TANK TYPE PMD WRAP MOUNT 4 SIDEMOUNT BRACKETS LOCATION CYLINDER PMD DEVICE VANE, SPONGE, & TRAP



This Hydrazine tank was designed for the ASTROLINK broadband communication satellites. The tank is 35.6" ( 904 mm) in diameter and 133.9" (3401 mm) in length, and constructed of two 6AL-4V solution treated and aged (STA) titanium hemispheres and an annealed 6AL-4V center section cylinder. The center section of the tank shell is overwrapped with a graphite epoxy composite. An internally mounted propellant management device (PMD) provides predictable gas-free liquid propellant at the tank outlet throughout the mission. The PMD features a unique device to allow multiple launch vehicle erection and de-erection. Mounting is accomplished by four circumferentially mounted plates / sidemounts and provisions for 2 struts at the pressurant end.

ATK Part Number 80434-1

SIZE: 35.6" DIA X 133.9" L

SIZE: 904 mm DIA X 3401 mm L

## ISO 9001 & AS 9100 REGISTERED

#### APPLICABLE DOCUMENTS

Acceptance Test Procedure	50-000590
Qual Test Procedure	50-000591
Qualification Test Report	56-000224
Bubble Point Test Procedure	50-000582
Shell Stress Analysis (Foster)	20-029
Fracture Mechanics (Foster)	20-027
PMD Stress Analysis (Wada)	288-2
Fracture Plan	54-000186
Cleaning (tank)	CPP-3917

# Notes:

- 1. Cylinder seam welding and center tube
- 2. Cylinder and center tube seam weld
- 3. Fracture critical

#### TANK CHARACTERISTICS

Operating Pressure, psig	300	Total Volume, in <sup>3</sup>	117,154
Proof Pressure, psig	375	Prop Volume, in <sup>3</sup>	113,639
Cryo Proof, psig	N/A	Prop Volume, Ibs	4,093
Burst Pressure, psig	450	Max Design Wt, Ibs	208.00
Actual Burst, psig		Minimum Wall, inch	0.026

#### TANK CHARACTERISTICS (Metrics)

Operating Pressure, bar	20.68	Total Volume, I	1,920
Proof Pressure, bar	25.85	Prop Volume, I	1,862
Cryo Proof, bar	N/A	Prop Volume, kg	1,856.57
Burst Pressure, bar	31.03	Max Design Wt, kg	94.35
Actual Burst, bar		Minimum Wall, MM	0.660

#### **HEMISPHERE FORGINGS**

HEMI P/N	QTY	SUPPLIER	Die No
80-391061-1	2		

#### ROLLED AND SEAM WELDED CYLINDER

P/N	QTY	SIZE
80-425016-1	3	35.2 in ID X 34.5 in LONG

#### **TUBE TYPE AND SIZE (in.)**

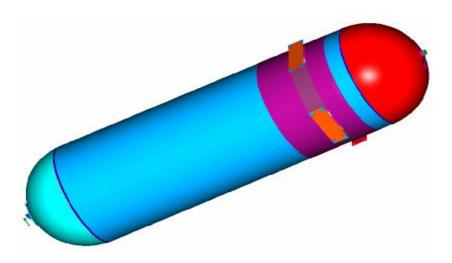
Ti 3AL-2.5V	SIZE
80-391011-5	0.375 x 0.025 Wall Press
80-391007-5	0.375 x 0.025 Wall Prop

### TUBE SIZE (mm)

80-391011-5	9.525 x 0.635 Wall Press
80-391007-5	9.525 x 0.635 Wall Prop

#### ACCEPTANCE TESTS

ACCEPTANCE TESTS
Examination of Product
Vol. Determination and Proof Pressure Test
Static Load Test
Pressure Drop Test
External Leakage Test
Examination of Product
Cleanliness
Data Review



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