PROJECT TECHNICAL REPORT

TASK E-94

SIZING DATA FOR MULTIPLE STAGES
EXPENDED AND REUSABLE OPERATING MODES
TABULAR LISTING OF CONFIGURATION ΔV CAPABILITIES

NAS 9-8166

25 FEBRUARY 1971

Prepared for
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRW
SYSTEMS GROUP

CR-114903

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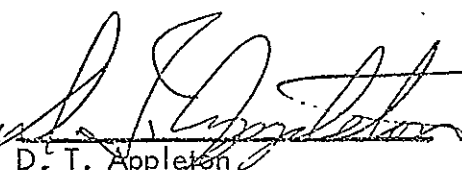

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Advanced Missions Studies
Spacecraft Systems Analysis
Project

TRW
SYSTEMS GROUP

APPENDIX A

This appendix contains a tabular listing of the one way ΔV increments theoretically obtainable from each of nine different one and two stage propulsive configurations. Payload delivery, retrieval and roundtrip operating modes are considered. An I_{sp} value of 460 seconds was selected to typify engine performance. ΔV magnitudes are shown for propellant mass fractions (λ) from 0.80 to 0.95 and payload to stage weight ratios ($W_{PL} W_S$) from 0 to 10.

Appendix B provides sufficient mathematical development to enable extending the results shown here to other values of I_{sp}, λ, and $W_{PL} W_S$. Some of the numerical data shown here are preceded by the message MISSION IMPOSSIBLE **** K_i=XXXX. These cases require propellant off-loading to form a physically realizable operating configuration. Since one of the basic constraints inherent in these formulations is that propellant off-loading is not considered, those numerical results preceeded by the indicated message should be disregarded.

SINGLE STAGE - EXPENDABLE

ISP= 460.0

LAMBDA	WFL/WS	WS/WPL	DELTAV
.800000+00	.000000	.0000000	.2381978+05
.800000+00	.1000000-01	.1000000+03	.2324495+05
.800000+00	.2500000-01	.4000000+02	.2244204+05
.800000+00	.5000000-01	.2000000+02	.2123934+05
.800000+00	.8000000-01	.1250000+02	.1997900+05
.800000+00	.1000000+00	.1000000+02	.1922947+05
.800000+00	.2000000+00	.5000000+01	.1625953+05
.800000+00	.4000000+00	.2500000+01	.1254006+05
.800000+00	.6000000+00	.1666667+01	.1025862+05
.800000+00	.8000000+00	.1250000+01	.8699279+04
.800000+00	.1000000+01	.1000000+01	.7560251+04
.800000+00	.2000000+01	.5000000+00	.4590312+04
.800000+00	.3000000+01	.3333333+00	.3302538+04
.800000+00	.4000000+01	.2500000+00	.2580441+04
.800000+00	.5000000+01	.2000000+00	.2117901+04
.800000+00	.8000000+01	.1250000+00	.1377744+04
.800000+00	.1000000+02	.1000000+00	.1117516+04
.825000+00	.000000	.0000000	.2579605+05
.825000+00	.1000000-01	.1000000+03	.2512088+05
.825000+00	.2500000-01	.4000000+02	.2418523+05
.825000+00	.5000000-01	.2000000+02	.2279868+05
.825000+00	.8000000-01	.1250000+02	.2136319+05
.825000+00	.1000000+00	.1000000+02	.2051724+05
.825000+00	.2000000+00	.5000000+01	.1721470+05
.825000+00	.4000000+00	.2500000+01	.1316995+05
.825000+00	.6000000+00	.1666667+01	.1072850+05
.825000+00	.8000000+00	.1250000+01	.9073984+04
.825000+00	.1000000+01	.1000000+01	.7871843+04
.825000+00	.2000000+01	.5000000+00	.4759457+04
.825000+00	.3000000+01	.3333333+00	.3418618+04
.825000+00	.4000000+01	.2500000+00	.2668800+04

SINGLE STAGE - EXPENDABLE

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8250000+00	.5000000+01	.2000000+00	.2189227+04
.8250000+00	.8000000+01	.1250000+00	.1422935+04
.8250000+00	.1000000+02	.1000000+00	.1153835+04
.8500000+00	.0000000	.0000000	.2807749+05
.8500000+00	.1000000-01	.1000000+03	.2726959+05
.8500000+00	.2500000-01	.4000000+02	.2616151+05
.8500000+00	.5000000-01	.2000000+02	.2454188+05
.8500000+00	.8000000-01	.1250000+02	.2289032+05
.8500000+00	.1000000+00	.1000000+02	.2192784+05
.8500000+00	.2000000+00	.5000000+01	.1823580+05
.8500000+00	.4000000+00	.2500000+01	.1382783+05
.8500000+00	.6000000+00	.1666667+01	.1121380+05
.8500000+00	.8000000+00	.1250000+01	.9458423+04
.8500000+00	.1000000+01	.1000000+01	.8190136+04
.8500000+00	.2000000+01	.5000000+00	.4930558+04
.8500000+00	.3000000+01	.3333333+00	.3535615+04
.8500000+00	.4000000+01	.2500000+00	.2757689+04
.8500000+00	.5000000+01	.2000000+00	.2260898+04
.8500000+00	.8000000+01	.1250000+00	.1468264+04
.8500000+00	.1000000+02	.1000000+00	.1190244+04
.8750000+00	.0000000	.0000000	.3077586+05
.8750000+00	.1000000-01	.1000000+03	.2978410+05
.8750000+00	.2500000-01	.4000000+02	.2844295+05
.8750000+00	.5000000-01	.2000000+02	.2651815+05
.8750000+00	.8000000-01	.1250000+02	.2459336+05
.8750000+00	.1000000+00	.1000000+02	.2348718+05
.8750000+00	.2000000+00	.5000000+01	.1933261+05
.8750000+00	.4000000+00	.2500000+01	.1451633+05
.8750000+00	.6000000+00	.1666667+01	.1171554+05
.8750000+00	.8000000+00	.1250000+01	.9853115+04
.8750000+00	.1000000+01	.1000000+01	.8515425+04

SINGLE STAGE - EXPENDABLE

ISP= 460.0 .

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8750000+00	.2000000+01	.5000000+00	.5103661+04
.875CCCC+0C	.3000000+01	.3333333+00	.3653544+04
.8750000+0C	.4000000+01	.2500000+00	.2847116+04
.8750CCC+0C	.5000000+01	.2000000+00	.2332918+04
.8750000+00	.8000000+01	.1250000+00	.1513733+04
.8750000+00	.1000000+02	.1000000+00	.1226742+04
.9000000+00	.0000000	.0000000	.3407840+05
.9000000+00	.1000000-01	.1000000+03	.3281507+05
.9000000+00	.2500000-01	.4000000+02	.3114132+05
.9000000+00	.5000000-01	.2000000+02	.2879959+05
.9000000+00	.8000000-01	.1250000+02	.2651815+05
.9000000+00	.1000000+00	.1000000+02	.2523038+05
.9000000+00	.2000000+00	.5000000+01	.2051724+05
.9000000+00	.4000000+00	.2500000+01	.1523843+05
.9000000+00	.6000000+00	.1666667+01	.1223489+05
.9000000+00	.8000000+00	.1250000+01	.1025862+05
.9000000+00	.1000000+01	.1000000+01	.8848025+04
.9000000+00	.2000000+01	.5000000+00	.5278811+04
.9000000+00	.3000000+01	.3333333+00	.3772421+04
.9000000+00	.4000000+01	.2500000+00	.2937086+04
.9000000+00	.5000000+01	.2000000+00	.2405290+04
.9000000+00	.8000000+01	.1250000+00	.1559342+04
.9000000+00	.1000000+02	.1000000+00	.1263331+04
.9250000+00	.0000000	.0000000	.3833611+05
.9250000+00	.1000000-01	.1000000+03	.3663096+05
.9250000+00	.2500000-01	.4000000+02	.3444386+05
.9250000+00	.5000000-01	.2000000+02	.3149796+05
.9250000+00	.8000000-01	.1250000+02	.2873123+05
.9250000+00	.1000000+00	.1000000+02	.2720665+05
.9250000+00	.2000000+00	.5000000+01	.2180502+05
.9250000+00	.4000000+00	.2500000+01	.1599758+05

SINGLE STAGE - EXPENDABLE

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.9250000+00	.6000000+00	.1666667+01	.1277314+05
.9250000+00	.8000000+00	.1250000+01	.1067555+05
.9250000+00	.1000000+01	.1000000+01	.9188271+04
.9250000+00	.2000000+01	.5000000+00	.5456059+04
.9250000+00	.3000000+01	.3333333+00	.3892260+04
.9250000+00	.4000000+01	.2500000+00	.3027606+04
.9250000+00	.5000000+01	.2000000+00	.2478018+04
.9250000+00	.8000000+01	.1250000+00	.1605092+04
.9250000+00	.1000000+02	.1000000+00	.1300010+04
.9500000+00	.0000000.	.0000000	.4433702+05
.9500000+00	.1000000-01	.1000000+03	.4178592+05
.9500000+00	.2500000-01	.4000000+02	.3870157+05
.9500000+00	.5000000-01	.2000000+02	.3480050+05
.9500000+00	.8000000-01	.1250000+02	.3133442+05
.9500000+00	.1000000+00	.1000000+02	.2948809+05
.9500000+00	.2000000+00	.5000000+01	.2321561+05
.9500000+00	.4000000+00	.2500000+01	.1679777+05
.9500000+00	.6000000+00	.1666667+01	.1333170+05
.9500000+00	.8000000+00	.1250000+01	.1110457+05
.9500000+00	.1000000+01	.1000000+01	.9536524+04
.9500000+00	.2000000+01	.5000000+00	.5635456+04
.9500000+00	.3000000+01	.3333333+00	.4013078+04
.9500000+00	.4000000+01	.2500000+00	.3118684+04
.9500000+00	.5000000+01	.2000000+00	.2551105+04
.9500000+00	.8000000+01	.1250000+00	.1650983+04
.9500000+00	.1000000+02	.1000000+00	.1336780+04

SINGLE STAGE — REUSABLE*****PAYLOAD DELIVERY

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8000000+00	.0000000	.0000000	.1190989+05
.8000000+00	.1000000-01	.1000000+03	.1181888+05
.8000000+00	.2500000-01	.4000000+02	.1168407+05
.8000000+00	.5000000-01	.2000000+02	.1146393+05
.8000000+00	.8000000-01	.1250000+02	.1120719+05
.8000000+00	.1000000+00	.1000000+02	.1104047+05
.8000000+00	.2000000+00	.5000000+01	.1025862+05
.8000000+00	.4000000+00	.2500000+01	.8931188+04
.8000000+00	.6000000+00	.1666667+01	.7866925+04
.8000000+00	.8000000+00	.1250000+01	.7007344+04
.8000000+00	.1000000+01	.1000000+01	.6304905+04
.8000000+00	.2000000+01	.5000000+00	.4155954+04
.8000000+00	.3000000+01	.3333333+00	.3089365+04
.8000000+00	.4000000+01	.2500000+00	.2453886+04
.8000000+00	.5000000+01	.2000000+00	.2034265+04
.8000000+00	.8000000+01	.1250000+00	.1343482+04
.8000000+00	.1000000+02	.1000000+00	.1095243+04
.8250000+00	.0000000	.0000000	.1289803+05
.8250000+00	.1000000-01	.1000000+03	.1279565+05
.8250000+00	.2500000-01	.4000000+02	.1264401+05
.8250000+00	.5000000-01	.2000000+02	.1239641+05
.8250000+00	.8000000-01	.1250000+02	.1210772+05
.8250000+00	.1000000+00	.1000000+02	.1192033+05
.8250000+00	.2000000+00	.5000000+01	.1104267+05
.8250000+00	.4000000+00	.2500000+01	.9559620+04
.8250000+00	.6000000+00	.1666667+01	.8379948+04
.8250000+00	.8000000+00	.1250000+01	.7434677+04
.8250000+00	.1000000+01	.1000000+01	.6667685+04
.8250000+00	.2000000+01	.5000000+00	.4357313+04
.8250000+00	.3000000+01	.3333333+00	.3221561+04
.8250000+00	.4000000+01	.2500000+00	.2552487+04

SINGLE STAGE — REUSABLE*****PAYLOAD DELIVERY

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8250000+00	.5000000+01	.2000000+00	.2112633+04
.8250000+00	.8000000+01	.1250000+00	.1391730+04
.8250000+00	.1000000+02	.1000000+00	.1133587+04
.8500000+00	.0000000	.0000000	.1403875+05
.8500000+00	.1000000-01	.1000000+03	.1392227+05
.8500000+00	.2500000-01	.4000000+02	.1374975+05
.8500000+00	.5000000-01	.2000000+02	.1346810+05
.8500000+00	.8000000-01	.1250000+02	.1313983+05
.8500000+00	.1000000+00	.1000000+02	.1292685+05
.8500000+00	.2000000+00	.5000000+01	.1193104+05
.8500000+00	.4000000+00	.2500000+01	.1025862+05
.8500000+00	.6000000+00	.1666667+01	.8941556+04
.8500000+00	.8000000+00	.1250000+01	.7896441+04
.8500000+00	.1000000+01	.1000000+01	.7055638+04
.8500000+00	.2000000+01	.5000000+00	.4562357+04
.8500000+00	.3000000+01	.3333333+00	.3357241+04
.8500000+00	.4000000+01	.2500000+00	.2653035+04
.8500000+00	.5000000+01	.2000000+00	.2192235+04
.8500000+00	.8000000+01	.1250000+00	.1440446+04
.8500000+00	.1000000+02	.1000000+00	.1172227+04
.8750000+00	.0000000	.0000000	.1538793+05
.8750000+00	.1000000-01	.1000000+03	.1525331+05
.8750000+00	.2500000-01	.4000000+02	.1505392+05
.8750000+00	.5000000-01	.2000000+02	.1472849+05
.8750000+00	.8000000-01	.1250000+02	.1434939+05
.8750000+00	.1000000+00	.1000000+02	.1410359+05
.8750000+00	.2000000+00	.5000000+01	.1295699+05
.8750000+00	.4000000+00	.2500000+01	.1104715+05
.8750000+00	.6000000+00	.1666667+01	.9562686+04
.8750000+00	.8000000+00	.1250000+01	.8399183+04
.8750000+00	.1000000+01	.1000000+01	.7472859+04

SINGLE STAGE – REUSABLE*****PAYLOAD DELIVERY

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8750000+00	.2000000+01	.5000000+00	.4775771+04
.8750000+00	.3000000+01	.3333333+00	.3496611+04
.8750000+00	.4000000+01	.2500000+00	.2755616+04
.8750000+00	.5000000+01	.2000000+00	.2273113+04
.8750000+00	.8000000+01	.1250000+00	.1489642+04
.8750000+00	.1000000+02	.1000000+00	.1211169+04
.9000000+00	.0000000	.0000000	.1703920+05
.9000000+00	.1000000-01	.1000000+03	.1688000+05
.9000000+00	.2500000-01	.4000000+02	.1664423+05
.9000000+00	.5000000-01	.2000000+02	.1625953+05
.9000000+00	.8000000-01	.1250000+02	.1581173+05
.9000000+00	.1000000+00	.1000000+02	.1552167+05
.9000000+00	.2000000+00	.5000000+01	.1417320+05
.9000000+00	.4000000+00	.2500000+01	.1195333+05
.9000000+00	.6000000+00	.1666667+01	.1025862+05
.9000000+00	.8000000+00	.1250000+01	.8951611+04
.9000000+00	.1000000+01	.1000000+01	.7924582+04
.9000000+00	.2000000+01	.5000000+00	.4998343+04
.9000000+00	.3000000+01	.3333333+00	.3639901+04
.9000000+00	.4000000+01	.2500000+00	.2860324+04
.9000000+00	.5000000+01	.2000000+00	.2355314+04
.9000000+00	.8000000+01	.1250000+00	.1539328+04
.9000000+00	.1000000+02	.1000000+00	.1250418+04
.9250000+00	.0000000	.0000000	.1916806+05
.9250000+00	.1000000-01	.1000000+03	.1897284+05
.9250000+00	.2500000-01	.4000000+02	.1868377+05
.9250000+00	.5000000-01	.2000000+02	.1821235+05
.9250000+00	.8000000-01	.1250000+02	.1766428+05
.9250000+00	.1000000+00	.1000000+02	.1730983+05
.9250000+00	.2000000+00	.5000000+01	.1567096+05
.9250000+00	.4000000+00	.2500000+01	.1302170+05

SINGLE STAGE - REUSABLE*****PAYLOAD DELIVERY

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.9250000+00	.6000000+00	.1666667+01	.1105174+05
.9250000+00	.8000000+00	.1250000+01	.9565698+04
.9250000+00	.1000000+01	.1000000+01	.8417667+04
.9250000+00	.2000000+01	.5000000+00	.5230984+04
.9250000+00	.3000000+01	.3333333+00	.3787362+04
.9250000+00	.4000000+01	.2500000+00	.2967258+04
.9250000+00	.5000000+01	.2000000+00	.2438887+04
.9250000+00	.8000000+01	.1250000+00	.1589515+04
.9250000+00	.1000000+02	.1000000+00	.1289980+04
.9500000+00	.0000000	.0000000	.2216851+05
.9500000+00	.1000000-01	.1000000+03	.2191288+05
.9500000+00	.2500000-01	.4000000+02	.2153446+05
.9500000+00	.5000000-01	.2000000+02	.2091793+05
.9500000+00	.8000000-01	.1250000+02	.2020287+05
.9500000+00	.1000000+00	.1000000+02	.1974186+05
.9500000+00	.2000000+00	.5000000+01	.1763197+05
.9500000+00	.4000000+00	.2500000+01	.1432970+05
.9500000+00	.6000000+00	.1666667+01	.1197688+05
.9500000+00	.8000000+00	.1250000+01	.1025862+05
.9500000+00	.1000000+01	.1000000+01	.8961369+04
.9500000+00	.2000000+01	.5000000+00	.5474755+04
.9500000+00	.3000000+01	.3333333+00	.3939273+04
.9500000+00	.4000000+01	.2500000+00	.3076526+04
.9500000+00	.5000000+01	.2000000+00	.2523884+04
.9500000+00	.8000000+01	.1250000+00	.1640214+04
.9500000+00	.1000000+02	.1000000+00	.1329860+04

SINGLE STAGE - REUSABLE*****PAYLOAD RETRIEVAL

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8000000+00	.0000000	.0000000	.1190989+05
.8000000+00	.1000000-01	.1000000+03	.1171032+05
.8000000+00	.2500000-01	.4000000+02	.1142826+05
.8000000+00	.5000000-01	.2000000+02	.1099832+05
.8000000+00	.8000000-01	.1250000+02	.1053770+05
.8000000+00	.1000000+00	.1000000+02	.1025862+05
.8000000+00	.2000000+00	.5000000+01	.9111033+04
.8000000+00	.4000000+00	.2500000+01	.7560251+04
.8000000+00	.6000000+00	.1666667+01	.6526703+04
.8000000+00	.8000000+00	.1250000+01	.5772547+04
.8000000+00	.1000000+01	.1000000+01	.5191129+04
.8000000+00	.2000000+01	.5000000+00	.3510183+04
.8000000+00	.3000000+01	.3333333+00	.2677248+04
.8000000+00	.4000000+01	.2500000+00	.2170977+04
.8000000+00	.5000000+01	.2000000+00	.1828424+04
.8000000+00	.8000000+01	.1250000+00	.1244521+04
.8000000+00	.1000000+02	.1000000+00	.1027039+04
.8250000+00	.0000000	.0000000	.1289803+05
.8250000+00	.1000000-01	.1000000+03	.1265885+05
.8250000+00	.2500000-01	.4000000+02	.1232351+05
.8250000+00	.5000000-01	.2000000+02	.1181796+05
.8250000+00	.8000000-01	.1250000+02	.1128320+05
.8250000+00	.1000000+00	.1000000+02	.1096232+05
.8250000+00	.2000000+00	.5000000+01	.9664392+04
.8250000+00	.4000000+00	.2500000+01	.7954719+04
.8250000+00	.6000000+00	.1666667+01	.6836891+04
.8250000+00	.8000000+00	.1250000+01	.6029861+04
.8250000+00	.1000000+01	.1000000+01	.5411897+04
.8250000+00	.2000000+01	.5000000+00	.3642126+04
.8250000+00	.3000000+01	.3333333+00	.2772623+04
.8250000+00	.4000000+01	.2500000+00	.2246036+04

SINGLE STAGE - RELSABLE*****PAYLOAD RETRIEVAL

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.825000C+0C	.5CC0000+01	.2000000+00	.1890450+04
.8250000+00	.8CC0000+01	.1250000+00	.1285493+04
.8250000+0C	.1C00000+02	.1000000+00	.1060506+04
.850000C+0C	.0000000	.0000000	.1403875+05
.8500CC0+00	.1000000-01	.1000000+03	.1374616+05
.8500000+00	.2500000-01	.4000000+02	.1334020+05
.8500000+0C	.5CC0000-01	.2000000+02	.1273681+05
.8500C0C+0C	.8CC00C0-01	.1250000+02	.1210863+05
.8500000+00	.1C00000+00	.1000000+02	.1173617+05
.8500000+00	.2C00CC0+00	.5000000+01	.1025862+05
.850000C+00	.4C000C0+00	.2500000+01	.8368431+04
.8500000+00	.6C00000+00	.1666667+01	.7158382+04
.8500000+0C	.8000000+00	.1250000+01	.6294655+04
.8500C0C+0C	.1C00000+01	.1000000+01	.5637999+04
.8500000+00	.2C00000+01	.5000000+00	.3775784+04
.8500C0C+00	.3C00.CC0+01	.3333333+00	.2868839+04
.8500C0C+0C	.4C00000+01	.2500000+00	.2321594+04
.8500000+0C	.5C00000+01	.2000000+00	.1952805+04
.8500CCC+0C	.8000000+01	.1250000+00	.1326602+04
.8500000+0C	.1CC0000+02	.1000000+00	.1094060+04
.8750C0C+0C	.CC00000	.0000000	.1538793+C5
.8750C00+0C	.1C000CC-01	.1000000+03	.1501582+05
.875000C+00	.2500000-01	.4000000+02	.1451634+05
.875CC00+0C	.5C00000-01	.2000000+02	.1378197+05
.8750C00+00	.8000000-01	.1250000+02	.1303299+05
.8750C0C+0C	.1C00000+00	.1000000+02	.1259548+05
.8750000+00	.2CC00C0+00	.5000000+01	.1090009+05
.8750000+00	.4C00000+00	.2500000+01	.8803294+04
.8750C00+00	.6CC0000+00	.1666667+01	.7491996+04
.875C0C0+00	.8C00000+00	.1250000+01	.6567354+04
.875CC0C+00	.1000000+01	.1000000+01	.5869684+04

SINGLE STAGE – REUSABLE*****PAYLOAD RETRIEVAL

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8750000+00	.2000000+01	.5000000+00	.3911199+04
.8750000+00	.3000000+01	.3333333+00	.2965909+04
.8750000+00	.4000000+01	.2500000+00	.2397656+04
.8750000+00	.5000000+01	.2000000+00	.2015492+04
.8750000+00	.8000000+01	.1250000+00	.1367846+04
.8750000+00	.1000000+02	.1000000+00	.1127702+04
.9000000+00	.0000000	.0000000	.1703920+05
.9000000+00	.1000000-01	.1000000+03	.1655701+05
.9000000+00	.2500000-01	.4000000+02	.1591109+05
.9000000+00	.5000000-01	.2000000+02	.1499343+05
.9000000+00	.8000000-01	.1250000+02	.1408287+05
.9000000+00	.1000000+00	.1000000+02	.1356116+05
.9000000+00	.2000000+00	.5000000+01	.1159675+05
.9000000+00	.4000000+00	.2500000+01	.9261505+04
.9000000+00	.6000000+00	.1666667+01	.7838641+04
.9000000+00	.8000000+00	.1250000+01	.6848423+04
.9000000+00	.1000000+01	.1000000+01	.6107221+04
.9000000+00	.2000000+01	.5000000+00	.4048414+04
.9000000+00	.3000000+01	.3333333+00	.3063849+04
.9000000+00	.4000000+01	.2500000+00	.2474229+04
.9000000+00	.5000000+01	.2000000+00	.2078515+04
.9000000+00	.8000000+01	.1250000+00	.1409227+04
.9000000+00	.1000000+02	.1000000+00	.1161433+04
.9250000+00	.0000000	.0000000	.1916806+05
.9250000+00	.1000000-01	.1000000+03	.1849565+05
.9250000+00	.2500000-01	.4000000+02	.1762407+05
.9250000+00	.5000000-01	.2000000+02	.1643359+05
.9250000+00	.8000000-01	.1250000+02	.1529721+05
.9250000+00	.1000000+00	.1000000+02	.1466279+05
.9250000+00	.2000000+00	.5000000+01	.1235875+05
.9250000+00	.4000000+00	.2500000+01	.9745618+04

SINGLE STAGE — REUSABLE*****PAYLOAD RETRIEVAL

ISP= 460.0

LAMBCA	WPL/WS	WS/WPL	DELTAV
.9250000+00	.6000000+00	.1666667+01	.8199333+04
.9250000+00	.8000000+00	.1250000+01	.7138365+04
.9250000+00	.1000000+01	.1000000+01	.6350897+04
.9250000+00	.2000000+01	.5000000+00	.4187475+04
.9250000+00	.3000000+01	.3333333+00	.3162672+04
.9250000+00	.4000000+01	.2500000+00	.2551320+04
.9250000+00	.5000000+01	.2000000+00	.2141879+04
.9250000+00	.8000000+01	.1250000+00	.1450745+04
.9250000+00	.1000000+02	.1000000+00	.1195253+04
.9500000+00	.0000000	.0000000	.2216851+05
.9500000+00	.1000000-01	.1000000+03	.2112141+05
.9500000+00	.2500000-01	.4000000+02	.1984335+05
.9500000+00	.5000000-01	.2000000+02	.1820804+05
.9500000+00	.8000000-01	.1250000+02	.1673627+05
.9500000+00	.1000000+00	.1000000+02	.1594416+05
.9500000+00	.2000000+00	.5000000+01	.1319925+05
.9500000+00	.4000000+00	.2500000+01	.1025862+05
.9500000+00	.6000000+00	.1666667+01	.8575206+04
.9500000+00	.8000000+00	.1250000+01	.7437732+04
.9500000+00	.1000000+01	.1000000+01	.6601021+04
.9500000+00	.2000000+01	.5000000+00	.4328430+04
.9500000+00	.3000000+01	.3333333+00	.3262394+04
.9500000+00	.4000000+01	.2500000+00	.2628934+04
.9500000+00	.5000000+01	.2000000+00	.2205585+04
.9500000+00	.8000000+01	.1250000+00	.1492401+04
.9500000+00	.1000000+02	.1000000+00	.1229163+04

