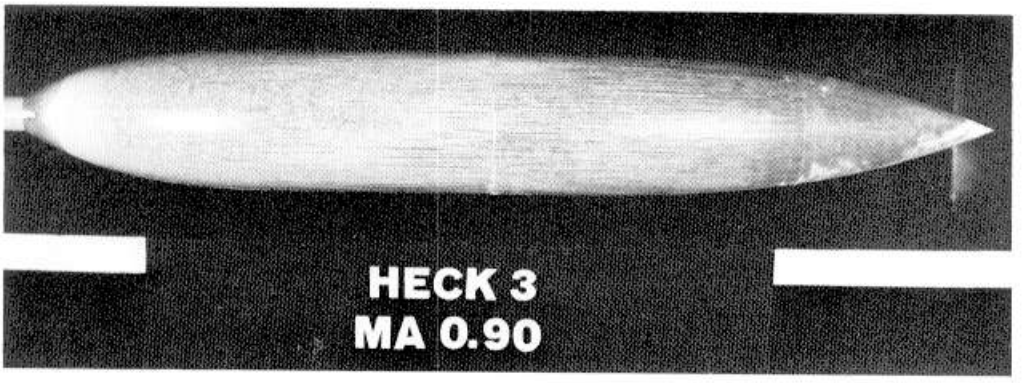


Fig. 2-13: Oilflow Picture Shape 3; Ma = 0.90; α = 0

MA = 0.800 KANAL LEER

SYM	MR	REX10^{-6}
⊙	89	5.520
▲	90	8.110
+	91	9.940
×	92	13.500

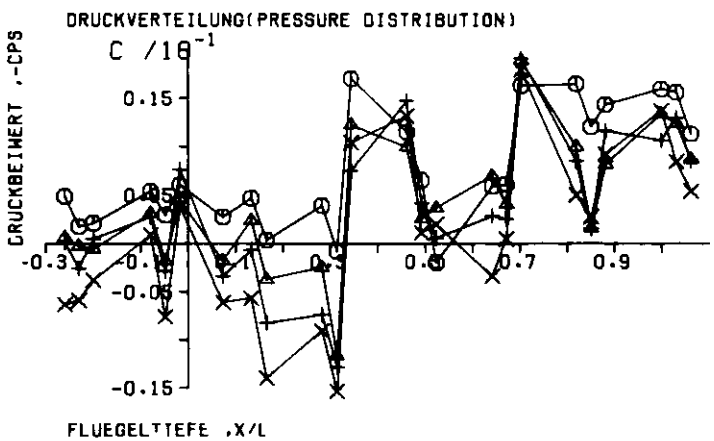


Fig. 2-14: Sidewall Pressure Distribution at Ma = 0.8, Tunnel Empty; c_{pwall} (x/L; Re_L)

MA = 0.801

SYM	MR	REX10^{-6}	HECK
⊙	97	5.400	3.0
▲	98	8.250	3.0
+	99	10.000	3.0
×	100	14.000	3.0

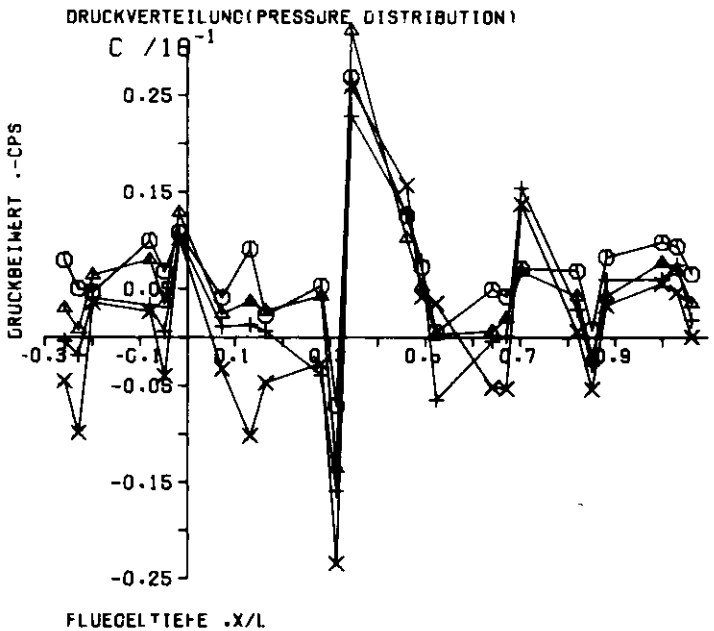


Fig. 2-15: Sidewall Pressure Distribution at Ma = 0.8 and Model 3; c_{pwall} (x/L; Re_L)

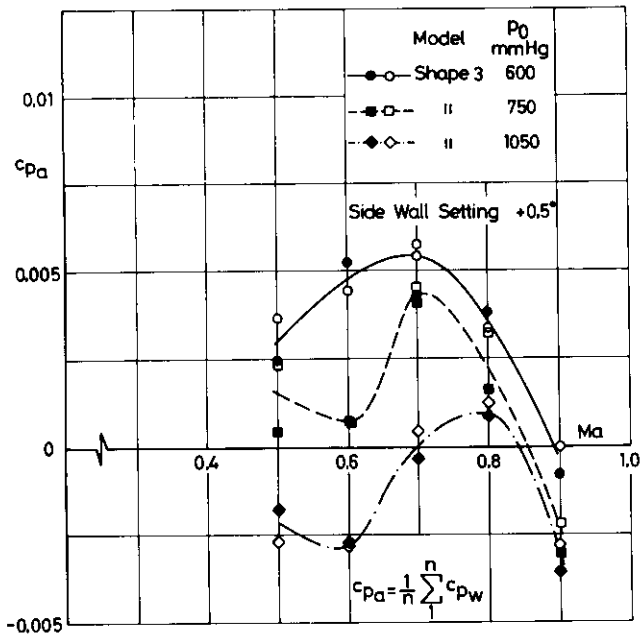


Fig. 2-16 : Test-Section Wall Pressure, Averaged over all Avavailable Pressure Points c_{pa} (Ma; p_0); Shape 3

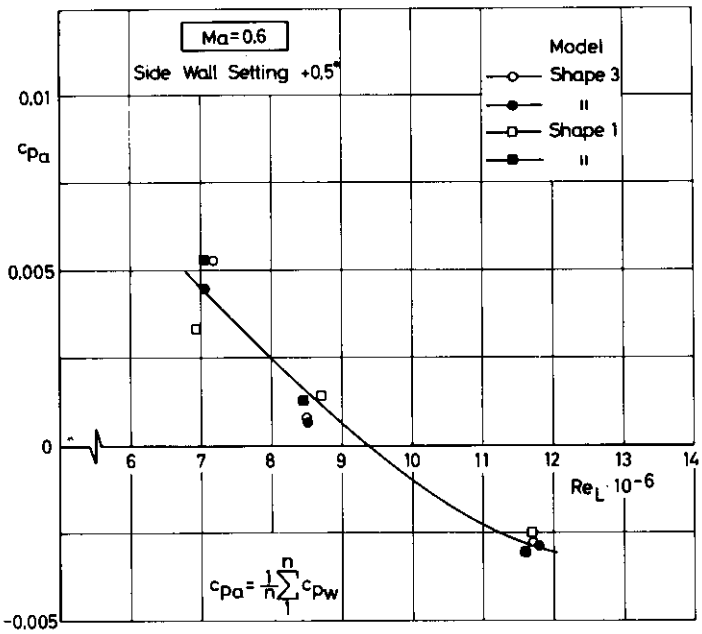


Fig. 2-17 : Test-Section Wall Pressure, Averaged over all Available Pressure Points c_{pa} (Re_L ; Model); Ma = 0.6

