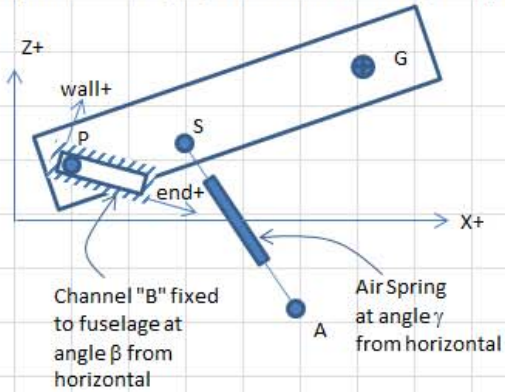
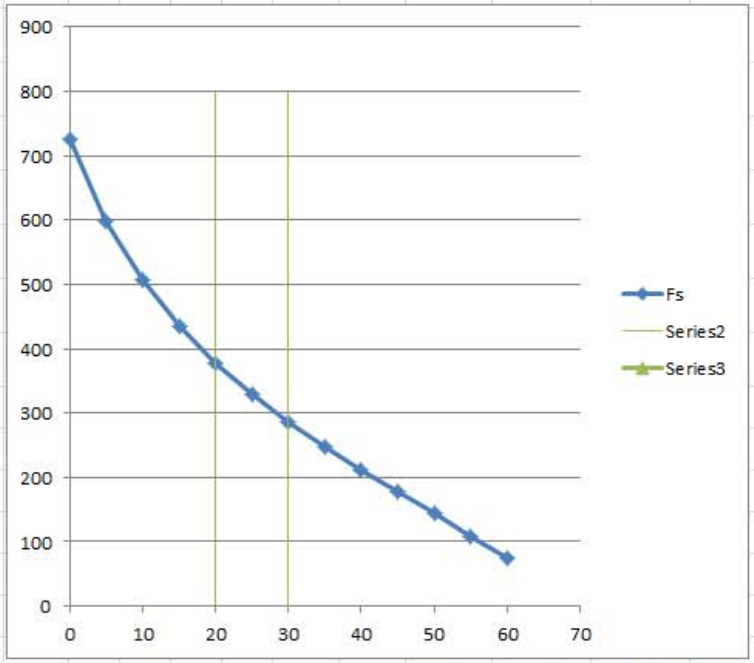
mine required equilibrium air-spring forces, and reactions, given system layout and weight distribution





Plot schematic line

20.00	
20.00	80
30.00	
30.00	80

Notes:

Number subscripts: State "1" is closed, state "2" is opened by some angle "α"

Angle notation: assume one leg is horizontal, the other leg is the segment named in the subscripts (θ_ps2 is between horizontal and segment PS, with the canopy opened)

																					Forces and reac		Channel Reactions				
																					weight of canopy	Air-spring force req'd for eqm	Horiz rxn at P	Vertical rxn at P	Inclination of channel B	Reaction at end of channel	Reaction normal to wall of channel
in	in	in	in	in	in	in	in	in	in	deg	deg	deg	deg	deg	in	in	in	in	deg	lbf				deg		
Xp	Zp	Xs1	Zs1	Xa1	Za1	Xg1	Zg1	Lps	Lpg	θ_ps1	θ_pg1	α	θ_ps2	θ_pg2	Xs2	Zs2	Xg2	Zg2	γ2	Fg	Fs	Rpx	Rpz	β	R_end	R_wall
1	1	4.86	-3.6	7	-20	40	15	6	41.4	-50	19.75	0	-50	19.75	4.86	-3.6	40	15	82.56	60	724.74	93.89	-658.63	30	410.63	-523.44
1	1	4.86	-3.6	7	-20	40	15	6	41.4	-50	19.75	5	-45	24.75	5.24	-3.2	38.6	18.3	84.01	60	597.799	62.35	-534.54	30	321.27	-431.75

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