



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

This 40.5" ( 1028.7 mm) propellant tank has hemispherical heads and a 8.4" cylindrical center section. The pressure vessel is 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 PSI tank P/N 80430-1.

**ATK Part Number 80470-1**

**SIZE: 40.5-inch Dia X 48.8-inch long**  
**SIZE: 1028.7 x 1239.5 mm**

**ISO 9001 & AS 9100 REGISTERED**

**APPLICABLE DOCUMENTS**

Qualification Test Procedure	50-000640
Bubble Point Test Procedure	50-000641
Static Load Test Procedure	50-000654
Stress Analysis (Wada), note 4	# 318
Materials List	54-000181
Processes List	54-000182
Fracture Analysis Plan	54-000219
Bracket Bonding Test Report	56-000218
Qualification Test Report	56-000219
Cleaning, note 2	CPP-3546
Cleaning, note 1	CPP-3901

**TANK CHARACTERISTICS**

Operating Pressure, psig	340	Total Volume, in <sup>3</sup>	45,161
Proof Pressure, psig	412.5	Prop Volume, in <sup>3</sup>	45,161
Cryo Proof, psig	N/A	Prop Volume, lbs	1,014
Burst Pressure, psig	524	Minimum Wall, inch	0.034
Actual Burst, psig	669	Max Design Wt, lbs	60.00
		Qual Actual Wt, lbs	62.91

**ACCEPTANCE TESTS**

Flight Tank Never Built.

**QUALIFICATION TESTS**

Preliminary Inspection of Product  
 Mass Measurement  
 Pre-Proof Volumetric Capacity  
 Ambient Proof Pressure  
 Visual Inspection  
 Post-Proof Volumetric Capacity  
 Pressure Cycling Test & Visual Inspection  
 External Leakage Test  
 Tank Assembly Bubble Point Test  
 Dry & Wet Sine & Random Vibration Test  
 Visual Inspection & Clean  
 Shock Test & Visual Inspection  
 Visual Inspection  
 Volumetric Capacity & Expulsion Test  
 Tank Assembly Bubble Point Test  
 External Leakage Test  
 Radiographic Inspection  
 Dye Penetrant Inspection  
 Clean  
 Burst Test & Visual Inspection  
 Data Review

**Notes:**

1. Tank Assy.
2. Parts / Subassemblies
3. Fracture Critical
4. This tank is a modified 80430-1 (Wada #282)
5. Matched inlet tube is made from 80-411001-1 and connected to the customer supplied pipe assembly.

**TANK CHARACTERISTICS (Metrics)**

Operating Pressure, bar	23.44	Total Volume, l	740.1
Proof Pressure, bar	28.44	Prop Volume, l	740.1
Cryo Proof, bar	N/A	Prop Volume, kg	459.9
Burst Pressure, bar	36.13	Minimum Wall, MM	0.864
Actual Burst, bar	46.13	Max Design Wt, kg	29.4
		Qual Actual Wt, kg	28.54

**FORGINGS**

HEMI P/N	QTY	SUPPLIER	Die No
80-430061-1	2		
RING P/N	QTY	RING SIZE	
80-338063-1	1	41.18 O.D. x 39.75 I.D. x 3.87 Lg	
CYLINDER P/N	SIZE		
80-470067-1	41.0 +.09 O.D. x 40.04 -.09 I.D. x 9.3 +.25 Lg		

**TUBE TYPE AND SIZE**

Transition Ti to SS	SIZE
80-411001-1 outlet	0.250 O.D. x 0.020 Wall
80470-3, note 5 inlet	0.250 O.D. x 0.020 Wall

**TUBE SIZE (Metrics)**

80-411001-1 outlet	6.350 O.D. x 0.508 MM Wall
80470-3, note 5 inlet	6.350 O.D. x 0.508 MM Wall

**VACUUM RATED**

N/A

