

ADVENT DESIGN PARAMETERS

FILE: ADVENT_1000_CYLTANK_PROP.XLS		6_05_05	
103,500	WEIGHT BOOSTER PROP.BURNED, LB.	3.212	BOOSTER PROP. RATIO
105,461	WT. BOOSTER PROP.& HE.LOADED , LB.	105,616	BOOSTER TANK LOAD
21,988	WEIGHT ORBITER PROP USED, LB.	4.71	STAGE PROPELLANT
22,405	WT. ORBITER PROP.& HE.LOADED LB.	22,438	ORBITER TANK LOAD
36.00	BOOSTER TANK CYL. LENGTH, FT.	3.215	ORBITER PROP. RATIO
8.00	BOOSTER TK. DIA. FT.		BOOSTER TK. L/D
21.60	ORBITER TANK CYL LENGTH, FT.	3.210	O/F RATIO, O2/CH4
4.80	ORBITER TK. DIA. FT.		ORBITER TK. L/D
10,910	BOOSTER WEIGHT,INERT, LB	4.48	BSTR./ORB. WEIGHT F
3,555	ORBITER WEIGHT,INERT, LB	0.600	LGTH. CYL. (ORB. TK
50.5	<BSTR. LENGTH OVERALL, FT ORBTR>	34.8	GLOW/PL.>
14.3	<BSTR. WINGSPAN, FT ORBTR>	9.1	
1,000	PAYLOAD & COVER WT(A63), LB. (200 NM)	P/L MARGIN (2)	
\$357.77	DELIVERY COST TO ORBIT, \$ / LB	'PROPELLANT DENSITY	
143,331	GROSS LIFT-OFF WEIGHT, LB	71.20	<OXYGEN LB/CU.FT.
143	RATIO, GLOW/PL	27.00	<METHANE LB/CU.FT
230	PRESS.CHAMBER B.ENGINE, LB/SQ-IN.	155	<SEC. STAGING MIN>
230	PRESS CHAMBER ORB. ENGINE, LB/SQ-IN	283	<SEC.BURNOUT MIN>
0.9063	MASS FRACTION, BOOSTER	0.0500	INCONEL COVER, IN.
0.8630	MASS FRACTION, ORBITER	143	G.L.O.W. / P.L.
5.00	< BOOSTER WING WT.LB/SQFT ORB >	5.00	
8.64	PLANFORM LOADING, ORBITER, LB/SQFT		PERFORMANCE
13.77	PLANFORM LOADING, BOOSTER, LB/SQFT	LIFT OFF WT. LB.	143,331
300	BOOSTER TANK PRESSURE, LB/SQ-IN.	B.O. WT. 1ST STG.,LB	39,831
300	ORBITER TANK PRESSURE, LB/SQ-IN.	ISP 1ST STG, SEC	298.57
13.0	BOOSTER NOZZLE AREA RATIO	IDEAL VEL 1ST STG	12,311
20.0	ORBITER NOZZLE AREA RATIO	LOSSES, 1ST STG	3,500
1	NUMBER OF ENGINES, ORBITER	1ST STAGE VEL	8,811
8	NUMBER OF ENGINES, BOOSTER	2ND STG.WT @ SEP, LB	26,960
141	ENGINE MODULE, LB.THRUST/LB.ENGINE	2ND STG.WT @ MECO	4,972
0.93	ORBITER THRUST/WT.	ISP 2ND STG, BWA	321.22
1.40	BOOSTER THRUST/WT,	IDEAL VEL 2ND STG	17,486
298.57	BOOSTER SPECIFIC IMPULSE, SEC. (BWA)	LOSSES, 2ND STG	100
321.22	ORBITER SPECIFIC IMPULSE, SEC. (BWA)	2ND STAGE DELTA V	17,386
100.00	REACTION CONTROL SYS. ISP, SEC.	TOT. DELTA V	26,200
1.25	PROP. TK. CYL. LGTH. ADJ. FACTOR	TOT. IDEAL DELTA V	29,797
		ACT. VEL REQD.	26,204
5.00	OPERATIONAL PERIOD, YR.	PAYLOAD MARGIN	(2)
10	FLIGHTS PER YEAR	ORB LESS P/L, LB.	3,972
50	TOTAL PAYLOADS	ORB & 1/3 GAS, LB.	3,694
10	PRESSURIZATION TEMP., DEG.F	ISP PRESS. GAS, SEC.	100.00
\$357,768	COST PER FLIGHT	RCS/OMS., FT/SEC	233
1	SETS OF SPARE HARDWARE		
200	<km ---ORBIT ALTITUDE.--- MILES>	124	