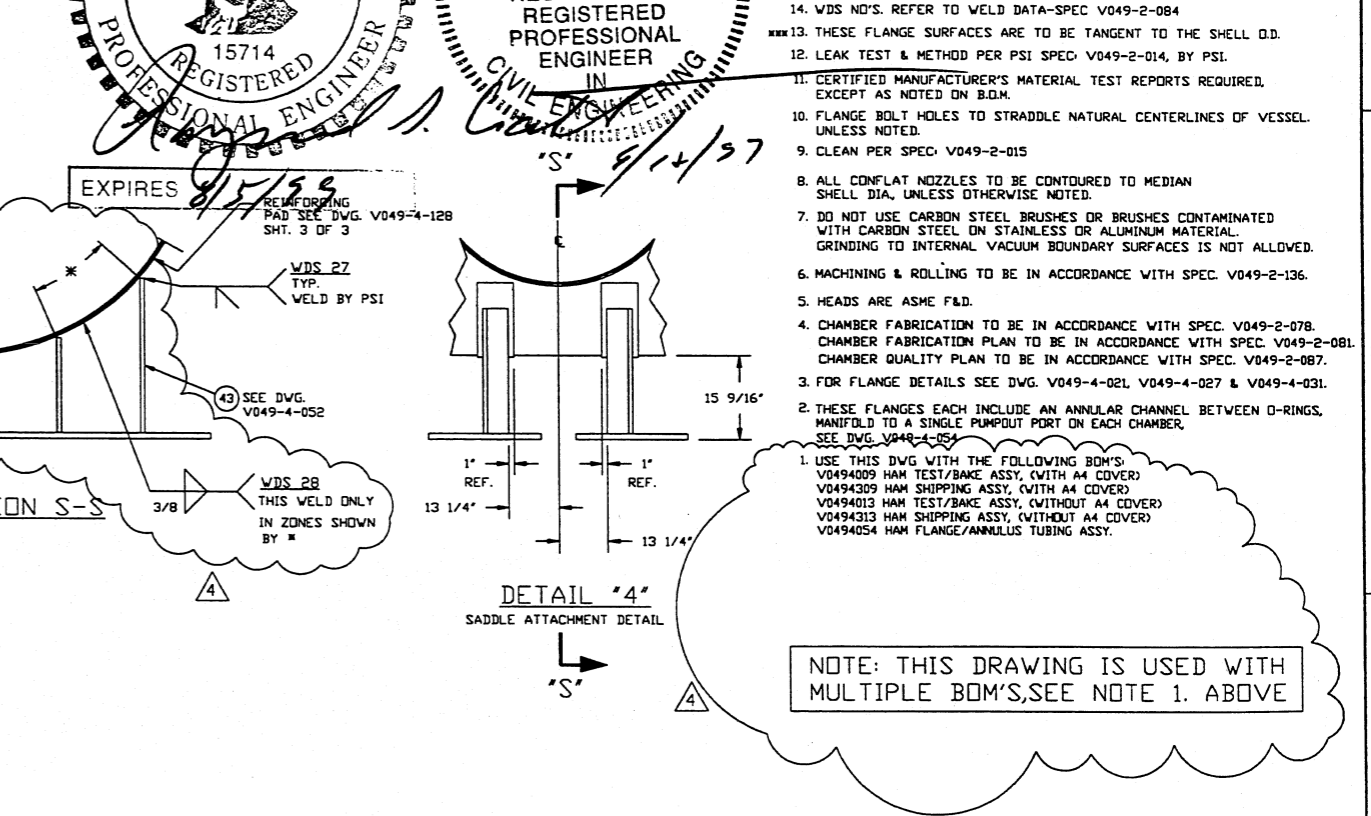
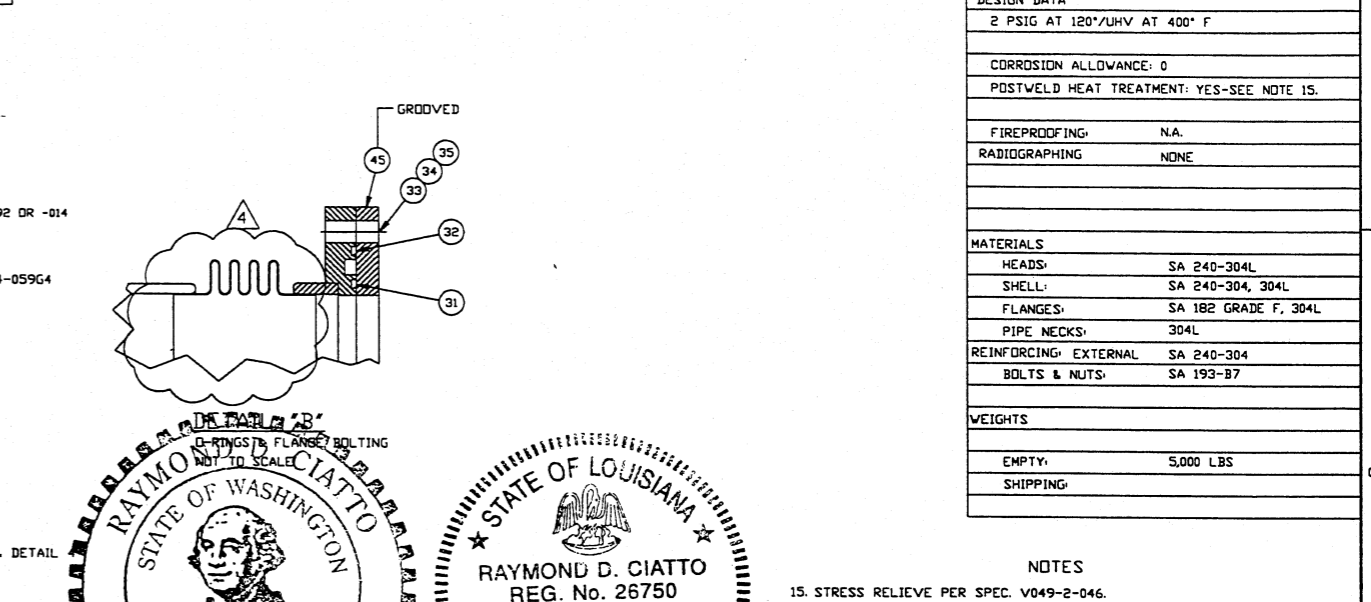
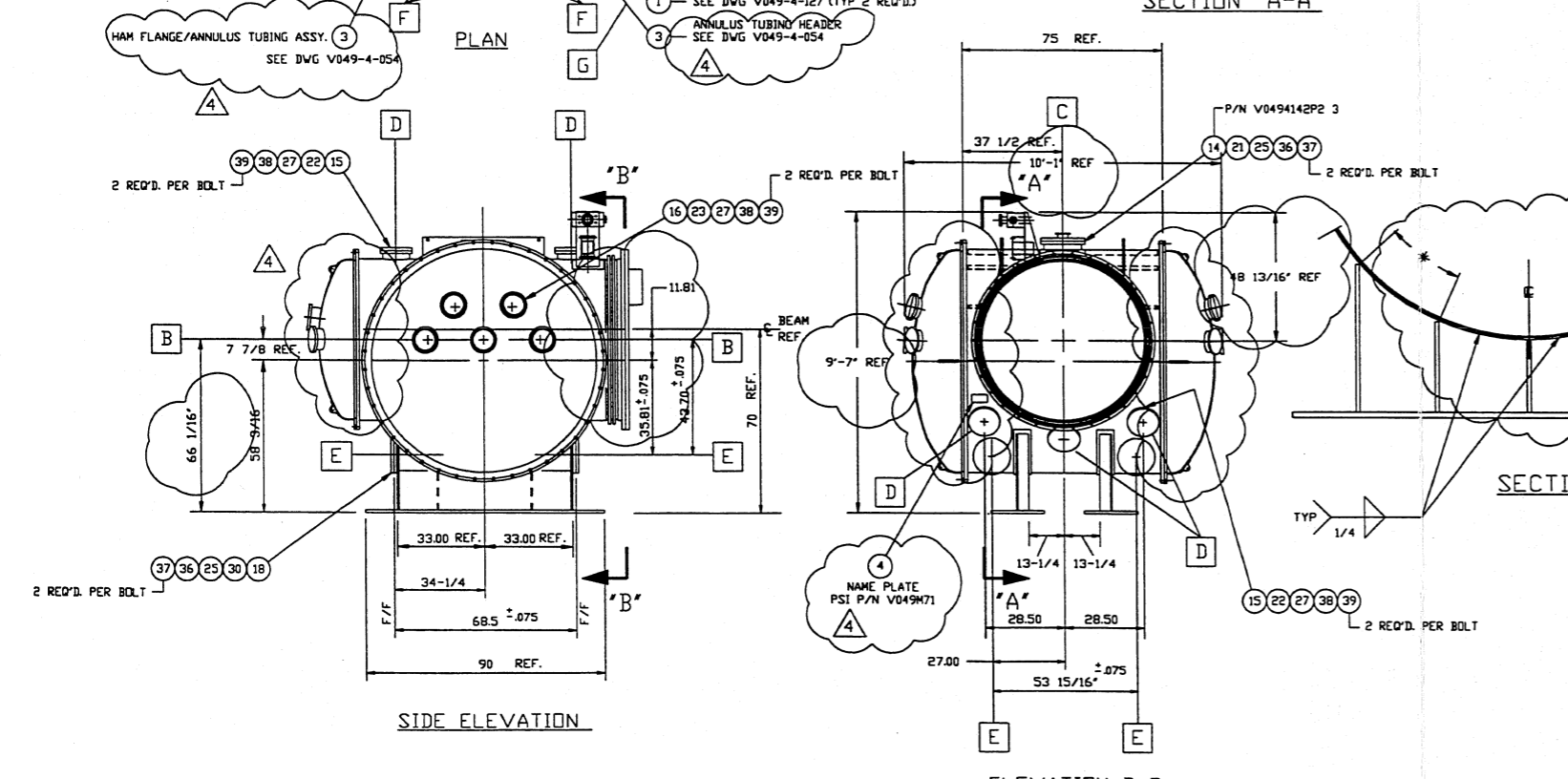
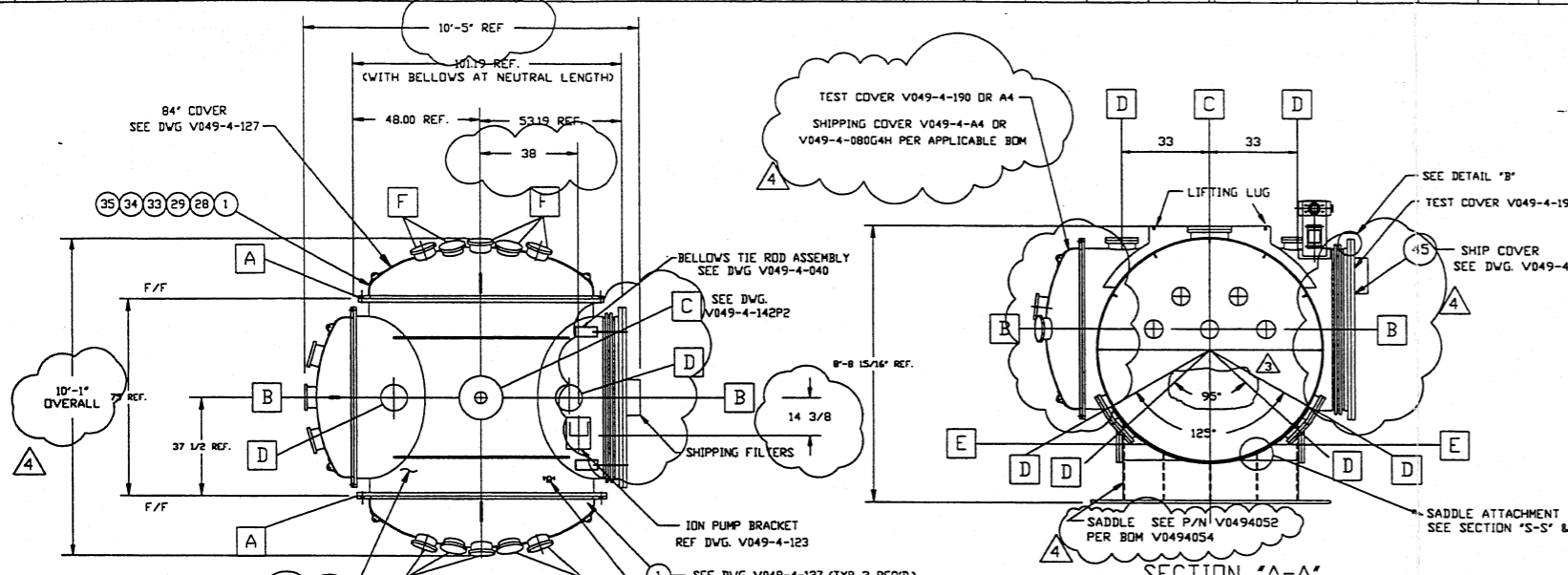
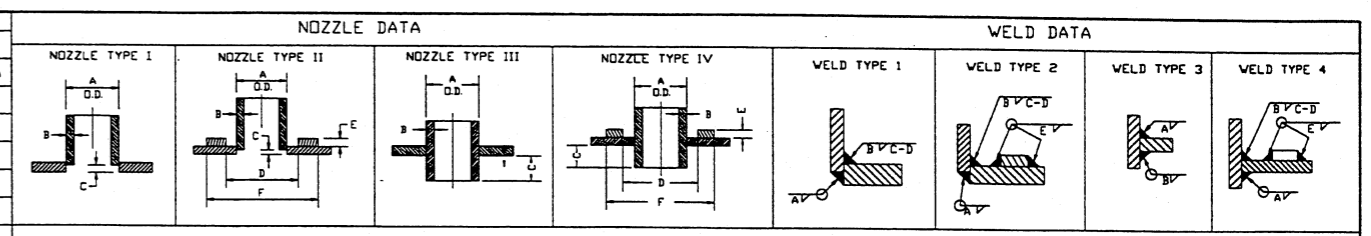
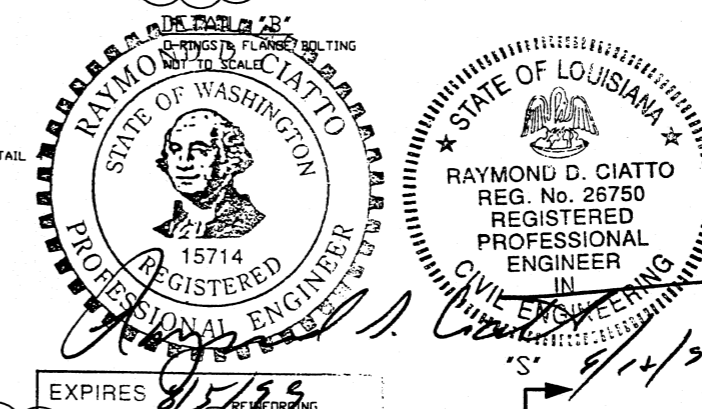


NOZZLE SCHEDULE				NOZZLE TYPE						WELD TYPE									
MARK	QTY	SIZE	RATING	TYPE	DESCRIPTION	TYPE	A	B	C	D	E	F	TYPE	A	B	C	D	E	
A	2	84 1/4" I.D.		SEE NOTE 2.3	MAJOR ACCESS (SEE DWG. V049-4-127)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
