

TANK TYPE	MOUNT	LOCATION	PMD DEVICE
PMD	SKIRT	GIRTH	VANE & SPONGE



This propellant tank is a 40.5" (1030 mm) elliptical pressure vessel constructed of 6AL-4V solution treated and aged (STA) titanium. An internally mounted sponge and vane titanium propellant management device (PMD) provides gas-free liquid propellant at the tank outlet throughout the mission. Mounting is accomplished by a skirt of 24 circumferential tabs with nut plates located near the girth weld. The tank is a derivative of ATK tank P/N 80430-1.

ATK Part Number 80511-1

**SIZE: 40.685 inch Elliptical
SIZE: 1,030 mm**

ISO 9001 & AS 9100 REGISTERED

APPLICABLE DOCUMENTS

Acceptance Test Procedure	50-000680
Qual Test Procedure	50-000679
Qualification Test Report	56-000248
Bubble Point Test Procedure	50-000681
Stress Analysis (Wada)	# 347
Fracture Analysis Plan	54-000264
Reliability Analysis Plan	54-000265
Materials List	60-000472
Processes List	60-000473
Cleaning	CPP-3901

TANK CHARACTERISTICS

Operating Pressure, psig	330	Total Volume, in ³	19,992
Proof Pressure, psig	413	Prop Volume, in ³	19,992
Cryo Proof, psig	N/A	Prop Volume, lbs	552
Burst Pressure, psig	495	Max Design Wt, lbs	55.0
Actual Burst, psig	687	Minimum Wall, inch	0.037

QUALIFICATION TESTS

- Preliminary Inspection of Product
- Volumetric Capacity
- Proof Pressure
- Post-Proof Pressure
- Pressure Cycling Test & Visual Inspection
- External Leakage Test
- Tank Assembly Bubble Point Test
- Sine and Random Vibration Test,
- Visual Inspection and Cleanliness Check
- Shock Test & Visual Inspection
- Volumetric Capacity & Expulsion Test
- Tank Assembly Bubble Point Test
- External Leakage Test
- Radiographic Inspection
- Dye Penetrant Inspection
- Cleanliness Check
- Burst Test & Visual Inspection
- Data Review

Notes:

1. Tank Assy.
2. Parts / Subassemblies
3. Fracture Critical

TANK CHARACTERISTICS (Metrics)

Operating Pressure, bar	22.75	Total Volume, l	327.61
Proof Pressure, bar	28.47	Prop Volume, l	327.61
Cryo Proof, bar	N/A	Prop Volume, kg	
Burst Pressure, bar	34.13	Max Design Wt, kg	24.95
Actual Burst, bar	47.37	Minimum Wall, MM	0.94

HEMISPHERE FORGINGS

HEMI P/N	QTY	SUPPLIER	Die No
80-511061-1	2	ARCTURUS	3938

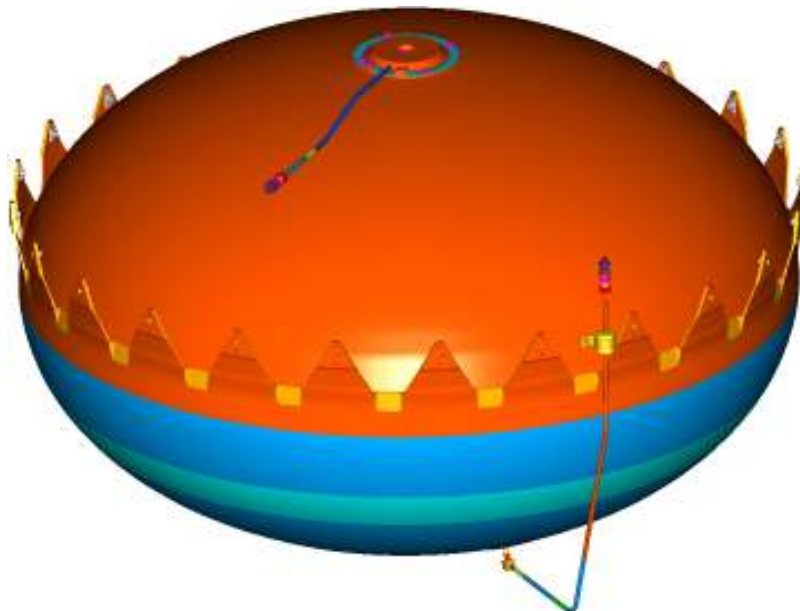
RING P/N	QTY	RING SIZE
80-511065-1	1	41.18" OD : 39.28" ID X 3.40" LONG 1,045.97 mm OD X 997.71 mm ID X 86.36 mm LONG

TUBE TYPE AND SIZE (in.)

TRANS Ti to SS	SIZE
80-411001-1	0.250" OD x 0.020" Wall (6.350 mm OD x 0.508 mm Wall)

ACCEPTANCE TESTS

- Preliminary Inspection of Product
- Mass Measurement
- Pre-Proof Volumetric Capacity, Ambient Proof Pressure
- Visual Inspection
- Post-Proof Volumetric Capacity
- External Leakage Test
- Tank Assembly Bubble Point Test
- Sine and Random Vibration Test, and Visual Inspection
- Volumetric Capacity & Expulsion Test
- Tank Assembly Bubble Point Test
- External Leakage Test
- Radiographic Inspection
- Dye Penetrant Inspection
- Cleanliness Check & Visual Inspection
- Data Review



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