Fast Mars - 90 Day Journey	2016-12-04	keithl@serversky.com	rotation subtracted from launch and entry

Ellipse shape	Hohmann	Fast 1	Fast 2	Fast 3	Fast 4	Fast 5	Fast 6		
m/s launch E	**11023.133**	**13426.444**	**13027.708**	**13108.219**	**14683.259**	**15841.031**	**17181.104**	**18669.730**	**20288.979**
m/s entry M	**5406.935**	**15366.322**	**12296.148**	**12000.010**	**10000.025**	**9500.007**	**9329.971**	**9500.012**	**10000.003**
days	**258.8648058**	**90**	**90**	**90**	**90**	**90**	**90**	**90**	**90**
		tangential at Earth UGLY	*slowest Earth launch*	*GDN hypothetical ???*	*slower Mars entry*	*slower Mars entry*	*slowest Mars entry*	*Gets WORSE*	*GETS MUCH WORSE*

Mars hyperbolic - no lift or drag									
hyper angle	**48.003**	**3.195**	**5.155**	**5.437**	**8.186**	**9.220**	**9.620**	**9.220**	**8.186**
lapse time	**118.86**	**32.54**	**41.32**	**42.44**	**52.02**	**55.18**	**56.36**	**55.18**	**52.02**
m/s V∞	**2075.38**	**14532.59**	**11236.88**	**10912.03**	**8664.45**	**8082.23**	**7881.66**	**8082.23**	**8664.43**
m semi	-9943446.57	-202789.59	-339187.56	-359683.19	-570491.60	-655646.14	-689438.92	-655645.21	-570494.84
eccentricity	1.34557	17.94466	11.13068	10.55341	7.02323	6.24094	5.98405	6.24094	7.02319
lapse angle	0.10552	0.08211	0.08342	0.08361	0.08541	0.08608	0.08633	0.08608	0.08541

Guesses and Calculations									
m below E	**1.0000E+00**	**1.0000E+00**	**5.0000E+09**	**6.3423E+09**	**2.6516E+10**	**4.0393E+10**	**5.5320E+10**	**7.0120E+10**	**8.4112E+10**
m above M	**1.0000E+00**	**4.5159E+11**	**1.6663E+11**	**1.4880E+11**	**5.2442E+10**	**3.1209E+10**	**1.8394E+10**	**1.0674E+10**	**6.0021E+09**
m R perhe	1.4960E+11	1.4960E+11	1.4460E+11	1.4326E+11	1.2308E+11	1.0921E+11	9.4278E+10	7.9478E+10	6.5486E+10
m R aphe	2.2794E+11	6.7953E+11	3.9457E+11	3.7674E+11	2.8038E+11	2.5915E+11	2.4633E+11	2.3861E+11	2.3394E+11
m semi	1.8877E+11	4.1456E+11	2.6958E+11	2.6000E+11	2.0173E+11	1.8418E+11	1.7031E+11	1.5905E+11	1.4971E+11
eccentricity	0.20751	0.63914	0.46362	0.44901	0.38987	0.40706	0.44642	0.50028	0.56259
m/s v0	27104.929	23264.003	25041.479	25285.053	27852.935	29388.511	31196.336	33361.521	36012.892
r/s omega	1.4046E-07	4.3159E-08	8.2303E-08	8.6896E-08	1.2714E-07	1.4575E-07	1.6391E-07	1.8162E-07	1.9887E-07
cos factor	1.8064E+11	2.4521E+11	2.1164E+11	2.0758E+11	1.7107E+11	1.5366E+11	1.3637E+11	1.1924E+11	1.0233E+11
cos θ E	1.00000	1.00000	0.89449	0.86318	0.36812	0.06668	-0.19814	-0.40564	-0.56165
cos θ M	-1.00000	0.11857	-0.15426	-0.19893	-0.63995	-0.80056	-0.89993	-0.95322	-0.97953
radians θ E	0.00001	0.00001	0.46352	0.52925	1.19381	1.50407	1.77026	1.98848	2.16717
radians θ M	3.14159	1.45195	1.72568	1.77106	2.26523	2.49903	2.69041	2.83452	2.93889
m/s perp V E	32729.360	38133.032	35426.301	35085.035	31850.394	30186.183	28436.896	26591.322	24633.594
m/s perp V M	21480.498	25026.964	23250.518	23026.543	20903.627	19811.394	18663.325	17452.063	16167.193
m/s radial V E	0.050	0.087	5190.690	5732.144	10096.556	11936.382	13650.507	15255.363	16763.029
m/s radial V M	0.033	14764.145	11470.843	11126.376	8344.294	7168.845	6072.436	5044.883	4078.700
m/s delta V E	2944.683	8348.355	7666.237	7807.129	10305.709	11943.133	13716.882	15586.007	17536.613
m/s delta V M	2648.890	14791.404	11504.462	11180.899	8946.104	8368.836	8170.210	8368.842	8946.080
ecc anom θ E	0.0000071	0.0000027	0.2838113	0.3311393	0.8461647	1.0914226	1.2949417	1.4517775	1.5694215
ecc anom θ M	3.1415855	0.7893115	1.2311111	1.2926118	1.9105099	2.1940981	2.4311321	2.6176369	2.7617938
mean anom E	0.0000057	0.0000010	0.1539891	0.1851563	0.5542499	0.7302412	0.8654010	0.9550347	1.0068321
mean anom M	3.1415840	0.3356039	0.7939794	0.8608620	1.5429183	1.8635802	2.1399855	2.3673413	2.5532228
sec θ E	40.315	22.971	1870996.262	2130773.097	4359244.363	5010288.590	5279648.195	5258312.417	5062838.269
sec θ M	22365959.539	7776022.971	9646996.262	9906773.098	12135244.363	12786288.590	13055648.195	13034312.418	12838838.269
seconds	22365919.224	7776000.000	7776000.000	7776000.000	7776000.000	7776000.000	7776000.000	7776000.000	7776000.000