B	2	60 1/2" I.D.		SEE NOTE 2.3	LASER BEAM	SEE THIS SHEET													
C	1	14" O.D. TUBE ***		16 1/2" O.D. CONFLAT V/ BLIND FLANGE	AIR SHOWERS (SEE DWG. V049-4-142)	I	14.0	.120	1/4				1	1/8"	SEE V049-4-128 SEE DETAIL #9 SHEET #1				
D	8	10" O.D. TUBE ***		12" O.D. CONFLAT V/ BLIND FLANGE	ELEC./INSTR. FEEDTHROUGHS, UTILITY	I	10.0	.120	1/4				1	1/8"	SEE V049-4-128 SEE DETAIL #9 SHEET #1				
E	4	12" O.D. TUBE		14" O.D. CONFLAT V/ BLIND FLANGE	SUPPORT BEAM	I	12.0	.120	1/4				1	1/8"	SEE V049-4-128 SEE DETAIL #9 SHEET #1				
F	10	8" O.D. TUBE ***		10" O.D. CONFLAT V/ BLIND FLANGE	OBSERVATION PICKOFFS (DWG. V049-4-127)	I	8.0	.250	3/16				1	3/16	SEE V049-4-127 SEE DETAIL #26 SHEET #1				
G	1	2 1/2" O.D. TUBE		4 1/2" O.D. CONFLAT V/ BLIND FLANGE	ANNULUS AUX. TURBO PUMPOUT PORT (SEE DWG. V049-4-054)														



DESIGN DATA	
OPERATING PRESSURE	2 PSIG AT 120°/UHV AT 400° F
CORROSION ALLOWANCE	0
POSTWELD HEAT TREATMENT	YES-SEE NOTE 15.
FIREPROOFING	N.A.
RADIOGRAPHING	NONE
MATERIALS	
HEADS	SA 240-304L
SHELL	SA 240-304, 304L
FLANGES	SA 182 GRADE F, 304L
PIPE NECKS	304L
REINFORCING EXTERNAL	SA 240-304
BOLTS & NUTS	SA 193-B7
WEIGHTS	
EMPTY	5,000 LBS
SHIPPING	

- NOTES
1. USE THIS DWG WITH THE FOLLOWING BOM'S: V0494009 HAM TEST/BAKE ASSY. (WITH A4 COVER) V0494309 HAM SHIPPING ASSY. (WITH A4 COVER) V0494013 HAM TEST/BAKE ASSY. (WITHOUT A4 COVER) V0494313 HAM SHIPPING ASSY. (WITHOUT A4 COVER) V0494054 HAM FLANGE/ANNULUS TUBING ASSY.