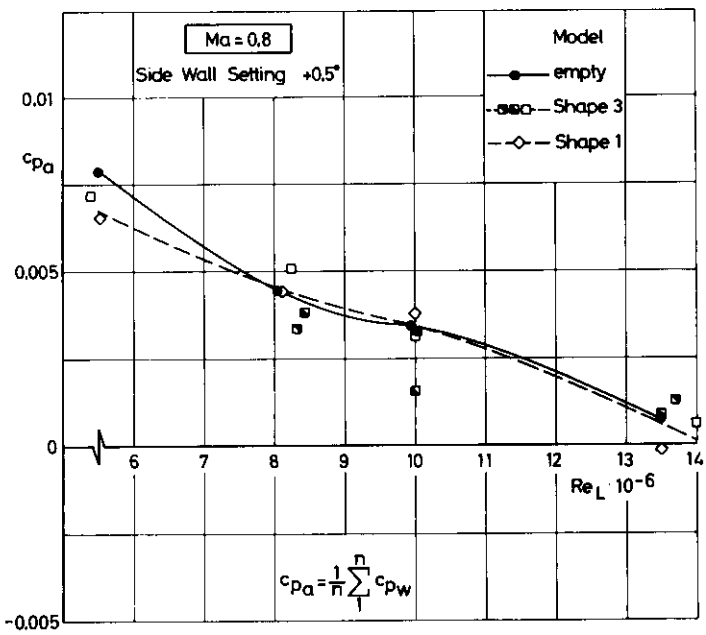


Fig. 2-18 : Test-Section Wall Pressure, Averaged over all Available Pressure Points c_{pa} (Re_L; Model); Ma = 0.8

3. PRESSURE DISTRIBUTION DATA FOR A 10° CONE-CYLINDER AT ZERO INCIDENCE IN THE MACH NUMBER RANGE 0.91 TO 1.22

submitted by
THE HIGH SPEED AERODYNAMICS LABORATORY NAE/NRC

The 10° cone-cylinder is a model configuration, that has become more or less a standard, when determining transonic wind tunnel wall interference characteristics at Mach numbers above, but close to, one. It is also believed that pressure distribution data obtained on a model of such simple geometry will be useful in assessing transonic calculation methods for bodies of revolution. The submitted data were obtained as part of a calibration program for the NAE 5ft x 5ft wind tunnel. The data show that for Mach numbers above one the bow shock is effectively eliminated at the wall, but that the expansion wave from the cone-cylinder junction is reflected as a disturbance on the model. The pressure distribution data up to this reflected disturbance should be representative of interference-free, free air data.

1. General Description

1.1 Model designation or name	NAE calibration model T3
1.2 Model type	Cone-cylinder
1.3 Design requirements/conditions	
1.4 Additional remarks	

2. Model Geometry

2.1 Wing data	
2.2 Body data (detail description of body geometry)	Figure 3.1 10° half-angle cone with cylindrical afterbody, overall L/D = 12

3. Wind tunnel

3.1 Designation	NAE 5-ftx 5-ft trisonic W/T
3.2 Type of tunnel	Blowdown
3.2.1 stagnation pressure	1.25 - 4.5 bars, for transonic operations
3.2.2 stagnation temperature	293°K, max drop < 5° during a run
3.2.3 humidity/dew point	0.0002 kg H_2O/Kg air
3.3 Test section	Square
3.3.1 dimensions	1.52m x 1.52m x 4.8m
3.3.2 type of walls	perforated 20.5% porosity ϕ 12.7mm normal holes at 26.4mm spacing
3.4 Flow field (empty test section)	
3.4.1 reference static pressure	plenum pressure, for transonic operations
3.4.2 flow angularity	~0.3° rms for M $\geq$ 0.5
3.4.3 Mach number distribution	Fig. 3.2
3.4.4 pressure gradient	Fig. 3.2
3.4.5 turbulence/noise level	free stream $\left(\frac{\Delta p}{q}\right)_{rms} = 0.015$ at $M_\infty = 0.8$
3.5 Additional remarks	
3.6 References on wind tunnel	1

4. Tests

4.1 Type of tests	Pressure measurements
4.2 Wing span or Semispan to Tunnel Width	
4.3 Flow condition	
4.3.1 Angle of attack	0°
4.3.2 Mach No.	0.91 - 1.22
4.3.3 Dynamic pressure	
4.3.4 Reynolds Number	$Re_D = 4 \times 10^6$
4.3.5 Stagnation temperature	$T_o = 290$ K
4.4 Transition	
4.4.1 Free or fixed	Free
4.5 Bending or torsion under load	None
4.6 Were different sized models used in wind tunnel investigation? If so, indicate sizes	No

4.7 Areas and lengths used to form coefficients	-
4.8 References on tests	Ref.2
4.9 Related reports	Ref.3, 4, 5.

5. Instrumentation

5.1 Surface Pressure Measurements	
5.1.1 Pressure orifices in wing. Location & No. on upper & lower surfaces	
5.1.2 Pressure orifices on fuselage. Location and number	Figure 3.1
5.1.4 Geometry of orifices	1mm ID
5.1.5 Type of pressure transducer and scanning devices used. Indicate range and accuracy	Wafer valves with 25 psid Statham PM 131 TC transducers
5.2 Force measurements	None
5.3 Boundary layer and flow-field measurements	None
5.4 Surface flow visualization	None
5.5 Skin friction measurements	None
5.6 Other	None
5.7 Additional remarks	None
5.8 References on instrumentation	None

6. Data

6.1 Accuracy	
6.1.1 Angle of attack setting	±0.02°
6.1.2 Free stream Mach number:	
-setting	±0.003
-variation during one pressure scan	±0.003
6.1.3 pressure coefficients	$\Delta C_p = 0.003 + 0.02\|C_p\|$ maximum error
6.1.4 aerodynamic "	-
6.1.5 boundary layer quantities	-
6.1.6 repeatability	$\Delta C_p \leq \pm 0.007$
6.1.7 additional remarks	None
6.2 Wall interference corrections	No corrections applied
6.3 Presentation of data	
6.3.1 aerodynamic coefficients	-
6.3.2 surface pressure coefficients	Table 3.1 to 3.6, Fig. 3.3
6.3.3 boundary layer quantities	
6.3.4 wall interference corrections included	No
6.3.5 corrections for model deflection	No
6.3.6 empty test section calibration taken into account	Yes
6.3.7 other corrections included	No
6.3.8 additional remarks	Comparison of various cone data at M = 1 in Fig. 3.4
6.4 Were tests carried out in different facilities on the current model. If so, what facilities ? Are data included in present data base ?	
6.5 To be contacted for further information on tests	L.H. Öhman, High Speed Aerodynamics Laboratory NAE/NRC

8. References

1. Brown, D. — Information for the users of the National Research Council's 5ft x 5ft blowdown wind tunnel at the National Aeronautical Establishment, Second Edition. NRC/NAE LTR-HA-6 September, 1970

2. Öhman, L.H. — Calibration of the transonic test section of the NAE 5ft x 5ft wind tunnel. Phase II - model measurements. NRC/NAE Data Report 5x5/-018, 1966

3. Spreiter, J.R. — Aerodynamics of wings and bodies at transonic speeds J.A.S., August, 1959

4. Page, W.A. — Experimental study of the equivalence of transonic flow about slender cone-cylinders of circular and elliptic cross section. NACA TN 4233, 1958

5. Eastbrook, B.B. — Wall interference effects on axisymmetric bodies in transonic wind tunnels with perforated wall test sections. AEDC-TR-59-12, 1959.

