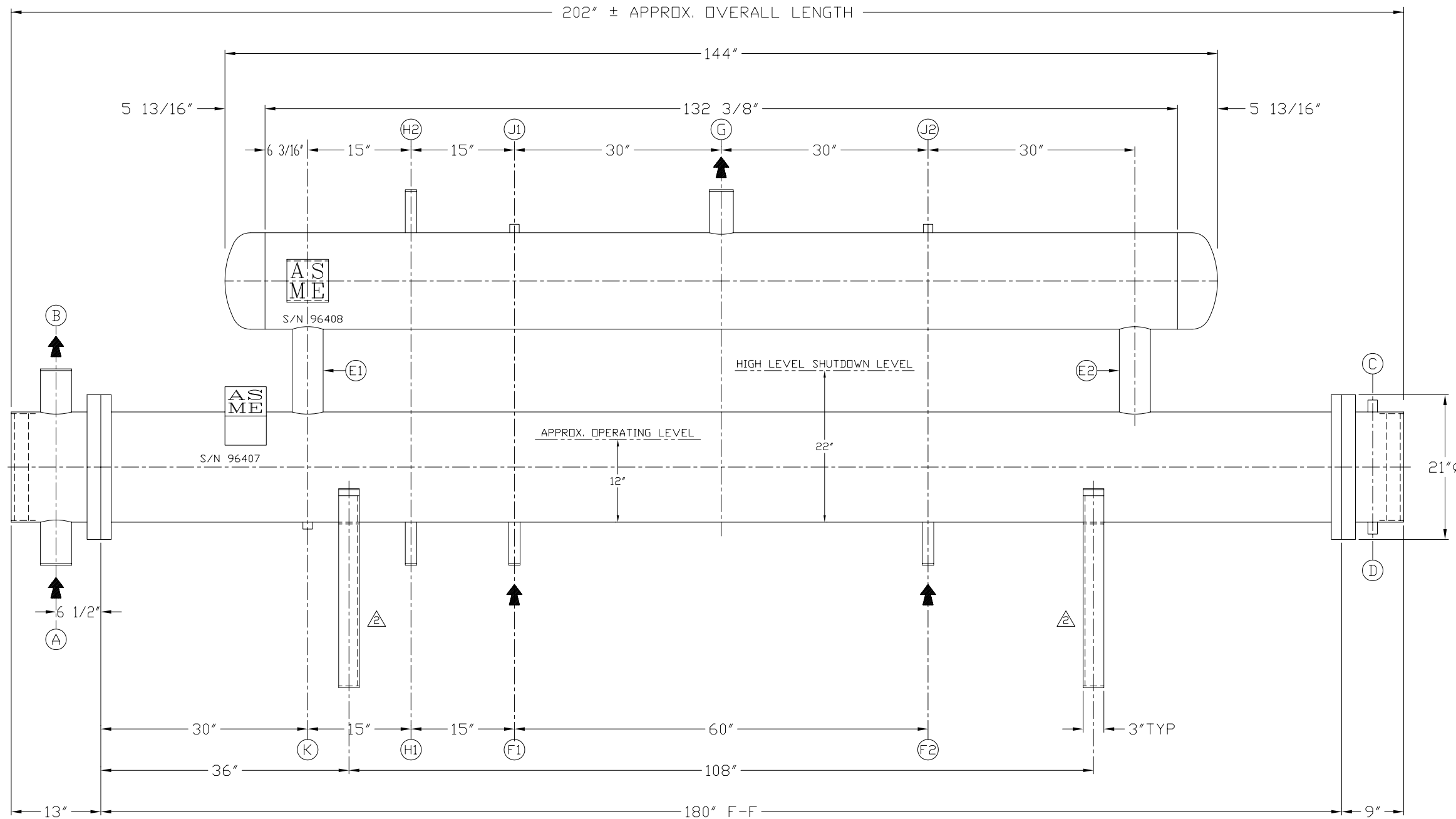
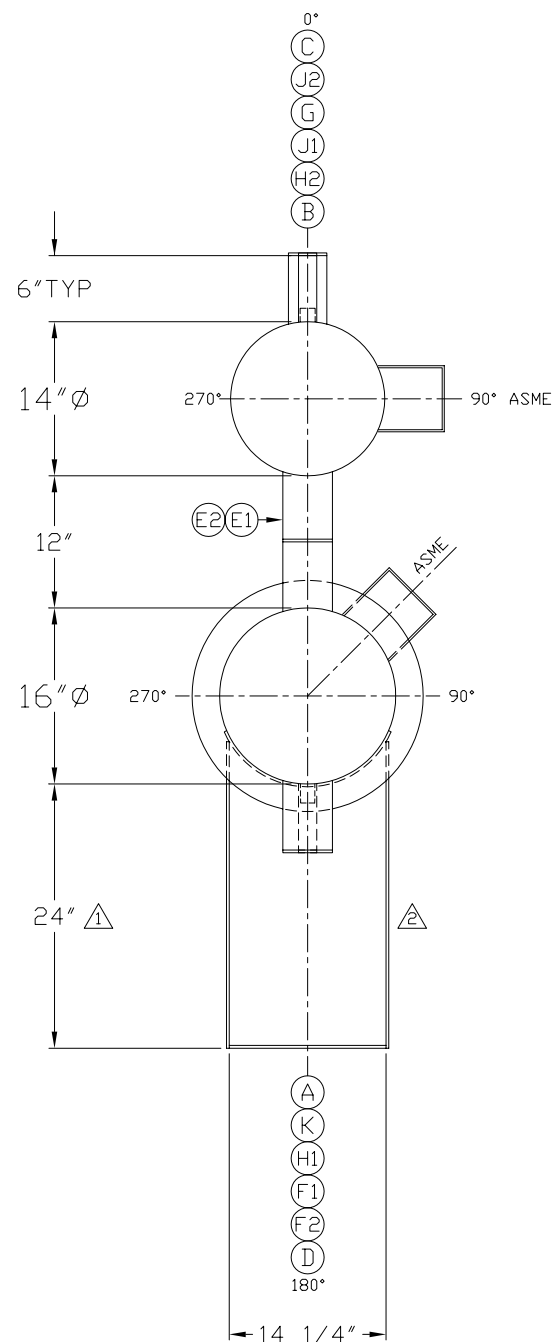
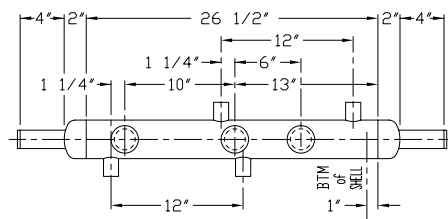