SINGLE STAGE - REUSABLE*****RCUNDTRIP

ISP= 460.0

LAMBDA	-WPL/WS	WS/WPL	DELTAV
.8000000+00	.0000000	.0000000	.1190989+05
.8000000+00	.1000000-01	.1000000+03	.1162247+05
.8000000+00	.2500000-01	.4000000+02	.1122102+05
.8000000+00	.5000000-01	.2000000+02	.1061967+05
.8000000+00	.8000000-01	.1250000+02	.9989500+04
.8000000+00	.1000000+00	.1000000+02	.9614735+04
.8000000+00	.2000000+00	.5000000+01	.8129765+04
.8000000+00	.4000000+00	.2500000+01	.6270031+04
.8000000+00	.6000000+00	.1666667+01	.5129311+04
.8000000+00	.8000000+00	.1250000+01	.4349640+04
.8000000+00	.1000000+01	.1000000+01	.3780125+04
.8000000+00	.2000000+01	.5000000+00	.2295156+04
.8000000+00	.3000000+01	.3333333+00	.1651269+04
.8000000+00	.4000000+01	.2500000+00	.1290220+04
.8000000+00	.5000000+01	.2000000+00	.1058951+04
.8000000+00	.8000000+01	.1250000+00	.6888719+03
.8000000+00	.1000000+02	.1000000+00	.5587581+03
.8250000+00	.0000000	.0000000	.1289803+05
.8250000+00	.1000000-01	.1000000+03	.1256044+05
.8250000+00	.2500000-01	.4000000+02	.1209262+05
.8250000+00	.5000000-01	.2000000+02	.1139934+05
.8250000+00	.8000000-01	.1250000+02	.1068160+05
.8250000+00	.1000000+00	.1000000+02	.1025862+05
.8250000+00	.2000000+00	.5000000+01	.8607352+04
.8250000+00	.4000000+00	.2500000+01	.6584973+04
.8250000+00	.6000000+00	.1666667+01	.5364252+04
.8250000+00	.8000000+00	.1250000+01	.4536992+04
.8250000+00	.1000000+01	.1000000+01	.3935921+04
.8250000+00	.2000000+01	.5000000+00	.2379729+04
.8250000+00	.3000000+01	.3333333+00	.1709309+04
.8250000+00	.4000000+01	.2500000+00	.1334400+04

SINGLE STAGE - REUSABLE*****RCUNDTRIP

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8250000+00	.5000000+01	.2000000+00	.1094613+04
.8250000+00	.8000000+01	.1250000+00	.7114673+03
.8250000+00	.1000000+02	.1000000+00	.5769177+03
.8500000+00	.0000000	.0000000	.1403875+05
.8500000+00	.1000000-01	.1000000+03	.1363479+05
.8500000+00	.2500000-01	.4000000+02	.1308075+05
.8500000+00	.5000000-01	.2000000+02	.1227094+05
.8500000+00	.8000000-01	.1250000+02	.1144516+05
.8500000+00	.1000000+00	.1000000+02	.1096392+05
.8500000+00	.2000000+00	.5000000+01	.9117902+04
.8500000+00	.4000000+00	.2500000+01	.6913517+04
.8500000+00	.6000000+00	.1666667+01	.5606898+04
.8500000+00	.8000000+00	.1250000+01	.4729212+04
.8500000+00	.1000000+01	.1000000+01	.4095068+04
.8500000+00	.2000000+01	.5000000+00	.2465279+04
.8500000+00	.3000000+01	.3333333+00	.1767807+04
.8500000+00	.4000000+01	.2500000+00	.1378844+04
.8500000+00	.5000000+01	.2000000+00	.1130449+04
.8500000+00	.8000000+01	.1250000+00	.7341321+03
.8500000+00	.1000000+02	.1000000+00	.5951218+03
.8750000+00	.0000000	.0000000	.1538793+05
.8750000+00	.1000000-01	.1000000+03	.1489205+05
.8750000+00	.2500000-01	.4000000+02	.1422147+05
.8750000+00	.5000000-01	.2000000+02	.1325908+05
.8750000+00	.8000000-01	.1250000+02	.1229668+05
.8750000+00	.1000000+00	.1000000+02	.1174359+05
.8750000+00	.2000000+00	.5000000+01	.9666303+04
.8750000+00	.4000000+00	.2500000+01	.7258167+04
.8750000+00	.6000000+00	.1666667+01	.5857770+04
.8750000+00	.8000000+00	.1250000+01	.4926558+04
.8750000+00	.1000000+01	.1000000+01	.4257713+04

SINGLE STAGE - RELSABLE*****ROUNDTRIP

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8750000+00	.2000000+01	.5000000+00	.2551830+04
.8750000+00	.3000000+C1	.3333333+00	.1826772+04
.8750000+00	.4000000+01	.2500000+00	.1423558+04
.8750000+00	.5000000+01	.2000000+00	.1166459+04
.8750000+00	.8000000+01	.1250000+00	.7568664+03
.8750000+00	.1000000+02	.1000000+00	.6133711+03
.9000000+00	.0000000	.0000000	.1703920+05
.9000000+00	.1000000-01	.1000000+03	.1640754+05
.9000000+00	.2500000-01	.4000000+02	.1557066+05
.9000000+00	.5000000-01	.2000000+02	.1439980+05
.9000000+00	.8000000-01	.1250000+02	.1325908+05
.9000000+00	.1000000+00	.1000000+02	.1261519+05
.9000000+00	.2000000+00	.5000000+01	.1025862+05
.9000000+00	.4000000+00	.2500000+01	.7619216+04
.9000000+00	.6000000+00	.1666667+01	.6117447+04
.9000000+00	.8000000+00	.1250000+01	.5129311+04
.9000000+00	.1000000+01	.1000000+01	.4424012+04
.9000000+00	.2000000+01	.5000000+00	.2639406+04
.9000000+00	.3000000+01	.3333333+00	.1886210+04
.9000000+00	.4000000+01	.2500000+00	.1468543+04
.9000000+00	.5000000+01	.2000000+00	.1202645+04
.9000000+00	.8000000+01	.1250000+00	.7796708+03
.9000000+00	.1000000+02	.1000000+00	.6316655+03
.9250000+00	.0000000	.0000000	.1916806+05
.9250000+00	.1000000-01	.1000000+03	.1831548+05
.9250000+00	.2500000-01	.4000000+02	.1722193+05
.9250000+00	.5000000-01	.2000000+02	.1574898+05
.9250000+00	.8000000-01	.1250000+02	.1436562+05
.9250000+00	.1000000+00	.1000000+02	.1360333+05
.9250000+00	.2000000+00	.5000000+01	.1090251+05
.9250000+00	.4000000+00	.2500000+01	.7998788+04

SINGLE STAGE – REUSABLE*******ROUNDTRIP

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.9250000+00	.600000+00	.1666667+01	.6386569+04
.9250000+00	.800000+00	.1250000+01	.5337776+04
.9250000+00	.1000000+01	.1000000+01	.4594135+04
.9250000+00	.2000000+01	.5000000+00	.2728030+04
.9250000+00	.3000000+01	.3333333+00	.1946130+04
.9250000+00	.4000000+01	.2500000+00	.1513803+04
.9250000+00	.5000000+01	.2000000+00	.1239009+04
.9250000+00	.8000000+01	.1250000+00	.8025458+03
.9250000+00	.1000000+02	.1000000+00	.6500050+03
.9500000+00	.0000000	.0000000	.2216851+05
.9500000+00	.1000000-01	.1000000+03	.2089296+05
.9500000+00	.2500000-01	.4000000+02	.1935079+05
.9500000+00	.5000000-01	.2000000+02	.1740025+05
.9500000+00	.8000000-01	.1250000+02	.1566721+05
.9500000+00	.1000000+00	.1000000+02	.1474405+05
.9500000+00	.2000000+00	.5000000+01	.1160781+05
.9500000+00	.4000000+00	.2500000+01	.8398887+04
.9500000+00	.6000000+00	.1666667+01	.6665849+04
.9500000+00	.8000000+00	.1250000+01	.5552285+04
.9500000+00	.1000000+01	.1000000+01	.4768262+04
.9500000+00	.2000000+01	.5000000+00	.2817728+04
.9500000+00	.3000000+01	.3333333+00	.2006539+04
.9500000+00	.4000000+01	.2500000+00	.1559342+04
.9500000+00	.5000000+01	.2000000+00	.1275552+04
.9500000+00	.8000000+01	.1250000+00	.8254915+03
.9500000+00	.1000000+02	.1000000+00	.6683904+03

TWO STAGES - STAGE 1 REUSABLE , STAGE 2 EXPENDABLE

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8000000+00	.0000000	.0000000	.3012469+05
.8000000+00	.1000000-01	.1000000+03	.2951816+05
.8000000+00	.2500000-01	.4000000+02	.2866827+05
.8000000+00	.5000000-01	.2000000+02	.2738872+05
.8000000+00	.8000000-01	.1250000+02	.2603848+05
.8000000+00	.1000000+00	.1000000+02	.2523038+05
.8000000+00	.2000000+00	.5000000+01	.2198293+05
.8000000+00	.4000000+00	.2500000+01	.1777589+05
.8000000+00	.6000000+00	.1666667+01	.1508076+05
.8000000+00	.8000000+00	.1250000+01	.1316659+05
.8000000+00	.1000000+01	.1000000+01	.1172020+05
.8000000+00	.2000000+01	.5000000+00	.7679677+04
.8000000+00	.3000000+01	.3333333+00	.5756424+04
.8000000+00	.4000000+01	.2500000+00	.4614705+04
.8000000+00	.5000000+01	.2000000+00	.3854722+04
.8000000+00	.8000000+01	.1250000+00	.2584489+04
.8000000+00	.1000000+02	.1000000+00	.2120103+04
.8250000+00	.0000000	.0000000	.3246374+05
.8250000+00	.1000000-01	.1000000+03	.3175409+05
.8250000+00	.2500000-01	.4000000+02	.3076734+05
.8250000+00	.5000000-01	.2000000+02	.2929724+05
.8250000+00	.8000000-01	.1250000+02	.2776410+05
.8250000+00	.1000000+00	.1000000+02	.2685457+05
.8250000+00	.2000000+00	.5000000+01	.2325131+05
.8250000+00	.4000000+00	.2500000+01	.1868014+05
.8250000+00	.6000000+00	.1666667+01	.1579399+05
.8250000+00	.8000000+00	.1250000+01	.1375944+05
.8250000+00	.1000000+01	.1000000+01	.1222916+05
.8250000+00	.2000000+01	.5000000+00	.7981019+04
.8250000+00	.3000000+01	.3333333+00	.5971105+04
.8250000+00	.4000000+01	.2500000+00	.4781433+04

TWO STAGES - STAGE 1 REUSABLE , STAGE 2 EXPENCABLE

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8250000+00	.5000000+01	.2000000+00	.3990973+04
.8250000+00	.8000000+01	.1250000+00	.2672414+04
.8250000+00	.1000000+02	.1000000+00	.2191188+04
.8500000+00	.0000000	.0000000	.3513313+05
.8500000+00	.1000000-01	.1000000+03	.3428758+05
.8500000+00	.2500000-01	.4000000+02	.3312373+05
.8500000+00	.5000000-01	.2000000+02	.3141300+05
.8500000+00	.8000000-01	.1250000+02	.2965505+05
.8500000+00	.1000000+00	.1000000+02	.2862336+05
.8500000+00	.2000000+00	.5000000+01	.2460456+05
.8500000+00	.4000000+00	.2500000+01	.1962704+05
.8500000+00	.6000000+00	.1666667+01	.1653423+05
.8500000+00	.8000000+00	.1250000+01	.1437139+05
.8500000+00	.1000000+01	.1000000+01	.1275249+05
.8500000+00	.2000000+01	.5000000+00	.8287799+04
.8500000+00	.3000000+01	.3333333+00	.6188650+04
.8500000+00	.4000000+01	.2500000+00	.4949924+04
.8500000+00	.5000000+01	.2000000+00	.4128417+04
.8500000+00	.8000000+01	.1250000+00	.2760845+04
.8500000+00	.1000000+02	.1000000+00	.2262608+04
.8750000+00	.0000000	.0000000	.3824872+05
.8750000+00	.1000000-01	.1000000+03	.3721569+05
.8750000+00	.2500000-01	.4000000+02	.3581343+05
.8750000+00	.5000000-01	.2000000+02	.3378889+05
.8750000+00	.8000000-01	.1250000+02	.3174774+05
.8750000+00	.1000000+00	.1000000+02	.3056595+05
.8750000+00	.2000000+00	.5000000+01	.2605515+05
.8750000+00	.4000000+00	.2500000+01	.2062103+05
.8750000+00	.6000000+00	.1666667+01	.1730378+05
.8750000+00	.8000000+00	.1250000+01	.1500386+05
.8750000+00	.1000000+01	.1000000+01	.1329120+05

TWO STAGES - STAGE 1 REUSABLE , STAGE 2 EXPENDABLE

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8750000+00	.2000000+01	.5000000+00	.8600272+04
.8750000+00	.3000000+01	.3333333+00	.6409160+04
.8750000+00	.4000000+01	.2500000+00	.5120229+04
.8750000+00	.5000000+01	.2000000+00	.4267083+04
.8750000+00	.8000000+01	.1250000+00	.2849792+04
.8750000+00	.1000000+02	.1000000+00	.2334365+04
.9000000+00	.0000000	.0000000	.4200299+05
.9000000+00	.1000000-01	.1000000+03	.4069417+05
.9000000+00	.2500000-01	.4000000+02	.3895312+05
.9000000+00	.5000000-01	.2000000+02	.3650165+05
.9000000+00	.8000000-01	.1250000+02	.3409236+05
.9000000+00	.1000000+00	.1000000+02	.3272159+05
.9000000+00	.2000000+00	.5000000+01	.2761851+05
.9000000+00	.4000000+00	.2500000+01	.2166727+05
.9000000+00	.6000000+00	.1666667+01	.1810531+05
.9000000+00	.8000000+00	.1250000+01	.1565851+05
.9000000+00	.1000000+01	.1000000+01	.1384637+05
.9000000+00	.2000000+01	.5000000+00	.8918712+04
.9000000+00	.3000000+01	.3333333+00	.6632745+04
.9000000+00	.4000000+01	.2500000+00	.5292400+04
.9000000+00	.5000000+01	.2000000+00	.4406999+04
.9000000+00	.8000000+01	.1250000+00	.2939261+04
.9000000+00	.1000000+02	.1000000+00	.2406464+04
.9250000+00	.0000000	.0000000	.4675378+05
.9250000+00	.1000000-01	.1000000+03	.4499817+05
.9250000+00	.2500000-01	.4000000+02	.4273646+05
.9250000+00	.5000000-01	.2000000+02	.3966906+05
.9250000+00	.8000000-01	.1250000+02	.3676101+05
.9250000+00	.1000000+00	.1000000+02	.3514482+05
.9250000+00	.2000000+00	.5000000+01	.2931413+05
.9250000+00	.4000000+00	.2500000+01	.2277190+05

TWO STAGES - STAGE 1 REUSABLE , STAGE 2 EXPENDABLE

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.9250000+00	.600000+00	.1666667+01	.1894192+05
.9250000+00	.800000+00	.1250000+01	.1633720+05
.9250000+00	.1000000+01	.1000000+01	.1441926+05
.9250000+00	.2000000+01	.5000000+00	.9243422+04
.9250000+00	.3000000+01	.3333333+00	.6859518+04
.9250000+00	.4000000+01	.2500000+00	.5466494+04
.9250000+00	.5000000+01	.2000000+00	.4548197+04
.9250000+00	.8000000+01	.1250000+00	.3029261+04
.9250000+00	.1000000+02	.1000000+00	.2478909+04
.9500000+00	.0000000	.0000000	.5329839+05
.9500000+00	.100000-01	.1000000+03	.5069083+05
.9500000+00	.250000-01	.4000000+02	.4752309+05
.9500000+00	.500000-01	.2000000+02	.4348640+05
.9500000+00	.800000-01	.1250000+02	.3986292+05
.9500000+00	.1000000+00	.1000000+02	.3791473+05
.9500000+00	.2000000+00	.5000000+01	.3116708+05
.9500000+00	.4000000+00	.2500000+01	.2394227+05
.9500000+00	.600000+00	.1666667+01	.1981722+05
.9500000+00	.800000+00	.1250000+01	.1704208+05
.9500000+00	.1000000+01	.1000000+01	.1501128+05
.9500000+00	.2000000+01	.5000000+00	.9574730+04
.9500000+00	.3000000+01	.3333333+00	.7089604+04
.9500000+00	.4000000+01	.2500000+00	.5642568+04
.9500000+00	.5000000+01	.2000000+00	.4690709+04
.9500000+00	.8000000+01	.1250000+00	.3119801+04
.9500000+00	.1000000+02	.1000000+00	.2551705+04

TWO STAGES — STAGE 1 EXPENDABLE , STAGE 2 REUSABLE***PAYLOAD DELIVERY

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8000000+00	.0000000	.0000000	.1569002+05
.8000000+00	.1000000-01	.1000000+03	.1561140+05
.8000000+00	.2500000-01	.4000000+02	.1549431+05
.8000000+00	.5000000-01	.2000000+02	.1530142+05
.8000000+00	.8000000-01	.1250000+02	.1507369+05
.8000000+00	.1000000+00	.1000000+02	.1492417+05
.8000000+00	.2000000+00	.5000000+01	.1420434+05
.8000000+00	.4000000+00	.2500000+01	.1290241+05
.8000000+00	.6000000+00	.1666667+01	.1177368+05
.8000000+00	.8000000+00	.1250000+01	.1079855+05
.8000000+00	.1000000+01	.1000000+01	.9955186+04
.8000000+00	.2000000+01	.5000000+00	.7088488+04
.8000000+00	.3000000+01	.3333333+00	.5474634+04
.8000000+00	.4000000+01	.2500000+00	.4452985+04
.8000000+00	.5000000+01	.2000000+00	.3750766+04
.8000000+00	.8000000+01	.1250000+00	.2544243+04
.8000000+00	.1000000+02	.1000000+00	.2094562+04
.8250000+00	.0000000	.0000000	.1683395+05
.8250000+00	.1000000-01	.1000000+03	.1674663+05
.8250000+00	.2500000-01	.4000000+02	.1661658+05
.8250000+00	.5000000-01	.2000000+02	.1640233+05
.8250000+00	.8000000-01	.1250000+02	.1614942+05
.8250000+00	.1000000+00	.1000000+02	.1598339+05
.8250000+00	.2000000+00	.5000000+01	.1518450+05
.8250000+00	.4000000+00	.2500000+01	.1374305+05
.8250000+00	.6000000+00	.1666667+01	.1249916+05
.8250000+00	.8000000+00	.1250000+01	.1143026+05
.8250000+00	.1000000+01	.1000000+01	.1051074+05
.8250000+00	.2000000+01	.5000000+00	.7422254+04
.8250000+00	.3000000+01	.3333333+00	.5708385+04
.8250000+00	.4000000+01	.2500000+00	.4631803+04

TWO STAGES - STAGE 1 EXPENDABLE , STAGE 2/ REUSABLE***PAYLOAD DELIVERY

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8250000+00	.5000000+01	.2000000+00	.3895251+04
.8250000+00	.8000000+01	.1250000+00	.2635632+04
.8250000+00	.1000000+02	.1000000+00	.2167906+04
.8500000+00	.0000000	.0000000	.1813381+05
.8500000+00	.1000000-01	.1000000+03	.1803586+05
.8500000+00	.2500000-01	.4000000+02	.1788996+05
.8500000+00	.5000000-01	.2000000+02	.1764962+05
.8500000+00	.8000000-01	.1250000+02	.1736593+05
.8500000+00	.1000000+00	.1000000+02	.1717972+05
.8500000+00	.2000000+00	.5000000+01	.1628441+05
.8500000+00	.4000000+00	.2500000+01	.1467406+05
.8500000+00	.6000000+00	.1666667+01	.1329273+05
.8500000+00	.8000000+00	.1250000+01	.1211376+05
.8500000+00	.1000000+01	.1000000+01	.1110622+05
.8500000+00	.2000000+01	.5000000+00	.7769887+04
.8500000+00	.3000000+01	.3333333+00	.5948688+04
.8500000+00	.4000000+01	.2500000+00	.4814352+04
.8500000+00	.5000000+01	.2000000+00	.4042123+04
.8500000+00	.8000000+01	.1250000+00	.2727941+04
.8500000+00	.1000000+02	.1000000+00	.2241834+04
.8750000+00	.0000000	.0000000	.1964564+05
.8750000+00	.1000000-01	.1000000+03	.1953420+05
.8750000+00	.2500000-01	.4000000+02	.1936821+05
.8750000+00	.5000000-01	.2000000+02	.1909477+05
.8750000+00	.8000000-01	.1250000+02	.1877207+05
.8750000+00	.1000000+00	.1000000+02	.1856031+05
.8750000+00	.2000000+00	.5000000+01	.1754315+05
.8750000+00	.4000000+00	.2500000+01	.1572155+05
.8750000+00	.6000000+00	.1666667+01	.1417161+05
.8750000+00	.8000000+00	.1250000+01	.1286044+05
.8750000+00	.1000000+01	.1000000+01	.1174934+05

TWO STAGES - STAGE 1 EXPENDABLE , STAGE 2 REUSABLE***PAYLOAD DELIVERY

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8750000+00	.2000000+01	.5000000+00	.8132919+04
.8750000+00	.3000000+01	.3333333+00	.6196031+04
.8750000+00	.4000000+01	.2500000+00	.5000836+04
.8750000+00	.5000000+01	.2000000+00	.4191483+04
.8750000+00	.8000000+01	.1250000+00	.2821195+04
.8750000+00	.1000000+02	.1000000+00	.2316358+04
.9000000+00	.0000000	.0000000	.2146321+05
.9000000+00	.1000000-01	.1000000+03	.2133375+05
.9000000+00	.2500000-01	.4000000+02	.2114093+05
.9000000+00	.5000000-01	.2000000+02	.2082329+05
.9000000+00	.8000000-01	.1250000+02	.2044853+05
.9000000+00	.1000000+00	.1000000+02	.2020268+05
.9000000+00	.2000000+00	.5000000+01	.1902364+05
.9000000+00	.4000000+00	.2500000+01	.1692558+05
.9000000+00	.6000000+00	.1666667+01	.1516094+05
.9000000+00	.8000000+00	.1250000+01	.1368626+05
.9000000+00	.1000000+01	.1000000+01	.1245046+05
.9000000+00	.2000000+01	.5000000+00	.8513172+04
.9000000+00	.3000000+01	.3333333+00	.6450957+04
.9000000+00	.4000000+01	.2500000+00	.5191478+04
.9000000+00	.5000000+01	.2000000+00	.4343444+04
.9000000+00	.8000000+01	.1250000+00	.2915417+04
.9000000+00	.1000000+02	.1000000+00	.2391490+04
.9250000+00	.0000000	.0000000	.2376219+05
.9250000+00	.1000000-01	.1000000+03	.2360668+05
.9250000+00	.2500000-01	.4000000+02	.2337504+05
.9250000+00	.5000000-01	.2000000+02	.2299351+05
.9250000+00	.8000000-01	.1250000+02	.2254356+05
.9250000+00	.1000000+00	.1000000+02	.2224858+05
.9250000+00	.2000000+00	.5000000+01	.2083757+05
.9250000+00	.4000000+00	.2500000+01	.1835266+05

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.9250000+00	.6000000+00	.1666667+01	.1629977+05
.9250000+00	.8000000+00	.1250000+01	.1461456+05
.9250000+00	.1000000+01	.1000000+01	.1322401+05
.9250000+00	.2000000+01	.5000000+00	.8912841+04
.9250000+00	.3000000+01	.3333333+00	.6714085+04
.9250000+00	.4000000+01	.2500000+00	.5386522+04
.9250000+00	.5000000+01	.2000000+00	.4498124+04
.9250000+00	.8000000+01	.1250000+00	.3010634+04
.9250000+00	.1000000+02	.1000000+00	.2467244+04
.9500000+00	.0000000	.0000000	.2693677+05
.9500000+00	.1000000-01	.1000000+03	.2673805+05
.9500000+00	.2500000-01	.4000000+02	.2644205+05
.9500000+00	.5000000-01	.2000000+02	.2595467+05
.9500000+00	.8000000-01	.1250000+02	.2538042+05
.9500000+00	.1000000+00	.1000000+02	.2500448+05
.9500000+00	.2000000+00	.5000000+01	.2321561+05
.9500000+00	.4000000+00	.2500000+01	.2012687+05
.9500000+00	.6000000+00	.1666667+01	.1765426+05
.9500000+00	.8000000+00	.1250000+01	.1568180+05
.9500000+00	.1000000+01	.1000000+01	.1409106+05
.9500000+00	.2000000+01	.5000000+00	.9334605+04
.9500000+00	.3000000+01	.3333333+00	.6986118+04
.9500000+00	.4000000+01	.2500000+00	.5586239+04
.9500000+00	.5000000+01	.2000000+00	.4655651+04
.9500000+00	.8000000+01	.1250000+00	.3106874+04
.9500000+00	.1000000+02	.1000000+00	.2543632+04

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8000000+00	.0000000	.0000000	.1569002+05
.8000000+00	.1000000-01	.1000000+03	.1545405+05
.8000000+00	.2500000-01	.4000000+02	.1512050+05
.8000000+00	.5000000-01	.2000000+02	.1461181+05
.8000000+00	.8000000-01	.1250000+02	.1406622+05
.8000000+00	.1000000+00	.1000000+02	.1373521+05
.8000000+00	.2000000+00	.5000000+01	.1236883+05
.8000000+00	.4000000+00	.2500000+01	.1050088+05
.8000000+00	.6000000+00	.1666667+01	.9234569+04
.8000000+00	.8000000+00	.1250000+01	.8295386+04
.8000000+00	.1000000+01	.1000000+01	.7560251+04
.8000000+00	.2000000+01	.5000000+00	.5360476+04
.8000000+00	.3000000+01	.3333333+00	.4212962+04
.8000000+00	.4000000+01	.2500000+00	.3489176+04
.8000000+00	.5000000+01	.2000000+00	.2985428+04
.8000000+00	.8000000+01	.1250000+00	.2094691+04
.8000000+00	.1000000+02	.1000000+00	.1750599+04
.8250000+00	.0000000	.0000000	.1683395+05
.8250000+00	.1000000-01	.1000000+03	.1655460+05
.8250000+00	.2500000-01	.4000000+02	.1616286+05
.8250000+00	.5000000-01	.2000000+02	.1557194+05
.8250000+00	.8000000-01	.1250000+02	.1494603+05
.8250000+00	.1000000+00	.1000000+02	.1456990+05
.8250000+00	.2000000+00	.5000000+01	.1304176+05
.8250000+00	.4000000+00	.2500000+01	.1100299+05
.8250000+00	.6000000+00	.1666667+01	.9645258+04
.8250000+00	.8000000+00	.1250000+01	.8647883+04
.8250000+00	.1000000+01	.1000000+01	.7871843+04
.8250000+00	.2000000+01	.5000000+00	.5567937+04
.8250000+00	.3000000+01	.3333333+00	.4373674+04
.8250000+00	.4000000+01	.2500000+00	.3622006+04

