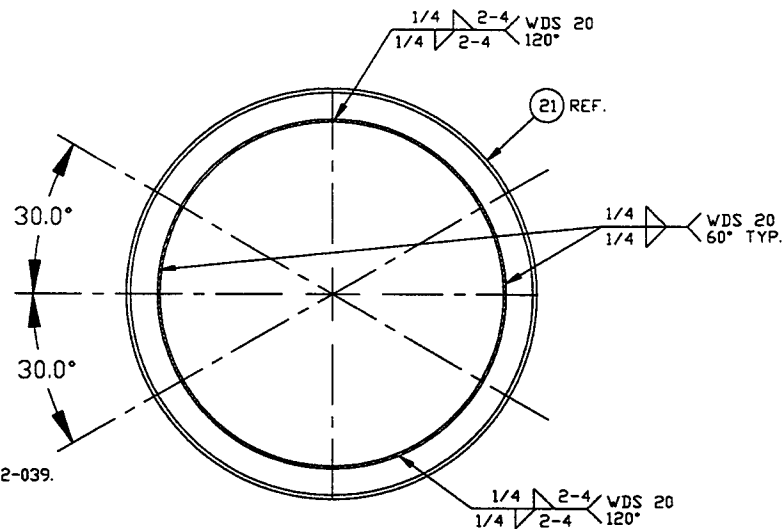


NOTES:

- EACH SHELL IS TO BE MARKED WITH THE PSI PART NO. AS SHOWN WITH THE SHELL ITEM NO.
- FLANGE INCLUDES AN ANNULAR CHANNEL BETWEEN O-RINGS
- FOR FLANGE DETAILS SEE DWGS V049-4-056 & 057.
- SPOOL FABRICATION TO BE IN ACCORDANCE WITH SPEC. V049-2-097.
- DO NOT USE CARBON STEEL BRUSHES OR BRUSHES CONTAMINATED WITH CARBON STEEL ON STAINLESS OR ALUMINUM MATERIAL.
- CLEAN PER SPEC. V049-2-015
- BOLT HOLES OF ALL FLANGES TO STRADDLE VERTICAL CENTERLINE +/- .015
- CERTIFIED MANUFACTURER'S MATERIAL TEST REPORTS REQUIRED AS NOTED
- LEAK TEST & METHOD PER PSI SPEC. V049-2-014
- THE CENTERLINES OF ALL SHELLS AND FLANGES ARE TO LIE ON THE COMMON CENTERLINE WITHIN ± 1/16
- TIGHTEN TIE-ROD NUTS WITH BELLOWS IN 'FREE' POSITION TO 100 FT-LB PRIOR TO LEAK TEST
- MACHINING & ROLLING PER SPEC V049-2-136.
- PLATES PRIOR TO ROLLING MUST HAVE DIAGONAL CORNER TO CORNER DIMENSIONS WITHIN 1/16" OF EACH OTHER.
- EACH FINISHED SHELL ASSY. SET IS TO HAVE EACH OF THE PIECES MARKED WITH THE SAME SET NO. AND SHIPPED TOGETHER. THE NUMBER IS TO BE MADE FROM THE DRAWING NO PLUS SEQUENTIAL LETTER. V0494B2A-A, B ETC.
- STRUCTURAL STEEL FABRICATION TO BE IN ACCORDANCE WITH SPEC. V049-2-039.
- CONFLAT FLANGES ARE TO HAVE PROTECTIVE COVERS AT ALL TIMES DURING & AFTER MANUFACTURING.
- WDS NO'S. REFER TO WELD DATA SPEC. V049-2-084.

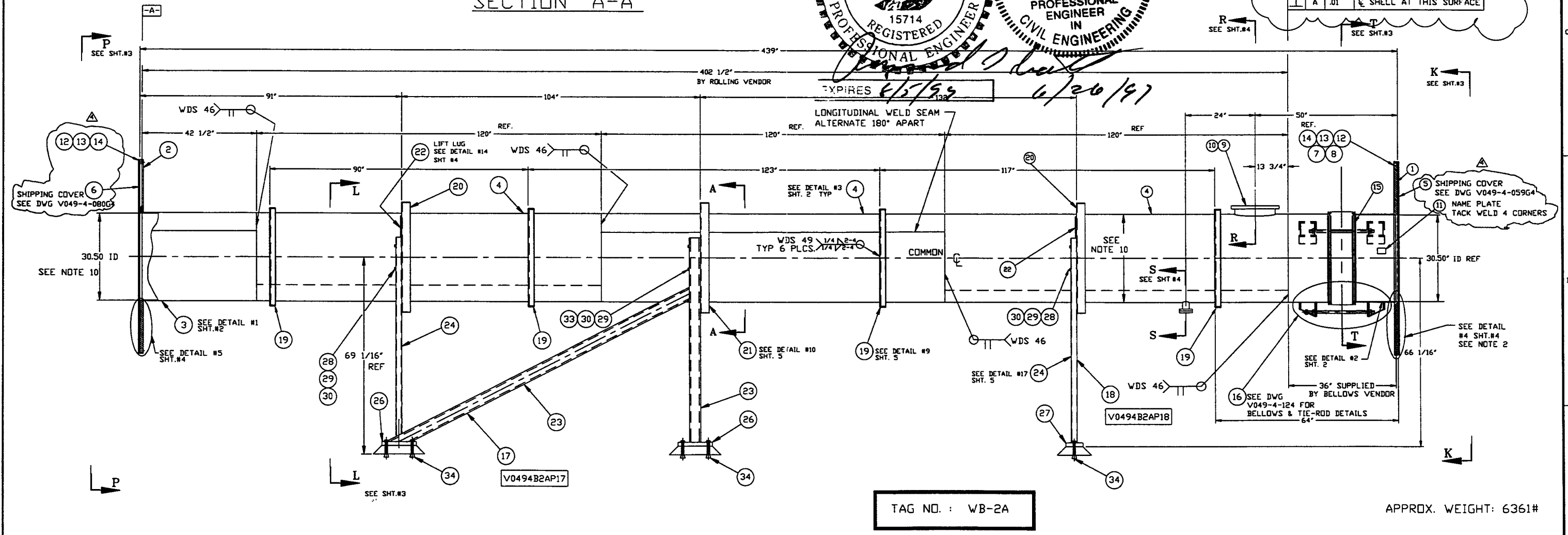
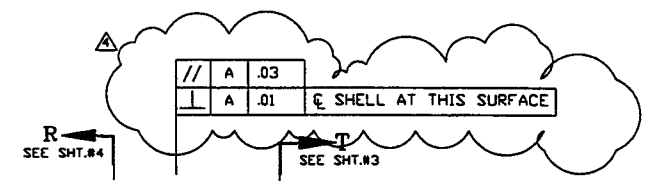
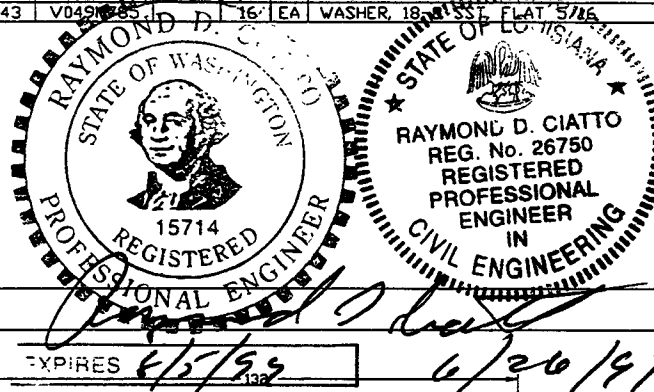