#3 LEVEL COLUMN

- 1) 3" S/40 PIPE X 26 1/2" LNG - SA106B - (1)
- 2) 3" S/40 B.W. PIPE CAP - SA234-WPB - (2)
- 3) 1 1/4" S/80 PIPE X 5" LNG - SA106B - (2)
- 4) 3/4"-3000# FULL SCR'D CPL'G - SA105 - (4)
- 5) R.V.S. LI-2 LEVEL INDICATORS - (3)



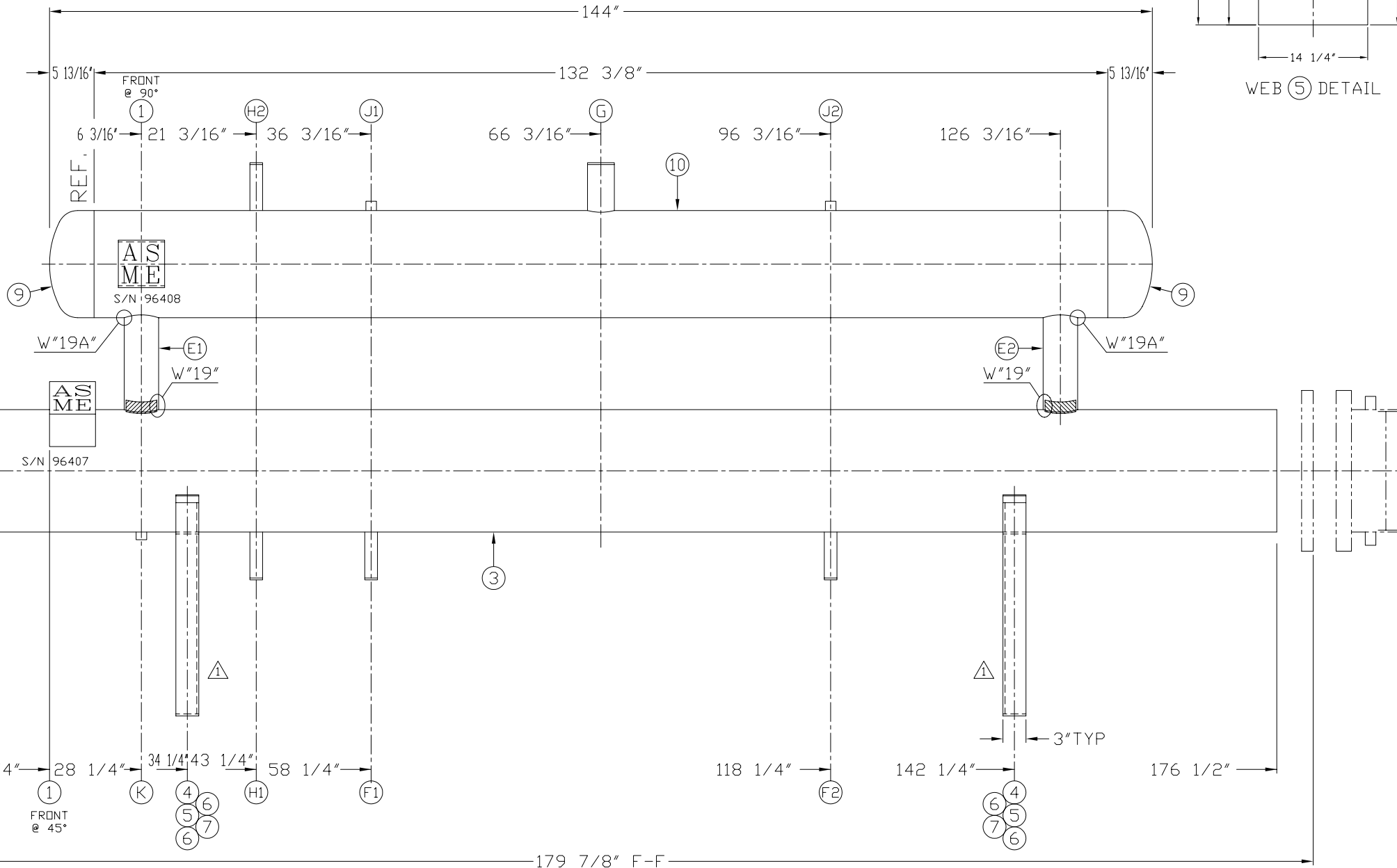
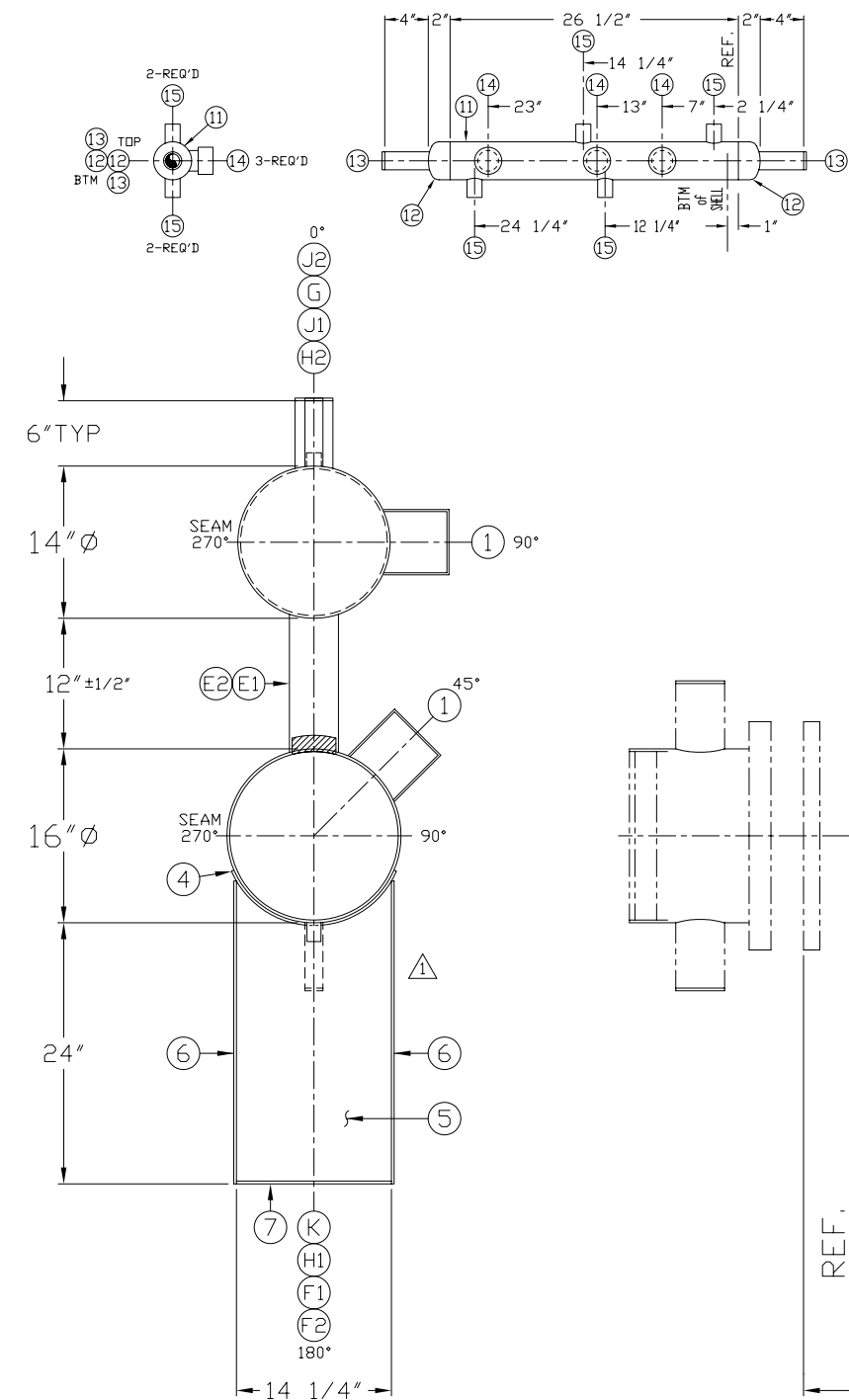
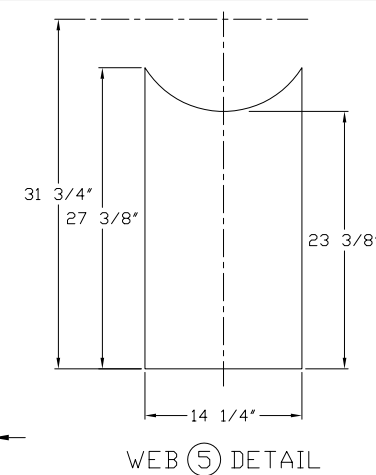
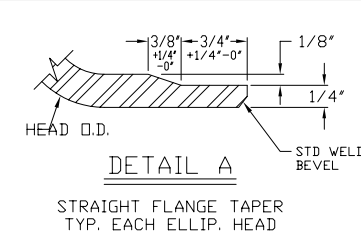
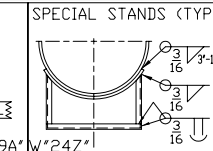
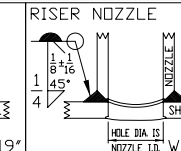
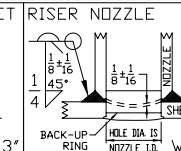
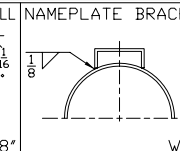
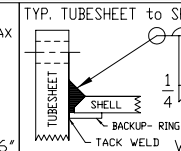
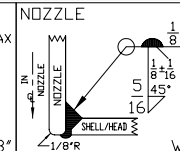
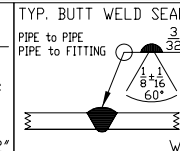
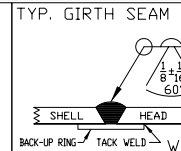
EMPTY WGT: 3,450 Lbs.
FLOODED WGT: 4,775 Lbs.