9. List of Symbols

p	local pressure on model
p_∞	plenum chamber pressure = free stream static pressure
p_o	free stream stagnation pressure
q	free stream dynamic pressure
$C_p = \frac{p - p_\infty}{q}$	pressure coefficient
D	maximum diameter of model
L	length of model
L_N	length of conical nose
M	free stream Mach number
x	axial distance from apex of model also upstream distance from rear seal face (exit) of transonic test section.
h	height = width of transonic test section
Re_D	Reynolds number based on model diameter D

TABLE 3.1

RUN= 3698, MODEL T3, ROTATED 0 DEGREES, AVERAGE MINF=0.909

ST	X/D	P/PO	CP	MINF	PINF
1	0.400	0.654	0.203	0.910	18.05
2	0.800	0.644	0.174	0.909	18.08
2	0.800	0.644	0.172	0.909	18.08
2	0.800	0.644	0.174	0.909	18.08
2	0.800	0.643	0.169	0.909	18.08
3	1.200	0.636	0.150	0.909	18.08
4	1.600	0.631	0.132	0.908	18.13
5	2.000	0.619	0.101	0.911	18.08
6	2.400	0.605	0.059	0.909	18.10
7	2.800	0.541	-0.124	0.912	18.05
8	2.856	0.329	-0.758	0.909	18.08
9	3.000	0.357	-0.671	0.910	18.05
10	3.200	0.419	-0.491	0.909	18.08
11	3.600	0.593	0.023	0.909	18.08
12	4.000	0.587	0.004	0.909	18.08
13	4.400	0.587	0.003	0.909	18.08
14	4.800	0.586	0.002	0.909	18.08
15	5.200	0.587	0.002	0.908	18.13
16	5.600	0.585	0.002	0.911	18.08
17	6.000	0.586	0.002	0.909	18.10
18	6.400	0.584	0.002	0.912	18.05
19	6.800	0.586	0.002	0.909	18.08
20	7.200	0.587	0.006	0.910	18.05
21	7.600	0.588	0.007	0.909	18.08
22	8.000	0.587	0.004	0.909	18.08
23	8.400	0.587	0.004	0.909	18.08
24	8.800	0.587	0.004	0.909	18.08
25	9.200	0.587	0.004	0.909	18.08
26	9.600	0.585	-0.005	0.908	18.13
27	10.000	0.585	0.002	0.911	18.08
28	10.400	0.586	0.003	0.909	18.10
29	10.800	0.586	0.007	0.912	18.05
30	11.200	0.593	0.022	0.909	18.08

TABLE 3.2

RUN= 3699, MODEL T3, ROTATED 0 DEGREES, AVERAGE MINF=0.954

ST	X/D	P/PO	CP	MINF	PINF
1	0.400	0.634	0.218	0.954	17.25
2	0.800	0.624	0.187	0.953	17.27
2	0.800	0.623	0.185	0.953	17.27
2	0.800	0.623	0.187	0.954	17.25
2	0.800	0.622	0.183	0.954	17.25
3	1.200	0.616	0.166	0.954	17.25
4	1.600	0.609	0.148	0.954	17.25
5	2.000	0.600	0.123	0.956	17.27
6	2.400	0.588	0.087	0.954	17.27
7	2.800	0.532	-0.066	0.956	17.25
8	2.856	0.324	-0.660	0.953	17.27
9	3.000	0.350	-0.584	0.954	17.25
10	3.200	0.390	-0.473	0.953	17.27
11	3.600	0.465	-0.261	0.953	17.27
12	4.000	0.571	0.040	0.954	17.25
13	4.400	0.570	0.038	0.954	17.25
14	4.800	0.562	0.016	0.954	17.25
15	5.200	0.560	0.010	0.954	17.25
16	5.600	0.559	0.008	0.956	17.27
17	6.000	0.559	0.006	0.954	17.27
18	6.400	0.557	0.004	0.956	17.25
19	6.800	0.559	0.004	0.953	17.27
20	7.200	0.559	0.006	0.954	17.25
21	7.600	0.560	0.006	0.953	17.27
22	8.000	0.559	0.004	0.953	17.27
23	8.400	0.558	0.003	0.954	17.25
24	8.800	0.558	0.004	0.954	17.25
25	9.200	0.558	0.003	0.954	17.25
26	9.600	0.558	0.003	0.954	17.25
27	10.000	0.556	-0.001	0.956	17.27
28	10.400	0.557	0.001	0.954	17.27
29	10.800	0.557	0.004	0.956	17.25
30	11.200	0.565	0.021	0.953	17.27

TABLE 3.3

RUN= 3691, MODEL T3, ROTATED 0 DEGREES, AVERAGE MINF=0.999

ST	X/D	P/PO	CP	MINF	PINF
1	0.400	0.615	0.238	1.002	16.30
2	0.800	0.606	0.212	1.000	16.30
2	0.800	0.606	0.209	0.999	16.33
2	0.800	0.606	0.210	1.000	16.30
2	0.800	0.605	0.208	1.000	16.30
3	1.200	0.602	0.196	0.998	16.33
4	1.600	0.594	0.178	1.000	16.30
5	2.000	0.588	0.160	0.999	16.33
6	2.400	0.577	0.132	1.000	16.36
7	2.800	0.533	0.005	0.996	16.36
8	2.856	0.322	-0.560	0.999	16.33
9	3.000	0.345	-0.492	1.002	16.30
10	3.200	0.380	-0.400	1.000	16.30
11	3.600	0.433	-0.259	0.999	16.33
12	4.000	0.464	-0.173	1.000	16.30
13	4.400	0.494	-0.093	1.000	16.30
14	4.800	0.555	0.068	0.998	16.33
15	5.200	0.555	0.072	1.000	16.30
16	5.600	0.551	0.060	0.999	16.33
17	6.000	0.542	0.037	1.000	16.36
18	6.400	0.538	0.019	0.996	16.36
19	6.800	0.533	0.012	0.999	16.33
20	7.200	0.531	0.009	1.002	16.30
21	7.600	0.531	0.009	1.000	16.30
22	8.000	0.532	0.008	0.999	16.33
23	8.400	0.531	0.008	1.000	16.30
24	8.800	0.531	0.008	1.000	16.30
25	9.200	0.533	0.008	0.998	16.33
26	9.600	0.531	0.008	1.000	16.30
27	10.000	0.532	0.008	0.999	16.33
28	10.400	0.528	-0.001	1.000	16.36
29	10.800	0.533	0.006	0.996	16.36
30	11.200	0.538	0.024	0.999	16.33

TABLE 3.4

RUN= 3679, MODEL T3, ROTATED 0 DEGREES, AVERAGE MINF=1.056

ST	X/D	P/PO	CP	MINF	PINF
1	0.400	0.589	0.245	1.056	15.33
2	0.800	0.585	0.236	1.056	15.33
2	0.800	0.584	0.234	1.056	15.33
2	0.800	0.586	0.237	1.056	15.33
2	0.800	0.584	0.232	1.056	15.33
3	1.200	0.581	0.224	1.056	15.33
4	1.600	0.576	0.211	1.056	15.33
5	2.000	0.567	0.190	1.057	15.36
6	2.400	0.558	0.166	1.056	15.36
7	2.800	0.521	0.069	1.056	15.36
8	2.856	0.317	-0.462	1.055	15.36
9	3.000	0.337	-0.407	1.056	15.33
10	3.200	0.370	-0.322	1.056	15.33
11	3.600	0.410	-0.217	1.056	15.33
12	4.000	0.432	-0.160	1.056	15.33
13	4.400	0.459	-0.091	1.056	15.33
14	4.800	0.472	-0.057	1.056	15.33
15	5.200	0.472	-0.058	1.056	15.33
16	5.600	0.473	-0.052	1.057	15.36
17	6.000	0.495	0.003	1.056	15.36
18	6.400	0.546	0.134	1.056	15.36
19	6.800	0.541	0.120	1.055	15.36
20	7.200	0.529	0.090	1.056	15.33
21	7.600	0.515	0.054	1.056	15.33
22	8.000	0.501	0.018	1.056	15.33
23	8.400	0.489	-0.012	1.056	15.33
24	8.800	0.478	-0.042	1.056	15.33
25	9.200	0.472	-0.058	1.056	15.33
26	9.600	0.478	-0.041	1.056	15.33
27	10.000	0.490	-0.008	1.057	15.36
28	10.400	0.497	0.006	1.056	15.36
29	10.800	0.497	0.007	1.056	15.36
30	11.200	0.502	0.018	1.055	15.36

