

APPENDIX G

PEGASUS

Structural Loads

Preliminary acceleration load levels are given in Table G-1.

Table G-1
PEGASUS
Acceleration Levels

Flight Mode	Translational (G)			Angular (rad/sec) ²		
	X	Y	Z	X	Y	Z
Captive Carry	.9 -.68	.82 -.92	3.5 -1.4	.74 -.74	2.1 -1.5	.57 -.57
Powered Flight	0 -8.5	.9 -.9	2.8 -3.3	.2 -.2	.2 -.2	.2 -.2

Acoustics

The maximum acoustic environment occurs during the take-off of the carrier aircraft. The qualification and acceptance test levels based on this environment are given in Table G-2. However, to comply with the NASA minimum vibroacoustic test level, the test level should be raised to 138 dB.

Spacecraft Random Vibration

The spacecraft random vibration levels are given in Table G-3.

Mechanical Shock - The pyro-shock response at the payload interface is defined by Table G-4.

Table G-2
Pegasus
Acoustic Test Levels
(Inside Payload Fairing)

One-Third Octave Center Frequency (Hz)	Noise Level (dB) re: .00002 Pa	
	Qualification	Acceptance
25	112	109
32	112	109
40	112	109
50		
63	112	109
80	112	109
100	112	109
125	112	109
160	117	114
200	122	119
250	127	124
315	127	124
400	127	124
500	127	124
630	127	124
800	127	124
1000	127	124
1250	127	124
1600	124	121
2000	121	118
2500	118	115
3150	115	112
4000	112	109
5000	109	106
6300	106	103
8000	103	100
10000	100	97
Overall	137*	134*

* The minimum test level should be 138 dB to comply with NASA vibroacoustic test recommendations.

Table G-3
PEGASUS
Spacecraft Random Vibration

Frequency (Hz)	ASD Level (G ² /Hz)	
	Qualification	Acceptance
20-165	.008	.004
165-200	+5 dB/oct	+5 dB/oct
200-800	.011	.0055
800-1000	+3 dB/oct	+3 dB/oct
1000-1300	.014	.007
1300-2000	-9 dB/oct	-9 dB/oct
Overall Level	4.5 G _{rms}	3.2 G _{rms}

Table G-4
PEGASUS
Separation Shock Response Spectrum
(Near Source)
Q=10

Frequency (Hz)	Shock Response Spectrum (G)	
	Qualification	Acceptance
100	70	50
100-1300	+10 dB/oct	+10 dB/oct
1300-10000	4900	3500
Overall Level	4.5 G _{rms}	3.2 G _{rms}