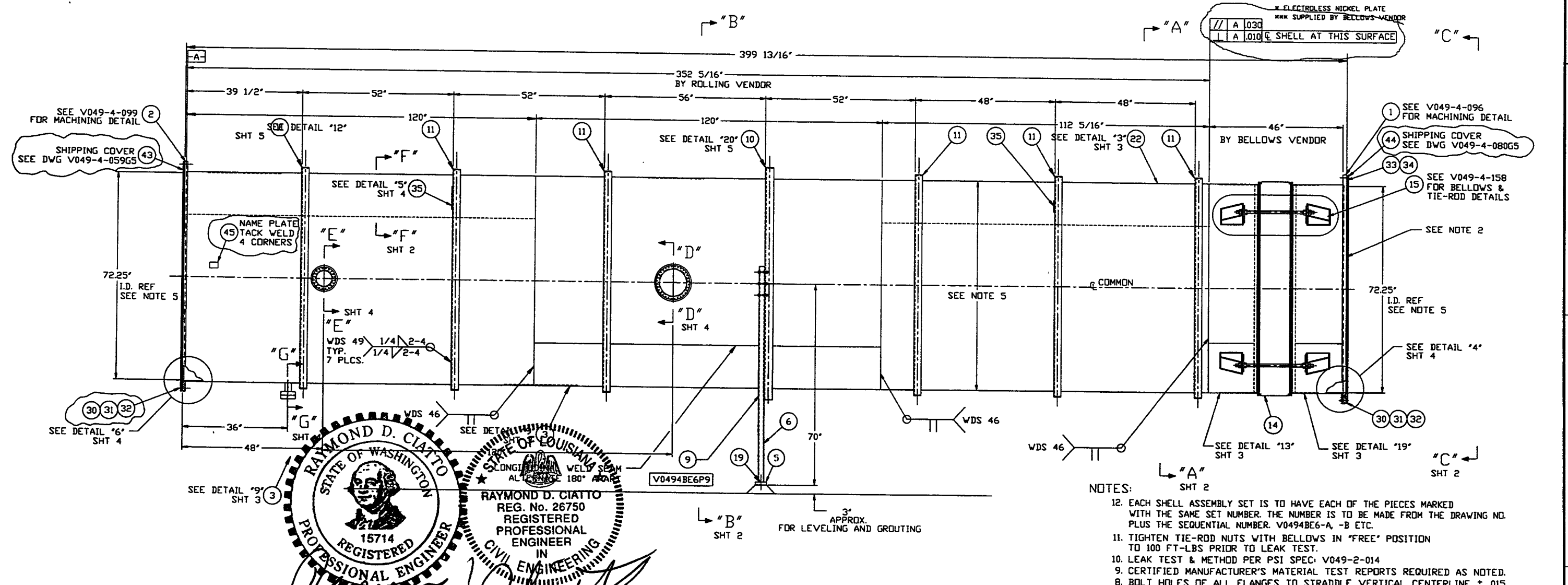


ITEM	PART NUMBER	SUFFIX	QTY	UM	DESCRIPTION
37	V049M314	3	1	EA	HALF NIPPLE, SST 304L, CONFLAT 4 1/2 DD
38	202557	3	1	EA	BLANK, CONFLAT, 304L SST, 4 1/2" OD
39	202558	3	1	EA	GASKET, COP COFH, CONFLAT, 4 1/2" OD
40	V049M776		8	EA	BOLT, 18-8 SST, HEX HD 5/16"-18x2 1/4" LG
41	V049M782		60	EA	NUT, SILICON BRZ HEX 5/16"-18
42	V049M785		120	EA	WASHER, 18-8 SST, FLAT 5/16"
43	V0494059G5		1	EA	SHIPPING COVER ASSY
44	V0494080G5		1	EA	SHIPPING COVER ASSY
45	V049M740		1	EA	PSI NAME PLATE, 2" X 3"

ITEM	PART NUMBER	SUFFIX	QTY	UM	DESCRIPTION	
25	V0494195		1	EA	FLANGE, CONFLAT, BLANK 12" OD, 304L SST	
26	V049M777		52	EA	BOLT, 18-8 SST, HEX HD 5/16"-18x2 1/2" LG	
27						
28	V049M263		3	1	EA	GASKET, COFH, CONFLAT, 8" OD
29	202552		3	1	EA	GASKET, COFH, CONFLAT, 12" OD
30	202678		3	72	EA	BOLT, SA193 B7, HEX, 7/8"-9 UNC X 4" LG
31	202679		3	72	EA	NUT, SA193 2H, HEX, 7/8"-9 UNC
32	202581		3	180	EA	WASHER, STL, 1 3/4" OD X 15/16" ID X 1/4" THK
33	V049M020		1	EA	O-RING, VITON, (PER SPEC V049-2-045)	
34	V049M021		1	EA	O-RING, VITON, (PER SPEC V049-2-045)	
35	V049M852		3	3	FT	BAR, 4" X 3/8" THK, 304 SST
36						

ITEM	PART NUMBER	SUFFIX	QTY	UM	DESCRIPTION	
13	V049M313	3	1	EA	HALF NIPPLE, SST 304L, CONFLAT 8 DD	
14	V0494BE6P1		1	EA	BELLOWS ASSY (PER SPEC V049-2-017)	
15	***		4	EA	TIE-ROD ASSY (PER DWG V049-4-158)	
16						
17	V049M753		3	6	EA	BOLT, 5/8-11 UNC X 3 1/2" LG, A325
18	V049M755		3	6	EA	NUT, 5/8-11 UNC, A325
19			3	4	EA	ANCHOR HILTI HVA 1"x8 1/4" EMBEDMENT
20	V049M773		3	6	EA	WASHER, LOCK, 5/8, A325
21						
22	V0494BE6P22		1	EA	SHELL, 304/304L SST, 1/4" THK	
23	V0494061		1	EA	3/4" O.D. ELBOW X 2 3/4" O.D CONFLAT FLANGE	
24	V0494196		1	EA	FLANGE, CONFLAT, BLANK 8" OD, 304L SST	