TABLE 3.5

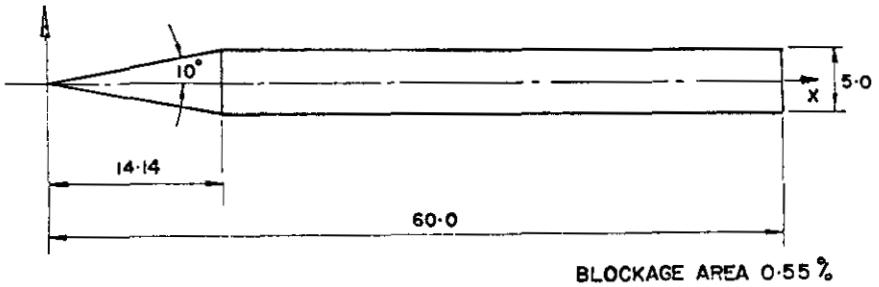
RUN= 3680, MODEL T3, ROTATED 0 DEGREES, AVERAGE MINF=1.121

ST	X/D	P/PO	CP	MINF	PINF
1	0.400	0.537	0.203	1.122	14.16
2	0.800	0.536	0.200	1.122	14.16
2	0.800	0.534	0.194	1.121	14.16
2	0.800	0.537	0.200	1.121	14.16
2	0.800	0.535	0.197	1.121	14.16
3	1.200	0.532	0.189	1.121	14.16
4	1.600	0.532	0.191	1.122	14.13
5	2.000	0.533	0.191	1.121	14.16
6	2.400	0.532	0.190	1.122	14.19
7	2.800	0.511	0.136	1.121	14.16
8	2.856	0.312	-0.359	1.121	14.16
9	3.000	0.333	-0.305	1.122	14.16
10	3.200	0.362	-0.233	1.122	14.16
11	3.600	0.400	-0.141	1.121	14.16
12	4.000	0.420	-0.090	1.121	14.16
13	4.400	0.437	-0.048	1.121	14.16
14	4.800	0.443	-0.033	1.121	14.16
15	5.200	0.447	-0.021	1.122	14.13
16	5.600	0.445	-0.029	1.121	14.16
17	6.000	0.446	-0.025	1.122	14.19
18	6.400	0.446	-0.025	1.121	14.16
19	6.800	0.454	-0.005	1.121	14.16
20	7.200	0.439	-0.040	1.122	14.16
21	7.600	0.456	0.0	1.122	14.16
22	8.000	0.462	0.014	1.121	14.16
23	8.400	0.477	0.050	1.121	14.16
24	8.800	0.502	0.115	1.121	14.16
25	9.200	0.492	0.090	1.121	14.16
26	9.600	0.477	0.053	1.122	14.13
27	10.000	0.466	0.023	1.121	14.16
28	10.400	0.462	0.015	1.122	14.19
29	10.800	0.459	0.006	1.121	14.16
30	11.200	0.449	-0.018	1.121	14.16

TABLE 3.6

RUN= 3684, MODEL T3, ROTATED 0 DEGREES, AVERAGE MINF=1.222

ST	X/D	P/PO	CP	MINF	PINF
1	0.400	0.471	0.168	1.223	12.44
2	0.800	0.470	0.167	1.224	12.44
2	0.800	0.470	0.167	1.223	12.44
2	0.800	0.472	0.170	1.221	12.44
2	0.800	0.469	0.162	1.221	12.44
3	1.200	0.468	0.160	1.221	12.44
4	1.600	0.465	0.155	1.223	12.41
5	2.000	0.466	0.155	1.221	12.44
6	2.400	0.468	0.160	1.222	12.47
7	2.800	0.461	0.142	1.221	12.44
8	2.856	0.286	-0.273	1.223	12.44
9	3.000	0.302	-0.235	1.223	12.44
10	3.200	0.320	-0.191	1.224	12.44
11	3.600	0.351	-0.118	1.223	12.44
12	4.000	0.366	-0.084	1.221	12.44
13	4.400	0.382	-0.045	1.221	12.44
14	4.800	0.383	-0.043	1.221	12.44
15	5.200	0.388	-0.028	1.223	12.41
16	5.600	0.394	-0.018	1.221	12.44
17	6.000	0.395	-0.013	1.222	12.47
18	6.400	0.395	-0.013	1.221	12.44
19	6.800	0.397	-0.008	1.223	12.44
20	7.200	0.399	-0.002	1.223	12.44
21	7.600	0.398	-0.003	1.224	12.44
22	8.000	0.395	-0.013	1.223	12.44
23	8.400	0.394	-0.017	1.221	12.44
24	8.800	0.393	-0.018	1.221	12.44
25	9.200	0.393	-0.018	1.221	12.44
26	9.600	0.393	-0.016	1.223	12.41
27	10.000	0.399	-0.004	1.221	12.44
28	10.400	0.404	0.007	1.222	12.47
29	10.800	0.398	-0.008	1.221	12.44
30	11.200	0.430	0.071	1.223	12.44