TWO STAGES - STAGE 1 EXPENDABLE , STAGE 2 REUSABLE***PAYLOAD RETRIEVAL

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8250000+00	.5000000+01	.2000000+00	.3099307+04
.8250000+00	.8000000+01	.1250000+00	.2175465+04
.8250000+00	.1000000+02	.1000000+00	.1818566+04
.8500000+00	.0000000	.0000000	.1813381+05
.8500000+00	.1000000-01	.1000000+03	.1779651+05
.8500000+00	.2500000-01	.4000000+02	.1732841+05
.8500000+00	.5000000-01	.2000000+02	.1663214+05
.8500000+00	.8000000-01	.1250000+02	.1590613+05
.8500000+00	.1000000+00	.1000000+02	.1547489+05
.8500000+00	.2000000+00	.5000000+01	.1375561+05
.8500000+00	.4000000+00	.2500000+01	.1152491+05
.8500000+00	.6000000+00	.1666667+01	.1006821+05
.8500000+00	.8000000+00	.1250000+01	.9009066+04
.8500000+00	.1000000+01	.1000000+01	.8190136+04
.8500000+00	.2000000+01	.5000000+00	.5778761+04
.8500000+00	.3000000+01	.3333333+00	.4536881+04
.8500000+00	.4000000+01	.2500000+00	.3756932+04
.8500000+00	.5000000+01	.2000000+00	.3215042+04
.8500000+00	.8000000+01	.1250000+00	.2257676+04
.8500000+00	.1000000+02	.1000000+00	.1887800+04
.8750000+00	.0000000	.0000000	.1964565+05
.8750000+00	.1000000-01	.1000000+03	.1922718+05
.8750000+00	.2500000-01	.4000000+02	.1865468+05
.8750000+00	.5000000-01	.2000000+02	.1781887+05
.8750000+00	.8000000-01	.1250000+02	.1696480+05
.8750000+00	.1000000+00	.1000000+02	.1646484+05
.8750000+00	.2000000+00	.5000000+01	.1451633+05
.8750000+00	.4000000+00	.2500000+01	.1206841+05
.8750000+00	.6000000+00	.1666667+01	.1050420+05
.8750000+00	.8000000+00	.1250000+01	.9379379+04
.8750000+00	.1000000+01	.1000000+01	.8515425+04

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8750000+00	.2000000+01	.5000000+00	.5993073+04
.8750000+00	.3000000+01	.3333333+00	.4702686+04
.8750000+00	.4000000+01	.2500000+00	.3894048+04
.8750000+00	.5000000+01	.2000000+00	.3332715+04
.8750000+00	.8000000+01	.1250000+00	.2341401+04
.8750000+00	.1000000+02	.1000000+00	.1958369+04
.9000000+00	.0000000	.0000000	.2146321+05
.9000000+00	.1000000-01	.1000000+03	.2092338+05
.9000000+00	.2500000-01	.4000000+02	.2019996+05
.9000000+00	.5000000-01	.2000000+02	.1917099+05
.9000000+00	.8000000-01	.1250000+02	.1814756+05
.9000000+00	.1000000+00	.1000000+02	.1755966+05
.9000000+00	.2000000+00	.5000000+01	.1533131+05
.9000000+00	.4000000+00	.2500000+01	.1263548+05
.9000000+00	.6000000+00	.1666667+01	.1095411+05
.9000000+00	.8000000+00	.1250000+01	.9759299+04
.9000000+00	.1000000+01	.1000000+01	.8848025+04
.9000000+00	.2000000+01	.5000000+00	.6211008+04
.9000000+00	.3000000+01	.3333333+00	.4871198+04
.9000000+00	.4000000+01	.2500000+00	.4033452+04
.9000000+00	.5000000+01	.2000000+00	.3452423+04
.9000000+00	.8000000+01	.1250000+00	.2426718+04
.9000000+00	.1000000+02	.1000000+00	.2030347+04
.9250000+00	.0000000	.0000000	.2376219+05
.9250000+00	.1000000-01	.1000000+03	.2302206+05
.9250000+00	.2500000-01	.4000000+02	.2206218+05
.9250000+00	.5000000-01	.2000000+02	.2074898+05
.9250000+00	.8000000-01	.1250000+02	.1949164+05
.9250000+00	.1000000+00	.1000000+02	.1878740+05
.9250000+00	.2000000+00	.5000000+01	.1620990+05
.9250000+00	.4000000+00	.2500000+01	.1322847+05

TWO STAGES — STAGE 1 EXPENDABLE , STAGE 2 REUSABLE***PAYLOAD RETRIEVAL

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.9250000+00	.6000000+00	.1666667+01	.1141887+05
.9250000+00	.8000000+00	.1250000+01	.1014934+05
.9250000+00	.1000000+01	.1000000+01	.9188271+04
.9250000+00	.2000000+01	.5000000+00	.6432707+04
.9250000+00	.3000000+01	.3333333+00	.5042534+04
.9250000+00	.4000000+01	.2500000+00	.4175252+04
.9250000+00	.5000000+01	.2000000+00	.3574264+04
.9250000+00	.8000000+01	.1250000+00	.2513716+04
.9250000+00	.1000000+02	.1000000+00	.2103813+04
.9500000+00	.0000000	.0000000	.2693677+05
.9500000+00	.1000000-01	.1000000+03	.2580648+05
.9500000+00	.2500000-01	.4000000+02	.2442570+05
.9500000+00	.5000000-01	.2000000+02	.2265478+05
.9500000+00	.8000000-01	.1250000+02	.2105437+05
.9500000+00	.1000000+00	.1000000+02	.2018942+05
.9500000+00	.2000000+00	.5000000+01	.1716418+05
.9500000+00	.4000000+00	.2500000+01	.1385006+05
.9500000+00	.6000000+00	.1666667+01	.1189956+05
.9500000+00	.8000000+00	.1250000+01	.1055007+05
.9500000+00	.1000000+01	.1000000+01	.9536524+04
.9500000+00	.2000000+01	.5000000+00	.6658323+04
.9500000+00	.3000000+01	.3333333+00	.5216818+04
.9500000+00	.4000000+01	.2500000+00	.4319562+04
.9500000+00	.5000000+01	.2000000+00	.3698347+04
.9500000+00	.8000000+01	.1250000+00	.2602486+04
.9500000+00	.1000000+02	.1000000+00	.2178852+04

TWO STAGES - STAGE 1 EXPENDABLE , STAGE 2 REUSABLE***ROUNDTRIP

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8000000+00	.0000000	.0000000	.1569002+05
.8000000+00	.1000000-01	.1000000+03	.1537810+05
.8000000+00	.250000C-01	.4000000+02	.1494049+05
.8000000+00	.5000000-01	.2000000+02	.1428044+05
.8000000+00	.8000000-01	.1250000+02	.1358227+05
.8000000+00	.1000000+00	.1000000+02	.1316359+05
.8000000+00	.2000000+00	.5000000+01	.1147447+05
.8000000+00	.4000000+00	.2500000+01	.9270485+04
.8000000+00	.6000000+00	.1666667+01	.7850485+04
.8000000+00	.8000000+00	.1250000+01	.6839545+04
.8000000+00	.1000000+01	.1000000+01	.6075281+04
.8000000+00	.2000000+01	.5000000+00	.3946425+04
.8000000+00	.3000000+01	.3333333+00	.2941489+04
.8000000+00	.4000000+01	.2500000+00	.2349171+04
.8000000+00	.5000000+01	.2000000+00	.1957025+04
.8000000+00	.8000000+01	.1250000+00	.1305858+04
.8000000+00	.1000000+02	.1000000+00	.1069307+04
.8250000+00	.0000000	.0000000	.1683395+05
.8250000+00	.1000000-01	.1000000+03	.1647056+05
.8250000+00	.2500000-01	.4000000+02	.1596467+05
.8250000+00	.5000000-01	.2000000+02	.1520961+05
.8250000+00	.8000000-01	.1250000+02	.1442023+05
.8250000+00	.1000000+00	.1000000+02	.1395117+05
.8250000+00	.2000000+00	.5000000+01	.1208539+05
.8250000+00	.4000000+00	.2500000+01	.9701966+04
.8250000+00	.6000000+00	.1666667+01	.8188925+04
.8250000+00	.8000000+00	.1250000+01	.7119980+04
.8250000+00	.1000000+01	.1000000+01	.6315650+04
.8250000+00	.2000000+01	.5000000+00	.4089038+04
.8250000+00	.3000000+01	.3333333+00	.3043709+04
.8250000+00	.4000000+01	.2500000+00	.2429013+04

TWO STAGES — STAGE 1 EXPENDABLE , STAGE 2 REUSABLE***ROUNDTRIP

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8250000+00	.5000000+01	.2000000+00	.2022587+04
.8250000+00	.8000000+01	.1250000+00	.1348630+04
.8250000+00	.1000000+02	.1000000+00	.1104003+04
.8500000+00	.0000000	.0000000	.1813381+05
.8500000+00	.1000000-01	.1000000+03	.1770270+05
.8500000+00	.2500000-01	.4000000+02	.1710860+05
.8500000+00	.5000000-01	.2000000+02	.1623379+05
.8500000+00	.8000000-01	.1250000+02	.1533280+05
.8500000+00	.1000000+00	.1000000+02	.1480301+05
.8500000+00	.2000000+00	.5000000+01	.1273173+05
.8500000+00	.4000000+00	.2500000+01	.1014931+05
.8500000+00	.6000000+00	.1666667+01	.8536538+04
.8500000+00	.8000000+00	.1250000+01	.7406469+04
.8500000+00	.1000000+01	.1000000+01	.6560347+04
.8500000+00	.2000000+01	.5000000+00	.4233087+04
.8500000+00	.3000000+01	.3333333+00	.3146652+04
.8500000+00	.4000000+01	.2500000+00	.2509294+04
.8500000+00	.5000000+01	.2000000+00	.2088443+04
.8500000+00	.8000000+01	.1250000+00	.1391486+04
.8500000+00	.1000000+02	.1000000+00	.1138781+04
.8750000+00	.0000000	.0000000	.1964564+05
.8750000+00	.1000000-01	.1000000+03	.1912118+05
.8750000+00	.2500000-01	.4000000+02	.1840847+05
.8750000+00	.5000000-01	.2000000+02	.1737772+05
.8750000+00	.8000000-01	.1250000+02	.1633627+05
.8750000+00	.1000000+00	.1000000+02	.1573218+05
.8750000+00	.2000000+00	.5000000+01	.1341845+05
.8750000+00	.4000000+00	.2500000+01	.1061389+05
.8750000+00	.6000000+00	.1666667+01	.8893887+04
.8750000+00	.8000000+00	.1250000+01	.7699300+04
.8750000+00	.1000000+01	.1000000+01	.6809543+04

TWO STAGES - STAGE 1 EXPENDABLE , STAGE 2 REUSABLE***ROUNDTRIP

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8750000+00	.2000000+01	.5000000+00	.4378603+04
.8750000+00	.3000000+01	.3333333+00	.3250330+04
.8750000+00	.4000000+01	.2500000+00	.2590017+04
.8750000+00	.5000000+01	.2000000+00	.2154595+04
.8750000+00	.8000000+01	.1250000+00	.1434466+04
.8750000+00	.1000000+02	.1000000+00	.1173641+04
.9000000+00	.0000000	.0000000	.2146321+05
.9000000+00	.1000000-01	.1000000+03	.2080149+05
.9000000+00	.2500000-01	.4000000+02	.1992030+05
.9000000+00	.5000000-01	.2000000+02	.1867759+05
.9000000+00	.8000000-01	.1250000+02	.1745381+05
.9000000+00	.1000000+00	.1000000+02	.1675636+05
.9000000+00	.2000000+00	.5000000+01	.1415173+05
.9000000+00	.4000000+00	.2500000+01	.1109726+05
.9000000+00	.6000000+00	.1666667+01	.9261596+04
.9000000+00	.8000000+00	.1250000+01	.7998788+04
.9000000+00	.1000000+01	.1000000+01	.7063418+04
.9000000+00	.2000000+01	.5000000+00	.4525616+04
.9000000+00	.3000000+01	.3333333+00	.3354754+04
.9000000+00	.4000000+01	.2500000+00	.2671188+04
.9000000+00	.5000000+01	.2000000+00	.2221048+04
.9000000+00	.8000000+01	.1250000+00	.1477573+04
.9000000+00	.1000000+02	.1000000+00	.1208583+04
.9250000+00	.0000000	.0000000	.2376219+05
.9250000+00	.1000000-01	.1000000+03	.2287800+05
.9250000+00	.2500000-01	.4000000+02	.2173787+05
.9250000+00	.5000000-01	.2000000+02	.2018942+05
.9250000+00	.8000000-01	.1250000+02	.1871881+05
.9250000+00	.1000000+00	.1000000+02	.1790030+05
.9250000+00	.2000000+00	.5000000+01	.1493921+05
.9250000+00	.4000000+00	.2500000+01	.1160120+05

TWO STAGES - STAGE 1 EXPENDABLE , STAGE 2 REUSABLE***ROUNDTRIP

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.9250000+00	.6000000+00	.1666667+01	.9640349+04
.9250000+00	.8000000+00	.1250000+01	.8305268+04
.9250000+00	.1000000+01	.1000000+01	.7322165+04
.9250000+00	.2000000+01	.5000000+00	.4674163+04
.9250000+00	.3000000+01	.3333333+00	.3459933+04
.9250000+00	.4000000+01	.2500000+00	.2752812+04
.9250000+00	.5000000+01	.2000000+00	.2287802+04
.9250000+00	.8000000+01	.1250000+00	.1520806+04
.9250000+00	.1000000+02	.1000000+00	.1243608+04
.9500000+00	.0000000	.0000000	.2693677+05
.9500000+00	.1000000-01	.1000000+03	.2562799+05
.9500000+00	.2500000-01	.4000000+02	.2403685+05
.9500000+00	.5000000-01	.2000000+02	.2200699+05
.9500000+00	.8000000-01	.1250000+02	.2018234+05
.9500000+00	.1000000+00	.1000000+02	.1920016+05
.9500000+00	.2000000+00	.5000000+01	.1579115+05
.9500000+00	.4000000+00	.2500000+01	.1212780+05
.9500000+00	.6000000+00	.1666667+01	.1003091+05
.9500000+00	.8000000+00	.1250000+01	.8619107+04
.9500000+00	.1000000+01	.1000000+01	.7585990+04
.9500000+00	.2000000+01	.5000000+00	.4824267+04
.9500000+00	.3000000+01	.3333333+00	.3565881+04
.9500000+00	.4000000+01	.2500000+00	.2834894+04
.9500000+00	.5000000+01	.2000000+00	.2354861+04
.9500000+00	.8000000+01	.1250000+00	.1564165+04
.9500000+00	.1000000+02	.1000000+00	.1278717+04

TWO STAGES - BOTH EXPENDABLE

ISP = 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8000000+00	.0000000	.0000000	.3138003+05
.8000000+00	.100000-01	.1000000+03	.3075619+05
.8000000+00	.250000-01	.4000000+02	.2988098+05
.8000000+00	.500000-01	.2000000+02	.2856088+05
.8000000+00	.8000000-01	.1250000+02	.2716454+05
.8000000+00	.1000000+00	.1000000+02	.2632718+05
.8000000+00	.2000000+00	.5000000+01	.2294894+05
.8000000+00	.4000000+00	.2500000+01	.1854097+05
.8000000+00	.6000000+00	.1666667+01	.1570097+05
.8000000+00	.8000000+00	.1250000+01	.1367909+05
.8000000+00	.1000000+01	.1000000+01	.1215056+05
.8000000+00	.2000000+01	.5000000+00	.7892850+04
.8000000+00	.3000000+01	.3333333+00	.5882979+04
.8000000+00	.4000000+01	.2500000+00	.4698342+04
.8000000+00	.5000000+01	.2000000+00	.3914049+04
.8000000+00	.8000000+01	.1250000+00	.2611797+04
.8000000+00	.1000000+02	.1000000+00	.2138615+04
.8250000+00	.0000000	.0000000	.3366790+05
.8250000+00	.1000000-01	.1000000+03	.3294112+05
.8250000+00	.250000-01	.4000000+02	.3192934+05
.8250000+00	.500000-01	.2000000+02	.3041922+05
.8250000+00	.8000000-01	.1250000+02	.2884966+05
.8250000+00	.1000000+00	.1000000+02	.2790234+05
.8250000+00	.2000000+00	.5000000+01	.2417079+05
.8250000+00	.4000000+00	.2500000+01	.1940393+05
.8250000+00	.6000000+00	.1666667+01	.1637785+05
.8250000+00	.8000000+00	.1250000+01	.1423996+05
.8250000+00	.1000000+01	.1000000+01	.1263130+05
.8250000+00	.2000000+01	.5000000+00	.8178075+04
.8250000+00	.3000000+01	.3333333+00	.6087417+04
.8250000+00	.4000000+01	.2500000+00	.4858027+04

TWO STAGES - BOTH EXPENDABLE

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8250000+00	.5000000+01	.2000000+00	.4045173+04
.8250000+00	.8000000+01	.1250000+00	.2657260+04
.8250000+00	.1000000+02	.1000000+00	.2208007+04
.8500000+00	.0000000	.0000000	.3626763+05
.8500000+00	.1000000-01	.1000000+03	.3540540+05
.8500000+00	.2500000-01	.4000000+02	.3421720+05
.8500000+00	.5000000-01	.2000000+02	.3246758+05
.8500000+00	.8000000-01	.1250000+02	.3066559+05
.8500000+00	.1000000+00	.1000000+02	.2960602+05
.8500000+00	.2000000+00	.5000000+01	.2546345+05
.8500000+00	.4000000+00	.2500000+01	.2029863+05
.8500000+00	.6000000+00	.1666667+01	.1707308+05
.8500000+00	.8000000+00	.1250000+01	.1481294+05
.8500000+00	.1000000+01	.1000000+01	.1312069+05
.8500000+00	.2000000+01	.5000000+00	.8466173+04
.8500000+00	.3000000+01	.3333333+00	.6293304+04
.8500000+00	.4000000+01	.2500000+00	.5018587+04
.8500000+00	.5000000+01	.2000000+00	.4176885+04
.8500000+00	.8000000+01	.1250000+00	.2782972+04
.8500000+00	.1000000+02	.1000000+00	.2277562+04
.8750000+00	.0000000	.0000000	.3929129+05
.8750000+00	.1000000-01	.1000000+03	.3824237+05
.8750000+00	.2500000-01	.4000000+02	.3681694+05
.8750000+00	.5000000-01	.2000000+02	.3475545+05
.8750000+00	.8000000-01	.1250000+02	.3267254+05
.8750000+00	.1000000+00	.1000000+02	.3146436+05
.8750000+00	.2000000+00	.5000000+01	.2683690+05
.8750000+00	.4000000+00	.2500000+01	.2122778+05
.8750000+00	.6000000+00	.1666667+01	.1778777+05
.8750000+00	.8000000+00	.1250000+01	.1539860+05
.8750000+00	.1000000+01	.1000000+01	.1361909+05

TWO STAGES - BOTH EXPENDABLE

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8750000+00	.2000000+01	.5000000+00	.8757205+04
.8750000+00	.3000000+01	.3333333+00	.6500660+04
.8750000+00	.4000000+01	.2500000+00	.5180034+04
.8750000+00	.5000000+01	.2000000+00	.4309191+04
.8750000+00	.8000000+01	.1250000+00	.2868933+04
.8750000+00	.1000000+02	.1000000+00	.2347282+04
.9000000+00	.0000000	.0000000	.4292643+05
.9000000+00	.1000000-01	.1000000+03	.4160298+05
.9000000+00	.2500000-01	.4000000+02	.3984060+05
.9000000+00	.5000000-01	.2000000+02	.3735518+05
.9000000+00	.8000000-01	.1250000+02	.3490762+05
.9000000+00	.1000000+00	.1000000+02	.3351273+05
.9000000+00	.2000000+00	.5000000+01	.2830345+05
.9000000+00	.4000000+00	.2500000+01	.2219451+05
.9000000+00	.6000000+00	.1666667+01	.1852319+05
.9000000+00	.8000000+00	.1250000+01	.1599758+05
.9000000+00	.1000000+01	.1000000+01	.1412684+05
.9000000+00	.2000000+01	.5000000+00	.9051232+04
.9000000+00	.3000000+01	.3333333+00	.6709507+04
.9000000+00	.4000000+01	.2500000+00	.5342376+04
.9000000+00	.5000000+01	.2000000+00	.4442095+04
.9000000+00	.8000000+01	.1250000+00	.2955146+04
.9000000+00	.1000000+02	.1000000+00	.2417166+04
.9250000+00	.0000000	.0000000	.4752439+05
.9250000+00	.1000000-01	.1000000+03	.4575601+05
.9250000+00	.2500000-01	.4000000+02	.4347573+05
.9250000+00	.5000000-01	.2000000+02	.4037884+05
.9250000+00	.8000000-01	.1250000+02	.3743763+05
.9250000+00	.1000000+00	.1000000+02	.3580059+05
.9250000+00	.2000000+00	.5000000+01	.2987862+05
.9250000+00	.4000000+00	.2500000+01	.2320240+05

TWO STAGES - BOTH EXPENDABLE

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.9250000+00	.6000000+00	.1666667+01	.1928070+05
.9250000+00	.8000000+00	.1250000+01	.1661054+05
.9250000+00	.1000000+01	.1000000+01	.1464433+05
.9250000+00	.2000000+01	.5000000+00	.9348319+04
.9250000+00	.3000000+01	.3333333+00	.6919866+04
.9250000+00	.4000000+01	.2500000+00	.5505624+04
.9250000+00	.5000000+01	.2000000+00	.4575603+04
.9250000+00	.8000000+01	.1250000+00	.3041611+04
.9250000+00	.1000000+02	.1000000+00	.2487216+04
.9500000+00	.0000000	.0000000	.5387355+05
.9500000+00	.1000000-01	.1000000+03	.5125558+05
.9500000+00	.2500000-01	.4000000+02	.4807369+05
.9500000+00	.5000000-01	.2000000+02	.4401398+05
.9500000+00	.8000000-01	.1250000+02	.4036469+05
.9500000+00	.1000000+00	.1000000+02	.3840032+05
.9500000+00	.2000000+00	.5000000+01	.3158229+05
.9500000+00	.4000000+00	.2500000+01	.2425560+05
.9500000+00	.6000000+00	.1666667+01	.2006182+05
.9500000+00	.8000000+00	.1250000+01	.1723821+05
.9500000+00	.1000000+01	.1000000+01	.1517158+05
.9500000+00	.2000000+01	.5000000+00	.9648534+04
.9500000+00	.3000000+01	.3333333+00	.7131762+04
.9500000+00	.4000000+01	.2500000+00	.5669789+04
.9500000+00	.5000000+01	.2000000+00	.4709721+04
.9500000+00	.8000000+01	.1250000+00	.3128330+04
.9500000+00	.1000000+02	.1000000+00	.2557433+04

TWO STAGES - BOTH REUSABLE---SLINGSHOT※♯♯PAYLOAD DELIVERY

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.800000+00	.0000000	.0000000	.1506234+05
.800000+00	.1000000-01	.1000000+03	.1498693+05
.800000+00	.2500000-01	.4000000+02	.1487467+05
.800000+00	.5000000-01	.2000000+02	.1468950+05
.8000000+00	.8000000-01	.1250000+02	.1447201+05
.8000000+00	.1000000+00	.1000000+02	.1432908+05
.800000+00	.2000000+00	.5000000+01	.1364246+05
.8000000+00	.4000000+00	.2500000+01	.1240573+05
.8000000+00	.6000000+00	.1666667+01	.1133728+05
.800000+00	.8000000+00	.1250000+01	.1041568+05
.8000000+00	.1000000+01	.1000000+01	.9618774+04
.8000000+00	.2000000+01	.5000000+00	.6901206+04
.8000000+00	.3000000+01	.3333333+00	.5358283+04
.8000000+00	.4000000+01	.2500000+00	.4374315+04
.8000000+00	.5000000+01	.2000000+00	.3694206+04
.8000000+00	.8000000+01	.1250000+00	.2517700+04
.8000000+00	.1000000+02	.1000000+00	.2076458+04
.8250000+00	.0000000	.0000000	.1623187+05
.8250000+00	.1000000-01	.1000000+03	.1614758+05
.8250000+00	.2500000-01	.4000000+02	.1602212+05
.8250000+00	.5000000-01	.2000000+02	.1581555+05
.8250000+00	.8000000-01	.1250000+02	.1557207+05
.8250000+00	.1000000+00	.1000000+02	.1541235+05
.8250000+00	.2000000+00	.5000000+01	.1464541+05
.8250000+00	.4000000+00	.2500000+01	.1326733+05
.8250000+00	.6000000+00	.1666667+01	.1208239+05
.8250000+00	.8000000+00	.1250000+01	.1106587+05
.8250000+00	.1000000+01	.1000000+01	.1019169+05
.8250000+00	.2000000+01	.5000000+00	.7247185+04
.8250000+00	.3000000+01	.3333333+00	.5600563+04
.8250000+00	.4000000+01	.2500000+00	.4559294+04

