TANK TYPE	MOUNT	LOCATION
COPV	POLAR	POLAR

NORTHROP GRUMMAN

The Messenger Pressurant Tank is a composite overwrapped pressure vessel (COPV) with a liner constructed of a center cylinder welded to end domes and overwrapped with T1000 carbon fiber. The commercially pure titanium liner has a nominal .020" membrane thickness. Mounting is provided by polar bosses located along the tank centerline axis.

ISO 9001 & AS 9100 REGISTERED

Part Number 80445-1

SIZE:15.8" DIA X 26.25" LONG

SIZE: 402 mm DIA X 667.3 mm LONG

APPLICABLE DOCUMENTS

Acceptance Test Procedure	50-000592
Qualification by Similarity	56-000186
Cleaning	CPP3915

Notes:

1. This tank is deviated from tank P/N 80400 & 80446
2. P/N 80445 end domes are 1-piece forgings
   P/N 80400 end domes were 2-piece assemblies
3. Burst pressure conducted on P/N 80446.

PROGRAM INFORMATION

Program	Messenger
Customer	Aerojet
Customer P/N	
Original Job No	0108
Customer Installed Device	No
Customer Controlled Design	No

TANK CHARACTERISTICS

Operating Pressure, psig	4,500	Total Volume, in^3	4,040
Proof Pressure, psig	5,625	Max Design Wt, lbs	23.15
Cryo Proof, psig	N/A	Minimum Wall, inch	0.020
Burst Pressure, psig	6,750		
Actual Burst, psig	7,917	(on P/N 80446)	

TANK CHARACTERISTICS (Metrics)

Operating Pressure, bar	310.26	Total Volume, l	66
Proof Pressure, bar	387.82	Max Design Wt, kg	10.50
Cryo Proof, bar	N/A	Minimum Wall, MM	0.508
Burst Pressure, bar	465.39		
Actual Burst, bar	545.85	(on P/N 80446)	

HEMISPHERE FORGINGS

HEMI P/N	QTY	SUPPLIER	Die No
80-436061-1	2		

ROLLED AND SEAM WELDED CYLINDER

P/N	QTY	SIZE
80-374100-1	1	15.42 in ID X 15.0 in LONG

TUBE TYPE AND SIZE (in.)

Ti 3AL-2.5V	SIZE
80-445005-3	0.252 'O.D. x 0.028 Wall
80-445005-1	0.252 'O.D. x 0.028 Wall

TUBE SIZE (mm)

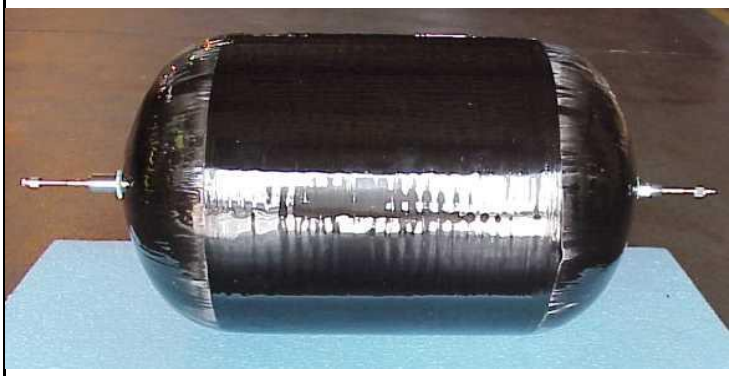
80-445005-3	0.252 OD x 0.028 Wall
80-445005-1	0.252 OD x 0.028 Wall

ACCEPTANCE TESTS

- Examination of Product, Preliminary
- Volumetric Measurement @ Ambient
- Proof Pressure Test @ Ambient
- Volumetric Measurement @ Ambient
- Protoflight Sine Vibration
- External Leak Test
- Weld quality inspection
- Examination of Product, Final
- Precision Clean

QUALIFICATION TESTS

Qual by similarity to 80446-1.



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