

TMEC078-FUNDAMENTOS DE DINÂMICA VEICULAR

4-Molas, amortecedores e barras anti-rolagem

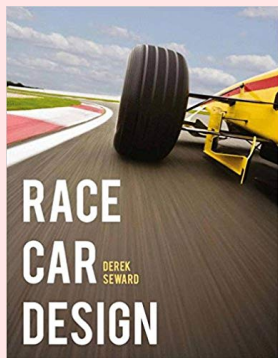
Prof. Jorge Luiz Erthal

jorgeerthal@gmail.com

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Apresentação



Este documento apresenta as figuras do Capítulo 4 do livro de Derek Seward (SEWARD, 2014).

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Fig 4-1: Componentes mola/amortecedor (Mygale Formula Novis Car).

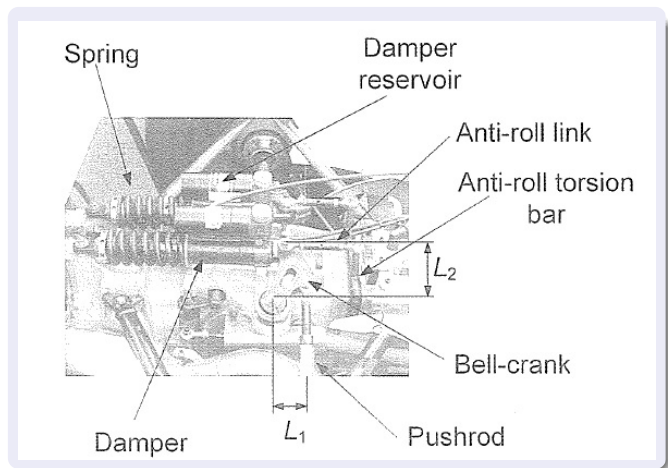


Fig 4.2a: Mola/amortecedor externo (Fórmula Jedi).

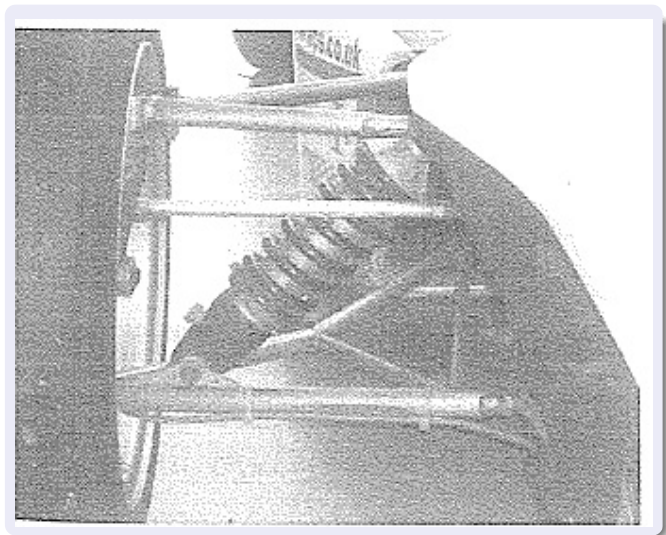


Fig 4.2b: Suspensão pullrod (Ray Fórmula Ford).