ThO STAGES - BCTH REUSABLE---SLINGSHOT***PAYLOAD DELIVERY

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8250000+00	.5000000+01	.2000000+00	.3843309+04
.8250000+00	.8000000+01	.1250000+00	.2611403+04
.8250000+00	.1000000+02	.1000000+00	.2151415+04
.8500000+00	.0000000	.0000000	.1756657+05
.8500000+00	.1000000-01	.1000000+03	.1747139+05
.8500000+00	.2500000-01	.4000000+02	.1732971+05
.8500000+00	.5000000-01	.2000000+02	.1709649+05
.8500000+00	.8000000-01	.1250000+02	.1682150+05
.8500000+00	.1000000+00	.1000000+02	.1664117+05
.8500000+00	.2000000+00	.5000000+01	.1577588+05
.8500000+00	.4000000+00	.2500000+01	.1422601+05
.8500000+00	.6000000+00	.1666667+01	.1290148+05
.8500000+00	.8000000+00	.1250000+01	.1177302+05
.8500000+00	.1000000+01	.1000000+01	.1080911+05
.8500000+00	.2000000+01	.5000000+00	.7609476+04
.8500000+00	.3000000+01	.3333333+00	.5850819+04
.8500000+00	.4000000+01	.2500000+00	.4748912+04
.8500000+00	.5000000+01	.2000000+00	.3995423+04
.8500000+00	.8000000+01	.1250000+00	.2706293+04
.8500000+00	.1000000+02	.1000000+00	.2227132+04
.8750000+00	.0000000	.0000000	.1912436+05
.8750000+00	.1000000-01	.1000000+03	.1901534+05
.8750000+00	.2500000-01	.4000000+02	.1885303+05
.8750000+00	.5000000-01	.2000000+02	.1858587+05
.8750000+00	.8000000-01	.1250000+02	.1827090+05
.8750000+00	.1000000+00	.1000000+02	.1806439+05
.8750000+00	.2000000+00	.5000000+01	.1707449+05
.8750000+00	.4000000+00	.2500000+01	.1530917+05
.8750000+00	.6000000+00	.1666667+01	.1381284+05
.8750000+00	.8000000+00	.1250000+01	.1254947+05
.8750000+00	.1000000+01	.1000000+01	.1147949+05

TWO STAGES - BOTH REUSABLE---SLINGSHOT***PAYLOAD DELIVERY

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8750000+00	.2000000+01	.5000000+00	.7989899+04
.8750000+00	.3000000+01	.3333333+00	.6109661+04
.8750000+00	.4000000+01	.2500000+00	.4943436+04
.8750000+00	.5000000+01	.2000000+00	.4150684+04
.8750000+00	.8000000+01	.1250000+00	.2802402+04
.8750000+00	.1000000+02	.1000000+00	.2303624+04
.9000000+00	.0000000	.0000000	.2100149+05
.9000000+00	.1000000-01	.1000000+03	.2087396+05
.9000000+00	.2500000-01	.4000000+02	.2068409+05
.9000000+00	.5000000-01	.2000000+02	.2037155+05
.9000000+00	.8000000-01	.1250000+02	.2000317+05
.9000000+00	.1000000+00	.1000000+02	.1976173+05
.9000000+00	.2000000+00	.5000000+01	.1860615+05
.9000000+00	.4000000+00	.2500000+01	.1655856+05
.9000000+00	.6000000+00	.1666667+01	.1484309+05
.9000000+00	.8000000+00	.1250000+01	.1341236+05
.9000000+00	.1000000+01	.1000000+01	.1221419+05
.9000000+00	.2000000+01	.5000000+00	.8390618+04
.9000000+00	.3000000+01	.3333333+00	.6377774+04
.9000000+00	.4000000+01	.2500000+00	.5143156+04
.9000000+00	.5000000+01	.2000000+00	.4309240+04
.9000000+00	.8000000+01	.1250000+00	.2899767+04
.9000000+00	.1000000+02	.1000000+00	.2380910+04
.9250000+00	.0000000	.0000000	.2337689+05
.9250000+00	.1000000-01	.1000000+03	.2322264+05
.9250000+00	.2500000-01	.4000000+02	.2299298+05
.9250000+00	.5000000-01	.2000000+02	.2261498+05
.9250000+00	.8000000-01	.1250000+02	.2216961+05
.9250000+00	.1000000+00	.1000000+02	.2187790+05
.9250000+00	.2000000+00	.5000000+01	.2048528+05
.9250000+00	.4000000+00	.2500000+01	.1804310+05

TWO STAGES – BOTH REUSABLE----SLINGSHOT***PAYLOAD DELIVERY

ISP= 460.0

-LAMBDA	WPL/WS	WS/WPL	DELTAV
.9250000+00	.6000000+00	.1666667+01	.1603333+05
.9250000+00	.8000000+00	.1250000+01	.1438675+05
.9250000+00	.1000000+01	.1000000+01	.1302898+05
.9250000+00	.2000000+01	.5000000+00	.8814243+04
.9250000+00	.3000000+01	.3333333+00	.6655934+04
.9250000+00	.4000000+01	.2500000+00	.5348393+04
.9250000+00	.5000000+01	.2000000+00	.4471253+04
.9250000+00	.8000000+01	.1250000+00	.2998423+04
.9250000+00	.1000000+02	.1000000+00	.2459009+04
.9500000+00	.0000000	.0000000	.2664920+05
.9500000+00	.1000000-01	.1000000+03	.2645087+05
.9500000+00	.2500000-01	.4000000+02	.2615558+05
.9500000+00	.5000000-01	.2000000+02	.2566968+05
.9500000+00	.8000000-01	.1250000+02	.2505770+05
.9500000+00	.1000000+00	.1000000+02	.2472355+05
.9500000+00	.2000000+00	.5000000+01	.2294655+05
.9500000+00	.4000000+00	.2500000+01	.1989053+05
.9500000+00	.6000000+00	.1666667+01	.1745283+05
.9500000+00	.8000000+00	.1250000+01	.1551156+05
.9500000+00	.1000000+01	.1000000+01	.1394683+05
.9500000+00	.2000000+01	.5000000+00	.9263964+04
.9500000+00	.3000000+01	.3333333+00	.6945028+04
.9500000+00	.4000000+01	.2500000+00	.5559497+04
.9500000+00	.5000000+01	.2000000+00	.4636892+04
.9500000+00	.8000000+01	.1250000+00	.3098410+04
.9500000+00	.1000000+02	.1000000+00	.2537938+04

TWO STAGES - BOTH REUSABLE----SLINGSHOT***PAYLOAD RETRIEVAL

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8000000+00	.0000000	.0000000	.1506234+05
.8000000+00	.1000000-01	.1000000+03	.1483179+05
.8000000+00	.2500000-01	.4000000+02	.1450591+05
.8000000+00	.5000000-01	.2000000+02	.1400895+05
.8000000+00	.8000000-01	.1250900+02	.1347602+05
.8000000+00	.1000000+00	.1000000+02	.1315276+05
.8000000+00	.2000000+00	.5000000+01	.1181908+05
.8000000+00	.4000000+00	.2500000+01	.9998842+04
.8000000+00	.6000000+00	.1666667+01	.8767901+04
.8000000+00	.8000000+00	.1250000+01	.7857110+04
.8000000+00	.1000000+01	.1000000+01	.7145783+04
.8000000+00	.2000000+01	.5000000+00	.5028224+04
.8000000+00	.3000000+01	.3333333+00	.3932292+04
.8000000+00	.4000000+01	.2500000+00	.3245104+04
.8000000+00	.5000000+01	.2000000+00	.2769032+04
.8000000+00	.8000000+01	.1250000+00	.1932436+04
.8000000+00	.1000000+02	.1000000+00	.1611296+04
.8250000+00	.0000000	.0000000	.1623187+05
.8250000+00	.1000000-01	.1000000+03	.1595800+05
.8250000+00	.2500000-01	.4000000+02	.1557395+05
.8250000+00	.5000000-01	.2000000+02	.1499466+05
.8250000+00	.8000000-01	.1250000+02	.1438119+05
.8250000+00	.1000000+00	.1000000+02	.1401260+05
.8250000+00	.2000000+00	.5000000+01	.1251597+05
.8250000+00	.4000000+00	.2500000+01	.1052257+05
.8250000+00	.6000000+00	.1666667+01	.9198267+04
.8250000+00	.8000000+00	.1250000+01	.8227687+04
.8250000+00	.1000000+01	.1000000+01	.7474118+04
.8250000+00	.2000000+01	.5000000+00	.5247982+04
.8250000+00	.3000000+01	.3333333+00	.4102722+04
.8250000+00	.4000000+01	.2500000+00	.3385947+04

TWO STAGES - BOTH REUSABLE----SLINGSHOT***PAYLOAD RETRIEVAL

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8250000+00	.5000000+01	.2000000+00	.2889712+04
.8250000+00	.8000000+01	.1250000+00	.2017838+04
.8250000+00	.1000000+02	.1000000+00	.1683057+04
.8500000+00	.0000000	.0000000	.1756657+05
.8500000+00	.1000000-01	.1000000+03	.1723474+05
.8500000+00	.2500000-01	.4000000+02	.1677426+05
.8500000+00	.5000000-01	.2000000+02	.1608938+05
.8500000+00	.8000000-01	.1250000+02	.1537538+05
.8500000+00	.1000000+00	.1000000+02	.1495136+05
.8500000+00	.2000000+00	.5000000+01	.1326186+05
.8500000+00	.4000000+00	.2500000+01	.1107342+05
.8500000+00	.6000000+00	.1666667+01	.9647684+04
.8500000+00	.8000000+00	.1250000+01	.8613342+04
.8500000+00	.1000000+01	.1000000+01	.7815218+04
.8500000+00	.2000000+01	.5000000+00	.5476040+04
.8500000+00	.3000000+01	.3333333+00	.4279868+04
.8500000+00	.4000000+01	.2500000+00	.3532588+04
.8500000+00	.5000000+01	.2000000+00	.3015547+04
.8500000+00	.8000000+01	.1250000+00	.2107182+04
.8500000+00	.1000000+02	.1000000+00	.1758245+04
.8750000+00	.0000000	.0000000	.1912436+05
.8750000+00	.1000000-01	.1000000+03	.1871131+05
.8750000+00	.2500000-01	.4000000+02	.1814623+05
.8750000+00	.5000000-01	.2000000+02	.1732135+05
.8750000+00	.8000000-01	.1250000+02	.1647859+05
.8750000+00	.1000000+00	.1000000+02	.1598536+05
.8750000+00	.2000000+00	.5000000+01	.1406423+05
.8750000+00	.4000000+00	.2500000+01	.1165460+05
.8750000+00	.6000000+00	.1666667+01	.1011831+05
.8750000+00	.8000000+00	.1250000+01	.9015834+04
.8750000+00	.1000000+01	.1000000+01	.8170644+04

TWO STAGES - BOTH REUSABLE----SLINGSHOT***PAYLOAD RETRIEVAL

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8750000+00	.2000000+01	.5000000+00	.5713610+04
.8750000+00	.3000000+01	.3333333+00	.4464791+04
.8750000+00	.4000000+01	.2500000+00	.3685979+04
.8750000+00	.5000000+01	.2000000+00	.3147404+04
.8750000+00	.8000000+01	.1250000+00	.2201156+04
.8750000+00	.1000000+02	.1000000+00	.1837465+04
.9000000+00	.0000000	.0000000	.2100149+05
.9000000+00	.1000000-01	.1000000+03	.2046690+05
.9000000+00	.2500000-01	.4000000+02	.1975053+05
.9000000+00	.5000000-01	.2000000+02	.1873169+05
.9000000+00	.8000000-01	.1250000+02	.1771855+05
.9000000+00	.1000000+00	.1000000+02	.1713669+05
.9000000+00	.2000000+00	.5000000+01	.1493250+05
.9000000+00	.4000000+00	.2500000+01	.1226958+05
.9000000+00	.6000000+00	.1666667+01	.1061279+05
.9000000+00	.8000000+00	.1250000+01	.9437349+04
.9000000+00	.1000000+01	.1000000+01	.8542359+04
.9000000+00	.2000000+01	.5000000+00	.5962245+04
.9000000+00	.3000000+01	.3333333+00	.4658853+04
.9000000+00	.4000000+01	.2500000+00	.3847347+04
.9000000+00	.5000000+01	.2000000+00	.3286404+04
.9000000+00	.8000000+01	.1250000+00	.2300653+04
.9000000+00	.1000000+02	.1000000+00	.1921504+04
.9250000+00	.0000000	.0000000	.2337689+05
.9250000+00	.1000000-01	.1000000+03	.2264167+05
.9250000+00	.2500000-01	.4000000+02	.2168819+05
.9250000+00	.5000000-01	.2000000+02	.2038388+05
.9250000+00	.8000000-01	.1250000+02	.1913533+05
.9250000+00	.1000000+00	.1000000+02	.1843617+05
.9250000+00	.2000000+00	.5000000+01	.1587863+05
.9250000+00	.4000000+00	.2500000+01	.1292435+05

TWO STAGES - BOTH REUSABLE----SLINGSHOT***PAYLOAD RETRIEVAL

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.9250000+0C	.6C00000+00	.1666667+01	.1113443+05
.9250000+0C	.8C00000+00	.1250000+01	.988C680+04
.9250C0C+00	.1C00000+01	.1000000+01	.8932897+04
.9250000+0C	.2C00000+01	.5000000+00	.6223986+04
.9250000+0C	.3C00000+01	.3333333+00	.4863856+04
.9250000+0C	.4000000+01	.2500000+00	.4018318+04
.9250C0C+0C	.5C00000+01	.2000000+00	.3434029+04
.9250000+0C	.8C00000+01	.1250000+00	.2406854+C4
.9250000+00	.1C000C0+02	.1000000+00	.2011406+C4
.9500000+0C	.0C00000	.0000000	.2664920+05
.9500000+00	.1C00000-01	.1000000+03	.2552320+05
.9500000+00	.25000C0-01	.4000000+02	.2414772+05
.9500C0C+0C	.5000CC0-01	.2000000+02	.2238381+05
.9500000+0C	.8C00000-01	.1250000+02	.2079005+05
.9500000+0C	.1C00000+00	.1000000+02	.1992888+05
.9500000+00	.2C00000+00	.5000000+01	.1691824+05
.9500000+0C	.4C00000+00	.2500000+01	.1362378+05
.9500C0C+0C	.6C00000+00	.1666667+01	.1168753+05
.9500000+0C	.8C00000+00	.1250000+01	.1034951+05
.9500000+00	.1C00000+01	.1000000+01	.9345637+04
.9500000+00	.2C00000+01	.5000000+00	.6501604+04
.9500000+00	.3C00000+01	.3333333+00	.5082252+04
.9500C0C+0C	.4C00000+01	.2500000+00	.4201105+04
.9500000+0C	.5C00000+01	.2000000+00	.3592307+04
.9500000+0C	.8C00000+01	.1250000+00	.2521383+04
.9500000+00	.1C00000+02	.1000000+00	.2108602+04

TWO STAGES - BOTH RELSABLE---SLINGSHOT***ROUNDTRIP

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8000000+00	.0000000	.0000000	.1506234+05
.8000000+00	.1000000-01	.1000000+03	.1475908+05
.8000000+00	.2500000-01	.4000000+02	.1433414+05
.8000000+00	.5000000-01	.2000000+02	.1369436+05
.8000000+00	.8000000-01	.1250000+02	.1301924+05
.8000000+00	.1000000+00	.1000000+02	.1261519+05
.8000000+00	.2000000+00	.5000000+01	.1099146+05
.8000000+00	.4000000+00	.2500000+01	.8887947+04
.8000000+00	.6000000+00	.1666667+01	.7540382+04
.8000000+00	.8000000+00	.1250000+01	.6583293+04
.8000000+00	.1000000+01	.1000000+01	.5860103+04
.8000000+00	.2000000+01	.5000000+00	.3839839+04
.8000000+00	.3000000+01	.3333333+00	.2878213+04
.8000000+00	.4000000+01	.2500000+00	.2307354+04
.8000000+00	.5000000+01	.2000000+00	.1927362+04
.8000000+00	.8000000+01	.1250000+00	.1292244+04
.8000000+00	.1000000+02	.1000000+00	.1060054+04
.8250000+00	.0000000	.0000000	.1623187+05
.8250000+00	.1000000-01	.1000000+03	.1587704+05
.8250000+00	.2500000-01	.4000000+02	.1538367+05
.8250000+00	.5000000-01	.2000000+02	.1464862+05
.8250000+00	.8000000-01	.1250000+02	.1388205+05
.8250000+00	.1000000+00	.1000000+02	.1342729+05
.8250000+00	.2000000+00	.5000000+01	.1162565+05
.8250000+00	.4000000+00	.2500000+01	.9340070+04
.8250000+00	.6000000+00	.1666667+01	.7896958+04
.8250000+00	.8000000+00	.1250000+01	.6879721+04
.8250000+00	.1000000+01	.1000000+01	.6114578+04
.8250000+00	.2000000+01	.5000000+00	.3990510+04
.8250000+00	.3000000+01	.3333333+00	.2985553+04
.8250000+00	.4000000+01	.2500000+00	.2390715+04

TWC STAGES - BCTH RELSABLE---SLINGSHOT***RCUNDTRIP

ISP= 460.0

LAMBCA	WPL/WS	WS/WPL	CELTAV
.825000C+0C	.5CC0CC0+01	.2000000+00	.1995487+04
.8250000+0C	.8C00CC0+01	.1250000+00	.1336209+04
.8250000+0C	.10C00C0+02	.1003000+00	.1095594+04
.8500000+00	.0C00000	.0000000	.1756657+05
.8500CCC+0C	.1000000-01	.1000000+03	.1714379+05
.8500000+0C	.250000C0-01	.4000000+02	.1656187+05
.8500000+0C	.5C00C00-01	.2000000+02	.157C650+05
.8500000+0C	.8C00CC0-01	.1250000+02	.1482753+05
.8500000+00	.1000000+00	.1000000+02	.1431168+05
.8500000+00	.2000000+00	.5000000+01	.1230228+05
.8500000+00	.4C0000C+00	.2500000+01	.9813523+04
.8500000+0C	.6000000+00	.1666667+01	.8267113+04
.8500000+0C	.8000000+00	.1250000+01	.7185694+04
.8500000+0C	.1C00000+01	.1000000+01	.6376247+04
.8500000+00	.2C00000+01	.5000000+00	.4143902+04
.8500000+0C	.3C00CC0+C1	.3333333+00	.3094325+04
.8500000+0C	.4C00CC0+01	.2500000+00	.2474964+04
.8500000+0C	.5000000+01	.2000000+00	.2064209+04
.8500CC0+0C	.8000000+01	.1250000+00	.1380423+04
.8500000+00	.1C00000+02	.1000000+00	.1131305+04
.8750000+00	.0C0000C	.0000000	.1912436+C5
.8750000+0C	.1C00CC0-01	.1000000+03	.1860784+05
.8750000+00	.2500CC0-01	.4000000+02	.1790672+05
.8750000+00	.5C00000-01	.2000000+02	.1689445+05
.8750000+0C	.8C00000-01	.1250000+02	.1587387+05
.8750000+00	.1C00CC0+00	.1000000+02	.1528298+05
.8750CC0+00	.2C00CC0+00	.5000000+01	.13C2758+C5
.8750000+00	.4C00CC0+00	.2500000+01	.1031051+05
.875000C+00	.6C00CC0+00	.1666667+01	.8651889+04
.875CCC0+0C	.8C00CC0+00	.1250000+01	.7501932+04
.8750000+0C	.1C00000+01	.1000000+01	.6645598+04

TWO STAGES - BOTH REUSABLE---SLINGSHOT***ROUNDTRIP

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8750000+00	.2000000+01	.5000000+00	.4300137+04
.8750000+00	.3000000+01	.3333333+00	.3204580+04
.8750000+00	.4000000+01	.2500000+00	.2560113+04
.8750000+00	.5000000+01	.2000000+00	.2133544+04
.8750000+00	.8000000+01	.1250000+00	.1424896+04
.8750000+00	.1000000+02	.1000000+00	.1167184+04
.9000000+00	.0000000	.0000000	.2100149+05
.9000000+00	.1000000-01	.1000000+03	.2034709+05
.9000000+00	.2500000-01	.4000000+02	.1947656+05
.9000000+00	.5000000-01	.2000000+02	.1825082+05
.9000000+00	.8000000-01	.1250000+02	.1704618+05
.9000000+00	.1000000+00	.1000000+02	.1636080+05
.9000000+00	.2000000+00	.5000000+01	.1380926+05
.9000000+00	.4000000+00	.2500000+01	.1083363+05
.9000000+00	.6000000+00	.1666667+01	.9052657+04
.9000000+00	.8000000+00	.1250000+01	.7829258+04
.9000000+00	.1000000+01	.1000000+01	.6923184+04
.9000000+00	.2000000+01	.5000000+00	.4459356+04
.9000000+00	.3000000+01	.3333333+00	.3316373+04
.9000000+00	.4000000+01	.2500000+00	.2646199+04
.9000000+00	.5000000+01	.2000000+00	.2203501+04
.9000000+00	.8000000+01	.1250000+00	.1469631+04
.9000000+00	.1000000+02	.1000000+00	.1203232+04
.9250000+00	.0000000	.0000000	.2337689+05
.9250000+00	.1000000-01	.1000000+03	.2249908+05
.9250000+00	.2500000-01	.4000000+02	.2136823+05
.9250000+00	.5000000-01	.2000000+02	.1983453+05
.9250000+00	.8000000-01	.1250000+02	.1838050+05
.9250000+00	.1000000+00	.1000000+02	.1757241+05
.9250000+00	.2000000+00	.5000000+01	.1465707+05
.9250000+00	.4000000+00	.2500000+01	.1138595+05

TWO STAGES - BCTH REUSABLE----SLINGSHOT***ROUNDTRIP

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.9250000+00	.6000000+00	.1666667+01	.9470961+04
.9250000+00	.8000000+00	.1250000+01	.8168601+04
.9250000+00	.1000000+01	.1000000+01	.7209628+04
.9250000+00	.2000000+01	.5000000+00	.4621712+04
.9250000+00	.3000000+01	.3333333+00	.3429761+04
.9250000+00	.4000000+01	.2500000+00	.2733246+04
.9250000+00	.5000000+01	.2000000+00	.2274099+04
.9250000+00	.8000000+01	.1250000+00	.1514632+04
.9250000+00	.1000000+02	.1000000+00	.1239455+04
.9500000+00	.0000000	.0000000	.2664920+05
.9500000+00	.1000000-01	.1000000+03	.2534542+05
.9500000+00	.2500000-01	.4000000+02	.2376155+05
.9500000+00	.5000000-01	.2000000+02	.2174321+05
.9500000+00	.8000000-01	.1250000+02	.1993146+05
.9500000+00	.1000000+00	.1000000+02	.1895737+05
.9500000+00	.2000000+00	.5000000+01	.1558354+05
.9500000+00	.4000000+00	.2500000+01	.1197114+05
.9500000+00	.6000000+00	.1666667+01	.9908608+04
.9500000+00	.8000000+00	.1250000+01	.8521042+04
.9500000+00	.1000000+01	.1000000+01	.7505639+04
.9500000+00	.2000000+01	.5000000+00	.4787366+04
.9500000+00	.3000000+01	.3333333+00	.3544806+04
.9500000+00	.4000000+01	.2500000+00	.2821284+04
.9500000+00	.5000000+01	.2000000+00	.2345353+04
.9500000+00	.8000000+01	.1250000+00	.1559904+04
.9500000+00	.1000000+02	.1000000+00	.1275850+04

TWO STAGES - BOTH REUSABLE---TRAPEZE****PAYLOAD DELIVERY
ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8000000+00	.0000000	.0000000	.1740385+05
.8000000+00	.1000000-01	.1000000+03	.1728950+05
.8000000+00	.2500000-01	.4000000+02	.1712003+05
.8000000+00	.5000000-01	.2000000+02	.1684299+05
.8000000+00	.8000000-01	.1250000+02	.1651938+05
.8000000+00	.1000000+00	.1000000+02	.1630893+05
.8000000+00	.2000000+00	.5000000+01	.1531789+05
.8000000+00	.4000000+00	.2500000+01	.1361503+05
.8000000+00	.6000000+00	.1666667+01	.1222416+05
.8000000+00	.8000000+00	.1250000+01	.1107842+05
.8000000+00	.1000000+01	.1000000+01	.1012358+05
.8000000+00	.2000000+01	.5000000+00	.7066406+04
.8000000+00	.3000000+01	.3333333+00	.5430219+04
.8000000+00	.4000000+01	.2500000+00	.4411645+04
.8000000+00	.5000000+01	.2000000+00	.3715956+04
.8000000+00	.8000000+01	.1250000+00	.2524193+04
.8000000+00	.1000000+02	.1000000+00	.2080019+04
.8250000+00	.0000000	.0000000	.1876646+05
.8250000+00	.1000000-01	.1000000+03	.1863822+05
.8250000+00	.2500000-01	.4000000+02	.1844816+05
.8250000+00	.5000000-01	.2000000+02	.1813755+05
.8250000+00	.8000000-01	.1250000+02	.1777487+05
.8250000+00	.1000000+00	.1000000+02	.1753911+05
.8250000+00	.2000000+00	.5000000+01	.1643051+05
.8250000+00	.4000000+00	.2500000+01	.1453464+05
.8250000+00	.6000000+00	.1666667+01	.1299755+05
.8250000+00	.8000000+00	.1250000+01	.1174049+05
.8250000+00	.1000000+01	.1000000+01	.1069954+05
.8250000+00	.2000000+01	.5000000+00	.7407205+04
.8250000+00	.3000000+01	.3333333+00	.5668920+04
.8250000+00	.4000000+01	.2500000+00	.4594372+04

TWO STAGES - BOTh RELSABLE---TRAPEZE****PAYLOAD DELIVERY
ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8250000+00	.5000000+01	.2000000+00	.3863598+04
.8250000+00	.8000000+01	.1250000+00	.2617389+04
.8250000+00	.1000000+02	.1000000+00	.2154685+04
.8500000+00	.0000000	.0000000	.2031757+05
.8500000+00	.1000000-01	.1000000+03	.2017225+05
.8500000+00	.2500000-01	.4000000+02	.1995692+05
.8500000+00	.5000000-01	.2000000+02	.1960510+05
.8500000+00	.8000000-01	.1250000+02	.1919451+05
.8500000+00	.1000000+00	.1000000+02	.1892776+05
.8500000+00	.2000000+00	.5000000+01	.1767575+05
.8500000+00	.4000000+00	.2500000+01	.1554746+05
.8500000+00	.6000000+00	.1666667+01	.1383795+05
.8500000+00	.8000000+00	.1250000+01	.1245217+05
.8500000+00	.1000000+01	.1000000+01	.1131335+05
.8500000+00	.2000000+01	.5000000+00	.7761683+04
.8500000+00	.3000000+01	.3333333+00	.5914499+04
.8500000+00	.4000000+01	.2500000+00	.4781203+04
.8500000+00	.5000000+01	.2000000+00	.4013958+04
.8500000+00	.8000000+01	.1250000+00	.2711695+04
.8500000+00	.1000000+02	.1000000+00	.2230070+04
.8750000+00	.0000000	.0000000	.2212065+05
.8750000+00	.1000000-01	.1000000+03	.2195364+05
.8750000+00	.2500000-01	.4000000+02	.2170621+05
.8750000+00	.5000000-01	.2000000+02	.2130207+05
.8750000+00	.8000000-01	.1250000+02	.2083076+05
.8750000+00	.1000000+00	.1000000+02	.2052479+05
.8750000+00	.2000000+00	.5000000+01	.1909220+05
.8750000+00	.4000000+00	.2500000+01	.1667631+05
.8750000+00	.6000000+00	.1666667+01	.1475911+05
.8750000+00	.8000000+00	.1250000+01	.1322213+05
.8750000+00	.1000000+01	.1000000+01	.1197072+05