PRESSURE HOLE LOCATIONS

STA	1	2*	3	4	5	6	7	8	9	10	11	12	--	--	--	31
X"	2	4	6	8	10	12	14	14.28	15	16	18	20	--	--	--	53

* 4 HOLES AT 90° SPACING

All dimensions in inches

FIG 3.1 CONE-CYLINDER MODEL T3

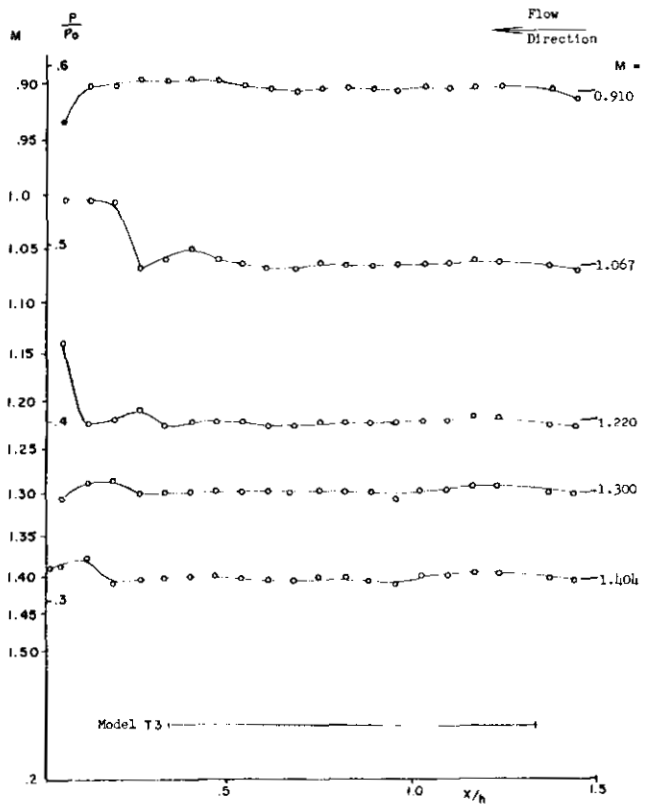


FIG 3.2 TYPICAL SIDEWALL PRESSURE DISTRIBUTIONS IN "EMPTY" TEST SECTION AND MODEL LOCATIONS

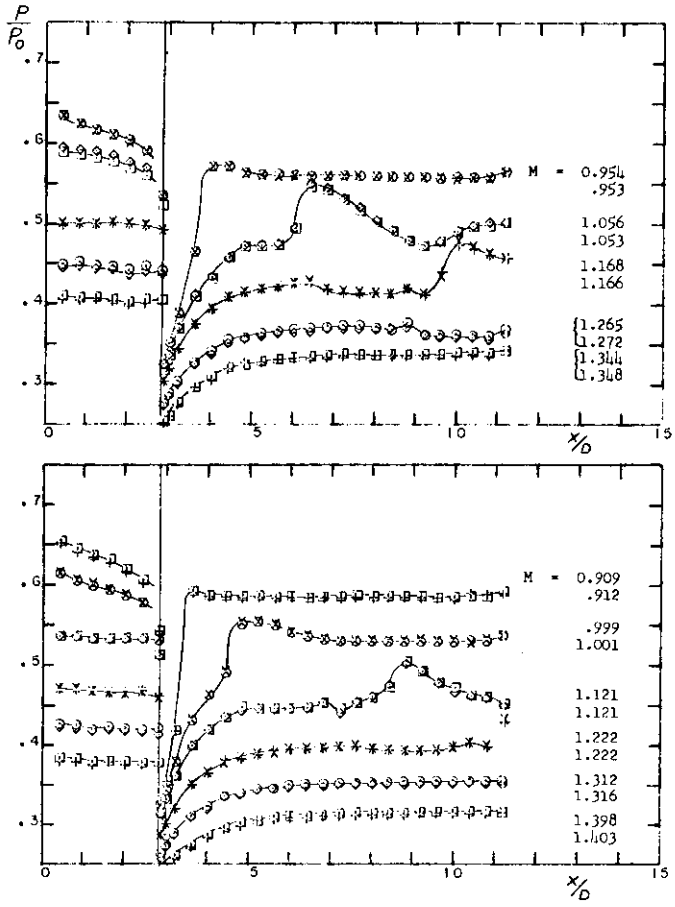


FIG 3.3 PRESSURE DISTRIBUTION FOR MODEL T3

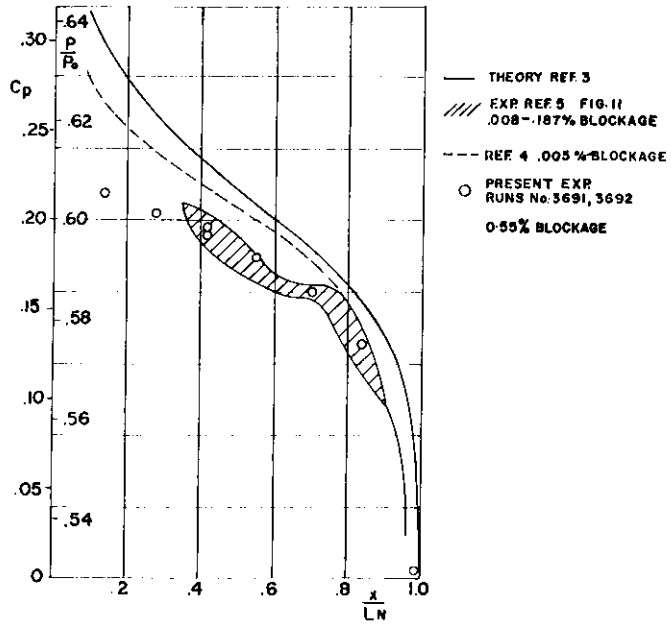


FIG 3.4 PRESSURE DISTRIBUTION ON THE NOSE SECTION OF A 10° SEMI-APEX CONE-CYLINDER AT M=1.0

AR-138

4. ONERA CALIBRATION MODEL C5

by

X. Vaucheret

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92320 Chatillon - France

4.1 - Introduction

A program was initiated in 1969 by ONERA to test a series of similar calibration models representative of a transport aircraft, in various American and European transonic wind-tunnels. The objective of this program was to study wall interference. In relation to this program, blockage effects near Mach number one were separately investigated with bodies of revolution having the same distributions of cross sectional area as the airplane models.

The largest body of revolution tested is the calibration body C5 for which data obtained in the 11 ft NASA-Ames wind tunnel are presented here. The data obtained for the calibration body C5 in the largest tunnels used, i.e. 16 ft AEDC, 11 ft NASA-Ames and 6 ft S2 MODANE ONERA, practically agree within the data scatter at all Mach numbers up to one.

4.2 - Data set

1. General Description

1.1. Model Designation	ONERA calibration body C5
1.2. Model Type	axisymmetrical body
1.3. Design Requirements/Conditions	Comparison of transonic wind-tunnels near Mach 1
1.4. Additional Remarks	4 other geometrically similar bodies exist and have been used to study the blockage effect

2. Model Geometry

2.1. Body length	1.0578 m
2.2. Base diameter	0.08516 m
2.3. Maximum diameter	0.15268 m
2.4. Diameter of cylindrical parts	0.1242 m
2.5. Fore part	ellipsoïd
2.6. Model coordinates	see table 1
2.7. Fabrication tolerances	0.03 mm

3. Wind Tunnel

3.1. Designation	Ames Research Center 11 by 11 ft transonic wind tunnel
3.2. Type of Tunnel	continuous-transonic flow
3.3. Test Section	
3.3.1. Shape of Test Section	square
3.3.2. Size of Test Section (Width, Height)	11 x 11 ft
3.3.3. Type of Test Section Walls	baffled slots-open area ratio 5.8 %-constant slot width with 45° "zee" baffles with axis of bend normal to the wall
Treatment of Side Wall Boundary Layer	Sidewalls diverged 0.19°
3.4. Flow Field (Empty Test Section)	
3.4.1. Reference Static Pressure	Plenum chamber pressure
3.4.2. Flow Angularity	± 0.15° at M = 0.6
3.4.3. Mach Number Distribution	see 3.5.4
3.4.4. Pressure Gradient	
3.4.5. Turbulence/Noise Level	ΔC_p R.M.S. = 2.2 % at M = 0.6 2.8 % at M = 0.7 1.5 % at M = 1.2
3.4.6. Side Wall Boundary Layer	
3.5. Freestream Mach Number	
3.5.1. Range	0.3 to 1.4
3.5.2. Pressures Used to Determine Mach Number	Settling chamber total pressure and plenum chamber pressure