ITEM	PART NUMBER	SUFFIX	QTY	UM	DESCRIPTION	
1	V0494096		1	EA	FLANGE, GROOVED, 72 1/4" ID X 80" OD	
2	V0494099		1	EA	FLANGE, FLAT FACED, 72 1/4" ID X 80" OD	
3	V0494BE6P3		1	2	EA	SHELL, 304/304L SST, 1/4" THK
4	V049M921		1	1	EA	RING, SST 304, 11" ID X 16" OD X 1/2" THK
5			1	1	FT	BAR, A36, 6" X 1 3/8" THK
6			1	13	FT	TUBE STEEL (TS) 4" X 2" X 3/16" A500 GR B
7	V049M985		1	1	EA	RING, SST 304, 7" ID X 11" OD X 1/2" THK
8						
9	V0494BE6P9		2	EA	SUPPORT ASSY.	
10	V049M814		1	1	EA	SUPPORT RING, 4" X 4" X 1/4" 304 SST
11	V049M813		1	6	EA	SUPPORT RING, 2 1/2" X 2 1/2" X 1/4" 304 SST
12	V049M310		3	1	EA	HALF NIPPLE, SST 304L, CONFLAT 12 DD



RAYMOND D. CIATTO
 STATE OF WASHINGTON
 REGISTERED PROFESSIONAL ENGINEER
 15714
 EXPIRES 6/5/99

STATE OF LOUISIANA
 WELDED
 ALL WELDS TO BE MADE IN ACCORDANCE WITH
 WELDING SYMBOLS
 ALL WELDS TO BE MADE IN ACCORDANCE WITH
 WELDING SYMBOLS

RAYMOND D. CIATTO
 REG. No. 26750
 REGISTERED PROFESSIONAL ENGINEER
 IN
 CIVIL ENGINEERING

6/26/97

- APPROX. WEIGHT: 8247#
- TAG NO'S: WBE-6, LBE-6
- NOTES:
1. THE ROLLING VENDOR IS RESPONSIBLE FOR PRODUCING SHELL ASSEMBLY SETS WHICH STACK UP TO THE OVERALL DIMENSIONS NOTED AS "BY ROLLING VENDOR".
 2. THIS FLANGE INCLUDES AN ANNUAL CHANNEL BETWEEN O-RINGS, MANIFOLD TO A SINGLE PUMPOUT PORT ON EACH CHAMBER, SEE DWG V049-4-061.
 3. FOR FLANGE DETAILS SEE DWGS. V040-4-096 & V049-4-099
 4. SPOOL FABRICATION TO BE IN ACCORDANCE WITH SPEC. V049-2-097.
 5. THE CENTERLINES OF ALL SHELLS & FLANGES ARE TO LIE ON THE COMMON CENTERLINE WITHIN ±1/16"
 6. DO NOT USE CARBON STEEL BRUSHES OR BRUSHES CONTAMINATED WITH CARBON STEEL ON STAINLESS OR ALUMINUM MATERIAL.
 7. CLEAN PER SPEC: V049-2-015
 8. BOLT HOLES OF ALL FLANGES TO STRADDLE VERTICAL CENTERLINE ± .015
 9. CERTIFIED MANUFACTURER'S MATERIAL TEST REPORTS REQUIRED AS NOTED.
 10. LEAK TEST & METHOD PER PSI SPEC: V049-2-014
 11. TIGHTEN TIE-ROD NUTS WITH BELLOWS IN "FREE" POSITION TO 100 FT-LBS PRIOR TO LEAK TEST.
 12. EACH SHELL ASSEMBLY SET IS TO HAVE EACH OF THE PIECES MARKED WITH THE SAME SET NUMBER. THE NUMBER IS TO BE MADE FROM THE DRAWING NO. PLUS THE SEQUENTIAL NUMBER. V0494BE6-A, -B ETC.
 13. MACHINING & ROLLING PER SPEC V049-2-136.
 14. PLATES PRIOR TO ROLLING MUST HAVE DIAGONAL CORNER TO CORNER DIMENSIONS WITHIN 1/16" OF EACH OTHER.
 15. STRUCTURAL STEEL TO BE IN ACCORDANCE WITH SPEC. V049-2-039.
 16. CONFLAT FLANGES TO HAVE PROTECTIVE COVERS AT ALL TIMES DURING & AFTER MANUFACTURING.
 17. CONFLAT LEAK CHECK SLOT ARE TO BE POSITIONED ON VERTICAL CENTERLINE.
 18. WDS NO.'S REFER TO WELD DATA SPEC. V049-2-084.