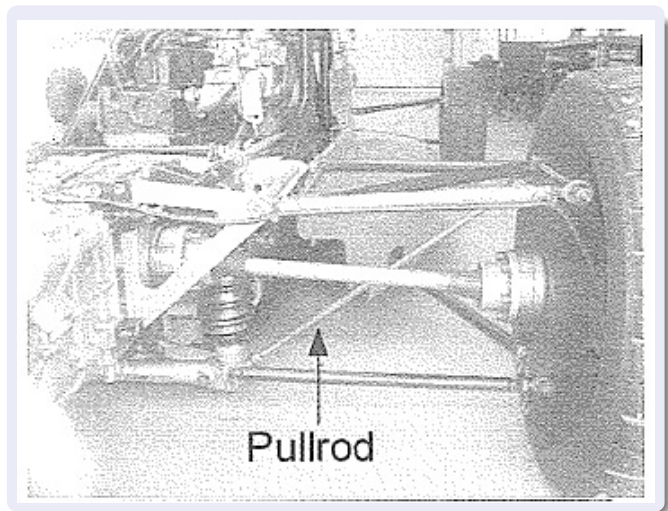
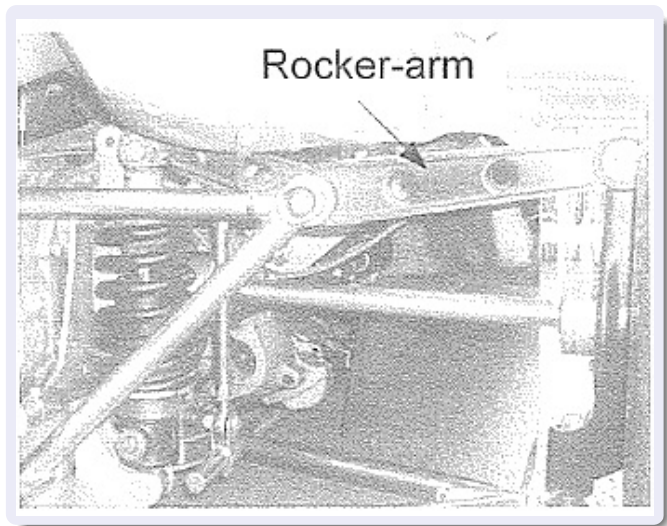


Fig 4.2c: Suspensão rocker-arm (Van Diemen RF82).



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Fig 4.3: Mola dura x mola macia.

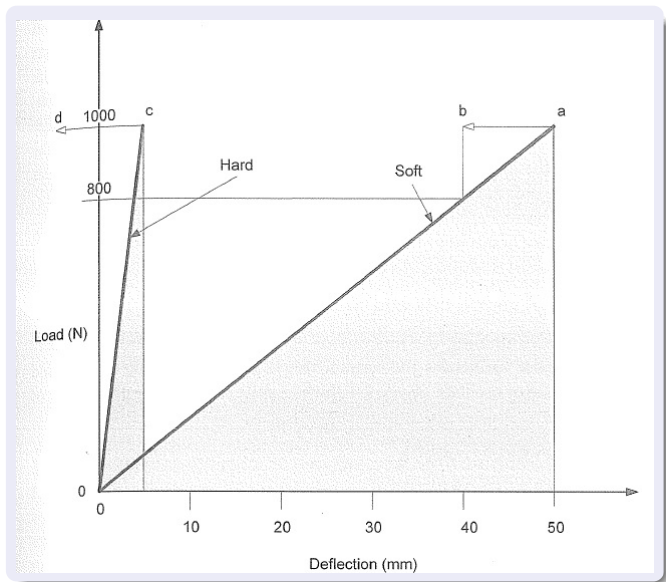


Fig 4.4: Modelo de carro em curva.

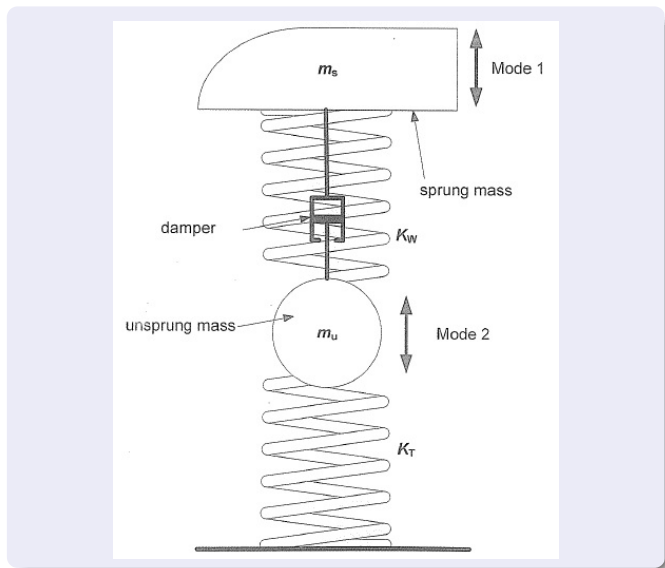


Fig 4.5: Suspensão rocker-arm.