  2. THESE FLANGES EACH INCLUDE AN ANNULAR CHANNEL BETWEEN O-RINGS, MANIFOLD TO A SINGLE PUMPOUT PORT ON EACH CHAMBER. SEE DWG. V049-4-054
  3. FOR FLANGE DETAILS SEE DWG. V049-4-021, V049-4-027 & V049-4-031.
  4. CHAMBER FABRICATION TO BE IN ACCORDANCE WITH SPEC. V049-2-078. CHAMBER FABRICATION PLAN TO BE IN ACCORDANCE WITH SPEC. V049-2-081. CHAMBER QUALITY PLAN TO BE IN ACCORDANCE WITH SPEC. V049-2-087.
  5. HEADS ARE ASME F&D.
  6. MACHINING & ROLLING TO BE IN ACCORDANCE WITH SPEC. V049-2-136.
  7. DO NOT USE CARBON STEEL BRUSHES OR BRUSHES CONTAMINATED WITH CARBON STEEL ON STAINLESS OR ALUMINUM MATERIAL. GRINDING TO INTERNAL VACUUM BOUNDARY SURFACES IS NOT ALLOWED.
  8. ALL CONFLAT NOZZLES TO BE CONTOURED TO MEDIAN SHELL DIA., UNLESS OTHERWISE NOTED.
  9. CLEAN PER SPEC. V049-2-015
  10. FLANGE BOLT HOLES TO STRADDLE NATURAL CENTERLINES OF VESSEL UNLESS NOTED.
  11. CERTIFIED MANUFACTURER'S MATERIAL TEST REPORTS REQUIRED, EXCEPT AS NOTED ON B.O.M.
  12. LEAK TEST & METHOD PER PSI SPEC. V049-2-014, BY PSI.
  13. THESE FLANGE SURFACES ARE TO BE TANGENT TO THE SHELL O.D.
  14. WDS NO'S. REFER TO WELD DATA-SPEC V049-2-084
  15. STRESS RELIEVE PER SPEC. V049-2-046.



PROPRIETARY AND CONFIDENTIAL	DESCRIPTION	SYMBOL	CHARACTERISTIC	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± .1 ANGULAR ± 1° TWO PLACE DECIMAL ± .01 FINISHED SURFACE RMS 6.3 BREAK CORNERS IN REMOVE ALL BURRS	ISSUE DESCRIPTION	DATE	BY	CHKD	DRWN	DATE	REV		
V049-4-A4	60" ACCESS PORT COVER-END UNITS	□	FLATNESS		4	REISSUED FOR FABRICATION AS NOTED	GS	PEF	RDC	DMW	REC	6/6/97	0470
V049-4-054	HAM FLANGE/ANNULUS TUBING ASSEMBLY	○	CYLINDRICITY		3	REISSUED FOR FABRICATION AS NOTED	GS	PEF	RDC	DMW	REC	9/27/96	0278
V049-0-100	DRAWING TREE / BOM STRUCTURE	○	PARALLELISM		2	ISSUED FOR FABRICATION	REB	PEF	RDC	DMW	REC	7/11/96	0200
V049-4-128	HAM WELDMENT	⊥	PERPENDICULARITY		1	DESIGN UPDATE FOR QUOTES				DMW	REC	6/21/96	0208
V049-4-127	84 1/4 ID ACCESS COVER	⊕	TRUE POSITION		0	ISSUED FOR FDR				DMW	REC	5/1/96	0118
V049-4-123	HAM-75 ION PUMP SUPPORT	⊙	CONCENTRICITY		P3	UPDATE FOR QUOTES				DA	REC	04-05-96	0112
DWG. NO.	DESCRIPTION	DWG. NO.	DESCRIPTION	USED ON	REV	DESCRIPTION	CHKD	DRWN	DATE	DEC#			

PROCESS SYSTEMS INTERNATIONAL, INC.  
20 WALKUP DR. WESTBOROUGH, MASSACHUSETTS 01581 USA

HAM ASSEMBLY  
LIGO VACUUM EQUIPMENT

CAD FILE: V0494002/4002S1  
SIZE: D  
DWG. NO.: V049-4-002  
REV: 4

SCALE: 3/8"=1'-0"  
SHEET: 1 OF 1