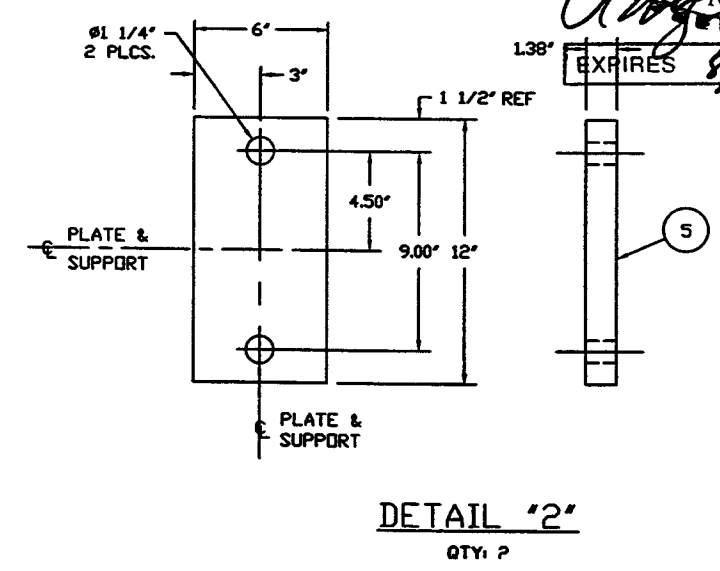
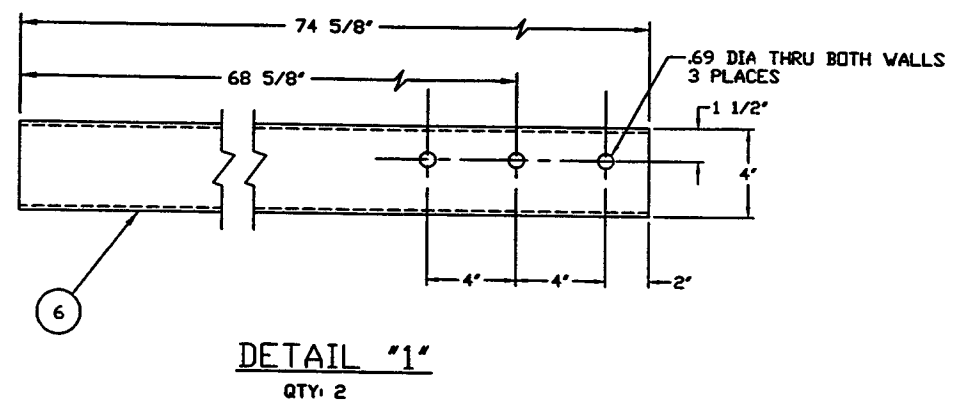
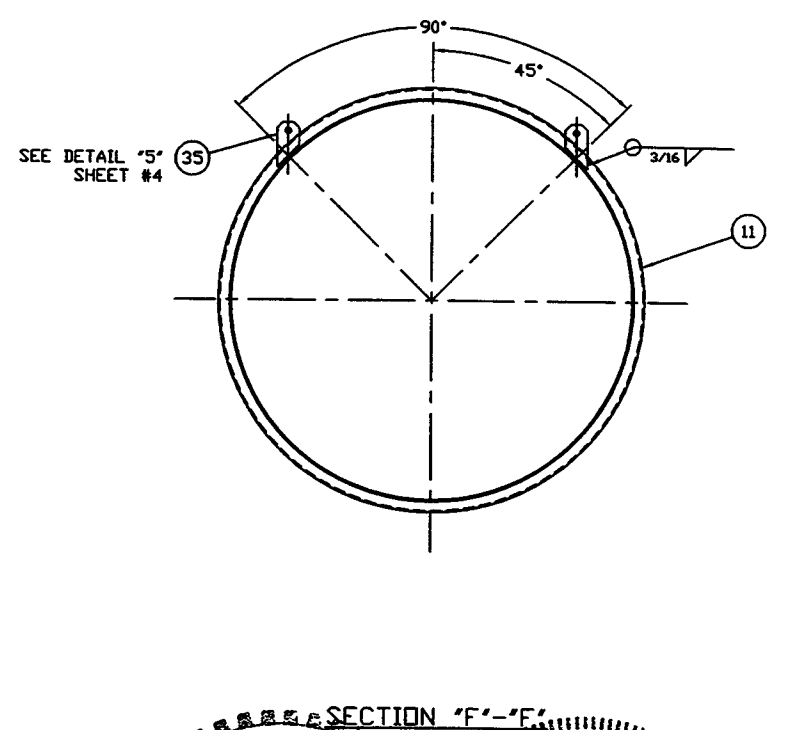
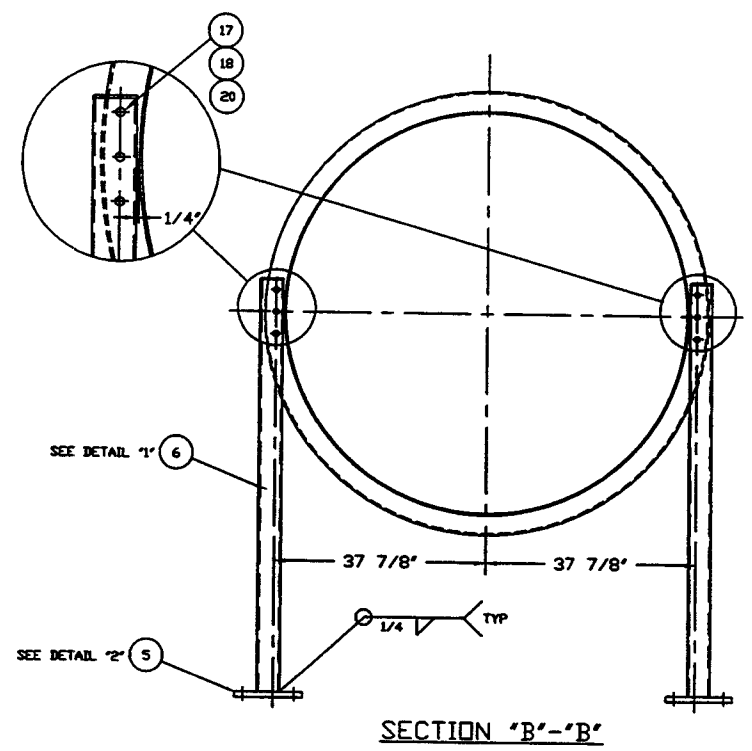
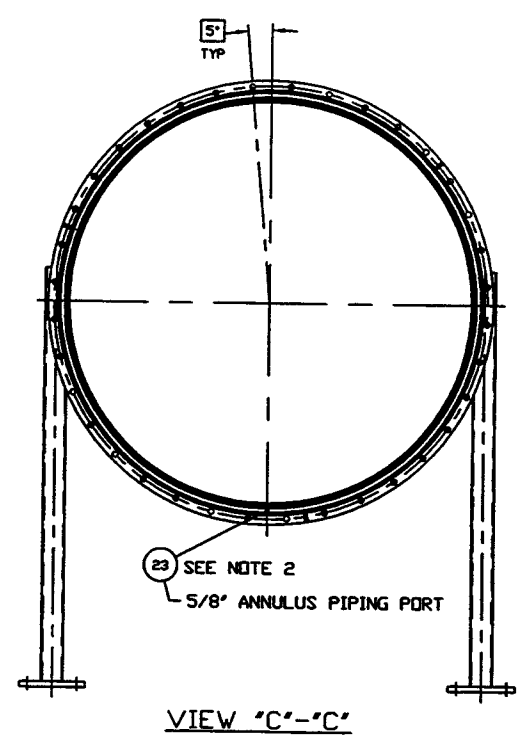
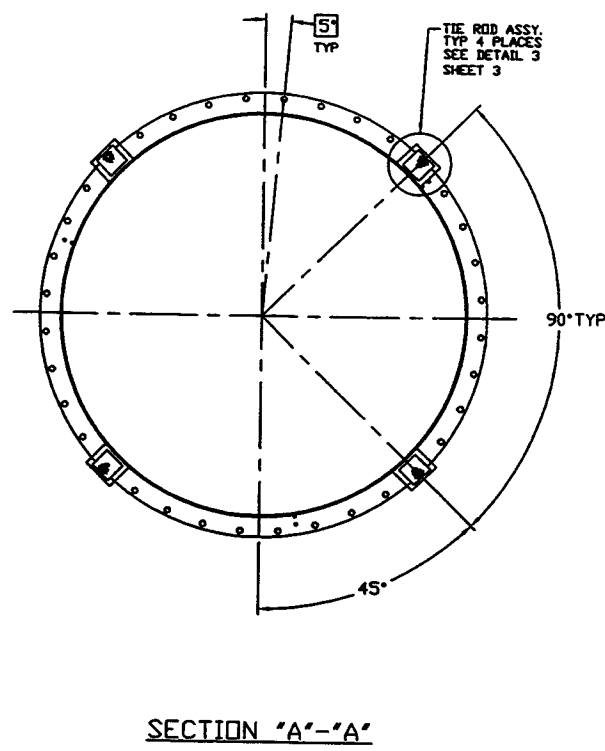
SYMBOL	CHARACTERISTIC	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	5	REISSUED FOR FAB/SHIPPING AS NOTED	DATE	BY	CHKD	DRWN	DATE	DESB
□	FLATNESS	FRACTIONAL ± .1	4	ISSUED FOR FABRICATION	11/22/96	DMV	PEF	GS	RDC	REC
○	CYLINDRICITY	ANGULARITY 0.01-0.02	3	DESIGN UPDATE /SHELL ONLY	10/23/96	DMV	PEF	GS	RDC	REC
∥	PARALLELISM	TWO PLACE DECIMAL, ± .01	2	FABRICATION (SHELL ONLY)	10/1/96			GS	RDC	REC
⊥	PERPENDICULARITY	THREE PLACE DECIMAL, ± .015	1	DESIGN UPDATE/FABRICATION (BELLOWS ASSY. ONLY)	9/11/96			GS	RDC	REC
∠	ANGULARITY	BREAK CORNERS IN OUT	0	ISSUED FOR FDR	04/29/96			DMV	RDC	REC
⊕	TRUE POSITION	DO NOT SCALE THIS DRAWING	REV	DESCRIPTION				CHKD	DRWN	DATE
⊙	CONCENTRICITY	USED ON NEXT ASSY.		ISSUE DESCRIPTION						

