

<b>TANK TYPE</b>	<b>MOUNT</b>	<b>LOCATION</b>	<b>PMD DEVICE</b>
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 tank P/N 80430-1.

**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, psic	330	Total Volume, in <sup>3</sup>	19,992
Proof Pressure, psig	413	Prop Volume, in <sup>3</sup>	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

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

- Notes:**
1. Tank Assy.
  2. Parts / Subassemblies
  3. Fracture Critical

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

