

PROTOFLIGHT ENVIRONMENTS
FOR
INTELSAT VIIA BIPROPELLANT TANK ASSEMBLY
ATK P/N 80363-11

80363-11 was subjected to the following protoflight tests:

<u>Test Sequence</u>	<u>Test Description</u>	<u>E</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	Cryogenic Proof Pressure, Visual Inspection, and Post-Proof Volumetric Capacity	
5*	External Leakage Test	
6*	Tank Assembly Bubble Point Test	
7	Sine and Random Vibration Test and Visual Inspection	
8	Ambient Proof Pressure Test	
9	Expulsion Test	
10 **	Tank Assembly Bubble Point Test	
11 **	External Leakage Test	
12 +	Radiographic Inspection	
13 +	Dye Penetrant Inspection	
14	Cleanliness Check and Visual Inspection	
15	Data Review	

Sine Vibration (Wet)

Protoflight Sine Vibration Levels (Wet)

<u>Axis</u>	<u>Frequency (HZ)</u>	<u>Acceleration(G)</u> <u>(0-PEAK)</u>
Lateral (X & Y)	5-10.8	.24 inch SA
	10.8-45	2.88
	45-100	1.92
Axial (Z)	5-18.2	.19 inch SA
	18.2-20	6.5
	20-22	Ramp Down
	22-50	2.5
	50-52	Ramp Down
	52-100	1.25

Tank is loaded with 3837, +5/-0 lbs of Freon and pressurized to 200, +0/-10 psig.

Vibration sweep is applied at a sweep rate of 3 octaves/minute minimum in each of the three orthogonal axes.

Acceleration Load Limits

<u>Axis</u>	<u>Frequency (HZ)</u>	<u>Limit Acceleration(G)</u> <u>(0-PEAK)</u>
Lateral (X & Y)	5.0-100	2.88
Axial (Z)	5.0-22	6.5
	22-52	4.33
	52-100	2.5

Random Vibration (Wet)

Random Vibration Levels

<u>Frequency (HZ)</u>	<u>Levels</u>
90-100	+30dB/Octave
100-800	.043G ² /HZ
800-2000	-3dB/Octave
Overall G-rms	7.8

The 7.8 G-rms random vibration spectrum may be split into two bands, if necessary, to meet vibration shaker equipment limitations.

Tank is loaded with 3837, +5/-0 lbs of Freon and pressurized to 200, +0/-10 psig.

Vibration spectrum applied in each of the three orthogonal axes for 1.5 minutes each.