3.5.3. Accuracy of Mach Number Determination (ΔM)	The standard deviation variation at any given centerline station $\leq$ .001 in Mach number over pressure range from 1/2 to 2 atmospheres. Maximum pressure error estimated to be within 1.4 psf for plenum static pressure and p_i .
3.5.4. Maximum Mach Number Variation in x, y, z-Direction (Empty Tunnel)	Z-direction : .002 difference between ceiling statics and center line at $.6 \leq M \leq .9$ X-direction : ± .004 at M = 1.4 ± .002 at M = 0.9 optimum model location, optimum tunnel control settings
Maximum Variation of Flow Direction	± 0.15° at M = 0.6
Maximum Mach Number Variation During a Run	.003, usually within ± 0.001
3.6. Reynolds Number Range	
3.6.1. Unit Reynolds Number	6.7 to 32 x 10^6 per meter
3.6.2. Means of Varying Reynolds Number	pressurization
3.7. Temperature Range and Dewpoint	60 to 120° F depending on M, p_i and ambient temperature
3.8. Model Attitudes	
3.8.1. Angle of Attack, Yaw, Roll	± 15° plus bent sting capability and 360° Roll mechanism
3.8.2. Accuracy in Determining Angles	Model support system calibration and elastic deflections good to ± .03° or better
3.9. Organization Operating the Tunnel and Location of Tunnel	Experimental Investigations Branch, Aerodynamics Division, NASA Ames Research Center ; Bldg.227, Moffett Field, California 94035
3.10. Who is to be Contacted for Additional Information	FRANK STEINLE Jr., Assistant Chief, Exp. Inv. Br. N 227-5 Ames
3.11. Litérature Concerning this Facility	Ames Research Facilities Summary, 1974 - and NASA CR-1874 "An Inventory of Aeronautical Ground Research Facilities", Vol. 1 - Wind Tunnels - Pirrello & al.
3.12. Additional Remarks	Majority of noise in test section associated with "organ" tones produced by slot-baffles - Research underway to modify baffles to eliminate organ mode.

4. <u>Tests</u>

4.1. Type of Tests	steady tests : pressure, drag
4.2. Blockage	0.17 per cent
4.3. Test conditions	
4.3.1. Angle of Attack	$\alpha = 0$
4.3.2. Mach Number	0.6 to 1.0
4.3.3. Stagnation Pressure	1.2 to 0.9 bar
4.3.4. Reynolds Number	$R_L = 13.8 \times 10^6$
4.3.5. Stagnation Temperature	305 to 307 K
4.4. Transition	
4.4.1. Free or Fixed	fixed
4.4.2. Position of Free Transition	
4.4.3. Position of Fixed Transition, Width of Strips, Size and Type of Roughness Elements	on the nose at x = 72.7 mm.ballotini (glass beads) 0.12 mm in diameter.
4.4.4. Were Checks Made to Determine if Transition Occurred at Trip Locations ?	yes, sublimination technique
4.5. Bending or Torsion Under Load	
4.6. Were Different Sized Models Used in Wind Tunnel Investigation ?	five geometrically similar bodies :

body	C1	C2	C3	C4	C5
length (m.)	0.31	0.40	0.51	0.66	1.06

4.7. Areas and Lengths Used to Form Coefficients	for the drag coefficient : S = 0.005696 m^2 (base area)
4.8. References on Tests	
4.9. Related Reports	

5. Instrumentation

5.1. Surface Pressure Measurements	
5.1.1. Pressure Orifices	44 pressure orifices on vertical generator 40 pressure orifices on horizontal generator 1 base pressure orifice (table 1)
5.1.2. Geometry of Orifices	0.6 mm in diameter, perpendicular to body surface
5.1.3. Type of Pressure Transducer and Scanning Devices Used	48 ports scanivalve plus transducer 25 psi
5.2. Force Measurements	
5.2.1. Type and Location of Balance	internal balance
5.2.2. Forces and Moments that Can be Measured. Maximum Loads and Accuracy	6 components balance

6. Data

6.1. Accuracy	
6.1.1. Pressure coefficients	$\Delta C_p = \pm 0.014$
6.1.2. Aerodynamic Coefficients	$\Delta C_A = \pm 0.002$
6.2. Wall Interference Corrections	none, because of very small blockage (0.17 per cent)
6.3. Data Presentation	
6.3.1. Aerodynamic Coefficients	table 2 : drag coefficient
6.3.2. Surface Pressure Coefficients	table 2 : local p/p_i figures 1,2 : local Mach number distribution
6.4. Were Tests Carried Out in Different Facilities on the Current Model ? If so, What Facilities. Are Data Included In Present Data Base ?	tests were carried out in 3 transonic wind-tunnels (réf. 1, 2, 3) not included in present data base. The data from these wind-tunnels (16T AEDC, 11T NASA, 6T S2 Modane) agree,except in rare instances, within the data accuracy at all Mach numbers up to 1.0.

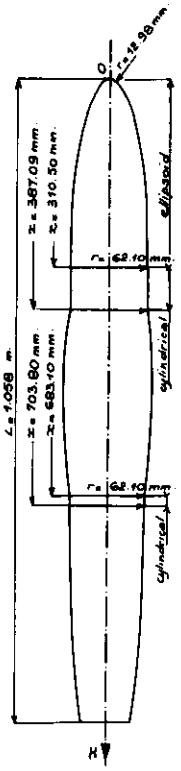
7. References

1. X. VAUCHERET M. BAZIN C. ARMAND	Comparaison d'essais transsoniques bi et tridimensionnels effectués dans diverses grandes souffleries. AGARD C.P. n° 187 (1975)
2. T.W. BINION	Tests on the ONERA calibration models in three transonic wind tunnels AEDC TR 76-133 (1976)
3. S.E. GUDMUNDSON	Comparative tests with ONERA airplane calibration models in FFA transonic wind tunnels EUROMECH 40 Colloquium (1973)

8. List of Symbols

C_A	draf coefficient corrected to zero base drag
C_P	pressure coefficient
L	body length
M	Mach number (test section)
M_{local}	local Mach number (on the body)
p	local static pressure (on the body)
p_i	stagnation pressure
r	body radius at x (mm) (table 1)
R_L	Reynolds number (based on L)
S	base area
x	abscissa along body axis (mm) (table 1)
α	angle of attack

TABLE 1 Coordinates of C5 body and position of pressure holes



Vertical generator			Horizontal generator		
NP	X in MM	r in MM.	NP	X in MM	r in MM.
1	.00	.00	46	.50	3.62
2	1.00	4.98	47	2.00	7.04
3	4.00	9.93	48	6.00	12.45
4	8.50	14.43	49	11.50	16.74
5	15.00	19.06	50	19.00	21.38
6	23.50	24.26	51	28.50	25.98
7	34.00	28.26	52	39.50	30.30
8	46.00	32.52	53	52.00	34.39
9	59.50	36.35	54	68.50	38.90
10	74.50	40.35	55	82.50	42.15
11	91.00	43.91	56	100.00	45.64
12	109.00	47.24	57	118.00	48.72
13	128.00	50.23	58	136.00	51.63
14	148.00	52.91	59	159.00	54.80
15	169.50	55.32	60	180.50	56.39
16	191.50	57.35	61	203.00	58.85
17	214.50	59.05	62	226.00	59.15
18	238.00	60.38	63	250.00	60.90
19	262.00	61.35	64	274.00	61.67
20	286.00	61.90	65	298.00	62.05
21	310.50	62.09	66	390.85	62.49
22	355.85	62.10	67	405.85	64.00
23	384.85	62.14	68	418.85	66.59
24	398.85	62.24	69	454.85	70.48
25	412.35	62.30	70	487.85	74.05
26	425.85	62.53	71	506.85	75.49
27	441.85	62.73	72	523.85	76.55
28	470.85	72.33	73	540.85	76.34
29	498.85	74.96	74	554.85	75.38
30	514.85	76.02	75	584.85	75.30
31	533.85	76.36	76	611.85	71.61
32	549.85	76.04	77	637.85	67.57
33	566.85	74.74	78	663.85	64.42
34	597.85	72.56	79	706.45	68.42
35	625.85	69.66	80	775.45	64.48
36	650.85	65.98	81	838.45	58.98
37	676.85	62.98	82	903.45	57.91
38	733.45	64.93	83	978.45	54.24
39	849.45	58.86	84	1021.45	50.40
40	958.45	55.46	85	1050.45	44.50
41	995.45	52.96			
42	1010.45	51.34			
43	1028.45	49.95			
44	1043.45	46.48			
45	1057.77	38.29			