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

SPOOL BE-6
 72.25" ID x 72.25" ID
 LIGO VACUUM EQUIPMENT

CAD FILE: V0494BE6/4BE6S1
 SIZE: D
 DWG NO: V049-4-BE6
 REV: 5

SCALE: 3/4" = 1'-0"
 SHEET: 1 OF 5

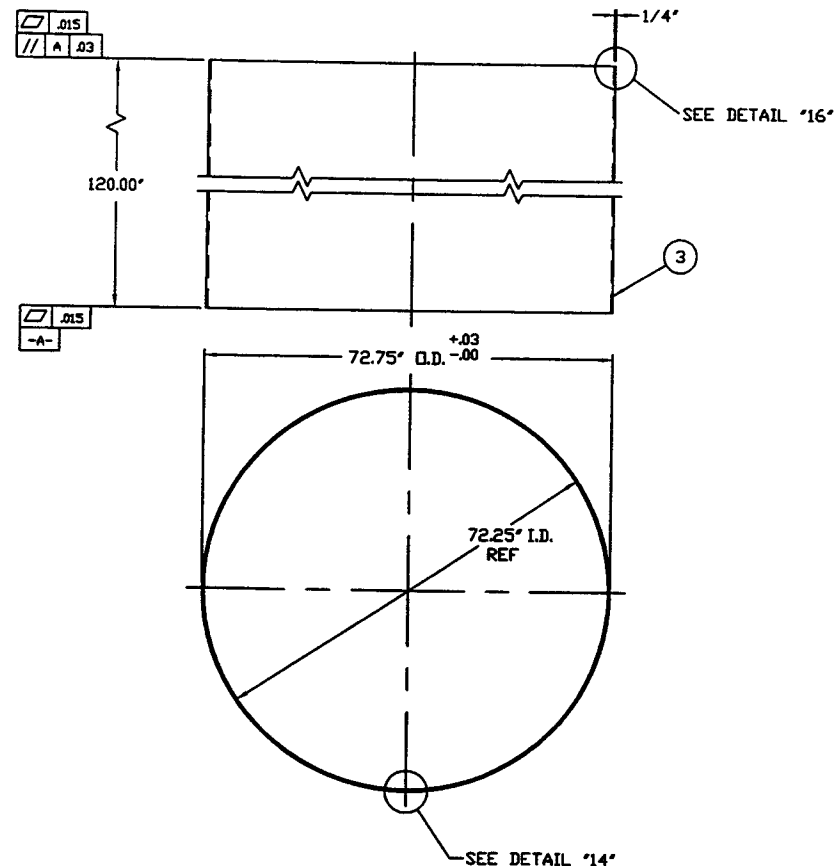


RAYMOND D. CIATTO
STATE OF WASHINGTON
REGISTERED
PROFESSIONAL ENGINEER
15714

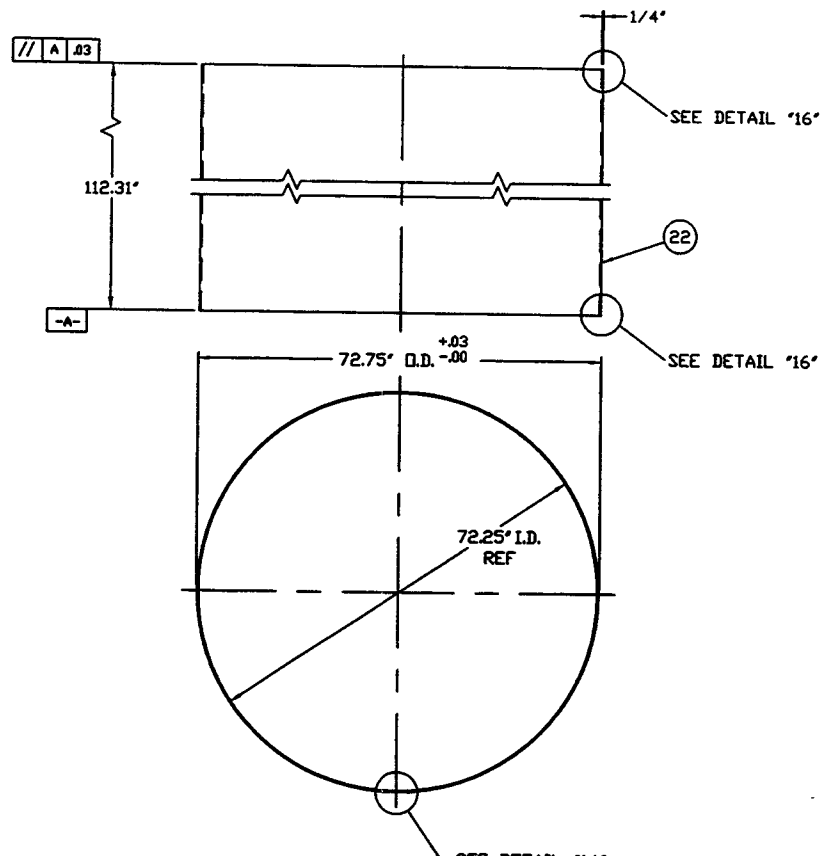
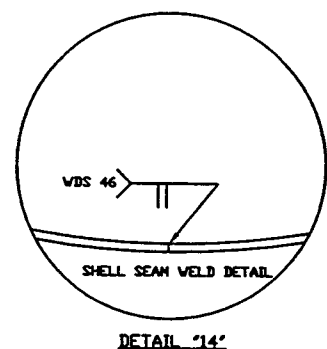
STATE OF LOUISIANA
REGISTERED
PROFESSIONAL
ENGINEER
IN
CIVIL ENGINEERING

EXPIRES 8/1/99 6/26/97

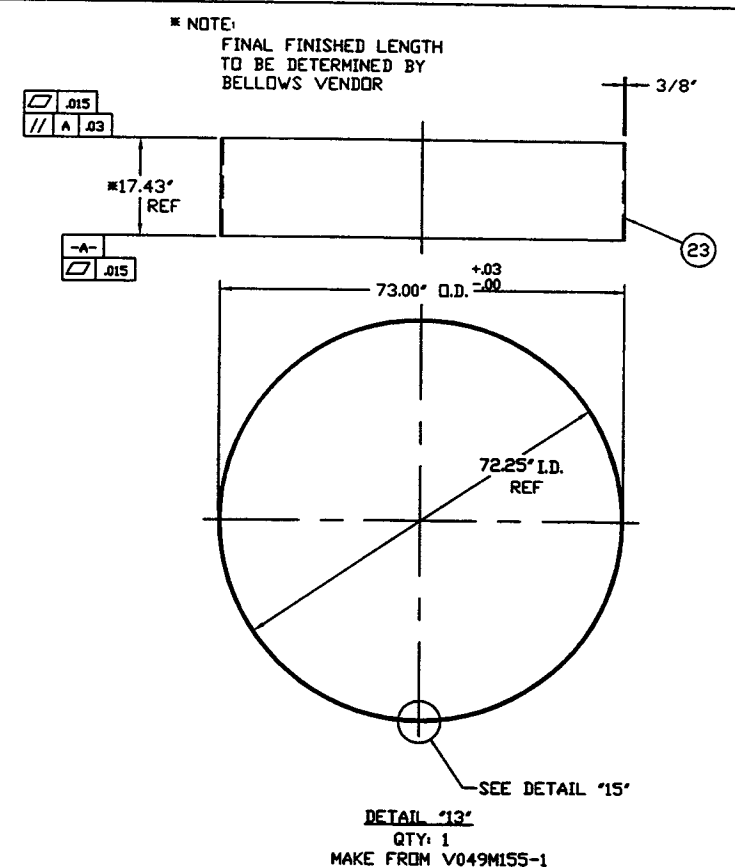
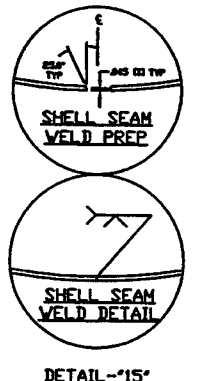
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SPOOL BE-6 72.25" ID x 72.25" ID LIGD VACUUM EQUIPMENT			
CAD FILE V0494BE6/4BE632	SIZE D	INCL. NO. V049-4-BE6	SHEET 5
SCALE 1/16 & 1/4	SHEET 2 OF 5		



