

TANK TYPE	MOUNT	LOCATION	PMD DEVICE
COMPLEX PMD	Bosses	Polar	VANE, TRAP, SCREEN & SPONGE

The Propellant Tank Assembly is a 35 inch inside diameter spherical tank constructed of solution treated and aged 6AL-4V Titanium. The PTA container an internally mounted propellant management device (PMD) whose function is to maintain separation of liquid propellant and gaseous pressurant which provides a predictable gas free liquid propellant at the tank outlet. The vane, perforated sheet and woven screen type PMD is mounted inside the PTA. Mounting of the PTA is provided by two (2) polar bosses.

Part Number 80415-1

SIZE: 35" ID SPHERE

SIZE: 889 mm

ISO 9001 & AS 9100 REGISTERED

APPLICABLE DOCUMENTS	TANK CHARACTERISTICS	ACCEPTANCE TESTS
Bubble Point Test Procedure 50-000541	Operating Pressure, psig 260 Total Volume, in ³ 22,450	Preliminary Examination of Product
Acceptance Test Procedure 50-000540	Proof Pressure, psig 325 Prop Volume, in ³ 22,450	Tank Capacity
Fracture Toughness Test 50-000377	Cryo Proof, psig N/A Max Design Wt, lbs 29.30	Proof Pressure Test
Processes List 54-000100	Burst Pressure, psig 390 Minimum Wall, inch 0.023	Tank Capacity
PMD Performance Analysis Rpt 54-000101	Actual Burst, psig 555	Sinusoidal Vibration
Applicable Documents List 54-000103		PMD Functional Test
Materials List 54-000104		External Leakage
Age Process Elimination 54-000119		Radiographic & Penetrant Inspect
Pre-Assy Clean, Sponge Assy 54-000146		Radiographic Inspection of PMD
Weld Qualification Report 55-000072		Tank Weight
Forging Qual Report, JN 8804 55-000069		Final Examination of Product
Weld Qualification Report 55-000072		Cleanliness
Materials Properties Test, JN 8804 55-000073		
EB Weld Repair 55-000074		
QTR, Manifold, Perforated Sheet 56-000136		
Qualification Test Report 56-000137		
Protoflight Test Report 56-000139		
Fracture Analysis Plan 54-000097		
Cleaning CPP 3873		

TANK CHARACTERISTICS (Metrics)			
Operating Pressure, bar	17.93	Total Volume, l	368
Proof Pressure, bar	22.41	Prop Volume, l	368
Cryo Proof, bar	NO	Max Design Wt, kg	13.29
Burst Pressure, bar	26.89	Minimum Wall, MM	0.584
Actual Burst, bar	38.27		

APPLICABLE DOCUMENTS	
Bubble Point Test Procedure	50-000541
Acceptance Test Procedure	50-000540
Fracture Toughness Test	50-000377
Processes List	54-000100
PMD Performance Analysis Rpt	54-000101
Applicable Documents List	54-000103
Materials List	54-000104
Age Process Elimination	54-000119
Pre-Assy Clean, Sponge Assy	54-000146
Weld Qualification Report	55-000072
Forging Qual Report, JN 8804	55-000069
Weld Qualification Report	55-000072
Materials Properties Test, JN 8804	55-000073
EB Weld Repair	55-000074
QTR, Manifold, Perforated Sheet	56-000136
Qualification Test Report	56-000137
Protoflight Test Report	56-000139
Fracture Analysis Plan	54-000097
Cleaning	CPP 3873

TANK CHARACTERISTICS (Metrics)			
Operating Pressure, bar	17.93	Total Volume, l	368
Proof Pressure, bar	22.41	Prop Volume, l	368
Cryo Proof, bar	NO	Max Design Wt, kg	13.29
Burst Pressure, bar	26.89	Minimum Wall, MM	0.584
Actual Burst, bar	38.27		

HEMISPHERE FORGINGS			
HEMI P/N	QTY	SUPPLIER	Die No
80-350061-1	2		

TUBE TYPE AND SIZE (in.)		SIZE
Ti 3AL-2.5V		
80-415020-5	.250 x 0.018 Wall Inlet	
80-350150-5	.375 x 0.018 Wall Outlet	

TUBE SIZE (mm)	
80-415020-5	6.350 x 0.457 Wall Inlet
80-350150-5	9.525 x 0.457 Wall Outlet

Notes:

- 1: Tooling belongs to Northrop Grumman
- 2: 'Sine Vibration (Dry/Three Axis)
- 3: Vib Fixture No. 3107-0036
- 4: 'Fracture Critical
- 5: Hughes Development Spec. DS 80003-H40-300
- 6: Same as the 80350 except the bulkhead & sponge are same as 80399

P/N 80350