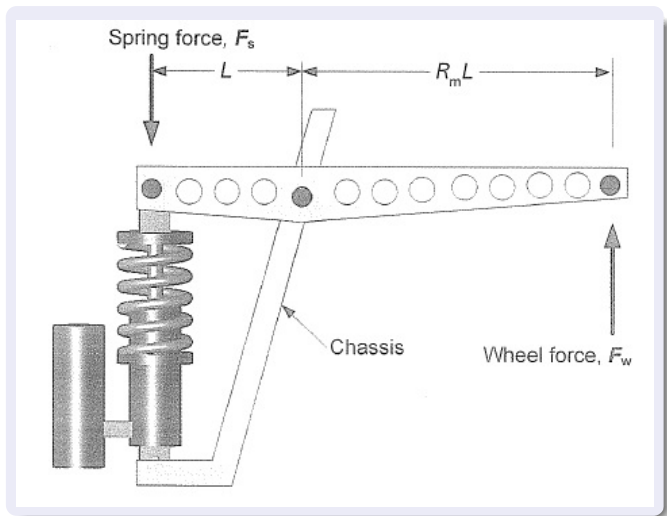
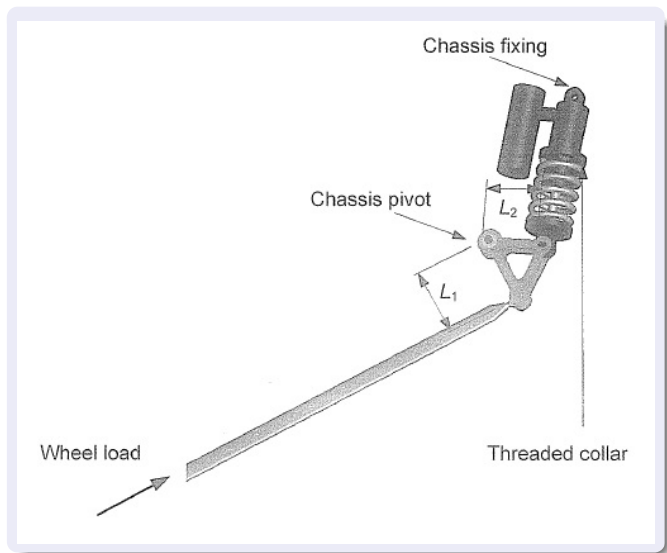


Fig 4.6: Arranjo pushrod-bell-crank.



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Fig 4.7: Oscilação amortecida em um sistema massa-mola.

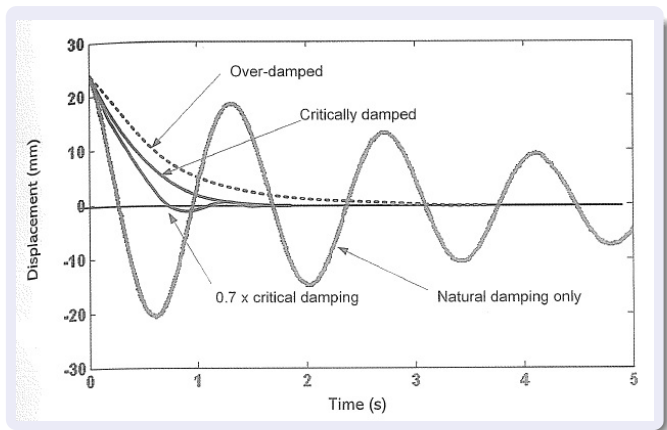


Fig 4.8: Velocidade relativa da roda durante o bump-rebound.

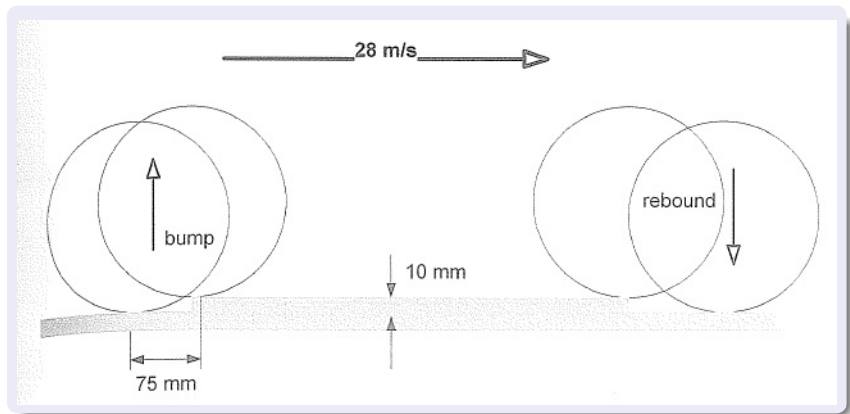


Fig 4.9a: Curva de amortecimento inicial.

