

TANK TYPE Diaphragm	MOUNT Pedestal	LOCATION Apex
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This is a 15-inch spherical pressure vessel constructed of 6Al-4V titanium. Positive fuel expulsion is provided by a reversible ethylene-propylene terpolymer (AF-E-332) rubber diaphragm retained (welded in) at the sphere mid-plane. Mounting is accomplished on a pedestal mount located on the apex of the propellant hemisphere.

Part Number 80225-1

SIZE: 15.38-inch ID Sphere
SIZE: 390.6 MM

ISO 9001 (1994) REGISTERED

PSI Analysis **Stress**

APPLICABLE DOCUMENTS	
Acceptance Test Procedure	50-000183
Qualification Test Procedure	50-000184
Acceptance Test Procedure	50-000222
Qualification Test Report	56-000068
Penetrant Inspection	65-000019
Powder Blast	65-000030
Fusion Welding, TIG	90-000003
Radiographic Acceptance STD	90-000004
Closed Die Forging	90-000005
Radiographic Inspection	90-000006
Pre-Weld Cleaning	90-000022
Identification	90-000047
Electrochemical Etch	90-000049
Heat Treat	90-000082
Radiographic	90-000103
Erno Specification, Issue 5	EQ-01-6-12
Ultrasonic Insp, Class AA	MIL-STD-2154
Weld, Electron Beam	AMS 2681
Cleaning	CPP 3441

TANK CHARACTERISTICS			
Operating Pressure, psig	320	Total Volume, ci	1,865
Proof Pressure, psig	510	Prop Volume, ci	1,375
Cryo Proof, psig	NA	Max Design Wt, lbs	8.16
Burst Pressure, psig	680	Minimum Wall, inch	0.019

ACCEPTANCE ENVIRONMENTAL TESTS
Random Vibration
Temperature Cycle, Note 6

TANK CHARACTERISTICS (Metrics)			
Operating Pressure, bar	22.06	Total Volume, l	30.56
Proof Pressure, bar	35.16	Prop Volume, l	22.53
Cryo Proof, bar	NA	Max Design Wt, Kg	3.70
Burst Pressure, bar	46.88	Minimum Wall, MM	0.483

PROGRAM INFORMATION	
Program	Note 5
Customer	ERNO
Customer P/N	SK 365-011d
Original Job No	7433
Customer Installed Device	No
Customer Controlled Design	No

DIAPHRAGM INFORMATION	
Diaphragm P/N	80-225017-1
Diaphragm Mold P/N	T-1647
Diaphragm Gross Wt	1.19
Diaphragm Matl Type	AF-E-332
Diaphragm Material, Note 4	90-000075
Diaphragm Processing, Note 4	90-000087
N-Ray Inspection Procedure	1002

FORGINGS		
FORGINGS P/N	SUPPLIER	Die No
80-225061-1, (2)	ARCTURUS	2105A
RING FORGING		
	RING SIZE. (Rough Machined)	
80-225063-1, Retainer	15.63 +.12 OD x 14.37 -.12 ID x 1.28 +.12 Lg	
80-225065-1, Base	9.5 +.09 OD x 7.12 -.09 ID x 2.2 +.09 Lg	

ACCEPTANCE TEST SEQUENCE

- Preliminary Examination of Product
- Volume, Proof, Volume
- Random Vibration
- Internal High Pressure Helium Leak Test (Diaphragm)
- Temperature Cycle Test
- Internal Low Pressure Helium Leak Test (Diaphragm)
- Internal High Pressure Helium Leak Test (Diaphragm)
- External Leak Test
- Final Examination of Product

Notes:

- 1: Tooling owned by Northrop Grumman
- 2: Actual burst pressure was 680
- 3: Launch vehicle is delta 3914 or Ariane
- 4: Proprietary Document
- 5: OTS = Orbital Test Satellite & MARECS
- 6: One cycle @ 118 degrees, One @ 25 degrees

TUBE TYPE AND SIZE	
TITANIUM	SIZE
80-225015-3, Propellant	.250 OD x .035 Wall (6.35 x .889 MM)
80-225080-3, Pressurant	.251 ID (6.37 MM)

