

PROTOFLIGHT ENVIRONMENTS

FOR

PROPELLANT TANK ASSEMBLY

ATK P/N 80442-1

80442-1 was subjected to the following protoflight tests:

<u>Test Sequence</u>	<u>Test Description</u>
1	Preliminary Inspection of Product
2	Mass Measurement
3	Pre-Proof Volumetric Capacity, Ambient Proof Pressure, Visual Inspection, and Post-Proof Volumetric Capacity
4	External Leakage Test
5	Tank Assembly Bubble Point Test
6	Sine and Random Vibration Tests and Visual Inspection
7	Pressure Drop Test
8	Tank Assembly Bubble Point Test
9	External Leakage Test
10	Radiographic Inspection
11	Dye Penetrant Inspection
12	Cleanliness Check and Visual Inspection
13	Data Review

Sine Vibration

Protoflight Sine Vibration Levels (Dry)

<u>Axis</u>	<u>Frequency (HZ)</u>	<u>Acceleration (G) (0-PEAK)</u>
	5-10.8	.25 inch SA
Y & Z	10.8-20	3.0
	20-100	1.5
	100-400	1.0

Protoflight Sine Vibration Levels (Wet)

<u>Axis</u>	<u>Frequency (HZ)</u>	<u>Acceleration (G) (0-PEAK)</u>
Lateral	5-13	.25 inch SA
(Y)	13-17	4.3
	17-45	3.0
	45-100	2.0
Axial	5-22.3	.20 inch SA
(Z)	22.3-24	11.2
	24-26	Ramp Down
	26-50	2.6
	50-52	Ramp Down
	52-100	1.3

Acceleration Load Limits

<u>Axis</u>	<u>Frequency (Hz)</u>	<u>Limit Acceleration (G) (0-PEAK)</u>
Lateral	5.0-17	4.3
(Y)	17-100	3.0
Axial	5.0-26	11.2
(Z)	26-52	4.5
	52-100	2.6

For the wet case, the tank is loaded with 3038, +5/-0 lbs of water and pressurized to 250, +0/-10 psig.

Protoflight Random Vibration Levels

<u>Frequency (HZ)</u>	<u>Levels</u>
90-100	+30dB/Octave
100-800	.054G ² /HZ
800-2000	-3dB/Octave
Overall G-rms	8.7

The 8.7 G-rms random vibration spectrum may be split into two bands, if necessary, to meet vibration shaker equipment limitations.

The tank is loaded with 3038, +5/-0 lbs of water and pressurized to 250, +0/-10 psig.