TABLE 2 Surface pressure distribution

a) vertical generator

M		.699	.840	.900	.951	.971	1.001
PI (bar)		1.0877	.9828	.9541	.9402	.9340	.9258
R_L 10^{-6}		13.871	13.819	13.829	13.888	13.888	13.836
C_A		.0098	.0102	.0130	.0223	.0272	.0308
NP	X in MM	P/PI	P/PI	P/PI	P/PI	P/PI	P/PI
1	.00	.9644	.9591	.9311	.8596	.8525	.8924
2	1.00	.9663	.9586	.9555	.9555	.9537	.9556
3	4.00	.8869	.8575	.8468	.8406	.8390	.8384
4	8.50	.8252	.7778	.7621	.7523	.7466	.7482
5	15.00	.7806	.7202	.6970	.6834	.6765	.6763
6	23.50	.7446	.6660	.6370	.6185	.6112	.6090
7	34.00	.7357	.6342	.6217	.6014	.5960	.5918
8	46.00	.7223	.6319	.5966	.5734	.5685	.5647
9	59.50	.7134	.6207	.5833	.5560	.5479	.5428
10	74.50	.7057	.6100	.5691	.5394	.5292	.5223
11	91.00	.7058	.6079	.5713	.5400	.5269	.5192
12	109.00	.7005	.6003	.5572	.5271	.5195	.5153
13	128.00	.6935	.5885	.5409	.4960	.4853	.4811
14	148.00	.6982	.5968	.5516	.5107	.4842	.4787
15	169.50	.6961	.5937	.5498	.5130	.4849	.4770
16	191.50	.6936	.5908	.5456	.5074	.4893	.4744
17	214.50	.6941	.5902	.5433	.4867	.4749	.4597
18	238.00	.6975	.5956	.5316	.4938	.4799	.4588
19	262.00	.6988	.5970	.5557	.5244	.4773	.4547
20	286.00	.6985	.5979	.5541	.5204	.5178	.4498
21	310.50	.7109	.6198	.5830	.5574	.5540	.4445
22	355.85	.7318	.6499	.6184	.6007	.5940	.5784
23	384.85						
24	398.85	.7561	.6833	.6580	.6442	.6401	.6346
25	412.35	*					
26	425.85	.7326	.6529	.6253	.6096	.6042	.6056
27	441.85						
28	470.85	.6903	.5872	.5519	.5320	.5268	.5269
29	498.85	.6685	.5506	.5069	.4852	.4811	.4804
30	514.85	.6546	.5227	.4746	.4543	.4490	.4504
31	533.85	.6506	.5118	.4492	.4223	.4175	.4166
32	549.85	.6488	.5003	.4026	.3786	.3729	.3725
33	566.85	.6733	.5588	.3905	.3566	.3493	.3475
34	597.85	.7034	.6065	.5752	.5873	.3804	.3822
35	625.85	.7159	.6253	.5972	.5037	.4009	.3989
36	650.85	.7292	.6456	.6159	.5734	.4922	.4345
37	676.85	.7533	.6772	.6476	.6131	.5704	.5454
38	733.45	.7256	.6385	.6060	.5985	.5836	.5396
39	849.45	.7166	.6238	.5855	.5580	.5538	.5117
40	958.45	.7084	.6097	.5679	.5327	.5238	.4850
41	995.45	.7025	.5996	.5593	.5190	.5038	.4939
42	1010.45	.7025	.6001	.5587	.5188	.5065	.5016
43	1028.45	.7037	.6067	.5653	.5321	.5227	.5212
44	1043.45	.7197	.6295	.5940	.5660	.5574	.5568
45	1057.77	.7485	.6676	.6357	.6116	.6034	.5952

TABLE 2 Surface pressure distribution

b) horizontal generator

M		.699	.840	.900	.951	.971	1.001
PI (bar)		1.0877	.9828	.9541	.9402	.9340	.9258
R_L 10^{-6}		13.871	13.819	13.829	13.888	13.888	13.836
C_A		.0098	0.102	.0130	.0223	.0272	.0308
	X in MM	P/PI	P/PI	P/PI	P/PI	P/PI	P/PI
	.50	.9851	.9811	.9830	.9799	.9797	.9809
	2.00	.9351	.9179	.9147	.9088	.9080	.9079
	6.00	.8555	.8169	.8074	.7961	.7940	.7997
	11.50	.8015	.7456	.7303	.7175	.7125	.7065
	19.00	.7710	.7035	.6809	.6635	.6582	.6552
	28.50	.7483	.6732	.6423	.6223	.6190	.6125
	39.50	.7308	.6451	.6145	.5915	.5870	.5815
	52.00	.7084	.6398	.6147	.5911	.5878	.7887
	68.50	.7107	.6154	.5771	.5510	.5449	.5335
	82.50	.7096	.6115	.5692	.5364	.5288	.5200
	100.00	.7477	.6684	.6365	.6118	.6037	.5937
	118.00	.6964	.5928	.5474	.5116	.5053	.4999
	136.00	.6954	.5926	.5464	.4946	.4825	.4757
	159.00	.6970	.5931	.5481	.5159	.4860	.4767
	180.50	.6961	.5944	.5485	.5103	.4890	.4763
	203.00	.6939	.5891	.5385	.4965	.4807	.4678
	226.00	.6965	.5942	.5470	.4886	.4745	.4587
	250.00	.6785	.5714	.5246	.4948	.4400	.4203
	274.00	.6985	.5985	.5537	.5218	.4816	.4547
	298.00	.7069	.6092	.5690	.5400	.5417	.4411
	390.85	.7666	.6971	.6744	.6565	.6527	.6448
	405.85						
	418.85	.7390	.6601	.6368	.6182	.6175	.6136
	436.85						
	487.85	.6764	.5834	.5259	.5055	.5026	.4909
	506.85						
	523.85	.6520	.5128	.4608	.4362	.4353	.4314
	540.85	.6434	.4916	.4305	.4065	.4030	.3998
	556.85	.6370	.5269	.3915	.3653	.3627	.3558
	584.85	.6921	.5899	.5009	.3695	.3664	.3627
	611.85	.7090	.6165	.5905	.4135	.3911	.3873
	637.85	.7212	.6333	.6095	.5547	.4155	.4064
	661.85	.7394	.6588	.6320	.5996	.5315	.4972
	706.45	.7387	.6568	.6296	.6170	.5840	.5565
	775.45	.7469	.6665	.6347	.6095	.6030	.5900
	838.45	.7176	.6265	.5851	.5585	.5565	.5118
	903.45	.7136	.6190	.5785	.5483	.5438	.5026
	978.45	.7037	.6039	.5591	.5222	.5103	.4965
	1021.45	.7009	.6010	.5564	.5218	.5128	.5094
	1050.45	.7293	.6438	.6103	.5849	.5791	.5750