CAPACITY:	960,000	BTU/HR		TYPE:	BEM
SIDE:	MEDIUM	FLOW LB/HR	IN °F	OUT °F	VEL FPS
SHELL:	AMMONIA	2042	30	30	0
TUBE:	30% PROPY-GLYCOL	92903	55	45	4.269
EXT. TUBE SURFACE:	523	SQ. FT. NO. TUBES:	180	NO. TUBE PASSES:	4
				P.D. PSI	FOLIATING FACTOR
				7.418	0.001

CUSTOMER	GARTNER REFRIGERATION	
P.O. NO.	18324-4	

<p>TEST WITH SHELL SIDE: OIL TUBE SIDE: WATER</p>	<p>ASME DATA PLATE</p> <p>NATIONAL BOARD NO. [] CERTIFIED BY REFRIGERATION VALVES and SYSTEMS CORPORATION BRYAN, TEXAS SHELL SIDE M.A.W.P. [250] PSI AT [200] °F TUBE SIDE M.A.W.P. [100] PSI AT [200] °F YEAR BUILT 1996</p>	<p>BILL of MATERIALS</p> <table border="1" style="width: 100%;"> <thead> <tr> <th colspan="6">NOZZLE SCHEDULE</th> <th colspan="6">SHELL, HEADS, INTERNALS, & SUPPORTS</th> </tr> <tr> <th>ITEM</th> <th>QTY</th> <th>SIZE</th> <th>TYPE</th> <th>RATING</th> <th>MATERIAL</th> <th>ITEM</th> <th>QTY</th> <th>SIZE</th> <th>TYPE</th> <th>RATING</th> <th>MATERIAL</th> </tr> </thead> <tbody> <tr> <td>K</td> <td>1</td> <td>3/4"</td> <td>CPLG</td> <td>3000#</td> <td>SA105</td> <td>DRAIN</td> <td>16</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>J</td> <td>2</td> <td>3/4"</td> <td>CPLG</td> <td>3000#</td> <td>SA105</td> <td>VENT/PURGE/RELIEF</td> <td>15</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>H</td> <td>2</td> <td>1 1/4"</td> <td>PIPE</td> <td>S/80</td> <td>SA106B</td> <td>LEVEL COLUMN</td> <td>14</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>G</td> <td>1</td> <td>3"</td> <td>PIPE</td> <td>S/40</td> <td>SA106B</td> <td>AMMONIA VAPOR OUTLET</td> <td>13</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>F</td> <td>2</td> <td>1 1/4"</td> <td>PIPE</td> <td>S/80</td> <td>SA106B</td> <td>AMMONIA INLET</td> <td>12</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>E</td> <td>2</td> <td>4"</td> <td>PIPE</td> <td>S/40</td> <td>SA106B</td> <td>RISER</td> <td>11</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>D</td> <td>1</td> <td>3/4"</td> <td>CPLG</td> <td>3000#</td> <td>SA105</td> <td>DRAIN</td> <td>10</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>C</td> <td>1</td> <td>3/4"</td> <td>CPLG</td> <td>3000#</td> <td>SA105</td> <td>VENT</td> <td>9</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>B</td> <td>1</td> <td>4"</td> <td>PIPE</td> <td>S/40</td> <td>SA106B</td> <td>PRDPY-GLYCOL OUTLET</td> <td>8</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>A</td> <td>1</td> <td>4"</td> <td>PIPE</td> <td>S/40</td> <td>SA106B</td> <td>PRDPY-GLYCOL INLET</td> <td>7</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	NOZZLE SCHEDULE						SHELL, HEADS, INTERNALS, & SUPPORTS						ITEM	QTY	SIZE	TYPE	RATING	MATERIAL	ITEM	QTY	SIZE	TYPE	RATING	MATERIAL	K	1	3/4"	CPLG	3000#	SA105	DRAIN	16					J	2	3/4"	CPLG	3000#	SA105	VENT/PURGE/RELIEF	15					H	2	1 1/4"	PIPE	S/80	SA106B	LEVEL COLUMN	14					G	1	3"	PIPE	S/40	SA106B	AMMONIA VAPOR OUTLET	13					F	2	1 1/4"	PIPE	S/80	SA106B	AMMONIA INLET	12					E	2	4"	PIPE	S/40	SA106B	RISER	11					D	1	3/4"	CPLG	3000#	SA105	DRAIN	10					C	1	3/4"	CPLG	3000#	SA105	VENT	9					B	1	4"	PIPE	S/40	SA106B	PRDPY-GLYCOL OUTLET	8					A	1	4"	PIPE	S/40	SA106B	PRDPY-GLYCOL INLET	7					<p>VESSEL DESIGN SPECIFICATIONS</p> <p>DESIGN & CONSTRUCTION IN ACCORDANCE WITH SECTION VIII DIV. 1 ASME CODE FOR PRESSURE VESSELS 1995 EDITION & ADDENDA TO NONE</p> <p>SHELL: CHILLER & ACCUM: SA53B-ERW HEADS: CHILLER & ACCUM: SA516-70 SHELL SIDE M.A.W.P.: 250 P.S.I. AT -20 °F TO 200 °F HYDROTEST: 375 P.S.I. TUBE SIDE M.A.W.P.: 100 P.S.I. AT -20 °F TO 200 °F HYDROTEST: 150 P.S.I. RT: NONE HT: NONE CA: 0 PAINT: SHOP PRIMER EMPTY WEIGHT: Lbs</p> <p>REVISIONS</p> <table border="1" style="width: 100%;"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>BY</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>6-17-96</td> <td>Banda</td> <td>REVISED PER CUSTOMER STAND HEIGHT WAS 12" HIGH, STAND WAS FLAT BAR.</td> </tr> <tr> <td>2</td> <td>6-19-96</td> <td>Banda</td> <td>REVISED PER CUSTOMER AGAIN, STAND WAS 3" CHANNEL IRON.</td> </tr> <tr> <td>3</td> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td></td> <td></td> <td></td> </tr> <tr> <td>5</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>TITLE 16" O.D. X 15'-0" F-F HORIZ. CHILLER w/ 14" O.D. X 12'-0" O.A.L. INTEGRAL ACCUMULATOR REFRIGERATION VALVES and SYSTEMS CORP.</p> <p>DALLAS COWBOYS 1520 CROSSWIND DRIVE BRYAN, TEXAS 77808</p> <p>DRAWN BY: BANDA SERIAL NO.: 96407,96408 SCALE: 1 1/2"=1'-0" DRAWING NO. N0250 Rev.2 CHK'D BY: TO SHOP: DATE: 5-30-96</p>	NO.	DATE	BY	DESCRIPTION	1	6-17-96	Banda	REVISED PER CUSTOMER STAND HEIGHT WAS 12" HIGH, STAND WAS FLAT BAR.	2	6-19-96	Banda	REVISED PER CUSTOMER AGAIN, STAND WAS 3" CHANNEL IRON.	3				4				5			
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- GENERAL NOTES**
- 1) ALL PIPE NOZZLES EXTEND 6" OUTSIDE SHELL UNLESS INDICATED OTHERWISE.
 - 2) ALL WELDS: WPS 109, 1002, 1005, 2002, AND 4004 APPLY UNLESS INDICATED OTHERWISE.
 - 3) SA516-70 MAY BE SUBSTITUTED FOR SA36.
 - 4) SA106B PIPE MAY BE SUBSTITUTED FOR SA53B SEAMLESS AND VICE VERSA.
 - 5) ALL BOLT HOLES STRADDLE CENTERLINE.