SECTION "A-A"

ITEM	PART NUMBER	SUFFIX	QTY	UM	DESCRIPTION
21	V049M821		1	EA	SUPPORT RING, 3"x3"x3/8" THK. ANGLE 304 SST
22	V049M852		3	FT	FLAT BAR, 4" X .38" THK SST 304
23			1	35 FT	4"x4"x1/2" TS A500 GR-B
24			1	25 FT	TUBE, RECT, 3"x 2"x 3/16" THK A500 GR-B
25					
26			3	4 FT	FLAT BAR, 12"x 1 3/8" A36
27			3	2 FT	FLAT BAR, 6"x 1 3/8" A36
28	V049M753		3	12 EA	BOLT, HEX, 5/8-11UNC x 3/12 LG, A325
29	V049M755		3	18 EA	NUT, HEX, 5/8-11UNC, A325
30	V049M773		3	18 EA	WASHER, LOCK, 5/8 A325
31	202670		3	1 EA	GASKET, DFHC, CONFLAT 16 1/2" OD
32	V049M780		36	EA	BOLT, 18-8 SST, HEX HD, 3/8-16x3" LG
33	V049M759		3	6 EA	BOLT, HEX, 5/8-11UNC x 5 1/2 LG, A325
34			3	20 EA	BOLT, ANCHOR, HILT, HVA 1"x8 1/4" EMBEDM.
35					
36	V049M314		3	1 EA	HALF NIPPLE, SST, 304L, CONFLAT 4 1/2" O.D. x 2 1/2" O.D. TUBEX 1/8" WT
37	202557		3	1 EA	BLANK, CONFLAT 4 1/2 OD 304L SST
38	202558		3	1 EA	GASKET, CONFLAT, COP DFHC 4 1/2 OD
39	V049M776		8	EA	BOLT, 18-8 SST, HEX HD 5/16-18x2 1/4 LG.
40	V049M783		36	EA	NUT, SILICON BRZ, HEX 3/8-18
41	V049M786		72	EA	WASHER, 18-8 SST, FLAT 3/8
42	V049M782		36	EA	NUT, SILICON BRZ, HEX, 5/16-18
43	V049M785		16	EA	WASHER, 18-8 SST, FLAT 5/16

ITEM	PART NUMBER	SUFFIX	QTY	UM	DESCRIPTION
1	V0494057		1	EA	30.5 ID x 60.5 ID FLANGE (GROOVED)
2	V0494056		1	EA	30.5 ID x 60.5 ID FLANGE (FLAT)
3	V0494B2AP3A		1	EA	SHELL 1/4" THK 304/304L SST
4	V0494B2AP4		3	EA	SHELL 1/4 THK 304/304L SST
5	V0494059G4		1	EA	SHIPPING COVER ASSY
6	V0494080G4		1	EA	SHIPPING COVER ASSY
7	V0494022		1	EA	O-RING, VITON (PER SPEC V049-2-045)
8	V0494023		1	EA	O-RING, VITON (PER SPEC V049-2-045)
9	V049M308		3	1 EA	HALF NIPPLE, SST, 304L, CONFLAT 16 1/2" OD x 1/4" ID TUBE x 1/4" VI
10	202666		3	1 EA	BLANK, CONFLAT 16.5" OD SST 304L
11	V049M740		1	EA	PSI NAME PLATE, 2" X 3"
12	202678		3	150 EA	BOLT, SA193 B7, HEX HD 7/8-9UNC x 4" LG
13	202679		3	150 EA	NUT, SA193 B7, HEX HD 7/8-9UNC
14	202581		3	150 EA	WASHER, STL, 1 3/4 OD x 15/16 ID x 1/4 THK
15	V0494B2AP1		1	EA	BELLOWS ASSY. (PER SPEC V049-2-017)
16	***		3	EA	TIE-ROD ASSY. (PER V049-4-124)
17	V0494B2AP17		2	EA	SUPPORT ASSEMBLY
18	V0494B2AP18		2	EA	SUPPORT ASSEMBLY
19	V049M815		1	4 EA	SUPPORT RING 2" X 2" X 1/4" THK ANGLE 304 SST
20	V049M820		1	2 EA	SUPPORT RING 3" X 3" X 1/4" THK ANGLE 304 SST

* ELECTROLESS NICKEL PLATE
*** SUPPLIED BY BELLOWS VENDOR



APPROX. WEIGHT: 6361#

PROPRIETARY AND CONFIDENTIAL
THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION BELONGING TO PROCESS SYSTEMS INTERNATIONAL, INC. OR ITS AFFILIATED COMPANIES AND SHALL BE USED ONLY FOR THE PURPOSE FOR WHICH IT WAS SUPPLIED. IT SHALL NOT BE COPIED, REPRODUCED OR OTHERWISE USED FOR ANY OTHER PURPOSE WITHOUT THE WRITTEN CONSENT OF PROCESS SYSTEMS INTERNATIONAL, INC. AND SHALL BE RETURNED UPON REQUEST.

