

TANK TYPE	MOUNT	LOCATION
Spinner Hydrazine	Bosses	Polar

The basic tank design selected for the Lunar Prospector mission was originally designed & qualified for the TRW Model 35 program in the early 1970's. The simple mounting arrangement includes a threaded boss at one end & a four bolt pattern at the other. The solution treated and aged 6Al-4V titanium alloy shell, machined from forgings, was stress & fracture mechanics analyzed to the new mission requirements. A slosh analysis was performed to establish the propellant location in the tanks during the separation, spin-up, & pitch maneuvers. This resulted in the only design change which was to add a vortex suppressor over the outlet.

ISO 9001 & AS 9100 REGISTERED

P/N 80396-1

SIZE: 19.23-inch ID Sphere
SIZE: 488.4-mm

APPLICABLE DOCUMENTS	
Acceptance Test Procedure	50-000498
Cleaning	CPP 3821

TANK CHARACTERISTICS			
Operating Pressure, psig	600	Total Volume, ci	3,776
Proof Pressure, psig	900	Prop Volume, ci	Variable
Cryo Proof, psig	NA	Max Design Wt, lbs	11.50
Burst Pressure, psig	1,200	Minimum Wall, inch	0.036

ACCEPTANCE TESTS
Preliminary Inspection of Product
Pre-Proof Volumetric Capacity
Ambient Proof Pressure
Visual Inspection,
Post-Proof Volumetric Capacity
External Leakage Test
Radiographic Inspection
Dye Penetrant Inspection
Final Visual Inspection of Product
Mass Measurement
Cleanliness Check & Packaging
Data Review

Notes:

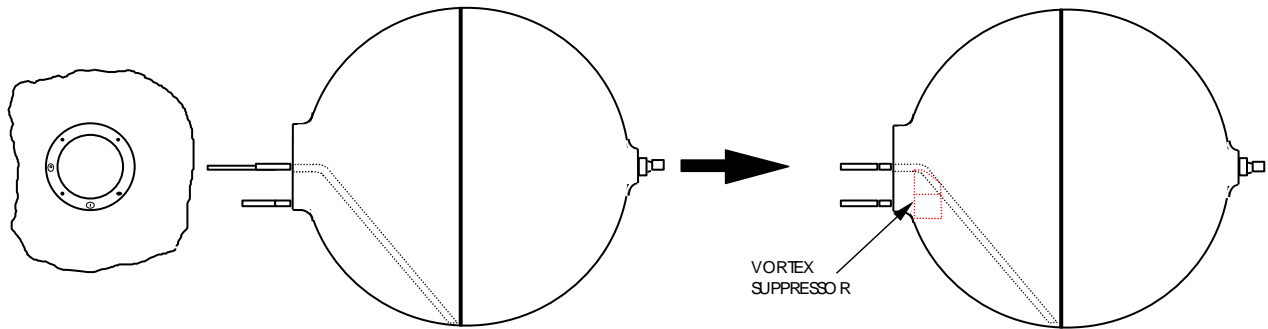
- 1: Tooling belongs to TRW/Govt
- 2: The design anal for 80182-1 tank performed by TRW
- 3: This is a re-design of P/N 80182-1
- 4: Tube Protector is SK 664
- 5: Fracture Critical

TANK CHARACTERISTICS (Metrics)			
Operating Pressure, Bar	41.37	Total Volume, l	61.88
Proof Pressure, Bar	62.05	Prop Volume, l	Variable
Cryo Proof, Bar	NA	Max Design Wt, Kg	5.22
Burst Pressure, Bar	82.74	Minimum Wall, MM	0.914

FORGINGS		
FORGINGS P/N	SUPPLIER	Die No
80-182061-1 (2)		

TUBE TYPE AND SIZE	
TRANSITION	SIZE
80-396003-1	250 OD x .020 Wall x 3.04 Long

Lunar Prospector Hydrazine Tank, Design Heritage



Model 35
P/N 80182-1

LUNAR PROSPECTOR
P/N 80396-1