TEST WITH ASME DATA PLATE

NATIONAL BOARD NO. _____

CERTIFIED BY
REFRIGERATION VALVES
and SYSTEMS CORPORATION
BRYAN, TEXAS

SHELL SIDE
MAWP _____ PSI AT _____ °F
MINIMUM DESIGN METAL TEMP _____ °F AT _____ PSI

TUBE SIDE
MAWP _____ PSI AT _____ °F
MINIMUM DESIGN METAL TEMP _____ °F AT _____ PSI

SERIAL NO. _____ YEAR BUILT _____

BILL of MATERIALS

NOZZLE SCHEDULE										SHELL, HEADS, INTERNALS, & SUPPORTS									
ITEM	QTY	SIZE	TYPE	RATING	MATERIAL	SERVICE	LENGTH	ITEM	QTY	SIZE	TYPE	RATING	MATERIAL	LENGTH					
K	1	3/4"	CPLG	3000#	SA105	DRAIN		16	2	3"	BACKING RING		SA36						
J	2	3/4"	CPLG	3000#	SA105	VENT/PURGE/RELIEF		15	4	3/4"	FULL SCR'D CPLG		SA105						
H	2	1 1/4"	PIPE	S/80	SA106B	LEVEL COLUMN		14	3	LI-2	LEVEL INDICATOR								
G	1	3"	PIPE	S/40	SA106B	AMMONIA VAPOR OUTLET		13	2	1 1/4"	PIPE		S/80	SA106B					
F	2	1 1/4"	PIPE	S/80	SA106B	AMMONIA INLET		12	2	3"	B.W. PIPE CAP		S/40	SA234-WPB					
E	2	4"	PIPE	S/40	SA106B	RISER		11	1	3"	PIPE		S/40	SA106B					
D								10	1	14"	PIPE		S/10(1/4")	SA53B-ERW					
C								9	2	14" OD	2:1 ELLIP. HEAD (SEE DETAIL-A)		3/8"	SA516-70					
B								8	2	4"	BACKING RING			SA36					
A								7	2	3"	FLAT BAR		1/4"	SA36					
								6	4	3"	FLAT BAR		1/4"	SA36					
								5	2	27 3/8"x14 1/4"	PLATE		1/4"	SA36					
								4	2	3"	FLAT BAR		1/4"	SA36					
								3	1	16"	PIPE		S/10(1/4")	SA53B-ERW					
								2	2	16"	BACKING RING			SA36					
								1	2	6"	STD DATA BRACKET			SA36					

CUSTOMER: **GARTNER REFRIGERATION**

P.O. NO.: **18324-4**

VESSEL DESIGN SPECIFICATIONS

DESIGN & CONSTRUCTION IN ACCORDANCE WITH SECTION VIII DIV. 1 ASME CODE FOR PRESSURE VESSELS 1995 EDITION & ADDENDA TO NONE

SHELL: CHILLER SA53B-ERW S/10 1/4" Nom (182" Min)/ ACCUM: SA53B-ERW S/10 1/4" Nom (160" Min) HEADS: ACCUM: SA516-70 3/8" Nom (116" Min) 2:1 ELLIP.

SHELL SIDE M.A.W.P.: 250 P.S.I. AT -20 °F TO 200 °F HYDROTEST: 375 P.S.I.

TUBE SIDE M.A.W.P.: 100 P.S.I. AT -20 °F TO 200 °F HYDROTEST: 150 P.S.I.

RT: NONE HT: NONE CA: 0 PAINT: SHOP PRIMER EMPTY WEIGHT: _____ Lbs

REVISIONS

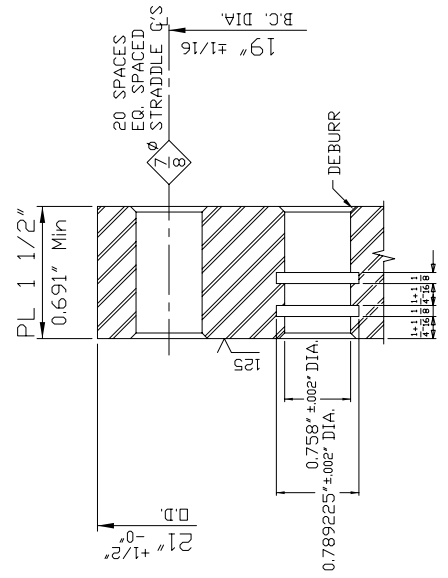
NO.	DATE	BY	DESCRIPTION
1	6-19-96	Banda	REVISED STANDS PER CUSTOMER WERE 3" CHANNEL IRON STANDS.
2			
3			
4			
5			

TITLE: **SHELL & STAND DETAILS**
For 16" O.D. X 15'-0" F-F HORIZ. CHILLER w/ 14" O.D. X 12'-0" D.A.L. INTEGRAL ACCUMULATOR REFRIGERATION VALVES and SYSTEMS CORP.