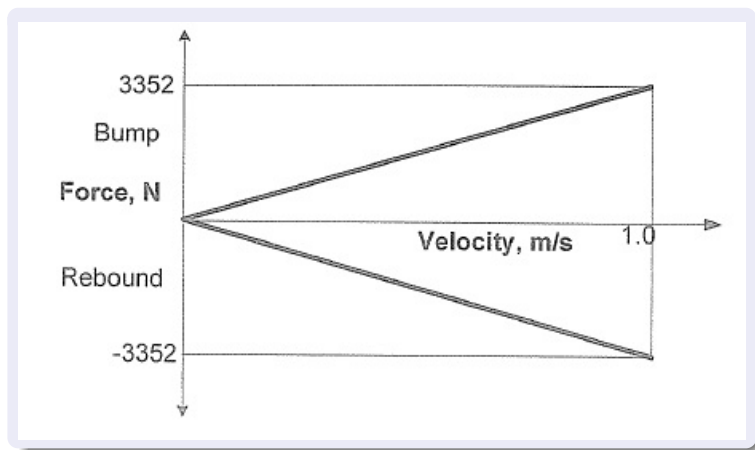


Fig 4.9b: Curva de amortecimento modificada.

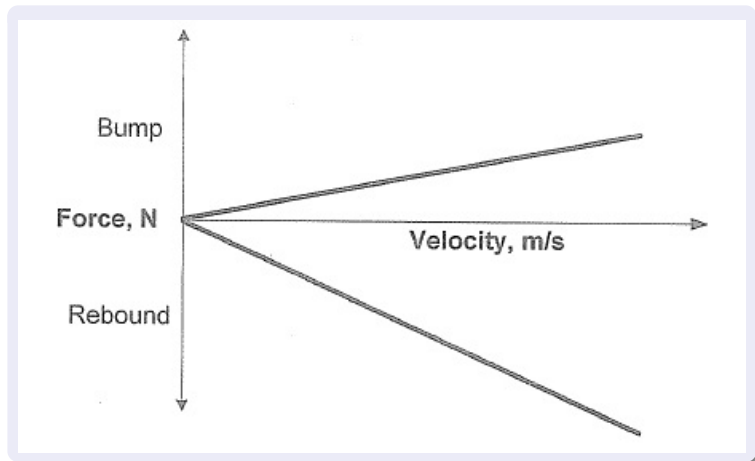


Fig 4.9c: Curva de amortecimento final.

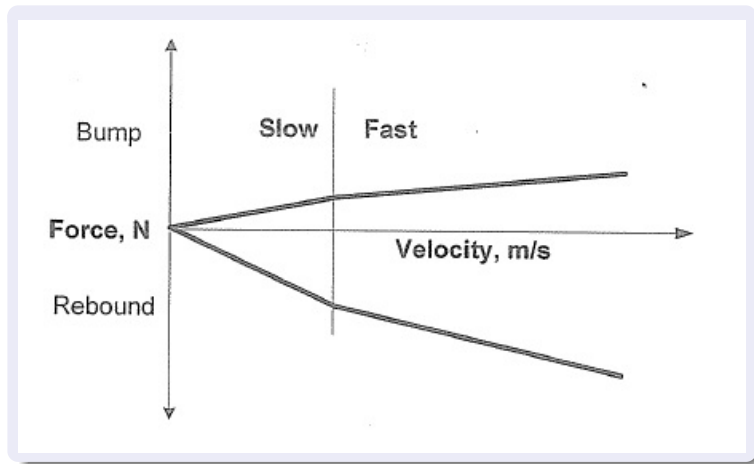


Fig 4.10: Curva força-deslocamento de um amortecedor do test rig tradicional.