DWG. NO.	DESCRIPTION	DWG. NO.	DESCRIPTION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ± .01
DECIMAL ± .005
HOLE DRILLING ± .005
TWO PLACE DECIMAL ± .005
THREE PLACE DECIMAL ± .005
FINISHED SURFACE DIMS BREAK CORNERS IN OUT REMOVE ALL BURRS
DO NOT SCALE THIS DRAWING
USED ON:
NEXT ASSY:

REV	DESCRIPTION	ISSUE DESCRIPTION
4	REISSUED FOR FAB/SHIPPING AS NOTED	DMW RDC REC PV 5/19/97 0487
3	DESIGN UPDATE/ISSUED FOR FABRICATION	DMW PEF RDC GS REC PV 12/2/96 0373
2	FABRICATION (SHELL ONLY)	DMW PEF RDC GS REC PV 10/1/96 0283
1	DESIGN UPDATE / FABRICATION - BELLOWS	DMW RDC REC SM PV 9/11/96 0191
0	ISSUED FOR FDR	DMW RDC REC TOV 4/27/96 0145

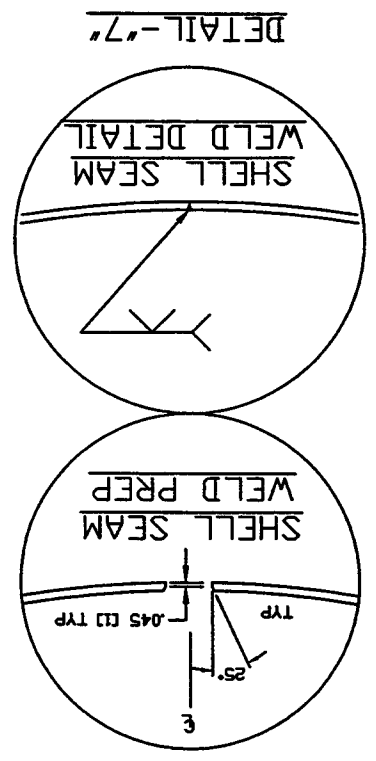
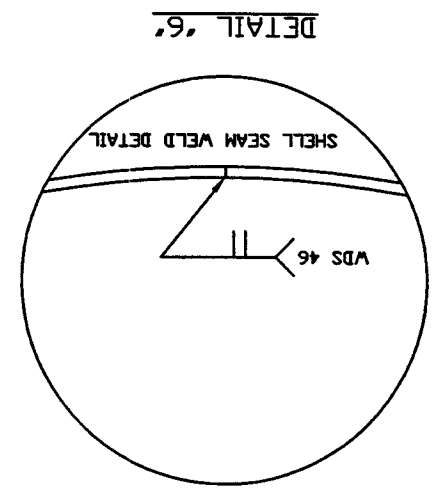
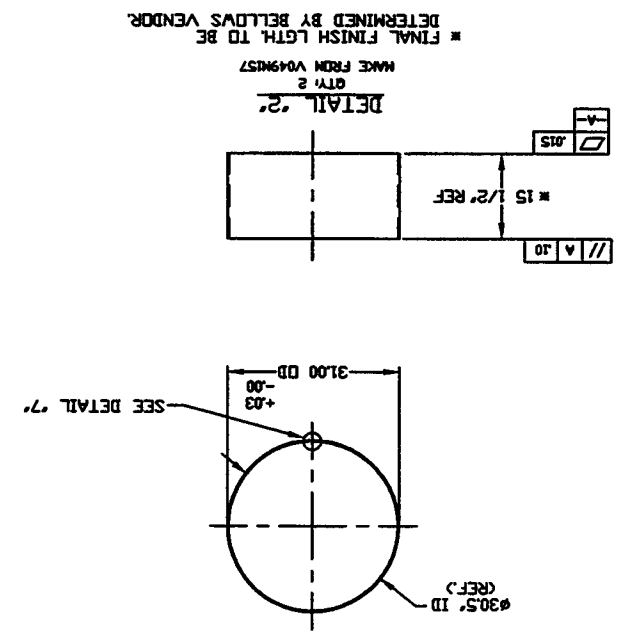
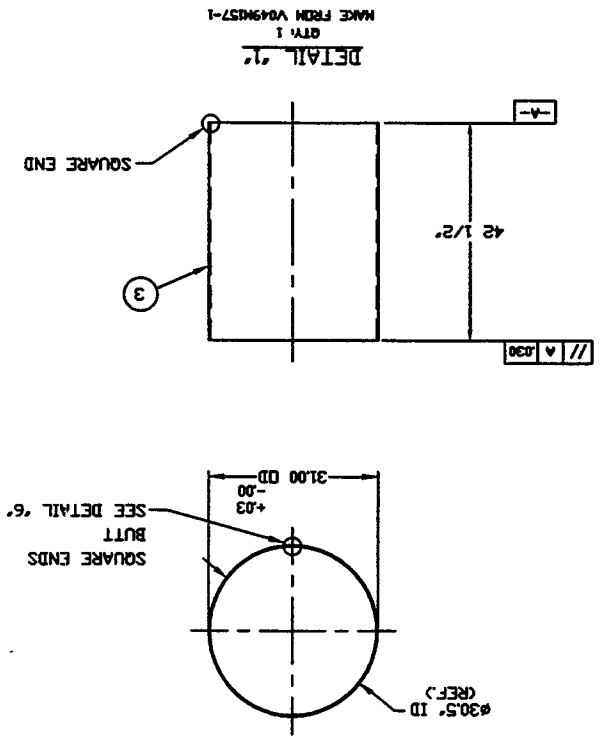
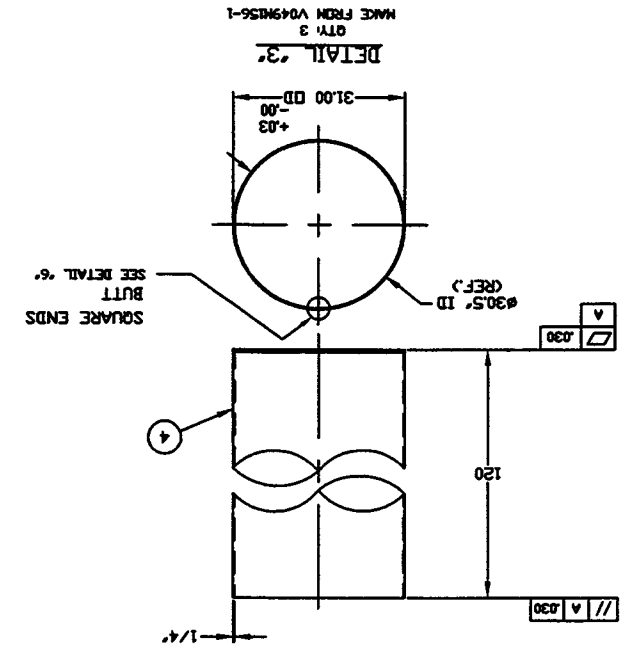
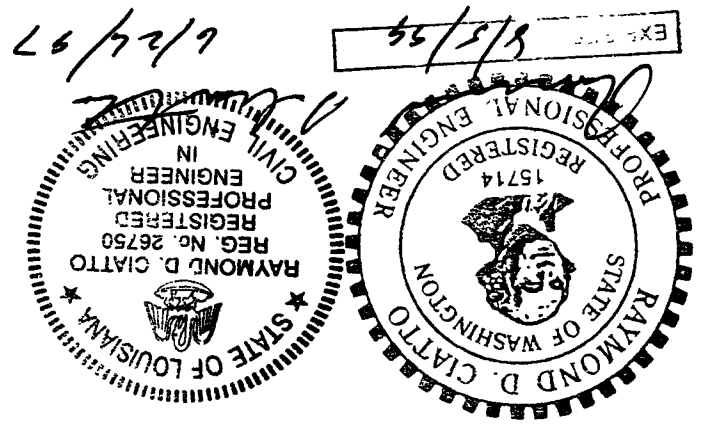
