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TANK TYPE	MOUNT	LOCATION	PMD DEVICE
PMD	Tab	Press Hemi	Complex

The tank is a spherical 15" diameter pressure vessel constructed of 6AL-4V titanium. A Propellant Management Device (PMD) provides gas-free expulsion of propellant. Mounting is provided via a raised base electron beam welded onto the propellant-side hemisphere.

**ATK Part Number 80540-1**

**SIZE: 15.38" ID x 17.174" LG**  
**SIZE: 391 mm ID x 436 mm LG**

**ISO 9001 & AS 9100 REGISTERED**

**APPLICABLE DOCUMENTS**

Qualification Test Report	56-000203
Acceptance Test Procedure	50-000747
Protoflight Test Procedure	50-000748
Bubble Point Test Procedure	50-000749
Cleaning	CPP 4042

**TANK CHARACTERISTICS**

Operating Pressure, psig	250	Total Volume, in <sup>3</sup>	1,892
Proof Pressure, psig	375	Prop Volume, in <sup>3</sup>	1,835
Cryo Proof, psig	N/A	Prop Volume, lbs	96
Burst Pressure, psig	600	Max Design Wt, lbs	5.40
Actual Burst, psig	1,048	Minimum Wall, inch	0.022

**QUALIFICATION TESTS**

Preliminary Examination of Product  
 Pre-Proof Volumetric Capacity Test  
 Proof Pressure Test  
 Post-Proof Volumetric Capacity Test  
 Negative Pressure Cycle  
 External Leak Test  
 Bubble Point Test  
 NDE  
 Sine Vibration Test  
 System Priming  
 Pressure Drop  
 Expulsion Efficiency  
 Final Examination  
 Random Vibration  
 Proof Pressure Cycling  
 MEOP Pressure Cycling  
 External Leakage Test  
 NDE  
 Burst Pressure

**TANK CHARACTERISTICS (Metrics)**

Operating Pressure, bar	17.24	Total Volume, l	31
Proof Pressure, bar	25.85	Prop Volume, l	30
Cryo Proof, bar	N/A	Prop Volume, kg ↑ NTO	30.70
Burst Pressure, bar	41.368	Max Design Wt, kg	2.45
Actual Burst, bar	72.256	Minimum Wall, MM	0.559

**HEMISPHERE FORGINGS**

HEMI P/N	QTY	SUPPLIER	Die No
80-225061-1	2	Arcturus	2105A

**RING FORGINGS (Roughed Machined) (inches)**

80-225065-1, Ring Forging	9.50 OD x 7.12 ID x 2.20 Lg
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**RING FORGINGS (Roughed Machined) (mm)**

80-225065-1, Ring Forging	241 OD x 181 ID x 56 Lg
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**TUBE TYPE AND SIZE(inches)**

Bi-Metallic - Titanium / CRES	SIZE
80-540001-1 Pressurant / Propellant	.250 OD x 0.020 Wall

**TUBE TYPE AND SIZE (mm)**

Bi-Metallic - Titanium / CRES	SIZE
80-540001-1 Pressurant / Propellant	6.35 OD x 0.508 Wall

**NOTES**

The 80540-1 tank shell was re-qualified for the GPS IIF RCATS Program, ATK P/N 80448-1. The transition tubes and mounting holes in the flange were modified for the LADEE Program and have been subjected to protoflight testing to qualify the PMD and tank mounting.

**ACCEPTANCE TESTS**

Preliminary Examination of Product  
 Pre-Proof Volumetric Capacity Test  
 Proof Pressure Test  
 Post-Proof Volumetric Capacity Test  
 Negative Pressure Cycle  
 External Leak Test  
 Bubble Point Test  
 NDE  
 Sine Vibration Test  
 System Priming  
 Pressure Drop  
 Expulsion Efficiency  
 Final Examination  
 Cleanliness

**VACUUM RATED**

Yes