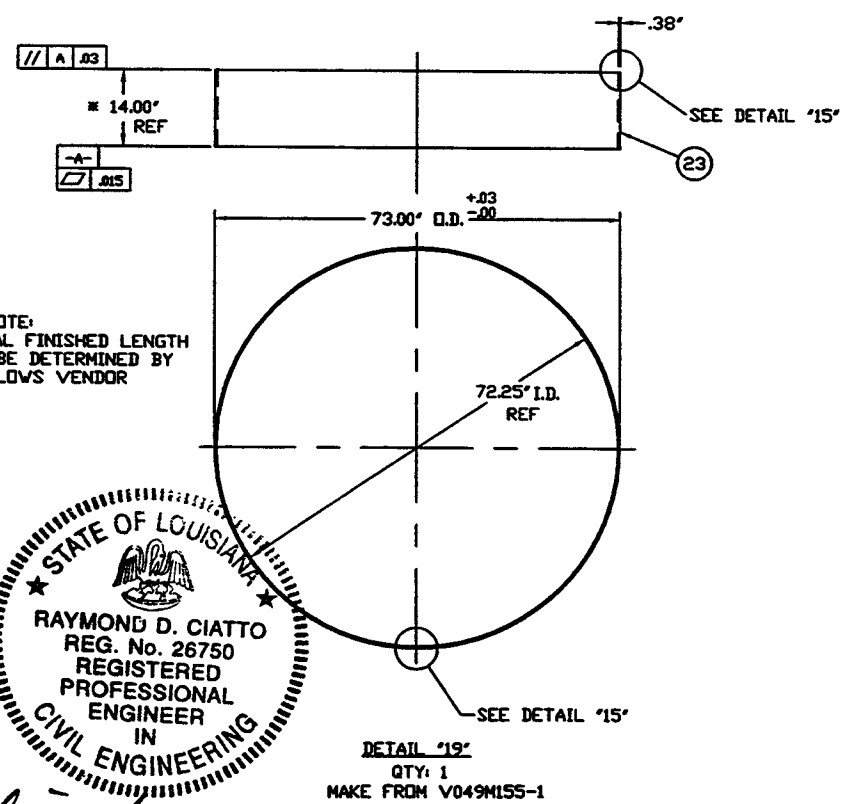
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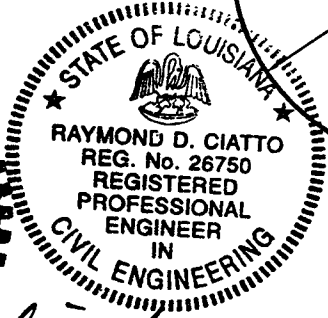
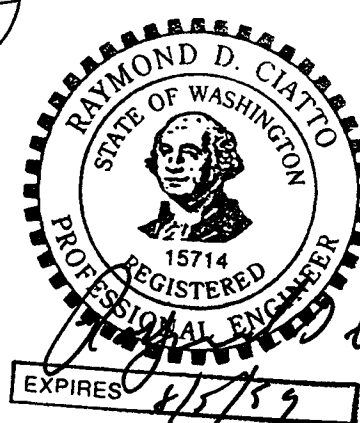
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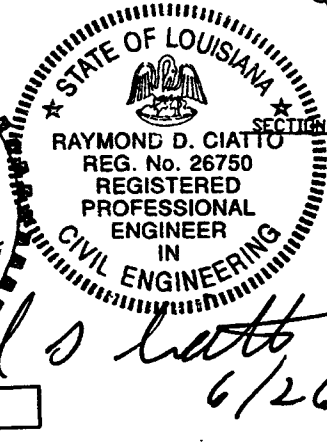
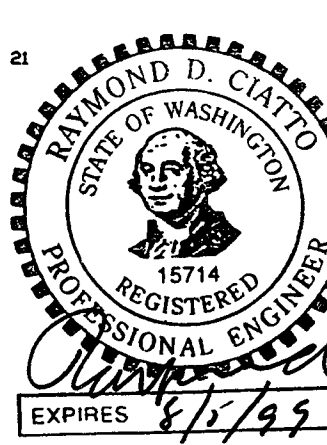