TWO STAGES - BCTH REUSABLE---TRAPEZE****PAYLCAD DELIVERY
ISP= 460.0

LAMBCA	WPL/WS	WS/WPL	CELTAV
.8750000+0C	.2000000+01	.5000000+00	.8131055+04
.8750000+00	.3000000+01	.3333333+00	.6167392+04
.8750000+00	.4000000+01	.2500000+00	.4972341+04
.8750000+00	.5000000+01	.2000000+00	.4167143+04
.8750000+0C	.8000000+01	.1250000+00	.2807139+04
.8750000+00	.1000000+02	.1000000+00	.2306190+04
.900C000+CC	.0000000	.0000000	.2427969+05
.9000000+00	.1000000-01	.1000000+03	.2408377+05
.9000000+00	.2500000-01	.4000000+02	.2379357+05
.9000000+00	.5000000-01	.2000000+02	.2331982+05
.9000000+00	.8000000-01	.1250000+02	.2276781+05
.9000000+00	.1000000+00	.1000000+02	.2240986+05
.9000000+00	.2000000+90	.5000000+01	.2073959+05
.9000000+00	.4000000+00	.2500000+01	.1795424+05
.9000000+00	.6000000+00	.1666667+01	.1577985+05
.9000000+0C	.8000000+00	.1250000+01	.1406168+05
.9000000+0C	.1000000+01	.1000000+01	.1267883+05
.9000000+0C	.2000000+01	.5000000+00	.8516713+04
.9000000+00	.3000000+01	.3333333+00	.6428075+04
.9000000+0C	.4000000+01	.2500000+00	.5168003+04
.9000000+00	.5000000+01	.2000000+00	.4323270+04
.9000000+00	.8000000+01	.1250000+00	.2903752+04
.9000000+0C	.1000000+02	.1000000+00	.2383060+04
.9250000+0C	.0000000	.0000000	.2698493+05
.9250000+0C	.1000000-01	.1000000+03	.2674756+05
.9250000+0C	.2500000-01	.4000000+02	.2639607+05
.9250000+00	.5000000-01	.2000000+02	.2582266+05
.9250000+00	.8000000-01	.1250000+02	.2515548+05
.9250000+0C	.1000000+00	.1000000+02	.2472355+05
.925C000+00	.2000000+00	.5000000+01	.2271888+05
.9250000+0C	.4000000+00	.2500000+01	.1943231+05

TWO STAGES - BOTH REUSABLE---TRAPEZE****PAYLOAD DELIVERY
ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.9250000+00	.6000000+00	.1666667+01	.1692710+05
.9250000+00	.8000000+00	.1250000+01	.1498605+05
.9250000+00	.1000000+01	.1000000+01	.1344697+05
.9250000+00	.2000000+01	.5000000+00	.8920262+04
.9250000+00	.3000000+01	.3333333+00	.6657080+04
.9250000+00	.4000000+01	.2500000+00	.5368424+04
.9250000+00	.5000000+01	.2000000+00	.4482463+04
.9250000+00	.8000000+01	.1250000+00	.3001565+04
.9250000+00	.1000000+02	.1000000+00	.2460695+04
.9500000+00	.0000000	.0000000	.3065241+05
.9500000+00	.1000000-01	.1000000+03	.3034755+05
.9500000+00	.2500000-01	.4000000+02	.2989632+05
.9500000+00	.5000000-01	.2000000+02	.2916106+05
.9500000+00	.8000000-01	.1250000+02	.2830770+05
.9500000+00	.1000000+00	.1000000+02	.2775693+05
.9500000+00	.2000000+00	.5000000+01	.2522543+05
.9500000+00	.4000000+00	.2500000+01	.2119684+05
.9500000+00	.6000000+00	.1666667+01	.1824170+05
.9500000+00	.8000000+00	.1250000+01	.1601661+05
.9500000+00	.1000000+01	.1000000+01	.1428738+05
.9500000+00	.2000000+01	.5000000+00	.9343568+04
.9500000+00	.3000000+01	.3333333+00	.6974994+04
.9500000+00	.4000000+01	.2500000+00	.5573859+04
.9500000+00	.5000000+01	.2000000+00	.4644854+04
.9500000+00	.8000000+01	.1250000+00	.3100610+04
.9500000+00	.1000000+02	.1000000+00	.2539114+04

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8000000+00	.0000000	.0000000	.1740385+05
.8000000+00	.1000000-01	.1000000+03	.1717059+05
.8000000+00	.2500000-01	.4000000+02	.1683898+05
.8000000+00	.5000000-01	.2000000+02	.1632891+05
.8000000+00	.8000000-01	.1250000+02	.1577598+05
.8000000+00	.1000000+00	.1000000+02	.1543754+05
.8000000+00	.2000000+00	.5000000+01	.1401633+05
.8000000+00	.4000000+00	.2500000+01	.1201038+05
.8000000+00	.6000000+00	.1666667+01	.1061036+05
.8000000+00	.8000000+00	.1250000+01	.9552672+04
.8000000+00	.1000000+01	.1000000+01	.8714481+04
.8000000+00	.2000000+01	.5000000+00	.6165134+04
.8000000+00	.3000000+01	.3333333+00	.4821975+04
.8000000+00	.4000000+01	.2500000+00	.3975220+04
.8000000+00	.5000000+01	.2000000+00	.3387766+04
.8000000+00	.8000000+01	.1250000+00	.2356234+04
.8000000+00	.1000000+02	.1000000+00	.1961280+04
.8250000+00	.0000000	.0000000	.1876646+05
.8250000+00	.1000000-01	.1000000+03	.1848901+05
.8250000+00	.2500000-01	.4000000+02	.1809744+05
.8250000+00	.5000000-01	.2000000+02	.1750122+05
.8250000+00	.8000000-01	.1250000+02	.1686233+05
.8250000+00	.1000000+00	.1000000+02	.1647468+05
.8250000+00	.2000000+00	.5000000+01	.1487070+05
.8250000+00	.4000000+00	.2500000+01	.1265771+05
.8250000+00	.6000000+00	.1666667+01	.1113919+05
.8250000+00	.8000000+00	.1250000+01	.1000294+05
.8250000+00	.1000000+01	.1000000+01	.9108167+04
.8250000+00	.2000000+01	.5000000+00	.6411923+04
.8250000+00	.3000000+01	.3333333+00	.5003891+04
.8250000+00	.4000000+01	.2500000+00	.4119908+04

TWO STAGES - BOTH REUSABLE---TRAPEZE****PAYLOAD RETRIEVAL

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8250000+00	.5000000+01	.2000000+00	.3508123+04
.8250000+00	.8000000+01	.1250000+00	.2436570+04
.8250000+00	.1000000+02	.1000000+00	.2027136+04
.8500000+00	.0000000	.0000000	.2031757+05
.8500000+00	.1000000-01	.1000000+03	.1998113+05
.8500000+00	.2500000-01	.4000000+02	.1951089+05
.8500000+00	.5000000-01	.2000000+02	.1880415+05
.8500000+00	.8000000-01	.1250000+02	.1805774+05
.8500000+00	.1000000+00	.1000000+02	.1760970+05
.8500000+00	.2000000+00	.5000000+01	.1578811+05
.8500000+00	.4000000+00	.2500000+01	.1333946+05
.8500000+00	.6000000+00	.1666667+01	.1169044+05
.8500000+00	.8000000+00	.1250000+01	.1046922+05
.8500000+00	.1000000+01	.1000000+01	.9513953+04
.8500000+00	.2000000+01	.5000000+00	.6663309+04
.8500000+00	.3000000+01	.3333333+00	.5188257+04
.8500000+00	.4000000+01	.2500000+00	.4266125+04
.8500000+00	.5000000+01	.2000000+00	.3629529+04
.8500000+00	.8000000+01	.1250000+00	.2517366+04
.8500000+00	.1000000+02	.1000000+00	.2093298+04
.8750000+00	.0000000	.0000000	.2212065+05
.8750000+00	.1000000-01	.1000000+03	.2170179+05
.8750000+00	.2500000-01	.4000000+02	.2112412+05
.8750000+00	.5000000-01	.2000000+02	.2027089+05
.8750000+00	.8000000-01	.1250000+02	.1938656+05
.8750000+00	.1000000+00	.1000000+02	.1886289+05
.8750000+00	.2000000+00	.5000000+01	.1677834+05
.8750000+00	.4000000+00	.2500000+01	.1405941+05
.8750000+00	.6000000+00	.1666667+01	.1226605+05
.8750000+00	.8000000+00	.1250000+01	.1095267+05
.8750000+00	.1000000+01	.1000000+01	.9932597+04

TWO STAGES - BOTH REUSABLE----TRAPEZE****PAYLOAD RETRIEVAL

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8750000+00	.2000000+01	.5000000+00	.6919467+04
.8750000+00	.3000000+01	.3333333+00	.5375139+04
.8750000+00	.4000000+01	.2500000+00	.4413904+04
.8750000+00	.5000000+01	.2000000+00	.3752000+04
.8750000+00	.8000000+01	.1250000+00	.2598624+04
.8750000+00	.1000000+02	.1000000+00	.2159768+04
.9000000+00	.0000000	.0000000	.2427969+05
.9000000+00	.1000000-01	.1000000+03	.2373803+05
.9000000+00	.2500000-01	.4000000+02	.2300541+05
.9000000+00	.5000000-01	.2000000+02	.2194951+05
.9000000+00	.8000000-01	.1250000+02	.2088245+05
.9000000+00	.1000000+00	.1000000+02	.2026159+05
.9000000+00	.2000000+00	.5000000+01	.1785366+05
.9000000+00	.4000000+00	.2500000+01	.1482196+05
.9000000+00	.6000000+00	.1666667+01	.1286824+05
.9000000+00	.8000000+00	.1250000+01	.1145458+05
.9000000+00	.1000000+01	.1000000+01	.1036493+05
.9000000+00	.2000000+01	.5000000+00	.7180581+04
.9000000+00	.3000000+01	.3333333+00	.5564608+04
.9000000+00	.4000000+01	.2500000+00	.4563279+04
.9000000+00	.5000000+01	.2000000+00	.3875556+04
.9000000+00	.8000000+01	.1250000+00	.2680351+04
.9000000+00	.1000000+02	.1000000+00	.2226550+04
.9250000+00	.0000000	.0000000	.2698493+05
.9250000+00	.1000000-01	.1000000+03	.2624164+05
.9250000+00	.2500000-01	.4000000+02	.2526715+05
.9250000+00	.5000000-01	.2000000+02	.2391353+05
.9250000+00	.8000000-01	.1250000+02	.2259385+05
.9250000+00	.1000000+00	.1000000+02	.2184399+05
.9250000+00	.2000000+00	.5000000+01	.1902971+05
.9250000+00	.4000000+00	.2500000+01	.1563234+05

TWO STAGES — BOTH REUSABLE----TRAPEZE****PAYLOAD RETRIEVAL

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.9250000+00	.600000+00	.1666667+01	.1349953+05
.9250000+00	.800000+00	.1250000+01	.1197641+05
.9250000+00	.100000+01	.1000000+01	.1081188+05
.9250000+00	.2000000+01	.5000000+00	.7446848+04
.9250000+00	.3000000+01	.3333333+00	.5756738+04
.9250000+00	.400000+01	.2500000+00	.4714284+04
.9250000+00	.5000000+01	.2000000+00	.4000217+04
.9250000+00	.800000+01	.1250000+00	.2762552+04
.9250000+00	.100000+02	.1000000+00	.2293645+04
.9500000+00	.000000	.000000	.3065241+05
.9500000+00	.1000000-01	.1000000+03	.2951887+05
.9500000+00	.250000-01	.4000000+02	.2811600+05
.9500000+00	.500000-01	.2000000+02	.2628443+05
.9500000+00	.8000000-01	.1250000+02	.2459430+05
.9500000+00	.1000000+00	.1000000+02	.2366578+05
.9500000+00	.2000000+00	.5000000+01	.2032687+05
.9500000+00	.400000+00	.2500000+01	.1649685+05
.9500000+00	.600000+00	.1666667+01	.1416287+05
.9500000+00	.800000+00	.1250000+01	.1251980+05
.9500000+00	.100000+01	.1000000+01	.1127448+05
.9500000+00	.2000000+01	.5000000+00	.7718489+04
.9500000+00	.3000000+01	.3333333+00	.5951605+04
.9500000+00	.400000+01	.2500000+00	.4866958+04
.9500000+00	.5000000+01	.2000000+00	.4126004+04
.9500000+00	.800000+01	.1250000+00	.2845232+04
.9500000+00	.100000+02	.1000000+00	.2361058+04

TWO STAGES - BCTH REUSABLE---TRAPEZE****ROUNDTRIP

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8000000+00	.0000000	.0000000	.1740385+05
.8000000+00	.1000000-01	.1000000+03	.1705972+05
.8000000+00	.2500000-01	.4000000+02	.1657562+05
.8000000+00	.5000000-01	.2000000+02	.1584256+05
.8000000+00	.8000000-01	.1250000+02	.1506349+05
.8000000+00	.1000000+00	.1000000+02	.1459455+05
.8000000+00	.2000000+00	.5000000+01	.1265058+05
.8000000+00	.4000000+00	.2500000+01	.1018460+05
.8000000+00	.6000000+00	.1666667+01	.8565331+04
.8000000+00	.8000000+00	.1250000+01	.7415130+04
.8000000+00	.1000000+01	.1000000+01	.6549342+04
.8000000+00	.2000000+01	.5000000+00	.4169870+04
.8000000+00	.3000000+01	.3333333+00	.3071609+04
.8000000+00	.4000000+01	.2500000+00	.2434353+04
.8000000+00	.5000000+01	.2000000+00	.2017127+04
.8000000+00	.8000000+01	.1250000+00	.1333369+04
.8000000+00	.1000000+02	.1000000+00	.1087895+04
.8250000+00	.0000000	.0000000	.1876646+05
.8250000+00	.1000000-01	.1000000+03	.1836510+05
.8250000+00	.2500000-01	.4000000+02	.1780451+05
.8250000+00	.5000000-01	.2000000+02	.1696384+05
.8250000+00	.8000000-01	.1250000+02	.1608009+05
.8250000+00	.1000000+00	.1000000+02	.1555245+05
.8250000+00	.2000000+00	.5000000+01	.1343843+05
.8250000+00	.4000000+00	.2500000+01	.1071071+05
.8250000+00	.6000000+00	.1666667+01	.8973376+04
.8250000+00	.8000000+00	.1250000+01	.7749040+04
.8250000+00	.1000000+01	.1000000+01	.6832142+04
.8250000+00	.2000000+01	.5000000+00	.4330369+04
.8250000+00	.3000000+01	.3333333+00	.3183674+04
.8250000+00	.4000000+01	.2500000+00	.2520425+04

TWO STAGES - BOTH REUSABLE-+-TRAPEZE****ROUNDTRIP

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8250000+00	.5000000+01	.2000000+00	.2086984+04
.8250000+00	.8000000+01	.1250000+00	.1377990+04
.8250000+00	.1000000+02	.1000000+00	.1123850+04
.8500000+00	.0000000	.0000000	.2031757+05
.8500000+00	.1000000-01	.1000000+03	.1584138+05
.8500000+00	.2500000-01	.4000000+02	.1918250+05
.8500000+00	.5000000-01	.2000000+02	.1820671+05
.8500000+00	.8000000-01	.1250000+02	.1719484+05
.8500000+00	.1000000+00	.1000000+02	.1659670+05
.8500000+00	.2000000+00	.5000000+01	.1423759+05
.8500000+00	.4000000+00	.2500000+01	.1126196+05
.8500000+00	.6000000+00	.1666667+01	.9396607+04
.8500000+00	.8000000+00	.1250000+01	.8093191+04
.8500000+00	.1000000+01	.1000000+01	.7122337+04
.8500000+00	.2000000+01	.5000000+00	.4493313+04
.8500000+00	.3000000+01	.3333333+00	.3296948+04
.8500000+00	.4000000+01	.2500000+00	.2607216+04
.8500000+00	.5000000+01	.2000000+00	.2157319+04
.8500000+00	.8000000+01	.1250000+00	.1422807+04
.8500000+00	.1000000+02	.1000000+00	.1159934+04
.8750000+00	.0000000	.0000000	.2212065+05
.8750000+00	.1000000-01	.1000000+03	.2154219+05
.8750000+00	.2500000-01	.4000000+02	.2075214+05
.8750000+00	.5000000-01	.2000000+02	.1960139+05
.8750000+00	.8000000-01	.1250000+02	.1842895+05
.8750000+00	.1000000+00	.1000000+02	.1774450+05
.8750000+00	.2000000+00	.5000000+01	.1509556+05
.8750000+00	.4000000+00	.2500000+01	.1184085+05
.8750000+00	.6000000+00	.1666667+01	.9836196+04
.8750000+00	.8000000+00	.1250000+01	.8448232+04
.8750000+00	.1000000+01	.1000000+01	.7420329+04

TWO STAGES - BOTH REUSABLE---TRAPEZE****ROUNDTRIP

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8750000+00	.2000000+01	.5000000+00	.4658779+04
.8750000+00	.3000000+01	.3333333+00	.3411459+04
.8750000+00	.4000000+01	.2500000+00	.2694740+04
.8750000+00	.5000000+01	.2000000+00	.2228138+04
.8750000+00	.8000000+01	.1250000+00	.1467823+04
.8750000+00	.1000000+02	.1000000+00	.1196148+04
.9000000+00	.0000000	.0000000	.2427969+05
.9000000+00	.1000000-01	.1000000+03	.2355254+05
.9000000+00	.2500000-01	.4000000+02	.2257800+05
.9000000+00	.5000000-01	.2000000+02	.2119131+05
.9000000+00	.8000000-01	.1250000+02	.1981148+05
.9000000+00	.1000000+00	.1000000+02	.1901886+05
.9000000+00	.2000000+00	.5000000+01	.1602163+05
.9000000+00	.4000000+00	.2500000+01	.1245029+05
.9000000+00	.6000000+00	.1666667+01	.1029346+05
.9000000+00	.8000000+00	.1250000+01	.8814876+04
.9000000+00	.1000000+01	.1000000+01	.7726551+04
.9000000+00	.2000000+01	.5000000+00	.4826846+04
.9000000+00	.3000000+01	.3333333+00	.3527234+04
.9000000+00	.4000000+01	.2500000+00	.2783010+04
.9000000+00	.5000000+01	.2000000+00	.2299448+04
.9000000+00	.8000000+01	.1250000+00	.1513039+04
.9000000+00	.1000000+02	.1000000+00	.1232491+04
.9250000+00	.0000000	.0000000	.2698493+05
.9250000+00	.1000000-01	.1000000+03	.2602023+05
.9250000+00	.2500000-01	.4000000+02	.2476581+05
.9250000+00	.5000000-01	.2000000+02	.2304240+05
.9250000+00	.8000000-01	.1250000+02	.2138388+05
.9250000+00	.1000000+00	.1000000+02	.2045159+05
.9250000+00	.2000000+00	.5000000+01	.1702751+05
.9250000+00	.4000000+00	.2500000+01	.1309366+05

TWO STAGES - BOTH REUSABLE----TRAPEZE****RCUNDTRIP

ISP= 460.0

LAMBCA	WPL/hS	WS/WPL	DELTAV
.9250000+00	.6000000+00	.1666667+01	.1076988+05
.9250000+00	.8000000+00	.1250000+01	.9193914+04
.9250000+00	.1000000+01	.1000000+01	.8041475+04
.9250000+00	.2000000+01	.5000000+00	.4957599+04
.9250000+00	.3000000+01	.3333333+00	.3644302+04
.9250000+00	.4000000+01	.2500000+00	.2872037+04
.9250000+00	.5000000+01	.2000000+00	.2371255+04
.9250000+00	.8000000+01	.1250000+00	.1558458+04
.9250000+00	.1000000+02	.1000000+00	.1268567+04
.9500000+00	.0000000	.0000000	.3065241+05
.9500000+00	.1000000-01	.1000000+03	.2924242+05
.9500000+00	.2500000-01	.4000000+02	.2750864+05
.9500000+00	.5000000-01	.2000000+02	.2526252+05
.9500000+00	.8000000-01	.1250000+02	.2320835+05
.9500000+00	.1000000+00	.1000000+02	.2208848+05
.9500000+00	.2000000+00	.5000000+01	.1812823+05
.9500000+00	.4000000+00	.2500000+01	.1377496+05
.9500000+00	.6000000+00	.1666667+01	.1126713+05
.9500000+00	.8000000+00	.1250000+01	.9586224+04
.9500000+00	.1000000+01	.1000000+01	.8365619+04
.9500000+00	.2000000+01	.5000000+00	.5171129+04
.9500000+00	.3000000+01	.3333333+00	.3762693+04
.9500000+00	.4000000+01	.2500000+00	.2961837+04
.9500000+00	.5000000+01	.2000000+00	.2443569+04
.9500000+00	.8000000+01	.1250000+00	.1604081+04
.9500000+00	.1000000+02	.1000000+00	.1305575+04

TWO STAGES - BOTH REUSABLE---TRAPEZE NO. 2 /****PAYLOAD DELIVERY

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8000000+00	.0000000	.0000000	.1320011+05
.8000000+00	.1000000-01	.1000000+03	.1315172+05
.8000000+00	.2500000-01	.4000000+02	.1307928+05
.8000000+00	.5000000-01	.2000000+02	.1295855+05
.8000000+00	.8000000-01	.1250000+02	.1281532+05
.8000000+00	.1000000+00	.1000000+02	.1272009+05
.8000000+00	.2000000+00	.5000000+01	.1225148+05
.8000000+00	.4000000+00	.2500000+01	.1136155+05
.8000000+00	.6000000+00	.1666667+01	.1054601+05
.8000000+00	.8000000+00	.1250000+01	.9808744+04
.8000000+00	.1000000+01	.1000000+01	.9146578+04
.8000000+00	.2000000+01	.5000000+00	.6738849+04
.8000000+00	.3000000+01	.3333333+00	.5286505+04
.8000000+00	.4000000+01	.2500000+00	.4336868+04
.8000000+00	.5000000+01	.2000000+00	.3672346+04
.8000000+00	.8000000+01	.1250000+00	.2511170+04
.8000000+00	.1000000+02	.1000000+00	.2072877+04
.8250000+00	.0000000	.0000000	.1427826+05
.8250000+00	.1000000-01	.1000000+03	.1422306+05
.8250000+00	.2500000-01	.4000000+02	.1414043+05
.8250000+00	.5000000-01	.2000000+02	.1400327+05
.8250000+00	.8000000-01	.1250000+02	.1383969+05
.8250000+00	.1000000+00	.1000000+02	.1373132+05
.8250000+00	.2000000+00	.5000000+01	.1319904+05
.8250000+00	.4000000+00	.2500000+01	.1219298+05
.8250000+00	.6000000+00	.1666667+01	.1127710+05
.8250000+00	.8000000+00	.1250000+01	.1045460+05
.8250000+00	.1000000+01	.1000000+01	.9721041+04
.8250000+00	.2000000+01	.5000000+00	.7090590+04
.8250000+00	.3000000+01	.3333333+00	.5532577+04
.8250000+00	.4000000+01	.2500000+00	.4524204+04

TWO STAGES - BOTH REUSABLE---TRAPEZE NO. 2 ****PAYLOAD DELIVERY

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8250000+00	.5000000+01	.2000000+00	.3822967+04
.8250000+00	.8000000+01	.1250000+00	.2605394+04
.8250000+00	.1000000+02	.1000000+00	.2148133+04
.8500000+00	.0000000	.0000000	.1551293+05
.8500000+00	.1000000-01	.1000000+03	.1544931+05
.8500000+00	.2500000-01	.4000000+02	.1535413+05
.8500000+00	.5000000-01	.2000000+02	.1519623+05
.8500000+00	.8000000-01	.1250000+02	.1500806+05
.8500000+00	.1000000+00	.1000000+02	.1488350+05
.8500000+00	.2000000+00	.5000000+01	.1427286+05
.8500000+00	.4000000+00	.2500000+01	.1312462+05
.8500000+00	.6000000+00	.1666667+01	.1208723+05
.8500000+00	.8000000+00	.1250000+01	.1116291+05
.8500000+00	.1000000+01	.1000000+01	.1034479+05
.8500000+00	.2000000+01	.5000000+00	.7460571+04
.8500000+00	.3000000+01	.3333333+00	.5787639+04
.8500000+00	.4000000+01	.2500000+00	.4716681+04
.8500000+00	.5000000+01	.2000000+00	.3976876+04
.8500000+00	.8000000+01	.1250000+00	.2700877+04
.8500000+00	.1000000+02	.1000000+00	.2224186+04
.8750000+00	.0000000	.0000000	.1696013+05
.8750000+00	.1000000-01	.1000000+03	.1688577+05
.8750000+00	.2500000-01	.4000000+02	.1677456+05
.8750000+00	.5000000-01	.2000000+02	.1659015+05
.8750000+00	.8000000-01	.1250000+02	.1637059+05
.8750000+00	.1000000+00	.1000000+02	.1622535+05
.8750000+00	.2000000+00	.5000000+01	.1551480+05
.8750000+00	.4000000+00	.2500000+01	.1418665+05
.8750000+00	.6000000+00	.1666667+01	.1295775+05
.8750000+00	.8000000+00	.1250000+01	.1194872+05
.8750000+00	.1000000+01	.1000000+01	.1102890+05

