TANK TYPE **MOUNT** PMD WRAP

LOCATION **CYLINDER** 

PMD DEVICE VANE, TRAP, & **SPONGE** 

NORTHROP GRUMMAN

This Hydrazine propellant tank is constructed of a 6AI-4V titanium liner with the cylindrical portion overwrapped with T1000 carbon fiber/ epoxy composite for an overall diameter of 35.5" X 75" length. Mounting of the tank is provided by a carbon/cyanate ester composite skirt with 12 attach points around the cylinder, and a polar flex plate at the pressurant end. The tank contains an internally mounted propellant management device (PMD) to provide gas free liquid throughout the SIZE: 35.5" DIA X 75" LONG mission.

Part Number 80425-101

Examination of Product, Preliminary

SIZE: 902 -MM DIA x 1905 -MM LONG

# **APPLICABLE DOCUMENTS**

Bubble Point Test Procedure	50-000562
Acceptance Test Procedure	50-000575
Qual Test Procedure, note 2	50-000574
Qual Test Procedure	50-000597
Fracture Analysis Plan	54-000177
Dynamics Report	54-000183
Stress Report	54-000184
PMD Performance Analysis	54-000197
Tab Redesign Stress Analysis	54-000199
Tab Failure Analysis	54-000204
PMD Functionality Analysis	54-000235
Qualification Test Report, note 2	56-000188
Qualification Test Report	56-000199
Cleaning (tank)	CPP-3911

#### Notes:

- 1. Fracture Critical
- 2. Documents prepared for -1 tank

# **TANK CHARACTERISTICS**

Operating Pressure, psig	300	_Total Volume, in <sup>3</sup>	57,215
Proof Pressure, psig	375	Prop Volume, in <sup>3</sup> 57,215	
Cryo Proof, psig	N/A	Prop Volume, lbs 1,980	
Burst Pressure, psig	450	Minimum Wall, inch 0.027	
Actual Burst, psig	557	(0.026 after etch)	
PMD Wt, Ibs		Max Design Wt, Ibs	73.00
		Qual Actual Wt, lbs	68.34

# TANK CHARACTERISTICS (Metrics)

Operating Pressure, bar	20.68	Total Volume, I	937.60
Proof Pressure, bar	25.85	Prop Volume, I	937.60
Cryo Proof, bar	N/A	Prop Volume, kg	898.12
Burst Pressure, bar	31.03	Minimum Wall, MM	0.686
Actual Burst, bar	38.40	(0.6604 after etch)	
PMD Wt, kg		Max Design Wt, kg	33.11
		Qual Actual Wt, kg	31.00

#### **FORGINGS**

HEMI P/N	QTY	SUPPLIER	Die No
80-391061-1	2	ARCTURUS	3540B

# **ROLLED AND SEAM WELDED CYLINDER**

P/N	QTY	SIZE
80-425016-1	1	35.255 ±.010 I.D. x 34.5/36.0 LONG

# **TUBE TYPE AND SIZE**

Ti 3AL-2.5V		SIZE	
80-425011-5	Press		.375 O.D. x .020 Wall
80-425007-5	Prop		.375 O.D. x .020 Wall

# **TUBE SIZE (Metrics)**

80-425011-5	Press	9.525 O.D. x .508 MM Wall
80-425007-5	Prop	9.525 O.D. x .508 MM Wall

# **QUALIFICATION TESTS**

Volume, Proof, Volume PMD Bubble Point Testing Wet & Dry Sine & Random Axial Vibration Testing Wet & Dry Sine & Random Lateral Vibration Test External Leak Test Proof Pressure Cycling MEOP Pressure Cycling Differential Pressure Test PMD Bubble Point Testing

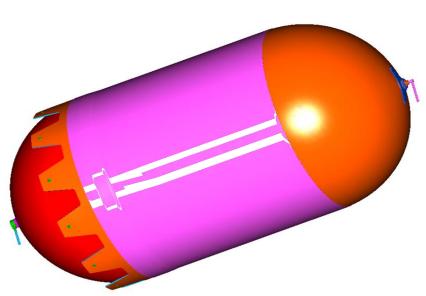
External Leak Test Weld Quality Inspection Mass Measurement Final Visual Inspection Burst Pressure Test

# ACCEPTANCE TESTS

Examination of Product, Preliminary Volume, Proof, Volume Static Load Test PMD Bubble Point Test External Leak Test Weld Quality Inspection Mass Measurement Final Visual Inspection

# **VACUUM RATED**

N/A



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