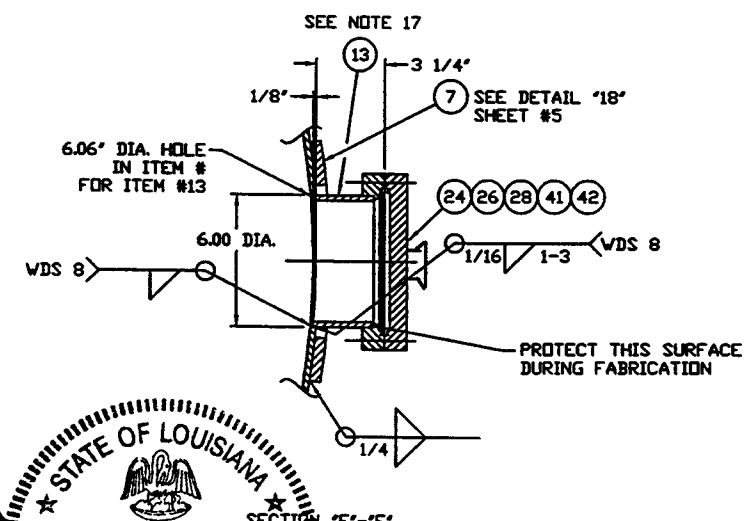
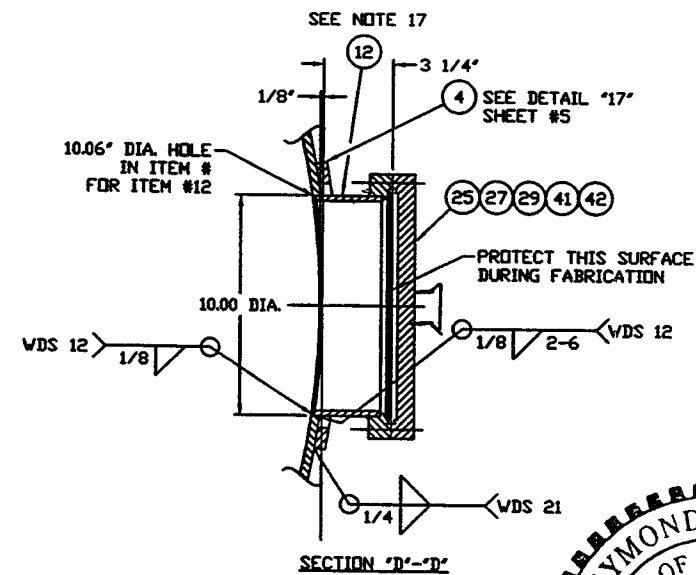
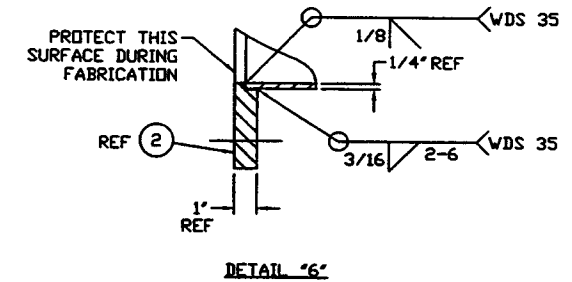
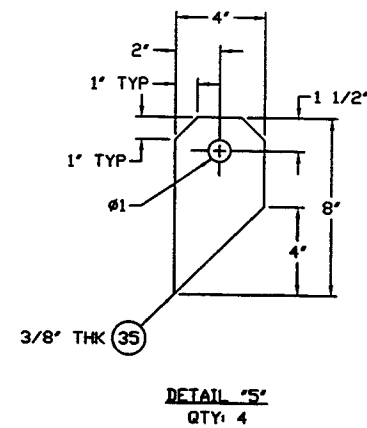
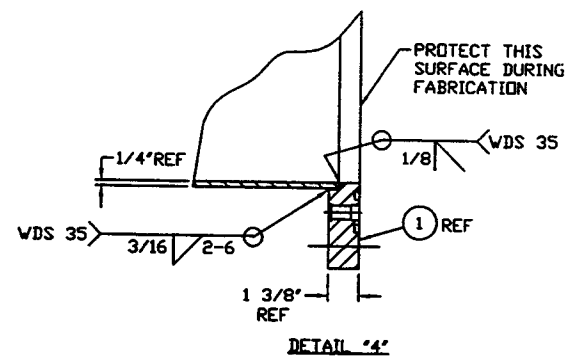
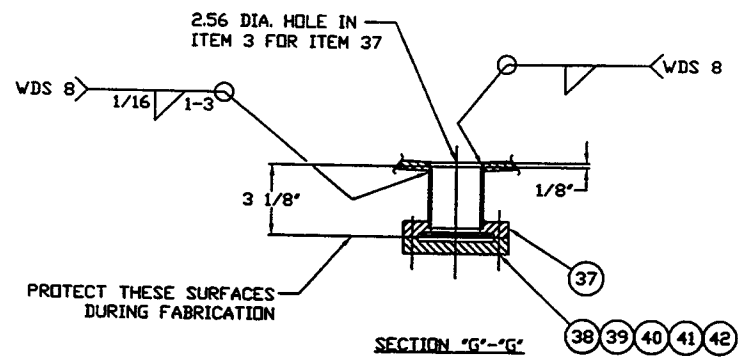
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QTY: 1
MAKE FROM V049M155-1