TWO STAGES - BOTH REUSABLE---TRAPEZE NO. 2 ****PAYLOAD DELIVERY

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8750000+00	.2000000+01	.5000000+00	.7852385+04
.8750000+00	.3000000+01	.3333333+00	.6052472+04
.8750000+00	.4000000+01	.2500000+00	.4914629+04
.8750000+00	.5000000+01	.2000000+00	.4134239+04
.8750000+00	.8000000+01	.1250000+00	.2797658+04
.8750000+00	.1000000+02	.1000000+00	.2301054+04
.9000000+00	.0000000	.0000000	.1871363+05
.9000000+00	.1000000-01	.1000000+03	.1862483+05
.9000000+00	.2500000-01	.4000000+02	.1849206+05
.9000000+00	.5000000-01	.2000000+02	.1827203+05
.9000000+00	.8000000-01	.1250000+02	.1801027+05
.9000000+00	.1000000+00	.1000000+02	.1783727+05
.9000000+00	.2000000+00	.5000000+01	.1699284+05
.9000000+00	.4000000+00	.2500000+01	.1542619+05
.9000000+00	.6000000+00	.1666667+01	.1404065+05
.9000000+00	.8000000+00	.1250000+01	.1283367+05
.9000000+00	.1000000+01	.1000000+01	.1178814+05
.9000000+00	.2000000+01	.5000000+00	.8267755+04
.9000000+00	.3000000+01	.3333333+00	.6327971+04
.9000000+00	.4000000+01	.2500000+00	.5118415+04
.9000000+00	.5000000+01	.2000000+00	.4295237+04
.9000000+00	.8000000+01	.1250000+00	.2895779+04
.9000000+00	.1000000+02	.1000000+00	.2378759+04
.9250000+00	.0000000	.0000000	.2094909+05
.9250000+00	.1000000-01	.1000000+03	.2083929+05
.9250000+00	.2500000-01	.4000000+02	.2067518+05
.9250000+00	.5000000-01	.2000000+02	.2040335+05
.9250000+00	.8000000-01	.1250000+02	.2008027+05
.9250000+00	.1000000+00	.1000000+02	.1986695+05
.9250000+00	.2000000+00	.5000000+01	.1882856+05
.9250000+00	.4000000+00	.2500000+01	.1692333+05

TWO STAGES — BOTH REUSABLE———TRAPEZE NO. 2 ****PAYLOAD DELIVERY

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.9250000+00	.6000000+00	.1666667+01	.1526727+05
.9250000+00	.8000000+00	.1250000+01	.1385070+05
.9250000+00	.1000000+01	.1000000+01	.1264398+05
.9250000+00	.2000000+01	.5000000+00	.8710714+04
.9250000+00	.3000000+01	.3333333+00	.6615174+04
.9250000+00	.4000000+01	.2500000+00	.5328449+04
.9250000+00	.5000000+01	.2000000+00	.4460067+04
.9250000+00	.8000000+01	.1250000+00	.2995281+04
.9250000+00	.1000000+02	.1000000+00	.2457321+04
.9500000+00	.0000000	.0000000	.2406069+05
.9500000+00	.1000000-01	.1000000+03	.2391590+05
.9500000+00	.2500000-01	.4000000+02	.2369956+05
.9500000+00	.5000000-01	.2000000+02	.2334146+05
.9500000+00	.8000000-01	.1250000+02	.2291639+05
.9500000+00	.1000000+00	.1000000+02	.2263615+05
.9500000+00	.2000000+00	.5000000+01	.2127942+05
.9500000+00	.4000000+00	.2500000+01	.1883291+05
.9500000+00	.6000000+00	.1666667+01	.1676880+05
.9500000+00	.8000000+00	.1250000+01	.1505394+05
.9500000+00	.1000000+01	.1000000+01	.1362942+05
.9500000+00	.2000000+01	.5000000+00	.9185867+04
.9500000+00	.3000000+01	.3333333+00	.6915292+04
.9500000+00	.4000000+01	.2500000+00	.5545188+04
.9500000+00	.5000000+01	.2000000+00	.4628945+04
.9500000+00	.8000000+01	.1250000+00	.3096210+04
.9500000+00	.1000000+02	.1000000+00	.2536762+04

TWO STAGES - BOTH REUSABLE---TRAPEZE NO. 2 ****PAYLOAD RETRIEVAL

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8000000+00	.0000000	.0000000	.7560251+04
.8000000+00	.1000000-01	.1000000+03	.1320011+05
.8000000+00	.2500000-01	.4000000+02	.1304687+05
.8000000+00	.5000000-01	.2000000+02	.1282671+05
.8000000+00	.8000000-01	.1250000+02	.1248308+05
.8000000+00	.1000000+00	.1000000+02	.1210431+05
.8000000+00	.2000000+00	.5000000+01	.1186953+05
.8000000+00	.4000000+00	.2500000+01	.1086279+05
.8000000+00	.6000000+00	.1666667+01	.9398386+04
.8000000+00	.8000000+00	.1250000+01	.8355824+04
.8000000+00	.1000000+01	.1000000+01	.7560251+04
.8000000+00	.2000000+01	.5000000+00	.6925735+04
.8000000+00	.3000000+01	.3333333+00	.4974664+04
.8000000+00	.4000000+01	.2500000+00	.3931136+04
.8000000+00	.5000000+01	.2000000+00	.3265602+04
.8000000+00	.8000000+01	.1250000+00	.2799478+04
.8000000+00	.1000000+02	.1000000+00	.1970142+04
.8250000+00	.0000000	.0000000	.1808277+04
.8250000+00	.1000000-01	.1000000+03	.1427826+05
.8250000+00	.2500000-01	.4000000+02	.1409664+05
.8250000+00	.5000000-01	.2000000+02	.1383710+05
.8250000+00	.8000000-01	.1250000+02	.1343518+05
.8250000+00	.1000000+00	.1000000+02	.1299630+05
.8250000+00	.2000000+00	.5000000+01	.1272629+05
.8250000+00	.4000000+00	.2500000+01	.1158358+05
.8250000+00	.6000000+00	.1666667+01	.9959239+04
.8250000+00	.8000000+00	.1250000+01	.8823094+04
.8250000+00	.1000000+01	.1000000+01	.7965126+04
.8250000+00	.2000000+01	.5000000+00	.7285497+04
.8250000+00	.3000000+01	.3333333+00	.5215610+04
.8250000+00	.4000000+01	.2500000+00	.4117468+04

TWO STAGES — BOTH REUSABLE---TRAPEZE NO. 2 ****PAYLOAD RETRIEVAL

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8250000+00	.5000000+01	.2000000+00	.3419229+04
.8250000+00	.8000000+01	.1250000+00	.2930887+04
.8250000+00	.1000000+02	.1000000+00	.2062877+04
.8500000+00	.0000000	.0000000	.1892735+04
.8500000+00	.1000000-01	.1000000+03	.1551293+05
.8500000+00	.2500000-01	.4000000+02	.1529321+05
.8500000+00	.5000000-01	.2000000+02	.1498150+05
.8500000+00	.8000000-01	.1250000+02	.1450367+05
.8500000+00	.1000000+00	.1000000+02	.1398813+05
.8500000+00	.2000000+00	.5000000+01	.1367390+05
.8500000+00	.4000000+00	.2500000+01	.1236626+05
.8500000+00	.6000000+00	.1666667+01	.1055497+05
.8500000+00	.8000000+00	.1250000+01	.9314033+04
.8500000+00	.1000000+01	.1000000+01	.8387721+04
.8500000+00	.2000000+01	.5000000+00	.7659385+04
.8500000+00	.3000000+01	.3333333+00	.5463776+04
.8500000+00	.4000000+01	.2500000+00	.4308857+04
.8500000+00	.5000000+01	.2000000+00	.3576921+04
.8500000+00	.8000000+01	.1250000+00	.3065741+04
.8500000+00	.1000000+02	.1000000+00	.2158071+04
.8750000+00	.0000000	.0000000	.1979572+04
.8750000+00	.1000000-01	.1000000+03	.1696013+05
.8750000+00	.2500000-01	.4000000+02	.1668679+05
.8750000+00	.5000000-01	.2000000+02	.1630283+05
.8750000+00	.8000000-01	.1250000+02	.1572230+05
.8750000+00	.1000000+00	.1000000+02	.1510578+05
.8750000+00	.2000000+00	.5000000+01	.1473453+05
.8750000+00	.4000000+00	.2500000+01	.1322094+05
.8750000+00	.6000000+00	.1666667+01	.1118996+05
.8750000+00	.8000000+00	.1250000+01	.9830891+04
.8750000+00	.1000000+01	.1000000+01	.8829395+04

TWO STAGES - BOTH REUSABLE---TRAPEZE NO. 2 ****PAYLOAD RETRIEVAL

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8750000+00	.2000000+01	.5000000+00	.8048315+04
.8750000+00	.3000000+01	.3333333+00	.5719448+04
.8750000+00	.4000000+01	.2500000+00	.4505592+04
.8750000+00	.5000000+01	.2000000+00	.3738808+04
.8750000+00	.8000000+01	.1250000+00	.3204148+04
.8750000+00	.1000000+02	.1000000+00	.2255802+04
.9000000+00	.0000000	.0000000	.2068876+04
.9000000+00	.1000000-01	.1000000+03	.1871363+05
.9000000+00	.2500000-01	.4000000+02	.1835951+05
.9000000+00	.5000000-01	.2000000+02	.1786928+05
.9000000+00	.8000000-01	.1250000+02	.1714247+05
.9000000+00	.1000000+00	.1000000+02	.1638728+05
.9000000+00	.2000000+00	.5000000+01	.1593985+05
.9000000+00	.4000000+00	.2500000+01	.1416256+05
.9000000+00	.6000000+00	.1666667+01	.1186951+05
.9000000+00	.8000000+00	.1250000+01	.1037628+05
.9000000+00	.1000000+01	.1000000+01	.9291688+04
.9000000+00	.2000000+01	.5000000+00	.8453302+04
.9000000+00	.3000000+01	.3333333+00	.5982933+04
.9000000+00	.4000000+01	.2500000+00	.4707733+04
.9000000+00	.5000000+01	.2000000+00	.3905025+04
.9000000+00	.8000000+01	.1250000+00	.3346219+04
.9000000+00	.1000000+02	.1000000+00	.2356157+04
.9250000+00	.0000000	.0000000	.2160747+04
.9250000+00	.1000000-01	.1000000+03	.2094909+05
.9250000+00	.2500000-01	.4000000+02	.2046026+05
.9250000+00	.5000000-01	.2000000+02	.1979924+05
.9250000+00	.8000000-01	.1250000+02	.1884835+05
.9250000+00	.1000000+00	.1000000+02	.1789156+05
.9250000+00	.2000000+00	.5000000+01	.1733751+05
.9250000+00	.4000000+00	.2500000+01	.1521260+05

TWO STAGES - BOTH REUSABLE---TRAPEZE NO. 2 ****PAYLOAD RETRIEVAL

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.9250000+00	.6000000+00	.1666667+01	.1260017+05
.9250000+00	.8000000+00	.1250000+01	.1095326+05
.9250000+00	.1000000+01	.1000000+01	.9776346+04
.9250000+00	.2000000+01	.5000000+00	.8875477+04
.9250000+00	.3000000+01	.3333333+00	.6254560+04
.9250000+00	.4000000+01	.2500000+00	.4915511+04
.9250000+00	.5000000+01	.2000000+00	.4075716+04
.9250000+00	.8000000+01	.1250000+00	.3492077+04
.9250000+00	.1000000+02	.1000000+00	.2459228+04
.9500000+00	.0000000	.0000000	.2255289+04
.9500000+00	.1000000-01	.1000000+03	.2406069+05
.9500000+00	.2500000-01	.4000000+02	.2330501+05
.9500000+00	.5000000-01	.2000000+02	.2232705+05
.9500000+00	.8000000-01	.1250000+02	.2099233+05
.9500000+00	.1000000+00	.1000000+02	.1971723+05
.9500000+00	.2000000+00	.5000000+01	.1900405+05
.9500000+00	.4000000+00	.2500000+01	.1639839+05
.9500000+00	.6000000+00	.1666667+01	.1339008+05
.9500000+00	.8000000+00	.1250000+01	.1156544+05
.9500000+00	.1000000+01	.1000000+01	.1028537+05
.9500000+00	.2000000+01	.5000000+00	.9316108+04
.9500000+00	.3000000+01	.3333333+00	.6534684+04
.9500000+00	.4000000+01	.2500000+00	.5129132+04
.9500000+00	.5000000+01	.2000000+00	.4251034+04
.9500000+00	.8000000+01	.1250000+00	.3641852+04
.9500000+00	.1000000+02	.1000000+00	.2565113+04

TWO STAGES - BOTH REUSABLE---TRAPEZE NO. 2 ****ROUNDTRIP

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8000000+00	.0000000	.0000000	.1320011+05
.8000000+00	.1000000-01	.1000000+03	.1299973+05
.8000000+00	.2500000-01	.4000000+02	.1271332+05
.8000000+00	.5000000-01	.2000000+02	.1226984+05
.8000000+00	.8000000-01	.1250000+02	.1178606+05
.8000000+00	.1000000+00	.1000000+02	.1148887+05
.8000000+00	.2000000+00	.5000000+01	.1023826+05
.8000000+00	.4000000+00	.2500000+01	.8490813+04
.8000000+00	.6000000+00	.1666667+01	.7302083+04
.8000000+00	.8000000+00	.1250000+01	.6428326+04
.8000000+00	.1000000+01	.1000000+01	.5753490+04
.8000000+00	.2000000+01	.5000000+00	.3813087+04
.8000000+00	.3000000+01	.3333333+00	.2867856+04
.8000000+00	.4000000+01	.2500000+00	.2302335+04
.8000000+00	.5000000+01	.2000000+00	.1924568+04
.8000000+00	.8000000+01	.1250000+00	.1291473+04
.8000000+00	.1000000+02	.1000000+00	.1059640+04
.8250000+00	.0000000	.0000000	.1427826+05
.8250000+00	.1000000-01	.1000000+03	.1404296+05
.8250000+00	.2500000-01	.4000000+02	.1370844+05
.8250000+00	.5000000-01	.2000000+02	.1319443+05
.8250000+00	.8000000-01	.1250000+02	.1263879+05
.8250000+00	.1000000+00	.1000000+02	.1229990+05
.8250000+00	.2000000+00	.5000000+01	.1089200+05
.8250000+00	.4000000+00	.2500000+01	.8965655+04
.8250000+00	.6000000+00	.1666667+01	.7676846+04
.8250000+00	.8000000+00	.1250000+01	.6738630+04
.8250000+00	.1000000+01	.1000000+01	.6018606+04
.8250000+00	.2000000+01	.5000000+00	.3967243+04
.8250000+00	.3000000+01	.3333333+00	.2976713+04
.8250000+00	.4000000+01	.2500000+00	.2386465+04

TWO STAGES - BOTH RELSABLE---TRAPEZE NO. 2 ****ROUNDTRIP

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8250000+00	.5000000+01	.2000000+00	.1993152+04
.8250000+00	.8000000+01	.1250000+00	.1335572+04
.8250000+00	.1000000+02	.1000000+00	.1095258+04
.8500000+00	.0000000	.0000000	.1551293+05
.8500000+00	.1000000-01	.1000000+03	.1523155+05
.8500000+00	.2500000-01	.4000000+02	.1483436+05
.8500000+00	.5000000-01	.2000000+02	.1423007+05
.8500000+00	.8000000-01	.1250000+02	.1358441+05
.8500000+00	.1000000+00	.1000000+02	.1319415+05
.8500000+00	.2000000+00	.5000000+01	.1159787+05
.8500000+00	.4000000+00	.2500000+01	.9466984+04
.8500000+00	.6000000+00	.1666667+01	.8067850+04
.8500000+00	.8000000+00	.1250000+01	.7060006+04
.8500000+00	.1000000+01	.1000000+01	.6291799+04
.8500000+00	.2000000+01	.5000000+00	.4124182+04
.8500000+00	.3000000+01	.3333333+00	.3086988+04
.8500000+00	.4000000+01	.2500000+00	.2471498+04
.8500000+00	.5000000+01	.2000000+00	.2062316+04
.8500000+00	.8000000+01	.1250000+00	.1379918+04
.8500000+00	.1000000+02	.1000000+00	.1131038+04
.8750000+00	.0000000	.0000000	.1696013+05
.8750000+00	.1000000-01	.1000000+03	.1661503+05
.8750000+00	.2500000-01	.4000000+02	.1613262+05
.8750000+00	.5000000-01	.2000000+02	.1540850+05
.8750000+00	.8000000-01	.1250000+02	.1464657+05
.8750000+00	.1000000+00	.1000000+02	.1419136+05
.8750000+00	.2000000+00	.5000000+01	.1236511+05
.8750000+00	.4000000+00	.2500000+01	.9997893+04
.8750000+00	.6000000+00	.1666667+01	.8476504+04
.8750000+00	.8000000+00	.1250000+01	.7393218+04
.8750000+00	.1000000+01	.1000000+01	.6573531+04

TWO STAGES - BOTH REUSABLE---TRAPEZE NO. 2 ****ROUNDTRIP

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8750000+00	.2000000+01	.5000000+00	.4283988+04
.8750000+00	.3000000+01	.3333333+00	.3198710+04
.8750000+00	.4000000+01	.2500000+00	.2557387+04
.8750000+00	.5000000+01	.2000000+00	.2132069+04
.8750000+00	.8000000+01	.1250000+00	.1424512+04
.8750000+00	.1000000+02	.1000000+00	.1166982+04
.9000000+00	.0000000	.0000000	.1871363+05
.9000000+00	.1000000-01	.1000000+03	.1827438+05
.9000000+00	.2500000-01	.4000000+02	.1766912+05
.9000000+00	.5000000-01	.2000000+02	.1677785+05
.9000000+00	.8000000-01	.1250000+02	.1585968+05
.9000000+00	.1000000+00	.1000000+02	.1531960+05
.9000000+00	.2000000+00	.5000000+01	.1320576+05
.9000000+00	.4000000+00	.2500000+01	.1056208+05
.9000000+00	.6000000+00	.1666667+01	.8904420+04
.9000000+00	.8000000+00	.1250000+01	.7739110+04
.9000000+00	.1000000+01	.1000000+01	.6864301+04
.9000000+00	.2000000+01	.5000000+00	.4446751+04
.9000000+00	.3000000+01	.3333333+00	.3311910+04
.9000000+00	.4000000+01	.2500000+00	.2644164+04
.9000000+00	.5000000+01	.2000000+00	.2202415+04
.9000000+00	.8000000+01	.1250000+00	.1469355+04
.9000000+00	.1000000+02	.1000000+00	.1203090+04
.9250000+00	.0000000	.0000000	.2094909+05
.9250000+00	.1000000-01	.1000000+03	.2035615+05
.9250000+00	.2500000-01	.4000000+02	.1955780+05
.9250000+00	.5000000-01	.2000000+02	.1841642+05
.9250000+00	.8000000-01	.1250000+02	.1727659+05
.9250000+00	.1000000+00	.1000000+02	.1662065+05
.9250000+00	.2000000+00	.5000000+01	.1413598+05
.9250000+00	.4000000+00	.2500000+01	.1116404+05

TWO STAGES - BOTH REUSABLE---TRAPEZE NO. 2 ****ROUNDTRIP

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.9250000+00	.6000000+00	.1666667+01	.9353460+04
.9250000+00	.8000000+00	.1250000+01	.8098638+04
.9250000+00	.1000000+01	.1000000+01	.7164666+04
.9250000+00	.2000000+01	.5000000+00	.4612564+04
.9250000+00	.3000000+01	.3333333+00	.3426618+04
.9250000+00	.4000000+01	.2500000+00	.2731844+04
.9250000+00	.5000000+01	.2000000+00	.2273364+04
.9250000+00	.8000000+01	.1250000+00	.1514450+04
.9250000+00	.1000000+02	.1000000+00	.1239363+04
.9500000+00	.0000000	.0000000	.2406069+05
.9500000+00	.1000000-01	.1000000+03	.2317059+05
.9500000+00	.2500000-01	.4000000+02	.2202308+05
.9500000+00	.5000000-01	.2000000+02	.2046481+05
.9500000+00	.8000000-01	.1250000+02	.1898476+05
.9500000+00	.1000000+00	.1000000+02	.1816081+05
.9500000+00	.2000000+00	.5000000+01	.1517816+05
.9500000+00	.4000000+00	.2500000+01	.1180929+05
.9500000+00	.6000000+00	.1666667+01	.9825790+04
.9500000+00	.8000000+00	.1250000+01	.8472872+04
.9500000+00	.1000000+01	.1000000+01	.7475235+04
.9500000+00	.2000000+01	.5000000+00	.4781524+04
.9500000+00	.3000000+01	.3333333+00	.3542867+04
.9500000+00	.4000000+01	.2500000+00	.2820443+04
.9500000+00	.5000000+01	.2000000+00	.2344924+04
.9500000+00	.8000000+01	.1250000+00	.1559799+04
.9500000+00	.1000000+02	.1000000+00	.1275802+04

TWO STAGES - BOTH REUSABLE---FORMATION SLINGSHOT***PAYLOAD DELIVERY

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8000000+00	.0000000	.0000000	.1646541+05
.8000000+00	.1000000-01	.1000000+03	.1631505+05
.8000000+00	.2500000-01	.4000000+02	.1609239+05
.8000000+00	.5000000-01	.2000000+02	.1572904+05
.8000000+00	.8000000-01	.1250000+02	.1530595+05
.8000000+00	.1000000+00	.1000000+02	.1503181+05
.8000000+00	.2000000+00	.5000000+01	.1375572+05
.8000000+00	.4000000+00	.2500000+01	.1164557+05
.8000000+00	.6000000+00	.1666667+01	.1002483+05

*** MISSION IMPOSSIBLE *** K1= 1.006 ***

.8000000+00	.8000000+00	.1250000+01	.8767375+04

*** MISSION IMPOSSIBLE *** K1= 1.022 ***

.8000000+00	.1000000+01	.1000000+01	.7774753+04

*** MISSION IMPOSSIBLE *** K1= 1.062 ***

.8000000+00	.2000000+01	.5000000+00	.4925511+04

*** MISSION IMPOSSIBLE *** K1= 1.078 ***

.8000000+00	.3000000+01	.3333333+00	.3593247+04

*** MISSION IMPOSSIBLE *** K1= 1.086 ***

.8000000+00	.4000000+01	.2500000+00	.2826317+04

*** MISSION IMPOSSIBLE *** K1= 1.092 ***

.8000000+00	.5000000+01	.2000000+00	.2328657+04

*** MISSION IMPOSSIBLE *** K1= 1.100 ***

.8000000+00	.8000000+01	.1250000+00	.1523250+04

*** MISSION IMPOSSIBLE *** K1= 1.103 ***

.8000000+00	.1000000+02	.1000000+00	.1237726+04
.8250000+00	.0000000	.0000000	.1787291+05
.8250000+00	.1000000-01	.1000000+03	.1770022+05
.8250000+00	.2500000-01	.4000000+02	.1744448+05
.8250000+00	.5000000-01	.2000000+02	.1702728+05
.8250000+00	.8000000-01	.1250000+02	.1654186+05
.8250000+00	.1000000+00	.1000000+02	.1622762+05
.8250000+00	.2000000+00	.5000000+01	.1476958+05
.8250000+00	.4000000+00	.2500000+01	.1238537+05
.8250000+00	.6000000+00	.1666667+01	.1058311+05

*** MISSION IMPOSSIBLE *** K1= 1.010 ***

    .8250000+00.   .8000000+00   .1250000+01   .9204942+04
*** MISSION IMPOSSIBLE *** K1= 1.025 ***

    .8250000+00   .1000000+01   .1000000+01   .8129203+04
*** MISSION IMPOSSIBLE *** K1= 1.059 ***

    .8250000+0C   .2000000+01   .5000000+C0   .5096204+04
*** MISSION IMPOSSIBLE *** K1= 1.073 ***

    .8250000+00   .3000000+01   .3333333+00   .3702223+C4
*** MISSION IMPOSSIBLE *** K1= 1.080 ***

    .8250000+0C   .4000000+01   .2500000+00   .2905623+04
*** MISSION IMPOSSIBLE *** K1= 1.085 ***

TWO STAGES - BOTH REUSABLE---FORMATION -SLINGSHOT***PAYLOAD DELIVERY

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8250000+00	.5000000+01	.2000000+00	.2390762+04

*** MISSION IMPOSSIBLE *** K1= 1.092 ***

| .8250000+00 | .8000000+01 | .1250000+00 | .1560655+04 |

*** MISSION IMPOSSIBLE *** K1= 1.094 ***

.8250000+00	.1000000+02	.1000000+00	.1267241+04
.8500000+00	.0000000	.0000000	.1950362+05
.8500000+00	.1000000-01	.1000000+03	.1930223+05
.8500000+00	.2500000-01	.4000000+02	.1900405+05
.8500000+00	.5000000-01	.2000000+02	.1851780+05
.8500000+00	.8000000-01	.1250000+02	.1795261+05
.8500000+00	.1000000+00	.1000000+02	.1758721+05
.8500000+00	.2000000+00	.5000000+01	.1589932+05
.8500000+00	.4000000+00	.2500000+01	.1317956+05
.8500000+00	.6000000+00	.1666667+01	.1116620+05

*** MISSION IMPOSSIBLE *** K1= 1.015 ***

| .8500000+00 | .8000000+00 | .1250000+01 | .9652855+04 |

*** MISSION IMPOSSIBLE *** K1= 1.027 ***

| .8500000+00 | .1000000+01 | .1000000+01 | .8486823+04 |

*** MISSION IMPOSSIBLE *** K1= 1.056 ***

| .8500000+00 | .2000000+01 | .5000000+00 | .5262739+04 |

*** MISSION IMPOSSIBLE *** K1= 1.067 ***

| .8500000+00 | .3000000+01 | .3333333+00 | .3807304+04 |

*** MISSION IMPOSSIBLE *** K1= 1.073 ***

| .8500000+00 | .4000000+01 | .2500000+00 | .2981654+04 |

*** MISSION IMPOSSIBLE *** K1= 1.077 ***

| .8500000+00 | .5000000+01 | .2000000+00 | .2450108+04 |

*** MISSION IMPOSSIBLE *** K1= 1.083 ***

| .8500000+00 | .8000000+01 | .1250000+00 | .1596228+04 |

*** MISSION IMPOSSIBLE *** K1= 1.084 ***

.8500000+00	.1000000+02	.1000000+00	.1295265+04
.8750000+00	.0000000	.0000000	.2143986+05
.8750000+00	.1000000-01	.1000000+03	.2120004+05
.8750000+00	.2500000-01	.4000000+02	.2084500+05
.8750000+00	.5000000-01	.2000000+02	.2026641+05
.8750000+00	.8000000-01	.1250000+02	.1959491+05
.8750000+00	.1000000+00	.1000000+02	.1916161+05
.8750000+00	.2000000+00	.5000000+01	.1717296+05
.8750000+00	.4000000+00	.2500000+01	.1403354+05