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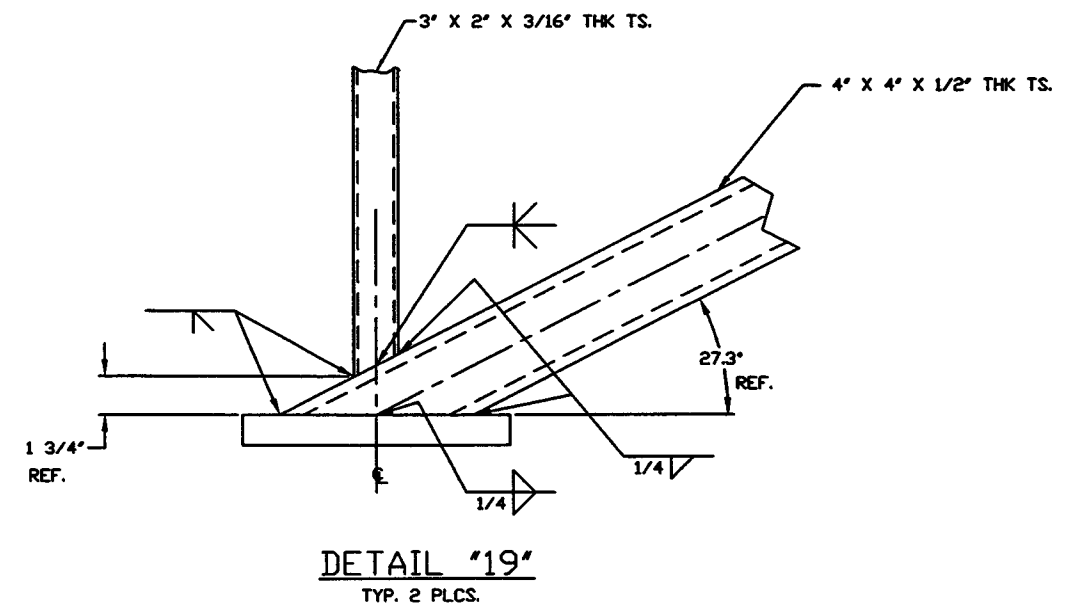
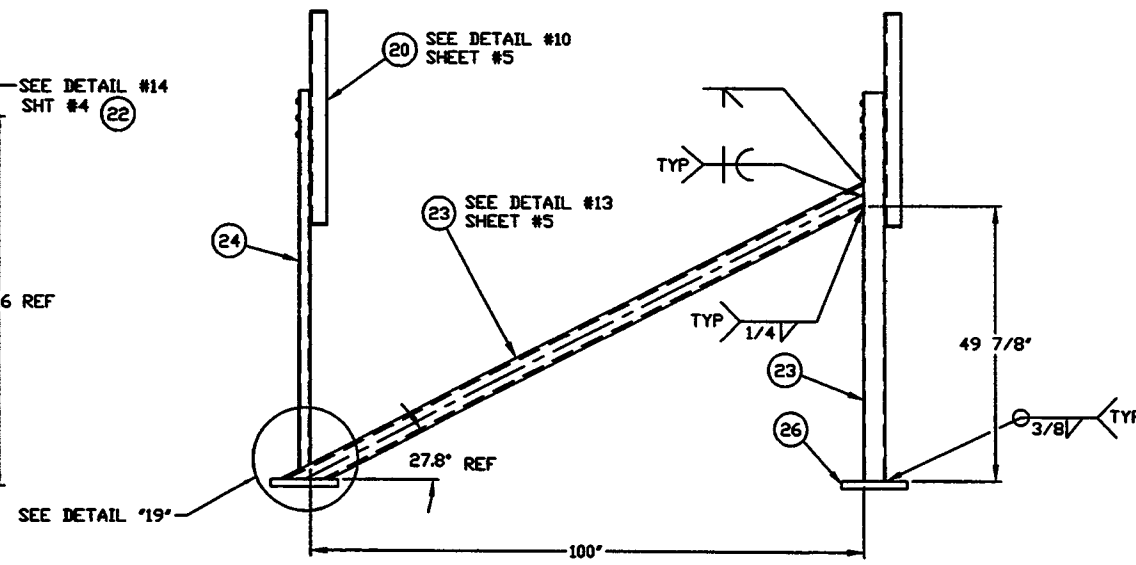
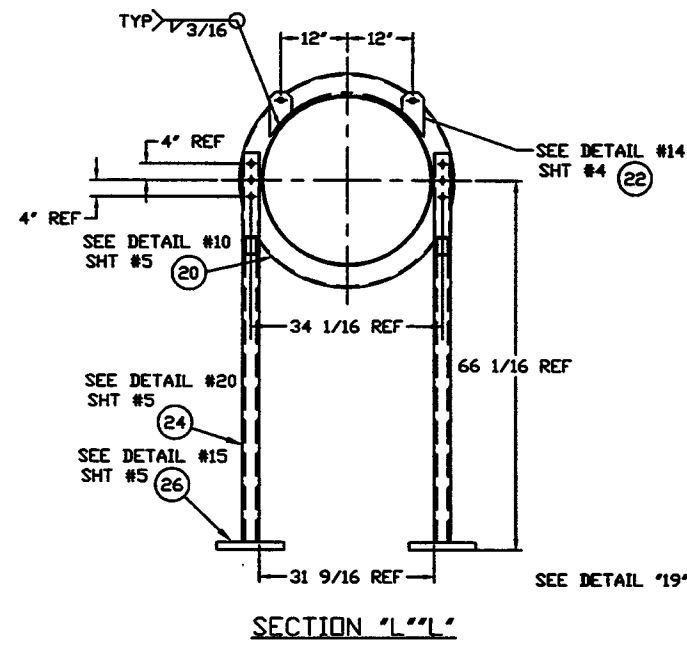
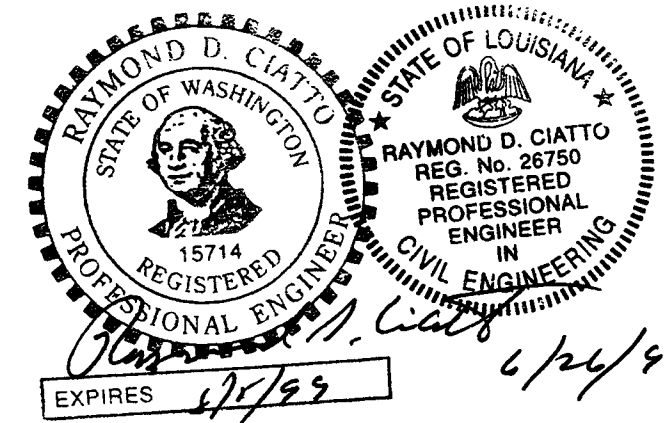
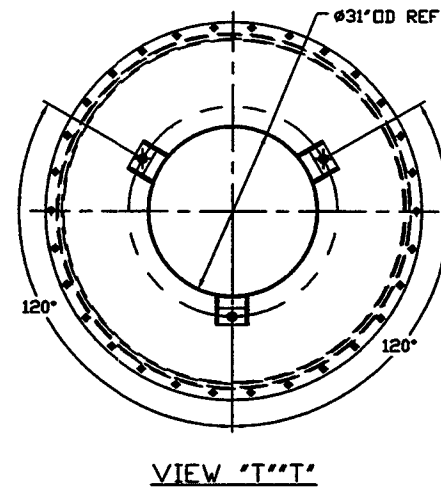
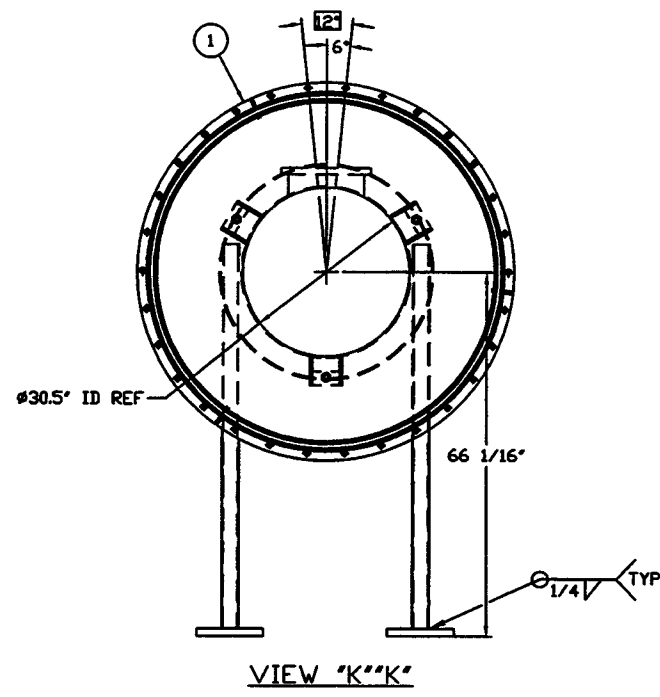
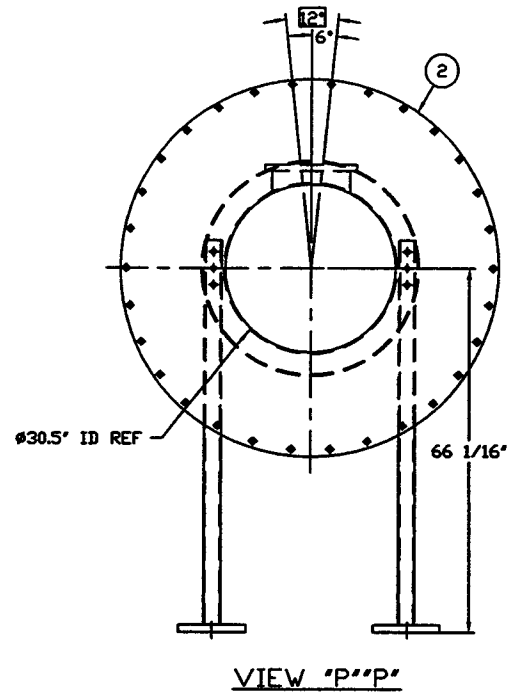
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MODE CLEANER TUBE
LIGO VACUUM EQUIPMENT