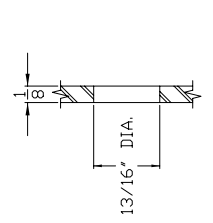
DRAWN BY: **BANDA** SERIAL NO.: 96407,96408 SCALE: 1 1/2"=1'-0"

CHK'D BY: _____ TO SHOP: _____ DATE: 6-11-96

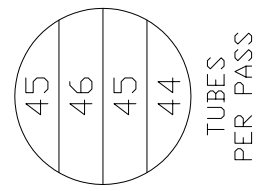
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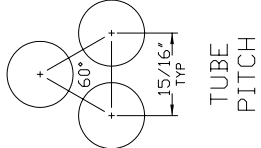
GROOVED TUBE HOLE DETAIL



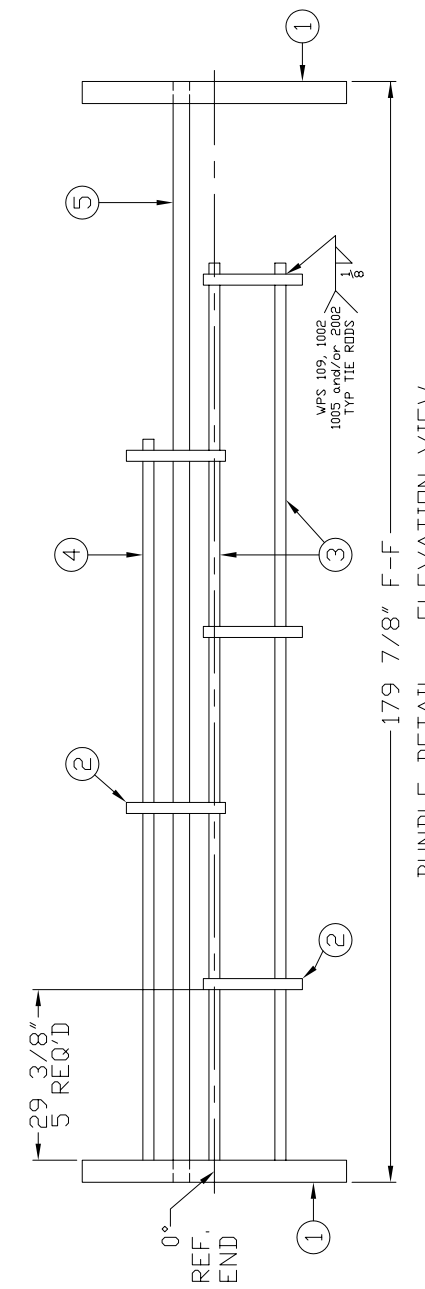
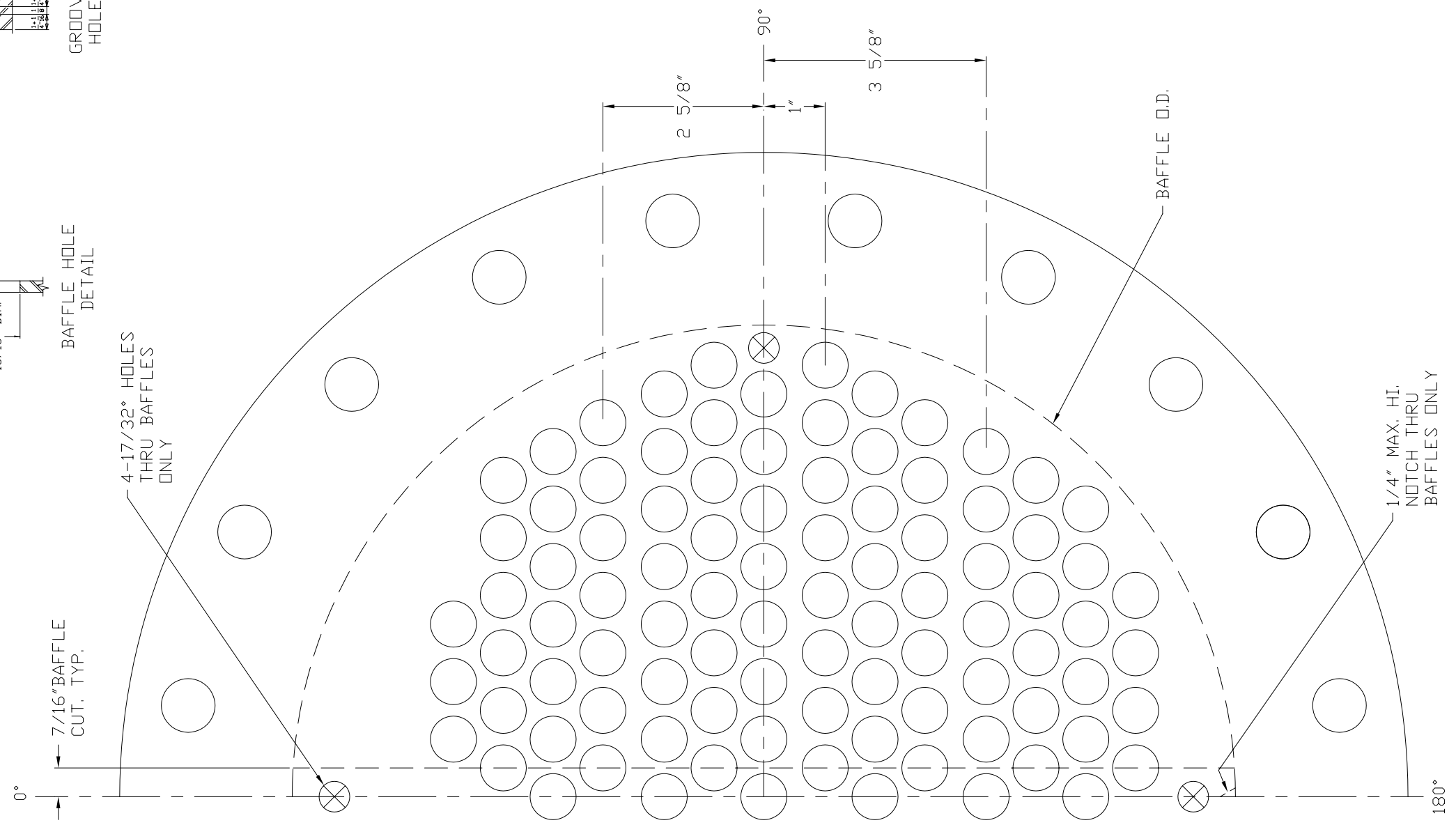
BAFFLE HOLE DETAIL



