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|------------------------------|-----------------------|-----------------------------|--|
| TANK TYPE PMD WRAP | MOUNT SKIRT | LOCATION CYLINDER | PMD DEVICE VANE, TRAP, & SPONGE |
|------------------------------|-----------------------|-----------------------------|--|

This Hydrazine propellant tank is constructed of a 6Al-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 mission.

Part Number 80425-101

SIZE: 35.5" DIA X 75" LONG

SIZE: 902 -MM DIA X 1905 -MM LONG

ISO 9001 & AS 9100 REGISTERED

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 |

TANK CHARACTERISTICS

| | | | |
|--------------------------|-----|-------------------------------|--------|
| Operating Pressure, psig | 300 | Total Volume, in ³ | 57,215 |
| Proof Pressure, psig | 375 | Prop Volume, in ³ | 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, lbs | | Max Design Wt, lbs | 73.00 |
| | | Qual Actual Wt, lbs | 68.34 |

QUALIFICATION TESTS

| |
|---|
| Examination of Product, Preliminary |
| 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 |

TANK CHARACTERISTICS (Metrics)

| | | | |
|-------------------------|-------|---------------------|--------|
| Operating Pressure, bar | 20.68 | Total Volume, l | 937.60 |
| Proof Pressure, bar | 25.85 | Prop Volume, l | 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 |

Notes:

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

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 |

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 |
| Clean |

VACUUM RATED

N/A