DWG. NO. V0494B2A/494B2AS1
REV. 4

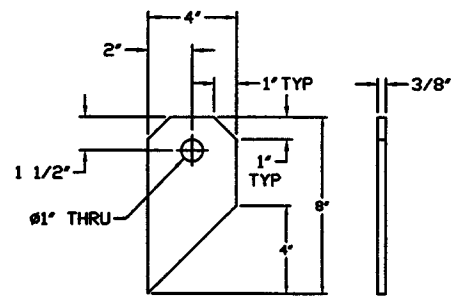
SCALE NONE SHEET 1 OF 5

LIGO-D961151-04-V

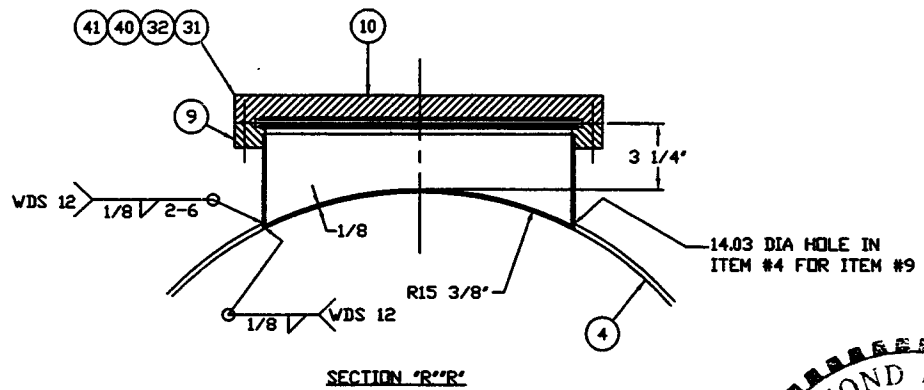




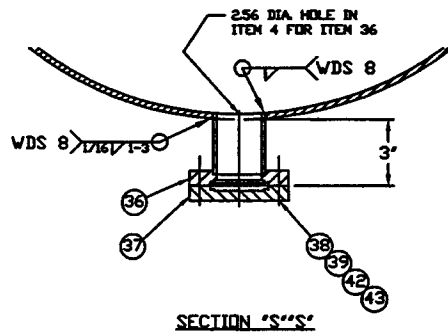
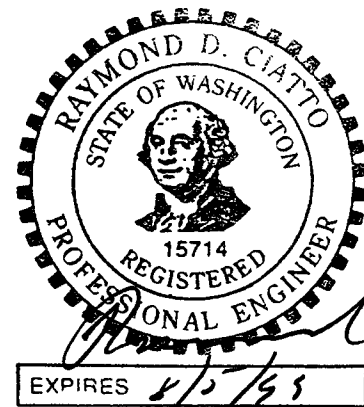
PROCESS SYSTEMS INTERNATIONAL, INC. <small>20 WILKIN DR. NEEDHAM HILLS, MASSACHUSETTS 01945 USA</small>			
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<small>CHG FILE</small> V0494B2A/494B2AS3	<small>REV</small> D	<small>CHG NO.</small> V049-4-B2A	<small>REV.</small> 4
<small>SCALE</small> 1/16	<small>SHEET</small> 3 OF 5		



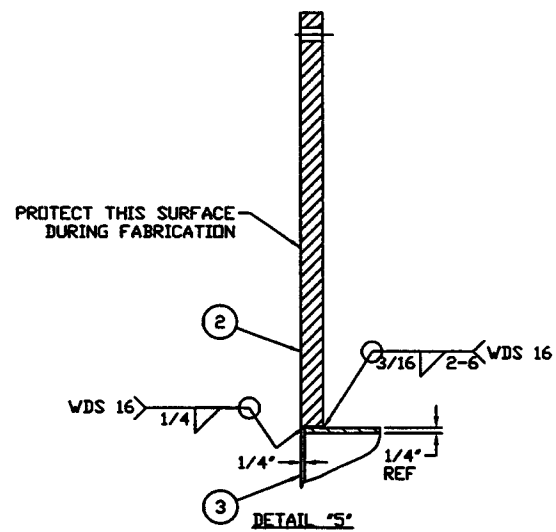
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LIFT LUG
QTY: 4



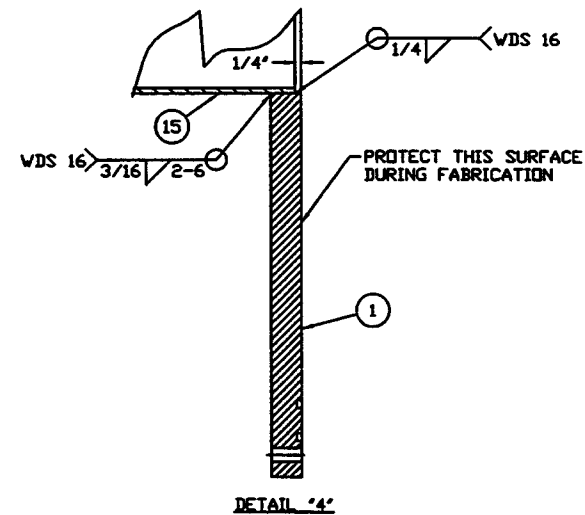
SECTION 'R-R'



SECTION 'S-S'