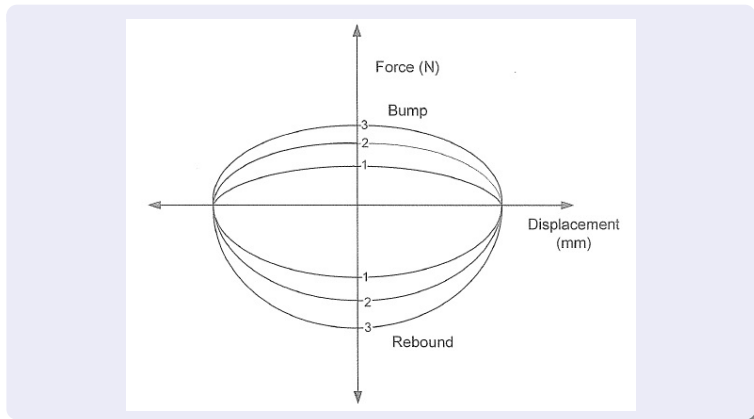


Fig 4.11: Sistema anti-roagem com barra-U.

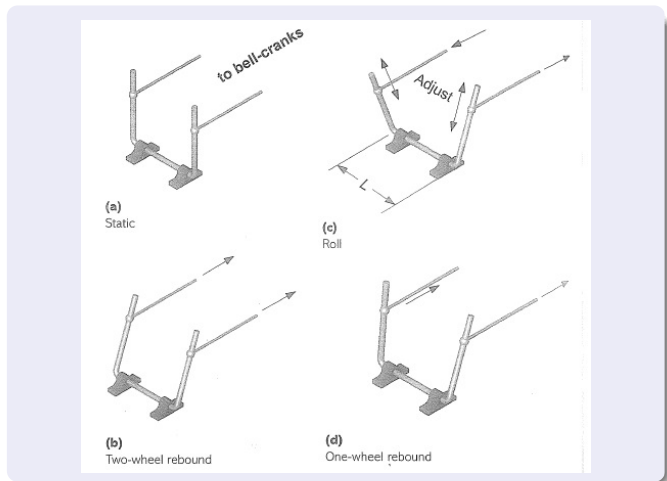


Fig 4.12: Sistema anti-roagem com barra-T.



Fig 4.13: Rigidez com barra-T.

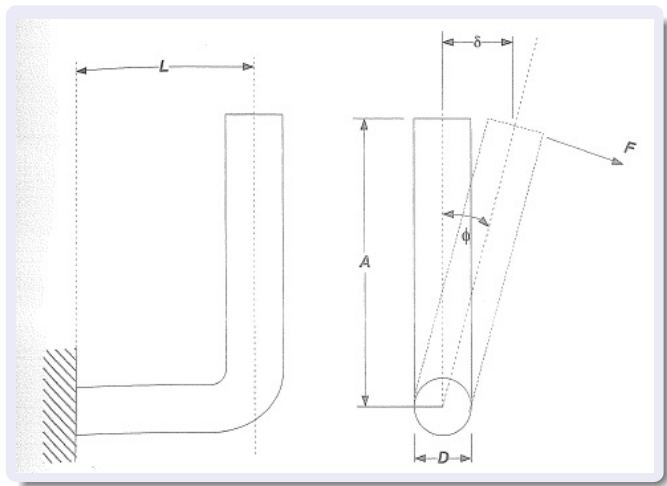


Fig 4.14: Planilha para cálculo da barra anti-rolagem.

Mod of elasticity, E	207000	N/mm ²	
Mod of rigidity, G =	79300	N/mm ²	
Torsion bar length, 2L =	250	mm	
Bar diameter, D =	12	mm	
Deflection of arb, δ =	14.4	mm	


Arm length, L	Stiff. N/mm	pnds/inch	stress in rod @ δ mm
50	468.71	2676.81	994.63
60	319.57	1825.07	813.78
70	230.59	1316.90	685.05
80	173.44	990.54	588.90
90	134.68	769.14	514.43
100	107.24	612.44	455.13
110	87.15	497.70	406.85
120	72.03	411.35	366.83
130	60.38	344.84	333.15
140	51.24	292.61	304.43
150	43.93	250.91	279.70
160	38.02	217.13	258.18
170	33.17	189.42	239.31
180	29.14	166.43	222.63
190	25.77	147.18	207.81
200	22.92	130.90	194.56
210	20.49	117.03	182.64
220	18.41	105.13	171.88
230	16.61	94.85	162.13
240	15.04	85.92	153.24
250	13.68	78.11	145.12

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Referências I

 SEWARD, D. *Race Car Design*. Suffolk, Inglaterra: Palgrave, 2014.
ISBN 1137030143.