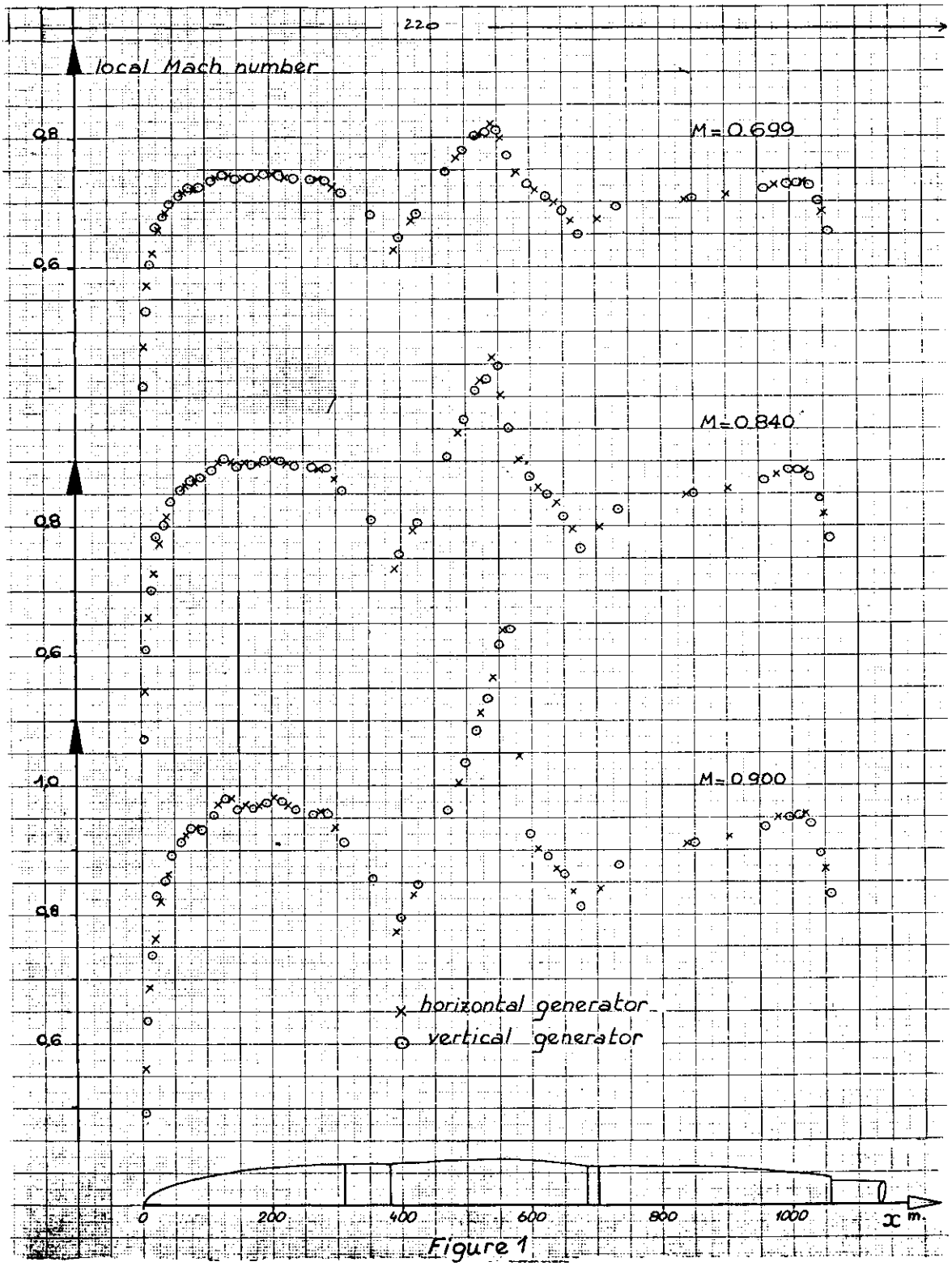

220
local Mach number
0,8
0,6
M=0.699
M=0.840
0,8
0,6
1,0
0,8
0,6
M=0.900
horizontal generator
vertical generator
0
200
400
600
800
1000
x m.

Figure 1

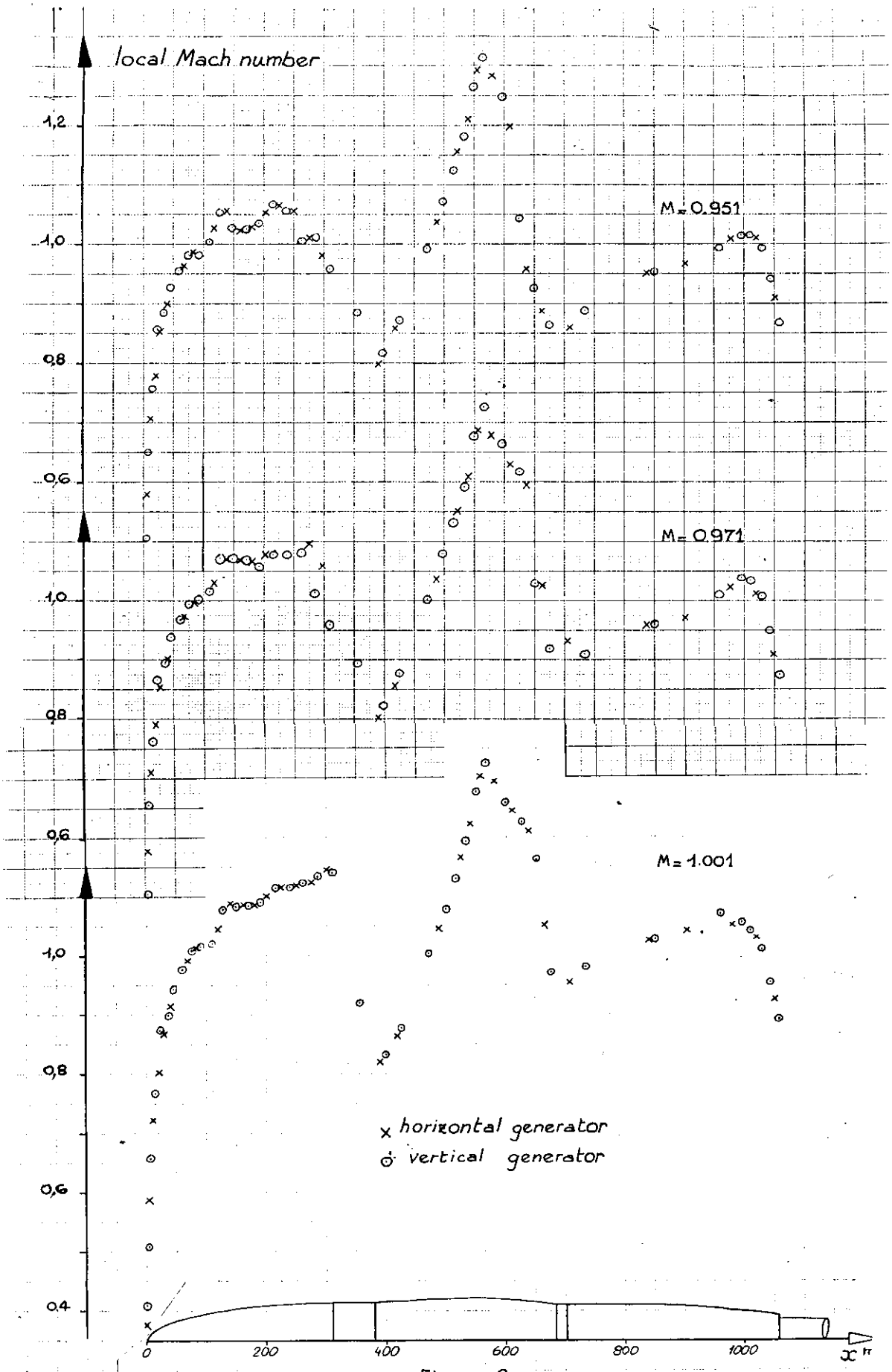

local Mach number
1,2
1,0
0,8
0,6
M = 0.951
M = 0.971
M = 1.001
x horizontal generator
⊙ vertical generator
0,4
0
200
400
600
800
1000
x m

Figure 2