

TANK TYPE	MOUNT	LOCATION
PMD PROPELLANT	POLAR	POLAR BOSS

NORTHROP GRUMMAN

The JWST Oxidizer Tank is a pressure vessel with hemispherical ends and a cylindrical center section constructed of STA 6AL-4V Titanium. The tank contains a custom-designed propellant management device (PMD). The tank is mounted on polar bosses.

Part Number 80546-1
SIZE: 26.63 OD x 29.058" Long
SIZE: 676.4 mm OD x 738 mm Long

ISO 9001 & AS 9100 REGISTERED

APPLICABLE DOCUMENTS

Protoflight Test Procedure	50-000811
Slosh Test Procedure	50-000813
Stress and Dynamics Report	
FMECA	
Cleaning	CPP 4050

TANK CHARACTERISTICS

Operating Pressure	350 psia @ 100°F	Total Volume, in ³	7996
Proof Pressure, psig	437.5 psia @ 100°F	Max Load, lb _m	291 lb _m N ₂ O ₄
Cryo Proof, psig	N/A	Max Design Wt, lb _m	24.2
Burst Pressure, psig	525 psia @ 118°F	Minimum Wall, inch	0.027
Actual Burst, psig	TBD	Qual Tank Mass	TBD

PROTOFLIGHT TESTS

- Preliminary Examination
- Pre-Proof Volumetric Capacity Test
- Proof Pressure Test
- Tank Dimensions
- Post-Proof Volumetric Capacity Test
- Vibration Test
- PMD Bubble Point Test
- External Leakage Test
- Visual Examination
- Radiographic Examination
- Penetrant Examination
- Final Examination of Product
- Cleanliness Verification

TANK CHARACTERISTICS (Metrics)

Operating Pressure, bar	24 bar @ 38°C	Total Volume, l	131.0
Proof Pressure, bar	30 bar @ 38°C	Max Load, kg	132 kg N ₂ O ₄
Cryo Proof, bar	N/A	Max Design Wt, kg	11.0
Burst Pressure, bar	36.2 bar @ 48°C	Minimum Wall, mm	0.69
Actual Burst, bar	TBD	Qual Tank Mass	TBD

HEMISPHERE FORGINGS

HEMI P/N	QTY
80-545061-1	2

Ring Forgings

P/N	QTY	SIZE

QUALIFICATION TESTS ON P/N 80545

- Acceptance Testing
- Cyclic Pressurization
- Priming Flow Rate
- Flow Rate and Pressure Drop
- PMD Integrity Radiographic Inspection
- Bubble Point Test
- External Leakage Test
- Vibration Testing
- Launch Acceleration
- PMD Integrity Radiographic Inspection
- Bubble Point Test
- External Leakage Test
- Visual Inspection
- Penetrant Inspection
- Radiographic Inspection
- Final Examination
- Burst

TUBE TYPE AND SIZE

Ti 3AL-2.5V	QTY	SIZE
80-545175-3	1	0.250" OD x 0.020" Wall 6.35 mm OD x 0.51 mm Wall
80-545175-3	1	0.250" OD x 0.020" Wall 6.35 mm OD x 0.51 mm Wall