*** MISSION IMPOSSIBLE *** K1= 1.003 ***

.8750000+00	.6000000+00	.1666667+01	.1177219+05

*** MISSION IMPOSSIBLE *** K1= 1.018 ***

.8750000+00	.8000000+00	.1250000+01	.1010765+05

*** MISSION IMPOSSIBLE *** K1= 1.028 ***

.8750000+00	.1000000+01	.1000000+01	.8844127+04

*** MISSION IMPOSSIBLE *** K1= 1.052 ***

TWO STAGES - BOTH REUSABLE---FORMATION SLINGSHOT***PAYLOAD DELIVERY

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8750000+00	.2000000+01	.5000000+00	.5423334+04

*** MISSION IMPOSSIBLE *** K1= 1.061 ***

| .8750000+00 | .3000000+01 | .3333333+00 | .3907455+04 |

*** MISSION IMPOSSIBLE *** K1= 1.065 ***

| .8750000+00 | .4000000+01 | .2500000+00 | .3053716+04 |

*** MISSION IMPOSSIBLE *** K1= 1.068 ***

| .8750000+00 | .5000000+01 | .2000000+00 | .2506174+04 |

*** MISSION IMPOSSIBLE *** K1= 1.072 ***

| .8750000+00 | .8000000+01 | .1250000+00 | .1629679+04 |

*** MISSION IMPOSSIBLE *** K1= 1.074 ***

.8750000+00	.1000000+02	.1000000+00	.1321580+04
.9000000+00	.0000000	.0000000	.2381978+05
.9000000+00	.1000000-01	.1000000+03	.2352529+05
.9000000+00	.2500000-01	.4000000+02	.2308944+05
.9000000+00	.5000000-01	.2000000+02	.2237986+05
.9000000+00	.8000000-01	.1250000+02	.2155832+05
.9000000+00	.1000000+00	.1000000+02	.2102984+05
.9000000+00	.2000000+00	.5000000+01	.1862865+05
.9000000+00	.4000000+00	.2500000+01	.1495004+05

*** MISSION IMPOSSIBLE *** K1= 1.008 ***

| .9000000+00 | .6000000+00 | .1666667+01 | .1239585+05 |

*** MISSION IMPOSSIBLE *** K1= 1.020 ***

| .9000000+00 | .8000000+00 | .1250000+01 | .1056327+05 |

*** MISSION IMPOSSIBLE *** K1= 1.028 ***

| .9000000+00 | .1000000+01 | .1000000+01 | .9195759+04 |

*** MISSION IMPOSSIBLE *** K1= 1.046 ***

| .9000000+00 | .2000000+01 | .5000000+00 | .5575652+04 |

*** MISSION IMPOSSIBLE *** K1= 1.053 ***

| .9000000+00 | .3000000+01 | .3333333+00 | .4001352+04 |

*** MISSION IMPOSSIBLE *** K1= 1.056 ***

| .9000000+00 | .4000000+01 | .2500000+00 | .3120913+04 |

*** MISSION IMPOSSIBLE *** K1= 1.058 ***

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        .9000000+00        .5000000+01        .2000000+00        .2558293+04
*** MISSION IMPOSSIBLE *** K1= 1.061 ***

        .9000000+00        .8000000+01        .1250000+00        .1660639+04
*** MISSION IMPOSSIBLE *** K1= 1.062 ***

        .9000000+00        .1000000+02        .1000000+00        .1345902+04
        .9250000+00        .0000000            .0000000           .2690282+05
        .9250000+00        .1000000-01        .1000000+03        .2652310+05
        .9250000+00        .2500000-01        .4000000+02        .2596137+05
        .9250000+00        .5000000-01        .2000000+02        .2504860+05
        .9250000+00        .8000000-01        .1250000+02        .2399646+05
        .9250000+00        .1000000+00        .1000000+02        .2332336+05
        .9250000+00        .2000000+00        .5000000+01        .2031777+05
        .9250000+00        .4000000+00        .2500000+01        .1592476+05
*** MISSION IMPOSSIBLE *** K1= 1.012 ***
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TWO STAGES - BOTH REUSABLE---FORMATION SLINGSHOT***PAYLOAD DELIVERY

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.9250000+00	.6000000+00	.1666667+01	.1302559+05

*** MISSION IMPOSSIBLE *** K1= 1.021 ***

| .9250000+00 | .8000000+00 | .1250000+01 | .1100936+05 |

*** MISSION IMPOSSIBLE *** K1= 1.027 ***

| .9250000+00 | .1000000+01 | .1000000+01 | .9533431+04 |

*** MISSION IMPOSSIBLE *** K1= 1.039 ***

| .9250000+00 | .2000000+01 | .5000000+00 | .5716514+04 |

*** MISSION IMPOSSIBLE *** K1= 1.044 ***

| .9250000+00 | .3000000+01 | .3333333+00 | .4087223+04 |

*** MISSION IMPOSSIBLE *** K1= 1.046 ***

| .9250000+00 | .4000000+01 | .2500000+00 | .3182054+04 |

*** MISSION IMPOSSIBLE *** K1= 1.047 ***

| .9250000+00 | .5000000+01 | .2000000+00 | .2605578+04 |

*** MISSION IMPOSSIBLE *** K1= 1.049 ***

| .9250000+00 | .8000000+01 | .1250000+00 | .1688615+04 |

*** MISSION IMPOSSIBLE *** K1= 1.050 ***

.9250000+00	.1000000+02	.1000000+00	.1367850+04
.9500000+00	.0000000	.0000000	.3127253+05
.9500000+00	.1000000-01	.1000000+03	.3073717+05
.9500000+00	.2500000-01	.4000000+02	.2994615+05
.9500000+00	.5000000-01	.2000000+02	.2866625+05
.9500000+00	.8000000-01	.1250000+02	.2720550+05
.9500000+00	.1000000+00	.1000000+02	.2628230+05
.9500000+00	.2000000+00	.5000000+01	.2230137+05

*** MISSION IMPOSSIBLE *** K1= 1.004 ***

| .9500000+00 | .4000000+00 | .2500000+01 | .1693403+05 |

*** MISSION IMPOSSIBLE *** K1= 1.014 ***

| .9500000+00 | .6000000+00 | .1666667+01 | .1363732+05 |

*** MISSION IMPOSSIBLE *** K1= 1.019 ***

| .9500000+00 | .8000000+00 | .1250000+01 | .1142804+05 |

*** MISSION IMPOSSIBLE *** K1= 1.023 ***

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   .9500000+00        .100000+01          .1000000+01          .9843955+04
*** MISSION IMPOSSIBLE *** K1= 1.030 ***

   .9500000+00        .200000+01          .5000000+00          .5841332+04
*** MISSION IMPOSSIBLE *** K1= 1.032 ***

   .9500000+00        .300000+01          .3333333+00          .4162529+04

*** MISSION IMPOSSIBLE *** K1= 1.033 ***

   .9500000+00        .400000+01          .2500000+00          .3235421+04
*** MISSION IMPOSSIBLE *** K1= 1.034 ***

   .9500000+00        .500000+01          .2000000+00          .2646743+04
*** MISSION IMPOSSIBLE *** K1= 1.035 ***

   .9500000+00        .800000+01          .1250000+00          .1712881+04
*** MISSION IMPOSSIBLE *** K1= 1.036 ***

   .9500000+00        .100000+02          .1000000+00          .1386867+04
```

ISP= 460.0

LAMBCA	WPL/WS	hS/WPL	DELTAV
.8000000+00	.0000000	.0000000	.1646541+05
.8000000+00	.1000000-01	.1000000+03	.1627483+05
.8000000+00	.2500000-01	.4000000+02	.1600126+05
.8000000+00	.5000000-01	.2000000+02	.1557463+05
.8000000+00	.8000000-01	.1250000+02	.1510455+05
.8000000+00	.1000000+00	.1000000+02	.1481311+05
.8000000+00	.2000000+00	.5000000+01	.1356116+05
.8000000+00	.4000000+00	.2500000+01	.1172889+05
.8000000+00	.6000000+00	.1666667+01	.1041487+05
.8000000+00	.8000000+00	.1250000+01	.9407363+04
.8000000+00	.1000000+01	.1000000+01	.8601568+04
.8000000+00	.2000000+01	.5000000+00	.6119978+04
.8000000+00	.3000000+01	.3333333+00	.4798194+04
.8000000+00	.4000000+01	.2500000+00	.3960905+04
.8000000+00	.5000000+01	.2000000+00	.3378407+04
.8000000+00	.8000000+01	.1250000+00	.2352734+04
.8000000+00	.1000000+02	.1000000+00	.1959171+04
.8250000+00	.0000000	.0000000	.1787291+05
.8250000+00	.1000000-01	.1000000+03	.1764313+05
.8250000+00	.2500000-01	.4000000+02	.1731534+05
.8250000+00	.5000000-01	.2000000+02	.1680868+05
.8250000+00	.8000000-01	.1250000+02	.1625621+05
.8250000+00	.1000000+00	.1000000+02	.1591647+05
.8250000+00	.2000000+00	.5000000+01	.1447817+05
.8250000+00	.4000000+00	.2500000+01	.1242346+05
.8250000+00	.6000000+00	.1666667+01	.1057871+05
.8250000+00	.8000000+00	.1250000+01	.9884158+04
.8250000+00	.1000000+01	.1000000+01	.9015842+04
.8250000+00	.2000000+01	.5000000+00	.6374381+04
.8250000+00	.3000000+01	.3333333+00	.4983811+04
.8250000+00	.4000000+01	.2500000+00	.4107687+04

TWO STAGES - BOTH REUSABLE---FORMATION /SLINGSHOOT***PAYLOAD RETRIEVAL

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8250000+00	.5000000+01	.2000000+00	.3500068+04
.8250000+00	.8000000+01	.1250000+00	.2433514+04
.8250000+00	.1000000+02	.1000000+00	.2025285+04
.8500000+00	.0000000	.0000000	.1950362+05
.8500000+00	.1000000-01	.1000000+03	.1922052+05
.8500000+00	.2500000-01	.4000000+02	.1882002+05
.8500000+00	.5000000-01	.2000000+02	.1820804+05
.8500000+00	.8000000-01	.1250000+02	.1754948+05
.8500000+00	.1000000+00	.1000000+02	.1714860+05
.8500000+00	.2000000+00	.5000000+01	.1548105+05
.8500000+00	.4000000+00	.2500000+01	.1316521+05
.8500000+00	.6000000+00	.1666667+01	.1157276+05
.8500000+00	.8000000+00	.1250000+01	.1038209+05
.8500000+00	.1000000+01	.1000000+01	.9445799+04
.8500000+00	.2000000+01	.5000000+00	.6634363+04
.8500000+00	.3000000+01	.3333333+00	.5172292+04
.8500000+00	.4000000+01	.2500000+00	.4256211+04
.8500000+00	.5000000+01	.2000000+00	.3622904+04
.8500000+00	.8000000+01	.1250000+00	.2514793+04
.8500000+00	.1000000+02	.1000000+00	.2091725+04
.8750000+00	.0000000	.0000000	.2143986+05
.8750000+00	.1000000-01	.1000000+03	.2108065+05
.8750000+00	.2500000-01	.4000000+02	.2057826+05
.8750000+00	.5000000-01	.2000000+02	.1982235+05
.8750000+00	.8000000-01	.1250000+02	.1902287+05
.8750000+00	.1000000+00	.1000000+02	.1854247+05
.8750000+00	.2000000+00	.5000000+01	.1658658+05
.8750000+00	.4000000+00	.2500000+01	.1396078+05
.8750000+00	.6000000+00	.1666667+01	.1220034+05
.8750000+00	.8000000+00	.1250000+01	.1090307+05
.8750000+00	.1000000+01	.1000000+01	.9892628+04

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8750000+00	.2000000+01	.5000000+00	.6900160+04
.8750000+00	.3000000+01	.3333333+00	.5363721+04
.8750000+00	.4000000+01	.2500000+00	.4406521+04
.8750000+00	.5000000+01	.2000000+00	.3746938+04
.8750000+00	.8000000+01	.1250000+00	.2596575+04
.8750000+00	.1000000+02	.1000000+00	.2158497+04
.9000000+00	.0000000	.0000000	.2381978+05
.9000000+00	.1000000-01	.1000000+03	.2334425+05
.9000000+00	.2500000-01	.4000000+02	.2269026+05
.9000000+00	.5000000-01	.2000000+02	.2172748+05
.9000000+00	.8000000-01	.1250000+02	.2073297+05
.9000000+00	.1000000+00	.1000000+02	.2014555+05
.9000000+00	.2000000+00	.5000000+01	.1781887+05
.9000000+00	.4000000+00	.2500000+01	.1481838+05
.9000000+00	.6000000+00	.1666667+01	.1286533+05
.9000000+00	.8000000+00	.1250000+01	.1144924+05
.9000000+00	.1000000+01	.1000000+01	.1035766+05
.9000000+00	.2000000+01	.5000000+00	.7172031+04
.9000000+00	.3000000+01	.3333333+00	.5558189+04
.9000000+00	.4000000+01	.2500000+00	.4558658+04
.9000000+00	.5000000+01	.2000000+00	.3872190+04
.9000000+00	.8000000+01	.1250000+00	.2678867+04
.9000000+00	.1000000+02	.1000000+00	.2225606+04
.9250000+00	.0000000	.0000000	.2690282+05
.9250000+00	.1000000-01	.1000000+03	.2623033+05
.9250000+00	.2500000-01	.4000000+02	.2533000+05
.9250000+00	.5000000-01	.2000000+02	.2404596+05
.9250000+00	.8000000-01	.1250000+02	.2276805+05
.9250000+00	.1000000+00	.1000000+02	.2202981+05
.9250000+00	.2000000+00	.5000000+01	.1920835+05
.9250000+00	.4000000+00	.2500000+01	.1574823+05

TWO STAGES - BOTH REUSABLE---FORMATION SLINGSHO*T***PAYLOAD RETRIEVAL

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.9250000+00	.6000000+00	.1666667+01	.1357235+05
.9250000+00	.8000000+00	.1250000+01	.1202311+05
.9250000+00	.1000000+01	.1000000+01	.1084240+05
.9250000+00	.2000000+01	.5000000+00	.7450247+04
.9250000+00	.3000000+01	.3333333+00	.5755789+04
.9250000+00	.4000000+01	.2500000+00	.4712663+04
.9250000+00	.5000000+01	.2000000+00	.3998686+04
.9250000+00	.8000000+01	.1250000+00	.2761677+04
.9250000+00	.1000000+02	.1000000+00	.2293050+04
.9500000+00	.0000000	.0000000	.3127253+05
.9500000+00	.1000000-01	.1000000+03	.3020342+05
.9500000+00	.2500000-01	.4000000+02	.2884201+05
.9500000+00	.5000000-01	.2000000+02	.2701031+05
.9500000+00	.8000000-01	.1250000+02	.2527738+05
.9500000+00	.1000000+00	.1000000+02	.2431245+05
.9500000+00	.2000000+00	.5000000+01	.2080383+05
.9500000+00	.4000000+00	.2500000+01	.1676337+05
.9500000+00	.6000000+00	.1666667+01	.1432695+05
.9500000+00	.8000000+00	.1250000+01	.1262754+05
.9500000+00	.1000000+01	.1000000+01	.1134853+05
.9500000+00	.2000000+01	.5000000+00	.7735101+04
.9500000+00	.3000000+01	.3333333+00	.5956621+04
.9500000+00	.4000000+01	.2500000+00	.4868582+04
.9500000+00	.5000000+01	.2000000+00	.4126448+04
.9500000+00	.8000000+01	.1250000+00	.2845007+04
.9500000+00	.1000000+02	.1000000+00	.2360836+04

TWO STAGES - BOTH REUSABLE----FORMATION SLINGSHOT****ROUNDTRIP

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8000000+00	.0000000	.0000000	.1646541+05
.8000000+00	.1000000-01	.1000000+03	.1612950+05
.8000000+00	.2500000-01	.4000000+02	.1565775+05
.8000000+00	.5000000-01	.2000000+02	.1494522+05
.8000000+00	.8000000-01	.1250000+02	.1419055+05
.8000000+00	.1000000+00	.1000000+02	.1373763+05
.8000000+00	.2000000+00	.5000000+01	.1190989+05
.8000000+00	.4000000+00	.2500000+01	.9533382+04
.8000000+00	.6000000+00	.1666667+01	.8015584+04
.8000000+00	.8000000+00	.1250000+01	.6945204+04
.8000000+00	.1000000+01	.1000000+01	.6143033+04
.8000000+00	.2000000+01	.5000000+00	.3946425+04
.8000000+00	.3000000+01	.3333333+00	.2929548+04
.8000000+00	.4000000+01	.2500000+00	.2336393+04
.8000000+00	.5000000+01	.2000000+00	.1945297+04
.8000000+00	.8000000+01	.1250000+00	.1298212+04
.8000000+00	.1000000+02	.1000000+00	.1063470+04
.8250000+00	.0000000	.0000000	.1787292+05
.8250000+00	.1000000-01	.1000000+03	.1747693+05
.8250000+00	.2500000-01	.4000000+02	.1692481+05
.8250000+00	.5000000-01	.2000000+02	.1609909+05
.8250000+00	.8000000-01	.1250000+02	.1523421+05
.8250000+00	.1000000+00	.1000000+02	.1471949+05
.8250000+00	.2000000+00	.5000000+01	.1267089+05
.8250000+00	.4000000+00	.2500000+01	.1006301+05
.8250000+00	.6000000+00	.1666667+01	.8423585+04
.8250000+00	.8000000+00	.1250000+01	.7277641+04
.8250000+00	.1000000+01	.1000000+01	.6423797+04
.8250000+00	.2000000+01	.5000000+00	.4105033+04
.8250000+00	.3000000+01	.3333333+00	.3040692+04
.8250000+00	.4000000+01	.2500000+00	.2421520+04

TWO STAGES - BOTH REUSABLE---FORMATION SLINGSHOT****ROUNDTRIP

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8250000+00	.5000000+01	.2000000+00	.2014451+04
.8250000+00	.8000000+01	.1250000+00	.1342485+04
.8250000+00	.1000000+02	.1000000+00	.1099183+04
.8500000+00	.0000000	.0000000	.1950362+05
.8500000+00	.1000000-01	.1000000+03	.1902783+05
.8500000+00	.2500000-01	.4000000+02	.1837370+05
.8500000+00	.5000000-01	.2000000+02	.1740025+05
.8500000+00	.8000000-01	.1250000+02	.1639786+05
.8500000+00	.1000000+00	.1000000+02	.1580741+05
.8500000+00	.2000000+00	.5000000+01	.1349577+05
.8500000+00	.4000000+00	.2500000+01	.1062413+05
.8500000+00	.6000000+00	.1666667+01	.8850583+04
.8500000+00	.8000000+00	.1250000+01	.7622868+04
.8500000+00	.1000000+01	.1000000+01	.6713791+04
.8500000+00	.2000000+01	.5000000+00	.4266699+04
.8500000+00	.3000000+01	.3333333+00	.3152958+04
.8500000+00	.4000000+01	.2500000+00	.2507559+04
.8500000+00	.5000000+01	.2000000+00	.2084214+04
.8500000+00	.8000000+01	.1250000+00	.1387010+04
.8500000+00	.1000000+02	.1000000+00	.1135063+04
.8750000+00	.0000000	.0000000	.2143986+05
.8750000+00	.1000000-01	.1000000+03	.2085301+05
.8750000+00	.2500000-01	.4000000+02	.2005291+05
.8750000+00	.5000000-01	.2000000+02	.1889100+05
.8750000+00	.8000000-01	.1250000+02	.1771222+05
.8750000+00	.1000000+00	.1000000+02	.1702679+05
.8750000+00	.2000000+00	.5000000+01	.1439630+05
.8750000+00	.4000000+00	.2500000+01	.1122080+05
.8750000+00	.6000000+00	.1666667+01	.9298498+04
.8750000+00	.8000000+00	.1250000+01	.7981948+04
.8750000+00	.1000000+01	.1000000+01	.7013667+04

TWO STAGES - BOTH REUSABLE---FORMATION SLINGSHOT****RCUNDTRIP

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8750000+0C	.2000000+01	.5000000+00	.4431550+04
.8750000+00	.3000000+01	.3333333+00	.3266791+04
.8750000+0C	.4000000+01	.2500000+C0	.2594531+04
.8750000+0C	.5000000+01	.2000000+00	.2154596+04
.8750000+00	.8000000+01	.1250000+00	.1431793+04
.8750000+00	.1000000+02	.1000000+00	.1171111+04
.9000000+0C	.0000000	.0000000	.2381979+05
.9000000+00	.1000000-01	.1000000+03	.2306799+05
.9000000+0C	.2500000-01	.4000000+02	.2206205+05
.9000000+0C	.5000000-01	.2000000+02	.2063499+05
.9000000+0C	.8000000-01	.1250000+02	.1922171+05
.9000000+0C	.1000000+00	.1000000+02	.1841357+05
.9000000+0C	.2000000+00	.5000000+01	.1538793+05
.9000000+00	.4000000+00	.2500000+01	.1185800+05
.9000000+00	.6000000+00	.1666667+01	.9769573+04
.9000000+0C	.8000000+00	.1250000+01	.8356092+04
.9000000+0C	.1000000+01	.1000000+01	.7324157+04
.9000000+00	.2000000+01	.5000000+00	.4595718+04
.9000000+0C	.3000000+01	.3333333+00	.3382238+04
.9000000+00	.4000000+01	.2500000+00	.2682457+04
.9000000+0C	.5000000+01	.2000000+00	.2225608+04
.9000000+00	.8000000+01	.1250000+00	.1476835+04
.9000000+00	.1000000+02	.1000000+00	.1207328+04
.9250000+00	.0000000	.0000000	.2690283+05
.9250000+0C	.1000000-01	.1000000+03	.2588084+05
.9250000+0C	.2500000-01	.4000000+02	.2455333+05
.9250000+00	.5000000-01	.2000000+02	.2273478+05
.9250000+0C	.8000000-01	.1250000+02	.2099413+05
.9250000+00	.1000000+00	.1000000+02	.2002112+05
.9250000+0C	.2000000+00	.5000000+01	.1649164+05
.9250000+00	.4000000+00	.2500000+01	.1254187+05

TWC STAGES - BOTH RELSABLE---FORMATION SLINGSHOT****ROUNDTRIP

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.9250000+00	.6000000+00	.1666667+01	.1026646+05
.9250000+00	.8000000+00	.1250000+01	.8746686+04
.9250000+00	.1000000+01	.1000000+01	.7646078+04
.9250000+00	.2000000+01	.5000000+00	.4771345+04
.9250000+00	.3000000+01	.3333333+00	.3499346+04
.9250000+00	.4000000+01	.2500000+00	.2771359+04
.9250000+00	.5000000+01	.2000000+00	.2297263+04
.9250000+00	.8000000+01	.1250000+00	.1522141+04
.9250000+00	.1000000+02	.1000000+00	.1243716+04
.9500000+00	.0000000	.0000000	.3127254+05
.9500000+00	.1000000-01	.1000000+03	.2972837+05
.9500000+00	.2500000-01	.4000000+02	.2782818+05
.9500000+00	.5000000-01	.2000000+02	.2537233+05
.9500000+00	.8000000-01	.1250000+02	.2314134+05
.9500000+00	.1000000+00	.1000000+02	.2193427+05
.9500000+00	.2000000+00	.5000000+01	.1773702+05
.9500000+00	.4000000+00	.2500000+01	.1328019+05
.9500000+00	.6000000+00	.1666667+01	.1079231+05
.9500000+00	.8000000+00	.1250000+01	.9155328+04
.9500000+00	.1000000+01	.1000000+01	.7980353+04
.9500000+00	.2000000+01	.5000000+00	.4946585+04
.9500000+00	.3000000+01	.3333333+00	.3618166+04
.9500000+00	.4000000+01	.2500000+00	.2861259+04
.9500000+00	.5000000+01	.2000000+00	.2369572+04
.9500000+00	.8000000+01	.1250000+00	.1567712+04
.9500000+00	.1000000+02	.1000000+00	.1280278+04

TWO STAGES - BOTH REUSABLE----REFUELED. SLINGSHOT****PAYLOAD DELIVERY

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8000000+00	.0000000	.0000000	.1961786+05
.8000000+00	.1000000-01	.1000000+03	.1949444+05
.8000000+00	.2500000-01	.4000000+02	.1931090+05
.8000000+00	.5000000-01	.2000000+02	.1900931+05
.8000000+00	.8000000-01	.1250000+02	.1865468+05
.8000000+00	.1000000+00	.1000000+02	.1842275+05
.8000000+00	.2000000+00	.5000000+01	.1731783+05
.8000000+00	.4000000+00	.2500000+01	.1537929+05
.8000000+00	.6000000+00	.1666667+01	.1377114+05
.8000000+00	.8000000+00	.1250000+01	.1243854+05
.8000000+00	.1000000+01	.1000000+01	.1132705+05

*** MISSION IMPOSSIBLE *** K2= 1.021 ***

.8000000+00	.2000000+01	.5000000+00	.7794628+04

*** MISSION IMPOSSIBLE *** K2= 1.048 ***

.8000000+00	.3000000+01	.3333333+00	.5936103+04

*** MISSION IMPOSSIBLE *** K2= 1.063 ***

.8000000+00	.4000000+01	.2500000+00	.4794091+04

*** MISSION IMPOSSIBLE *** K2= 1.073 ***

.8000000+00	.5000000+01	.2000000+00	.4021303+04

*** MISSION IMPOSSIBLE *** K2= 1.088 ***

.8000000+00	.8000000+01	.1250000+00	.2711752+04

*** MISSION IMPOSSIBLE *** K2= 1.093 ***

.8000000+00	.1000000+02	.1000000+00	.2228420+04
.8250000+00	.0000000	.0000000	.2120676+05
.8250000+00	.1000000-01	.1000000+03	.2106627+05
.8250000+00	.2500000-01	.4000000+02	.2085734+05
.8250000+00	.5000000-01	.2000000+02	.2051404+05
.8250000+00	.8000000-01	.1250000+02	.2011043+05
.8250000+00	.1000000+00	.1000000+02	.1984656+05
.8250000+00	.2000000+00	.5000000+01	.1859137+05
.8250000+00	.4000000+00	.2500000+01	.1640288+05
.8250000+00	.6000000+00	.1666667+01	.1460659+05
.8250000+00	.8000000+00	.1250000+01	.1313493+05
.8250000+00	.1000000+01	.1000000+01	.1191878+05

*** MISSION IMPOSSIBLE *** K2= 1.025 ***

.8250000+00   .2000000+01   .5000000+00   .8120147+04
*** MISSION IMPOSSIBLE *** K2= 1.048 ***

        .8250000+00   .3000000+01   .3333333+00   .6156690+04
*** MISSION IMPOSSIBLE *** K2= 1.061 ***

        .8250000+00   .4000000+01   .2500000+00   .4960049+04
*** MISSION IMPOSSIBLE *** K2= 1.069 ***

TWO STAGES — BOTH REUSABLE——REFUELED SLINGSHOT****PAYLOAD DELIVERY

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8250000+00	.5000000+01	.2000000+00	.4154039+04

*** MISSION IMPOSSIBLE *** K2= 1.081 ***

| .8250000+00 | .8000000+01 | .1250000+00 | .2794372+04 |

*** MISSION IMPOSSIBLE *** K2= 1.086 ***

.8250000+00	.1000000+02	.1000000+00	.2294345+04
.8500000+00	.0000000	.0000000	.2303144+05
.8500000+00	.1000000-01	.1000000+03	.2286927+05
.8500000+00	.2500000-01	.4000000+02	.2262809+05
.8500000+00	.5000000-01	.2000000+02	.2223183+05
.8500000+00	.8000000-01	.1250000+02	.2176610+05
.8500000+00	.1000000+00	.1000000+02	.2146176+05
.8500000+00	.2000000+00	.5000000+01	.2001725+05
.8500000+00	.4000000+00	.2500000+01	.1752016+05
.8500000+00	.6000000+00	.1666667+01	.1550023+05
.8500000+00	.8000000+00	.1250000+01	.1386706+05
.8500000+00	.1000000+01	.1000000+01	.1253322+05

*** MISSION IMPOSSIBLE *** K2= 1.027 ***

| .8500000+00 | .2000000+01 | .5000000+00 | .8448067+04 |

*** MISSION IMPOSSIBLE *** K2= 1.047 ***

| .8500000+00 | .3000000+01 | .3333333+00 | .6376479+04 |

*** MISSION IMPOSSIBLE *** K2= 1.057 ***

| .8500000+00 | .4000000+01 | .2500000+00 | .5124517+04 |

*** MISSION IMPOSSIBLE *** K2= 1.064 ***

| .8500000+00 | .5000000+01 | .2000000+00 | .4285165+04 |

*** MISSION IMPOSSIBLE *** K2= 1.074 ***

| .8500000+00 | .8000000+01 | .1250000+00 | .2875611+04 |

*** MISSION IMPOSSIBLE *** K2= 1.078 ***

.8500000+00	.1000000+02	.1000000+00	.2359070+04
.8750000+00	.0000000	.0000000	.2517629+05
.8750000+00	.1000000-01	.1000000+03	.2498542+05
.8750000+00	.2500000-01	.4000000+02	.2470153+05
.8750000+00	.5000000-01	.2000000+02	.2423515+05
.8750000+00	.8000000-01	.1250000+02	.2368731+05
.8750000+00	.1000000+00	.1000000+02	.2332960+05
.8750000+00	.2000000+00	.5000000+01	.2163734+05
.8750000+00	.4000000+00	.2500000+01	.1874800+05
.8750000+00	.6000000+00	.1666667+01	.1645613+05
.8750000+00	.8000000+00	.1250000+01	.1463539+05
.8750000+00	.1000000+01	.1000000+01	.1316899+05

*** MISSICN IMPCSSIBLE *** K2= 1.029 ***

.8750000+00	.2000000+01	.5000000+00	.8776598+04

*** MISSICN IMPCSSIBLE *** K2= 1.044 ***

.8750000+00	.3000000+01	.3333333+00	.6594324+04

*** MISSICN IMPCSSIBLE *** K2= 1.053 ***

.8750000+00	.4000000+01	.2500000+00	.5286701+04

*** MISSICN IMPOSSIBLE *** K2= 1.058 ***

.8750000+00	.5000000+01	.2000000+00	.4414088+04

*** MISSICN IMPCSSIBLE *** K2= 1.066 ***

.8750000+00	.8000000+01	.1250000+00	.2955147+04

*** MISSICN IMPCSSIBLE *** K2= 1.069 ***

.8750000+00	.1000000+02	.1000000+00	.2422351+04
.9000000+00	.0000000	.0000000	.2778207+05
.9000000+00	.1000000-01	.1000000+03	.2755086+05
.9000000+00	.2500000-01	.4000000+02	.2720695+05
.9000000+00	.5000000-01	.2000000+02	.2664211+05
.9000000+00	.8000000-01	.1250000+02	.2597926+05
.9000000+00	.1000000+00	.1000000+02	.2554707+05
.9000000+00	.2000000+00	.5000000+01	.2351327+05
.9000000+00	.4000000+00	.2500000+01	.2010626+05
.9000000+00	.6000000+00	.1666667+01	.1747818+05
.9000000+00	.8000000+00	.1250000+01	.1543785+05
.9000000+00	.1000000+01	.1000000+01	.1382243+05

*** MISSICN IMPCSSIBLE *** K2= 1.029 ***

.9000000+00	.2000000+01	.5000000+00	.9103154+04

*** MISSICN IMPCSSIBLE *** K2= 1.041 ***

.9000000+00	.3000000+01	.3333333+00	.6808686+04

*** MISSICN IMPCSSIBLE *** K2= 1.047 ***

.9000000+00	.4000000+01	.2500000+00	.5445558+04

*** MISSICN IMPCSSIBLE *** K2= 1.051 ***

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   .9000000+00        .5000000+01          .2000000+00         .4540040+04
*** MISSION IMPOSSIBLE ***. K2= 1.057 ***

   .9000000+00        .8000000+01          .1250000+00         .3032564+04
*** MISSION IMPOSSIBLE *** K2= 1.059 ***

   .9000000+00        .100000+02           .100000+00          .2483876+04
   .9250000+00        .0000000             .0000000            .3111166+05
   .9250000+00        .1000000-01          .1000000+03         .3081831+05
   .9250000+00        .2500000-01          .4000000+02         .3038200+05
   .9250000+00        .5000000-01          .2000000+02         .2966588+05
   .9250000+00        .8000000-01          .1250000+02         .2882711+05
   .9250000+00        .100000+00           .100000+02          .2828169+05
   .9250000+00        .2000000+00          .5000000+01         .2573989+05
   .9250000+00        .4000000+00          .2500000+01         .2161537+05
```

