TANK TYPE	MOUNT	LOCATION
Diaphragm	Flange	Girth

NORTHROP GRUMMAN

This is a 17-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 mid-plane. Mounting is accomplished on a continuous flange parallel with and adjacent to the mid-plane.

ISO 9001 (1994) REGISTERED

Part Number 80285-1

SIZE: 17.4-inch ID Sphere
SIZE: 442-MM

NG Analysis	Stress	Fracture

APPLICABLE DOCUMENTS

Acceptance Test Procedure	50-000229
Qualification Test Procedure	50-000230
Quality Assurance Program Plan	56-000084
Traceability	60-000042
Powder Blast	65-000030
Fusion Welding, TIG	90-000003
Radiographic Acceptance STD	90-000004
Radiographic Inspection	90-000006
Pre-Weld Cleaning	90-000022
Identification	90-000047
Electrochemical Etch	90-000049
Heat Treat	90-000082
Closed Die Forging	90-000083
Penetrant Insp, **Note 7**	90-000086
Pre-Penetrant Etch, **Note 7**	90-000088
Radiographic, **Note 7**	90-000103
EB Weld	AMS 2681
Cleaning	CPP 3557

TANK CHARACTERISTICS

Operating Pressure, psig	**319**	Total Volume, ci	**2,705**
Proof Pressure, psig, Note 4	**970**	Prop Volume, ci	**2,049**
Cryo Proof, psig	**NA**	Max Design Wt, lbs	**15.43**
Burst Pressure, psig	**1,057**	Minimum Wall, inch	**0.034**

DIAPHRAGM INFORMATION

Diaphragm P/N	80-285007-1	
Diaphragm Mold P/N	T-2168	
Diaphragm Gross Wt	1.44	
Diaphragm Matl Type	AF-E-332	
Diaphragm, Material	**Note 2**	90-000075
Diaphragm Processing	**Note 2**	90-000087
N-Ray Inspection Procedure		1002

Notes:

1: Tooling belongs to Northrop Grumman
2: Proprietary Document
3: International Solar Polar Mission (ISPM),(Ulysses)
4: Fracture Mechanics Proof. System proof is 550 psig
5: Vibration Fixture is T-2179
6: British Aerospace (BAe)
7: Fracture Critical

ACCEPTANCE ENVIRONMENTAL TESTS

Random Vibration
Sine Vibration

PROGRAM INFORMATION

Program	Note 3
Customer	Note 6
Customer P/N	CAL-902
Original Job No	8004
Customer Installed Device	No
Customer Controlled Design	No

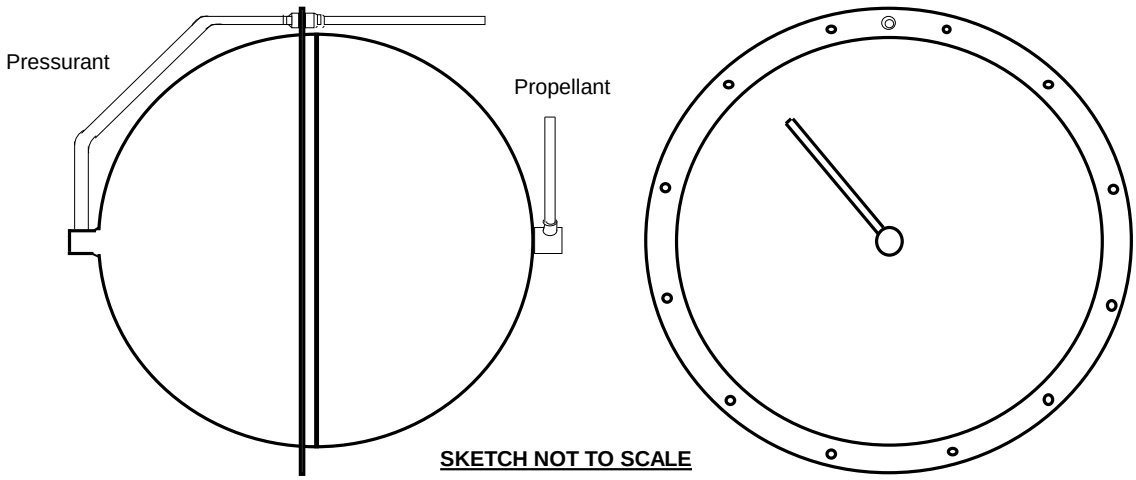
FORGINGS

FORGINGS P/N	SUPPLIER	Die No
80-285061-1 (2)	ARCTURUS	2734A
RING FORGING	**RING SIZE, (Rough Machined)**	
80-285063-1, Flange	20.31 +.09 OD x 18 -.09 ID x .81 +.06 Lg	
80-285065-1, Retainer	17.68 +.09 OD x 16.44 -.09 ID x 1.44 +.12 Lg	

TUBE TYPE AND SIZE

TITANIUM	SIZE
80-285006-3, Inlet	.250 OD x .035 Wall
80-285008-1, Outlet	.250 OD x .020 wall

Ulysses is an international science spacecraft sponsored by NASA and ESA. Its mission is to examine the solar system from a new perspective; from far above the sun's equator. The spacecraft carried 9 instruments to study magnetic fields, solar wind plasma, solar wind ion composition, low-energy ions and electrons, energetic-particle composition and interstellar gas. Ulysses was launched from Space Shuttle Discovery (PSI P/N 80228-1 and 80278-1) in October 1990. An IUS booster (PSI P/N 80273-1) was used to help the spacecraft escape the Earth's gravity and sent it toward Jupiter. Ulysses encountered Jupiter on February8, 1992 and used Jupiter's enormous gravity to move the spacecraft out of the ecliptic plane and headed back toward the sun on March 1, 1992. It passed over the south pole from June to November 1994, and passed over the north pole in June 1995. Ulysses will continue to orbit the sun and will fly over the south pole in Fall 2000 and north pole in Spring 2001. PSI fabricated five of these tanks for the Ulysses program.



SKETCH NOT TO SCALE

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12-Jun-18