TUBES PER PASS



TUBE PITCH



2-TUBESHEETS	20 - 7/8" DRILL
	180 - 47/64" DRILL
	180 - 0.758" REAM
	180 - 0.78925" GROOVE
5-TUBE SUPPORT	4 - 17/32" DRILL
	100 - 13/16" DRILL
TUBESHEET O.D.	21.0 in
BOLT CIRCLE DIA.	19 in
SHELL I.D.	15.5 in
OUTER TUBE LIMIT	14.95 in
TUBE PASSES	4
NUMBER OF TUBE HOLES	180
TUBE O.D.	0.75 in
TUBE PITCH	0.9375 in
TUBE PATTERN	TRI 60°
BAFFLE O.D.	15.375 in
BAFFLE TYPE	SINGLE SEGMENTAL
BAFFLE CUT	45% VERT.
BAFFLE HEIGHT FROM CENTER	0.4375 in
NUMBER OF TIE RODS	4
TIE ROD DIA.	.5 in
TIE ROD LOCATIONS	J 0°
OFF VERT OFF HORIZ	K 7.31°
	L 0°
	M -7.31°
	0°
	0°

BILL of MATERIALS						
SHELL, HEADS, INTERNALS, & SUPPORTS						
ITEM	QTY	SIZE	TYPE	RATING	MATERIAL	LENGTH
16						
15						
14						
13						
12						
11						
10						
9						
8						
7						
6						
5	180	3/4" OD	TUBE	16 Ga(.065")	SA214-ERW	180"
4	1	1/2" DIA.	ROD		SA36	120
3	3	1/2" DIA.	ROD		SA36	149"
2	5	15 3/8" DD	PLATE	1/8"	SA36	
1	2	21" DD	PLATE	1 1/2"	SAS16-70 Norm	

CUSTOMER: **GARTNER REFRIGERATION**

P.O. NO.: **18324-4**

VESSEL DESIGN SPECIFICATIONS
DESIGN & CONSTRUCTION IN ACCORDANCE WITH SECTION VIII DIV. 1 ASME CODE FOR PRESSURE VESSELS 1995 EDITION & ADDENDA TONO ADDENDA

SHELL: _____ P.S.I. AT _____ °F HEADS: _____ TO _____ °F HYDROTEST: _____ P.S.I.
TUBE SIDE M.A.W.P.: _____ P.S.I. AT _____ °F TUBE SIDE M.A.W.P.: _____ P.S.I. AT _____ °F HYDROTEST: _____ P.S.I.
RT: _____ HT: _____ CA: _____ PAINT: _____ EMPTY WEIGHT: _____ Lbs