TWO STAGES - BOTH REUSABLE---REFUELED SLINGSHOT****PAYLOAD DELIVERY

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.9250000+00	.6000000+00	.1666667+01	.1856432+05
.9250000+00	.8000000+00	.1250000+01	.1626712+05

*** MISSION IMPOSSIBLE *** K2= 1.005 ***

| .9250000+00 | .1000000+01 | .1000000+01 | .1448581+05 |

*** MISSION IMPOSSIBLE *** K2= 1.027 ***

| .9250000+00 | .2000000+01 | .5000000+00 | .9423508+04 |

*** MISSION IMPOSSIBLE *** K2= 1.035 ***

| .9250000+00 | .3000000+01 | .3333333+00 | .7017415+04 |

*** MISSION IMPOSSIBLE *** K2= 1.039 ***

| .9250000+00 | .4000000+01 | .2500000+00 | .5599663+04 |

*** MISSION IMPOSSIBLE *** K2= 1.042 ***

| .9250000+00 | .5000000+01 | .2000000+00 | .4661975+04 |

*** MISSION IMPOSSIBLE *** K2= 1.046 ***

| .9250000+00 | .8000000+01 | .1250000+00 | .3107304+04 |

*** MISSION IMPOSSIBLE *** K2= 1.047 ***

.9250000+00	.1000000+02	.1000000+00	.2543221+04
.9500000+00	.0000000	.0000000	.3575322+05
.9500000+00	.1000000-01	.1000000+03	.3534779+05
.9500000+00	.2500000-01	.4000000+02	.3474496+05
.9500000+00	.5000000-01	.2000000+02	.3375728+05
.9500000+00	.8000000-01	.1250000+02	.3260600+05
.9500000+00	.1000000+00	.1000000+02	.3186213+05
.9500000+00	.2000000+00	.5000000+01	.2846820+05
.9500000+00	.4000000+00	.2500000+01	.2328429+05
.9500000+00	.6000000+00	.1666667+01	.1969719+05

*** MISSION IMPOSSIBLE *** K2= 1.004 ***

| .9500000+00 | .8000000+00 | .1250000+01 | .1710476+05 |

*** MISSION IMPOSSIBLE *** K2= 1.010 ***

| .9500000+00 | .1000000+01 | .1000000+01 | .1514368+05 |

*** MISSION IMPOSSIBLE *** K2= 1.023 ***

```
     .950C000+00        .2000000+01        .5000000+00        .9732946+C4
*** MISSICN IMPCSSIBLE *** K2= 1.028 ***

     .9500000+00        .3000000+01        .3333333+00        .7217321+04
*** MISSICN IMPCSSIBLE *** K2= 1.030 ***

     .9500CC0+00       ..4C00000+01        .2500000+C0        .5746926+04
*** MISSICN IMPCSSIBLE *** K2= 1.031 ***

     .9500000+00        .5C00000+01        .2000000+00        .4778366+04

*** MISSICN IMPCSSIBLE *** K2= 1.034 ***

     .9500000+00        .8000000+01        .1250000+00        .3178546+C4
*** MISSICN IMPCSSIBLE *** K2= 1.034 ***

     .9500000+0C        .1C00CC0+02        .1000000+00        .2599767+04
```

TWO STAGES - BOTH REUSABLE---REFUELED SLINGSHOT*****PAYLOAD RETRIEVAL

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8000000+00	.0000000	.0000000	.1961786+05
.8000000+00	.1000000-01	.1000000+03	.1938528+05
.8000000+00	.2500000-01	.4000000+02	.1905278+05
.8000000+00	.5000000-01	.2000000+02	.1853728+05
.8000000+00	.8000000-01	.1250000+02	.1797309+05
.8000000+00	.1000000+00	.1000000+02	.1762512+05
.8000000+00	.2000000+00	.5000000+01	.1614369+05
.8000000+00	.4000000+00	.2500000+01	.1400388+05
.8000000+00	.6000000+00	.1666667+01	.1248147+05
.8000000+00	.8000000+00	.1250000+01	.1131707+05
.8000000+00	.1000000+01	.1000000+01	.1038582+05
.8000000+00	.2000000+01	.5000000+00	.7503884+04
.8000000+00	.3000000+01	.3333333+00	.5949541+04
.8000000+00	.4000000+01	.2500000+00	.4953188+04
.8000000+00	.5000000+01	.2000000+00	.4252955+04
.8000000+00	.8000000+01	.1250000+00	.3001983+04
.8000000+00	.1000000+02	.1000000+00	.2514543+04
.8250000+00	.0000000	.0000000	.2120676+05
.8250000+00	.1000000-01	.1000000+03	.2092860+05
.8250000+00	.2500000-01	.4000000+02	.2053361+05
.8250000+00	.5000000-01	.2000000+02	.1992686+05
.8250000+00	.8000000-01	.1250000+02	.1926995+05
.8250000+00	.1000000+00	.1000000+02	.1886815+05
.8250000+00	.2000000+00	.5000000+01	.1718224+05
.8250000+00	.4000000+00	.2500000+01	.1480355+05
.8250000+00	.6000000+00	.1666667+01	.1314225+05
.8250000+00	.8000000+00	.1250000+01	.1188544+05
.8250000+00	.1000000+01	.1000000+01	.1088755+05
.8250000+00	.2000000+01	.5000000+00	.7832036+04
.8250000+00	.3000000+01	.3333333+00	.6199759+04
.8250000+00	.4000000+01	.2500000+00	.5157629+04

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8250000+00	.5000000+01	.2000000+00	.4426754+04
.8250000+00	.8000000+01	.1250000+00	.3123379+04
.8250000+00	.1000000+02	.1000000+00	.2616092+04
.8500000+00	.0000000	.0000000	.2303144+05
.8500000+00	.1000000-01	.1000000+03	.2269186+05
.8500000+00	.2500000-01	.4000000+02	.2221385+05
.8500000+00	.5000000-01	.2000000+02	.2148832+05
.8500000+00	.8000000-01	.1250000+02	.2071343+05
.8500000+00	.1000000+00	.1000000+02	.2024433+05
.8500000+00	.2000000+00	.5000000+01	.1831001+05
.8500000+00	.4000000+00	.2500000+01	.1565422+05
.8500000+00	.6000000+00	.1666667+01	.1383768+05
.8500000+00	.8000000+00	.1250000+01	.1247574+05
.8500000+00	.1000000+01	.1000000+01	.1140997+05
.8500000+00	.2000000+01	.5000000+00	.8170902+04
.8500000+00	.3000000+01	.3333333+00	.6457685+04
.8500000+00	.4000000+01	.2500000+00	.5368322+04
.8500000+00	.5000000+01	.2000000+00	.4605918+04
.8500000+00	.8000000+01	.1250000+00	.3248703+04
.8500000+00	.1000000+02	.1000000+00	.2721021+04
.8750000+00	.0000000	.0000000	.2517629+05
.8750000+00	.1000000-01	.1000000+03	.2474987+05
.8750000+00	.2500000-01	.4000000+02	.2415679+05
.8750000+00	.5000000-01	.2000000+02	.2327093+05
.8750000+00	.8000000-01	.1250000+02	.2234136+05
.8750000+00	.1000000+00	.1000000+02	.2178593+05
.8750000+00	.2000000+00	.5000000+01	.1954388+05
.8750000+00	.4000000+00	.2500000+01	.1656297+05
.8750000+00	.6000000+00	.1666667+01	.1457176+05
.8750000+00	.8000000+00	.1250000+01	.1310273+05
.8750000+00	.1000000+01	.1000000+01	.1195521+05

TWO STAGES - BOTH REUSABLE----REFUELED SLINGSHOT*****PAYLOAD RETRIEVAL

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8750000+00	.2000000+01	.5000000+00	.8521683+04
.8750000+00	.3000000+01	.3333333+00	.6724302+04
.8750000+00	.4000000+01	.2500000+00	.5586139+04
.8750000+00	.5000000+01	.2000000+00	.4791243+04
.8750000+00	.8000000+01	.1250000+00	.3378591+04
.8750000+00	.1000000+02	.1000000+00	.2829896+04
.9000000+00	.0000000	.0000000	.2778208+05
.9000000+00	.1000000-01	.1000000+03	.2722438+05
.9000000+00	.2500000-01	.4000000+02	.2646220+05
.9000000+00	.5000000-01	.2000000+02	.2534911+05
.9000000+00	.8000000-01	.1250000+02	.2420869+05
.9000000+00	.1000000+00	.1000000+02	.2353885+05
.9000000+00	.2000000+00	.5000000+01	.2090615+05
.9000000+00	.4000000+00	.2500000+01	.1753848+05
.9000000+00	.6000000+00	.1666667+01	.1534934+05
.9000000+00	.8000000+00	.1250000+01	.1375771+05
.9000000+00	.1000000+01	.1000000+01	.1252580+05
.9000000+00	.2000000+01	.5000000+00	.8885887+04
.9000000+00	.3000000+01	.3333333+00	.7000867+04
.9000000+00	.4000000+01	.2500000+00	.5812200+04
.9000000+00	.5000000+01	.2000000+00	.4983748+04
.9000000+00	.8000000+01	.1250000+00	.3513869+04
.9000000+00	.1000000+02	.1000000+00	.2943450+04
.9250000+00	.0000000	.0000000	.3111166+05
.9250000+00	.1000000-01	.1000000+03	.3033446+05
.9250000+00	.2500000-01	.4000000+02	.2930159+05
.9250000+00	.5000000-01	.2000000+02	.2784355+05
.9250000+00	.8000000-01	.1250000+02	.2640002+05
.9250000+00	.1000000+00	.1000000+02	.2557181+05
.9250000+00	.2000000+00	.5000000+01	.2242724+05
.9250000+00	.4000000+00	.2500000+01	.1859167+05

ISP= 460.0

LAMBCA	WPL/WS	WS/WPL	DELTAV
.9250000+0C	.6000000+00	.1666667+01	.1617633+05
.9250000+00	.8000000+00	.1250000+01	.1444871+C5
.9250000+0C	.1000000+01	.1000000+01	.1312490+05
.925C000+0C	.2000000+01	.5000000+00	.9265455+04
.9250000+0C	.3000000+01	.3333333+00	.7289C25+04
.9250000+00	.4000000+01	.2500000+00	.6047982+04
.5250000+0C	.5000000+01	.2000000+00	.5184789+04
.9250000+00	.8000000+01	.1250000+00	.3655632+04
.9250000+00	.1000000+02	.1000000+00	.3062656+04
.9500000+0C	.0000000	.0000000	.3575322+C5
.9500000+00	.1000000-01	.1000000+03	.3454082+C5
.9500000+00	.2500000-01	.4000000+02	.3301058+05
.9500000+0C	.5000000-01	.2000000+02	.3097085+C5
.9500000+00	.8000000-01	.1250000+02	.2905636+C5
.9500000+00	.1000000+00	.1000000+02	.2799511+05
.5500000+00	.2000000+00	.5000000+01	.2415034+05
.9500000+0C	.4000000+00	.2500000+01	.1973651+05
.9500000+00	.6000000+00	.1666667+01	.1706011+05
.9500000+00	.8000000+00	.1250000+01	.1516077+05
.9500000+0C	.1000000+01	.1000000+01	.1375650+05
.9500000+00	.2000000+01	.5000000+00	.9662976+04
.5500000+00	.3000000+01	.3333333+00	.7591002+04
.9500000+0C	.4000000+01	.2500000+00	.6295495+04
.9500000+00	.5000000+01	.2000000+00	.5396211+04
.9500000+00	.8000000+01	.1250000+00	.3805379+04
.9500000+00	.1000000+02	.1000000+00	.3188854+04

TWO STAGES - BOTH REUSABLE---REFUELED SLINGSHOT****ROUNDTRIP

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8000000+00	.0000000	.0000000	.1961786+05
.8000000+00	.1000000-01	.1000000+03	.1926611+05
.8000000+00	.2500000-01	.4000000+02	.1877086+05
.8000000+00	.5000000-01	.2000000+02	.1801991+05
.8000000+00	.8000000-01	.1250000+02	.1722029+05
.8000000+00	.1000000+00	.1000000+02	.1673809+05
.8000000+00	.2000000+00	.5000000+01	.1477159+05
.8000000+00	.4000000+00	.2500000+01	.1215130+05
.8000000+00	.6000000+00	.1666667+01	.1042666+05
.8000000+00	.8000000+00	.1250000+01	.9178857+04
.8000000+00	.1000000+01	.1000000+01	.8223010+04
.8000000+00	.2000000+01	.5000000+00	.5491108+04
.8000000+00	.3000000+01	.3333333+00	.4156891+04
.8000000+00	.4000000+01	.2500000+00	.3353527+04
.8000000+00	.5000000+01	.2000000+00	.2813708+04
.8000000+00	.8000000+01	.1250000+00	.1901584+04
.8000000+00	.1000000+02	.1000000+00	.1564765+04
.8250000+00	.0000000	.0000000	.2120676+05
.8250000+00	.1000000-01	.1000000+03	.2079353+05
.8250000+00	.2500000-01	.4000000+02	.2021586+05
.8250000+00	.5000000-01	.2000000+02	.1934837+05
.8250000+00	.8000000-01	.1250000+02	.1843467+05
.8250000+00	.1000000+00	.1000000+02	.1788816+05
.8250000+00	.2000000+00	.5000000+01	.1568919+05
.8250000+00	.4000000+00	.2500000+01	.1281811+05
.8250000+00	.6000000+00	.1666667+01	.1095633+05
.8250000+00	.8000000+00	.1250000+01	.9620369+04
.8250000+00	.1000000+01	.1000000+01	.8602453+04
.8250000+00	.2000000+01	.5000000+00	.5715814+04
.8250000+00	.3000000+01	.3333333+00	.4316935+04
.8250000+00	.4000000+01	.2500000+00	.3477836+04

TWO STAGES - BOTH REUSABLE---REFUELED SLINGSHOT****ROUNDTRIP

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8250000+00	.5000000+01	.2000000+00	.2919324+04
.8250000+00	.8000000+01	.1250000+00	.1967226+04
.8250000+00	.1000000+02	.1000000+00	.1617859+04
.8500000+00	.0000000	.0000000	.2303143+05
.8500000+00	.1000000-01	.1000000+03	.2253683+05
.8500000+00	.2500000-01	.4000000+02	.2185181+05
.8500000+00	.5000000-01	.2000000+02	.2083581+05
.8500000+00	.8000000-01	.1250000+02	.1978023+05
.8500000+00	.1000000+00	.1000000+02	.1915517+05
.8500000+00	.2000000+00	.5000000+01	.1668015+05
.8500000+00	.4000000+00	.2500000+01	.1352373+05
.8500000+00	.6000000+00	.1666667+01	.1151080+05
.8500000+00	.8000000+00	.1250000+01	.1007935+05
.8500000+00	.1000000+01	.1000000+01	.8994969+04
.8500000+00	.2000000+01	.5000000+00	.5945321+04
.8500000+00	.3000000+01	.3333333+00	.4479476+04
.8500000+00	.4000000+01	.2500000+00	.3603679+04
.8500000+00	.5000000+01	.2000000+00	.3017974+04
.8500000+00	.8000000+01	.1250000+00	.2033302+04
.8500000+00	.1000000+02	.1000000+00	.1671246+04
.8750000+00	.0000000	.0000000	.2517628+05
.8750000+00	.1000000-01	.1000000+03	.2456880+05
.8750000+00	.2500000-01	.4000000+02	.2373815+05
.8750000+00	.5000000-01	.2000000+02	.2252636+05
.8750000+00	.8000000-01	.1250000+02	.2128942+05
.8750000+00	.1000000+00	.1000000+02	.2056618+05
.8750000+00	.2000000+00	.5000000+01	.1775757+05
.8750000+00	.4000000+00	.2500000+01	.1427314+05
.8750000+00	.6000000+00	.1666667+01	.1209262+05
.8750000+00	.8000000+00	.1250000+01	.1055732+05
.8750000+00	.1000000+01	.1000000+01	.9401553+04

TWO STAGES - BOTH REUSABLE---REFUELED SLINGSHOT****ROUNDTRIP

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.8750000+00	.2000000+01	.5000000+00	.6179856+04
.8750000+00	.3000000+01	.3333333+00	.4644599+04
.8750000+00	.4000000+01	.2500000+00	.3731086+04
.8750000+00	.5000000+01	.2000000+00	.3121680+04
.8750000+00	.8000000+01	.1250000+00	.2099822+04
.8750000+00	.1000000+02	.1000000+00	.1724924+04
.9000000+00	.0000000	.0000000	.2778207+05
.9000000+00	.1000000-01	.1000000+03	.2700754+05
.9000000+00	.2500000-01	.4000000+02	.2596795+05
.9000000+00	.5000000-01	.2000000+02	.2448602+05
.9000000+00	.8000000-01	.1250000+02	.2300881+05
.9000000+00	.1000000+00	.1000000+02	.2215917+05
.9000000+00	.2000000+00	.5000000+01	.1893857+05
.9000000+00	.4000000+00	.2500000+01	.1507241+05
.9000000+00	.6000000+00	.1666667+01	.1270478+05
.9000000+00	.8000000+00	.1250000+01	.1105604+05
.9000000+00	.1000000+01	.1000000+01	.9823329+04
.9000000+00	.2000000+01	.5000000+00	.6419668+04
.9000000+00	.3000000+01	.3333333+00	.4812400+04
.9000000+00	.4000000+01	.2500000+00	.3860113+04
.9000000+00	.5000000+01	.2000000+00	.3226464+04
.9000000+00	.8000000+01	.1250000+00	.2166796+04
.9000000+00	.1000000+02	.1000000+00	.1778895+04
.9250000+00	.0000000	.0000000	.3111165+05
.9250000+00	.1000000-01	.1000000+03	.3006445+05
.9250000+00	.2500000-01	.4000000+02	.2869563+05
.9250000+00	.5000000-01	.2000000+02	.2682032+05
.9250000+00	.8000000-01	.1250000+02	.2500902+05
.9250000+00	.1000000+00	.1000000+02	.2399021+05
.9250000+00	.2000000+00	.5000000+01	.2024620+05
.9250000+00	.4000000+00	.2500000+01	.1592903+05

TWO STAGES - BOTH REUSABLE---REFUELED SLINGSHOT****ROUNDTRIP

ISP= 460.0

LAMBDA	WPL/WS	WS/WPL	DELTAV
.9250000+00	.6000000+00	.1666667+01	.1335085+05
.9250000+00	.8000000+00	.1250000+01	.1157751+05
.9250000+00	.1000000+01	.1000000+01	.1026157+05
.9250000+00	.2000000+01	.5000000+00	.6665027+04
.9250000+00	.3000000+01	.3333333+00	.4982577+04
.9250000+00	.4000000+01	.2500000+00	.3990802+04
.9250000+00	.5000000+01	.2000000+00	.3332353+04
.9250000+00	.8000000+01	.1250000+00	.2234227+04
.9250000+00	.1000000+02	.1000000+00	.1833167+04
.9500000+00	.0000000	.0000000	.3575322+05
.9500000+00	.1000000-01	.1000000+03	.3418081+05
.9500000+00	.2500000-01	.4000000+02	.3223894+05
.9500000+00	.5000000-01	.2000000+02	.2971528+05
.9500000+00	.8000000-01	.1250000+02	.2740559+05
.9500000+00	.1000000+00	.1000000+02	.2614759+05
.9500000+00	.2000000+00	.5000000+01	.2171275+05
.9500000+00	.4000000+00	.2500000+01	.1685244+05
.9500000+00	.6000000+00	.1666667+01	.1403507+05
.9500000+00	.8000000+00	.1250000+01	.1212408+05
.9500000+00	.1000000+01	.1000000+01	.1071773+05
.9500000+00	.2000000+01	.5000000+00	.6916223+04
.9500000+00	.3000000+01	.3333333+00	.5156433+04
.9500000+00	.4000000+01	.2500000+00	.4123201+04
.9500000+00	.5000000+01	.2000000+00	.3439373+04
.9500000+00	.8000000+01	.1250000+00	.2302124+04
.9500000+00	.1000000+02	.1000000+00	.1887738+04