



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 ³	45,161
Proof Pressure, psig	412.5	Prop Volume, in ³	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