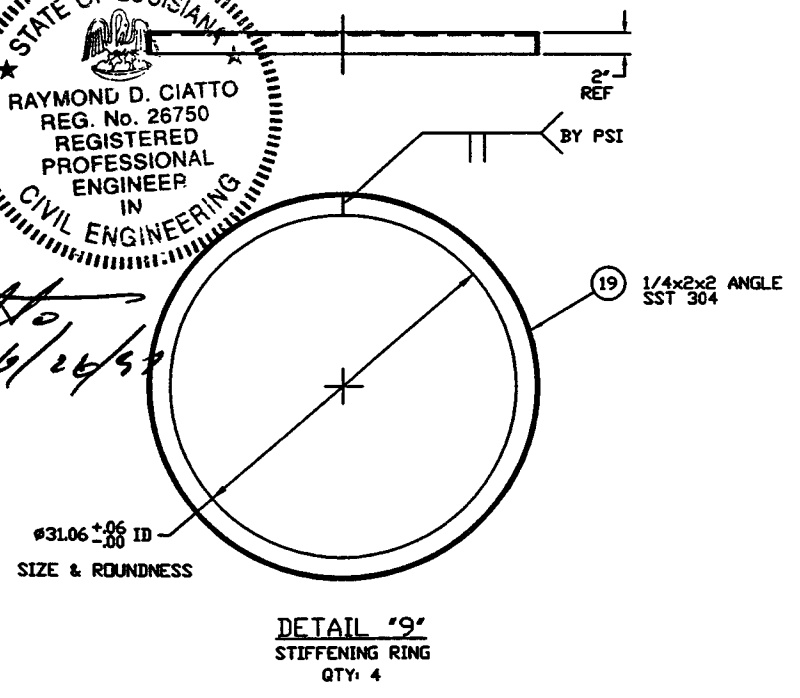
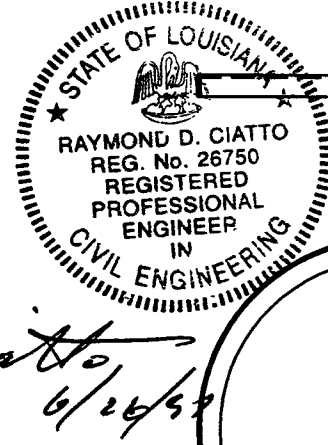
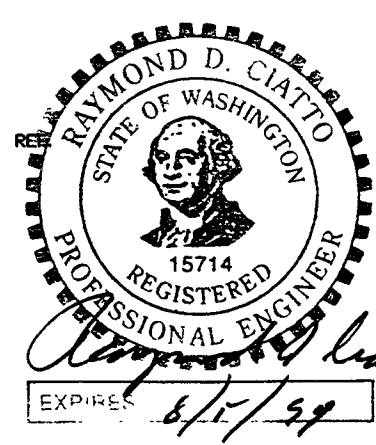
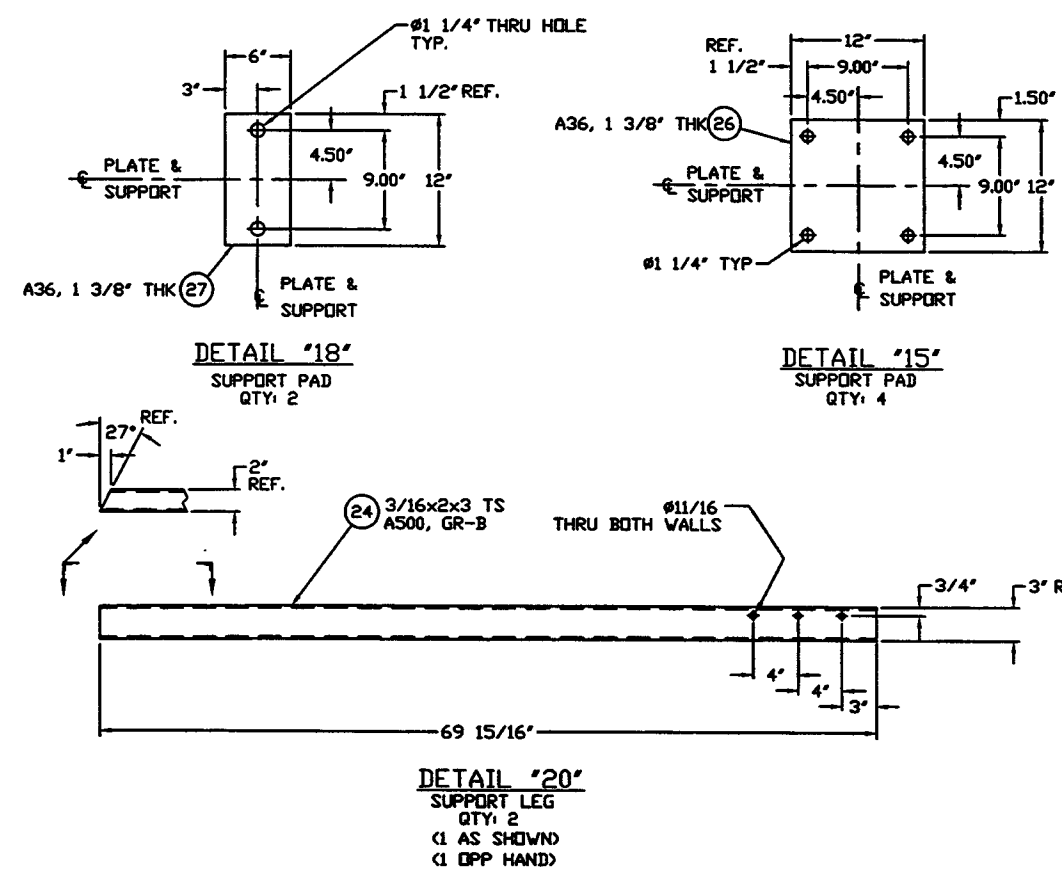
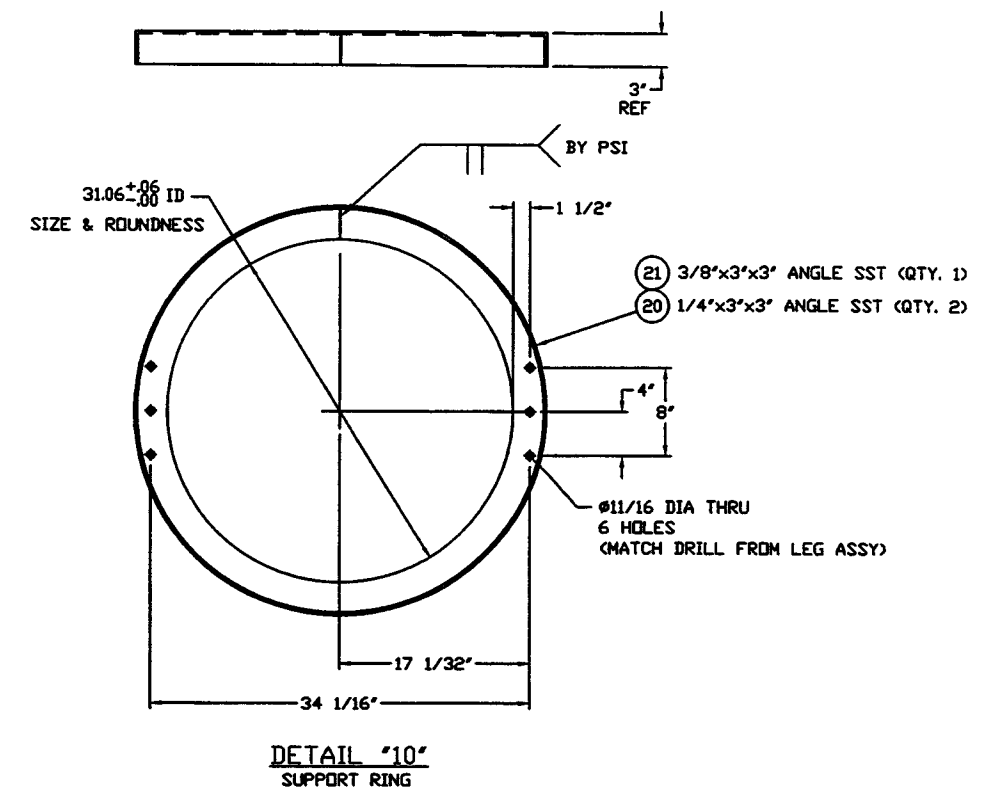
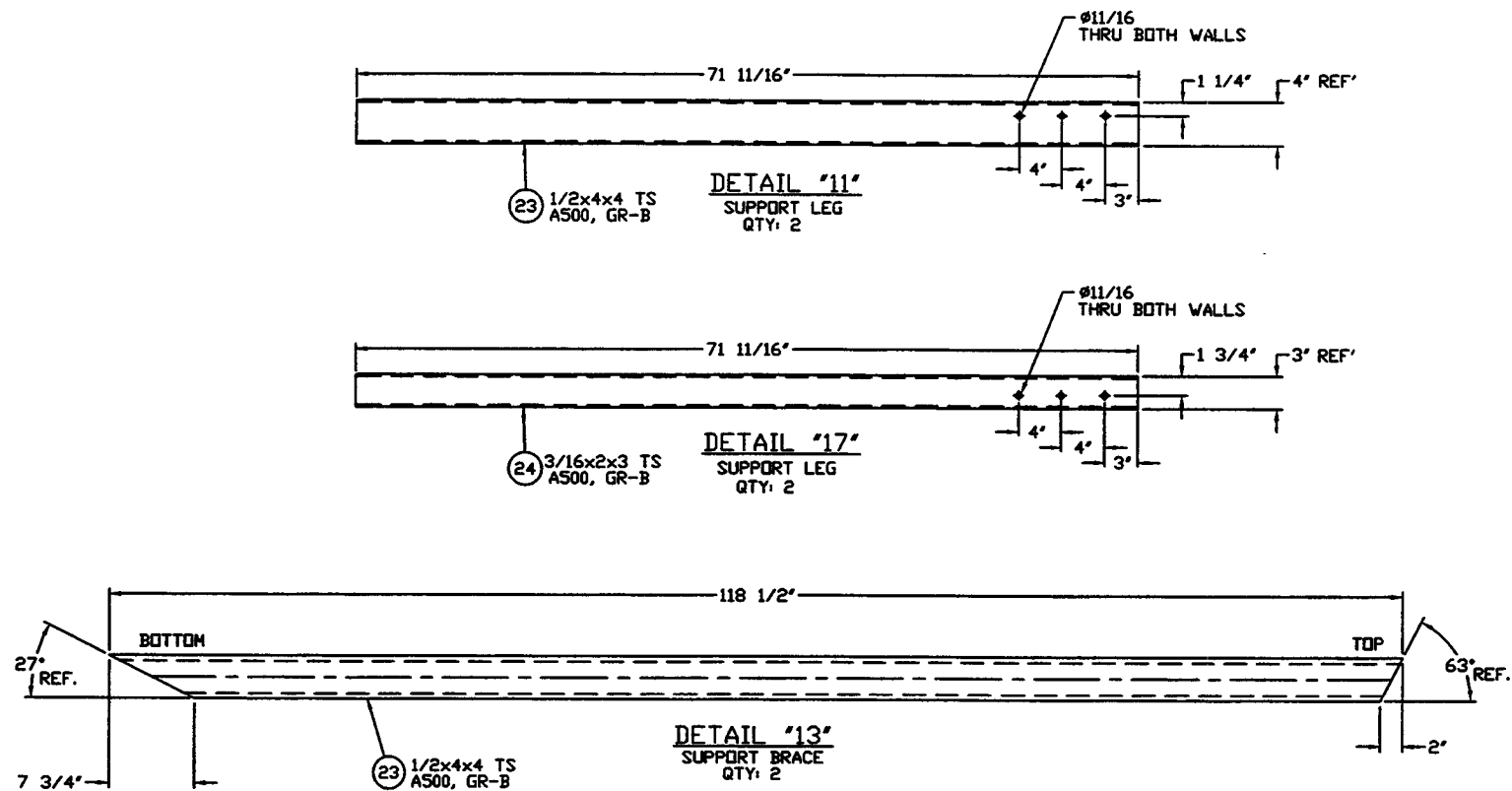
DETAIL '5'



DETAIL '4'

PROCESS SYSTEMS INTERNATIONAL INC. 20 WALWIP DR. WESTBOROUGH, MASSACHUSETTS 01581 USA			
SPOOL B-2A 30.50"ID x 60.50"ID MODE CLEANER TUBE LIGO VACUUM EQUIPMENT			
CAD FILE V0494B2A/494B2AS4	SIZE D	REV. NO. V049-4-B2A	REV. 4
SCALE 1/4	SHEET 4 OF 5		

NOV 26, 1996 - 071857



SEE SHEET 1 FOR REVISIONS

PROCESS SYSTEMS INTERNATIONAL INC. 20 WALNUT DR. WESTBOROUGH, MASSACHUSETTS 01581 USA			
SPOOL B-2A 30.50" ID x 60.50" ID MODE CLEANER TUBE LIGO VACUUM EQUIPMENT			
CAD FILE V0494B2A/494B2ASS	SIZE D	DWG. NO. V049-4-B2A	REV. 4
SCALE NONE	SHEET 5 OF 5		

REV. 01, 1996 - 1303014