

APPENDIX K

H II

Structural Loads

Table K-1 provides quasi-static limit load factors usable for preliminary design.

To avoid dynamic coupling between the spacecraft and launch vehicle, the first axial and lateral spacecraft fixed base modes should be greater than 30 Hz and 10 Hz respectively.

Table K-1
H II
Quasi-Static Limit Load Factors
Spacecraft 3500 kg (7700-lb)

Event	Axial (G)	Lateral (G)
Lift-Off	3.2 max 1.7 static + 1.5 dynamic 0.3 min 1.5 static - 1.2 dynamic	± 2.0
MECO	4.0 ± 1.0	± 0.8

Acoustics

The qualification and acceptance acoustic test levels are given in Table K-2 for the H II vehicle.

Spacecraft Sine Vibration

The maximum expected, 3 sigma, sinusoidal vibration level at the spacecraft interface is given in Table K-3.

Mechanical Shock

Test levels representing spacecraft separation are given in Tables K-4.

Table K-2
H II
Acoustic Test Levels
(Inside Empty Payload Fairing)

One-Third Octave Center Frequency (Hz)	Noise Level (dB) re: .00002 Pa	
	Qualification	Acceptance
25	121	118
32	123	120
40	125	122
50	127	124
63	128.5	125.5
80	130	127
100	131.5	128.5
125	133	130
160	134	131
200	135	132
250	135	132
315	134	131
400	133	130
500	132	129
630	131	128
800	130	127
1000	129	126
1250	127.5	124.5
1600	126	123
2000	124	121
2500	122	119
3150	120	117
4000	118	115
5000	116	113
6300	114	111
8000	112	109
10000	110	107
Overall	144	141

Table K-3
H II
Spacecraft Sine Vibration

Frequency (Hz)	Level (G_{op})	
	Thrust	Lateral
5-100	1.0	0.8
Sweep Rate *	4 oct/min	4 oct/min

* Sweep rates recommended by NASDA.

Table K-4
H II
Spacecraft Separation
Shock Response Spectrum
Q=10

Frequency (Hz)	Shock Response Spectrum (G)	
	Qualification	Acceptance
100	56	40
100-1500	56	56
1500-3000	5800	4100