

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.

**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
Prototflight 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

**PROGRAM INFORMATION**

Program	LADEE
Customer	Space Systems Loral
Original Job No.	C1037
Customer Installed Device	N/A
Customer Controlled Device	N/A

**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

**NOTES**

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

**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

**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