DETAIL "19"
QTY: 1
MAKE FROM V049M155-1

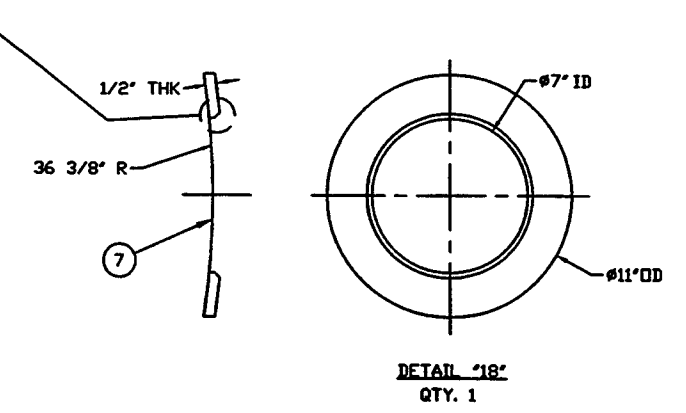
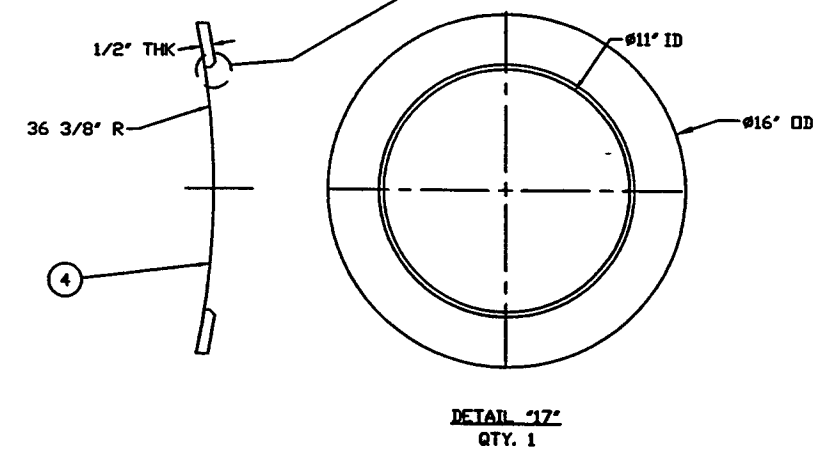
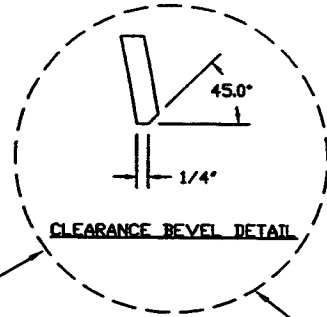
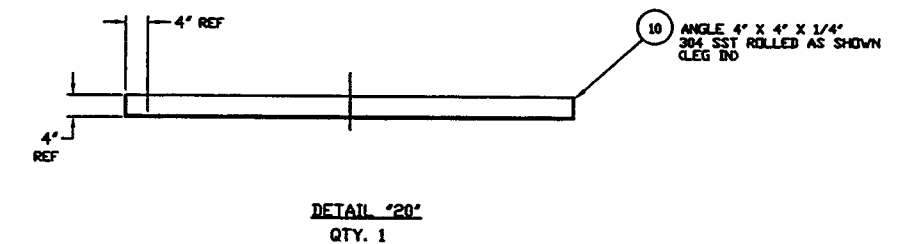
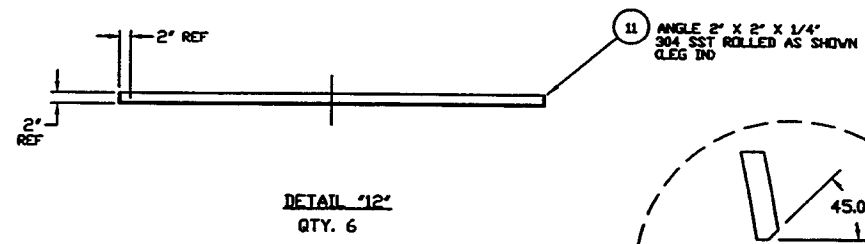
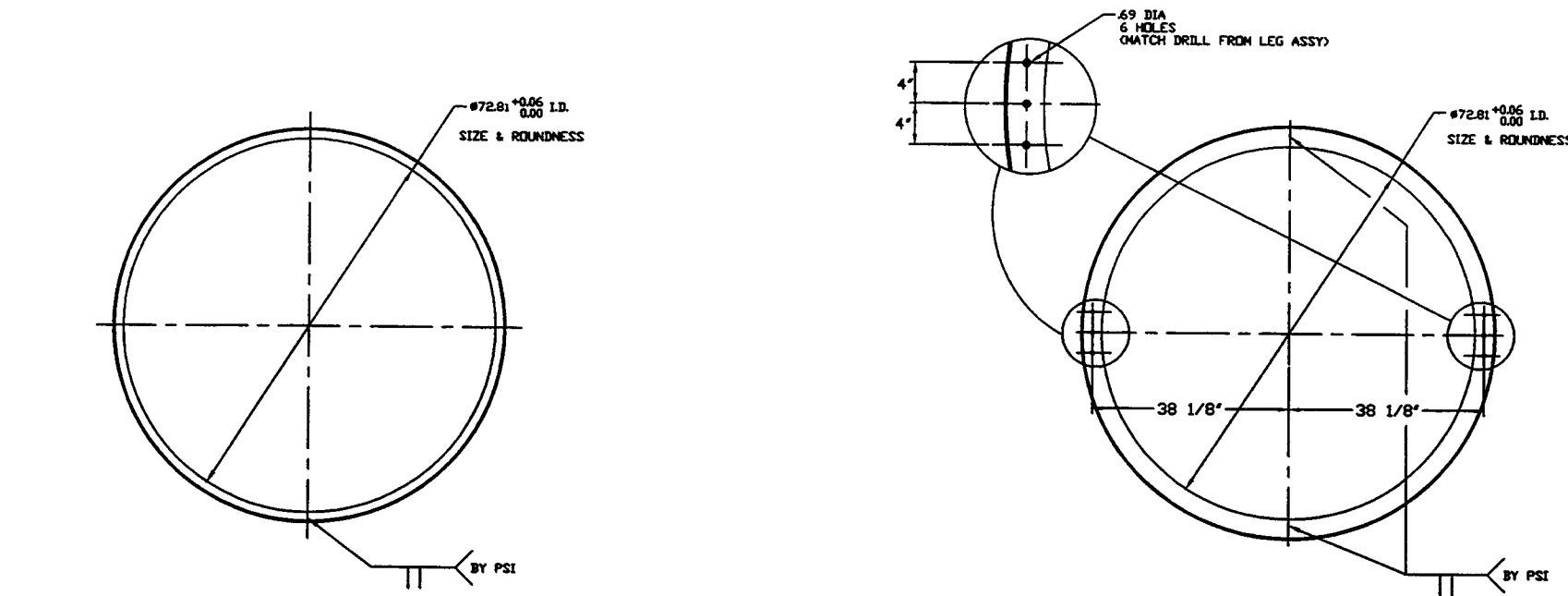


PROCESS SYSTEMS INTERNATIONAL INC. 20 WALRUP DR. WESTBOROUGH, MASSACHUSETTS 01581 USA			
SPOOL BE-6 72.25" ID x 72.25" ID LIGO VACUUM EQUIPMENT			
CAD FILE V0494BE6/4BE6S3	SIZE D	DWG. NO. V049-4-BE6	REV. 5
SCALE 1/16	SHEET 3 OF 5		



Raymond D. Ciatto
 EXPIRES 8/3/99 6/26/97

PROCESS SYSTEMS INTERNATIONAL INC. <small>30 WALDEN DR. WESTBOROUGH, MASSACHUSETTS 01581 USA</small>			
SPOOL BE-6 72.25" ID x 72.25" ID LIGO VACUUM EQUIPMENT			
<small>ORD FILE</small> V0494BE6/4BE6S4	<small>SIZE</small> D	<small>ENCL. NO.</small> V049-4-BE6	<small>REV.</small> 5
<small>SCALE</small> 1/4	<small>SHEET</small> 4 OF 5	<small>REV. 26, 1996 - 1182967</small>	



EXPIRES 2/5/99 6/26/97

PROCESS SYSTEMS INTERNATIONAL INC. <small>30 WALKUP DR. WESTBOROUGH, MASSACHUSETTS 01581 USA</small>			
SPOOL BE-6 72.25" ID x 72.25" ID LIGO VACUUM EQUIPMENT			
CAD FILE V0494BE6/4BE6SS	SIZE D	DRAWING NO. V049-4-BE6	SHEET 5
SCALE 1/16 & 1/4	SHEET		5 OF 5

DEC 06, 1996 - 094743