REVISIONS

NO.	DATE	BY	DESCRIPTION
1			
2			
3			
4			
5			

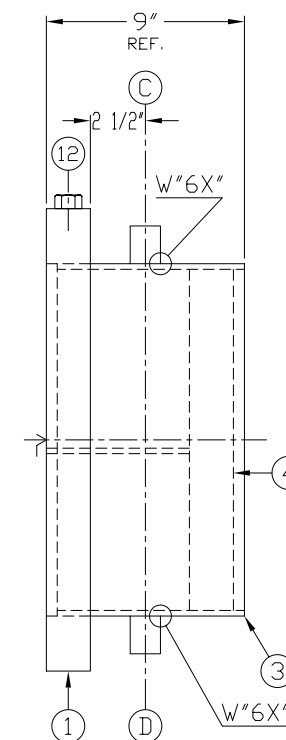
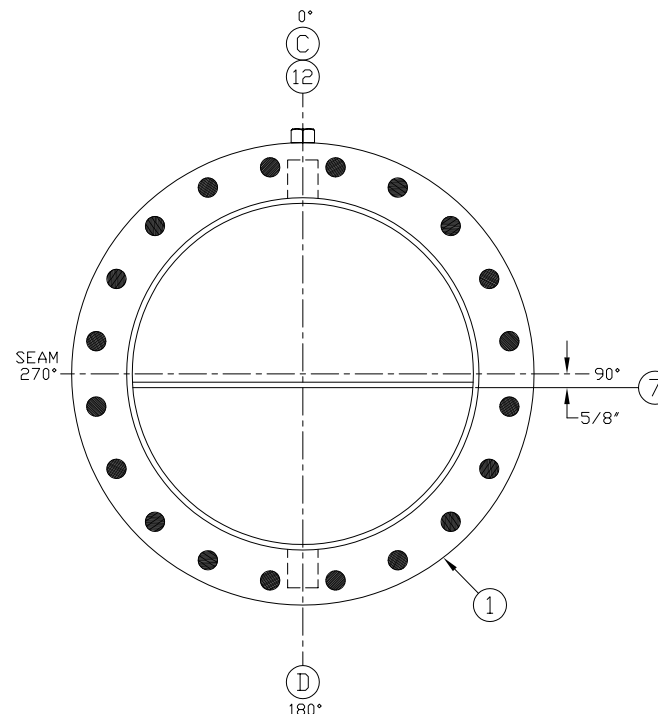
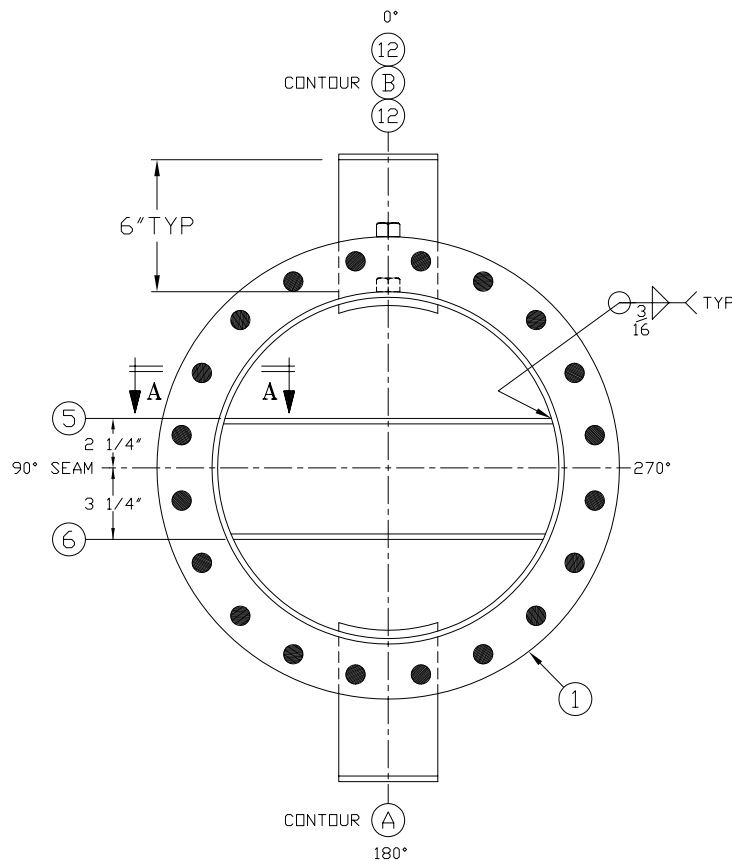
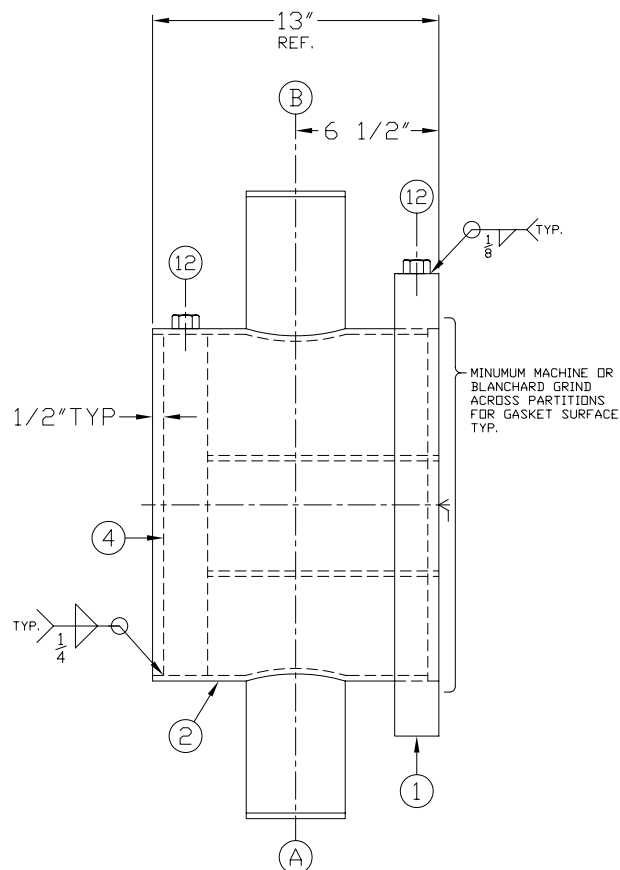
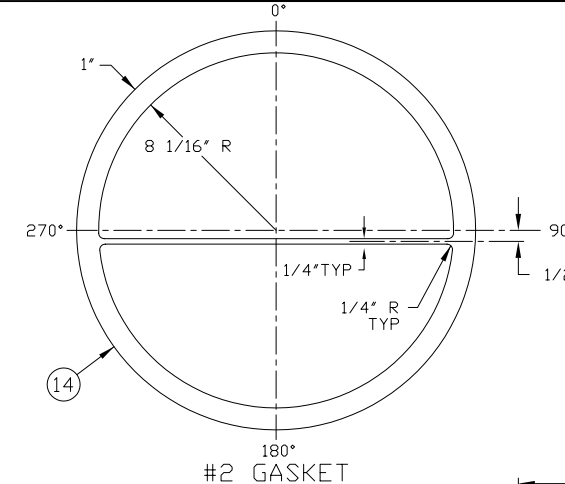
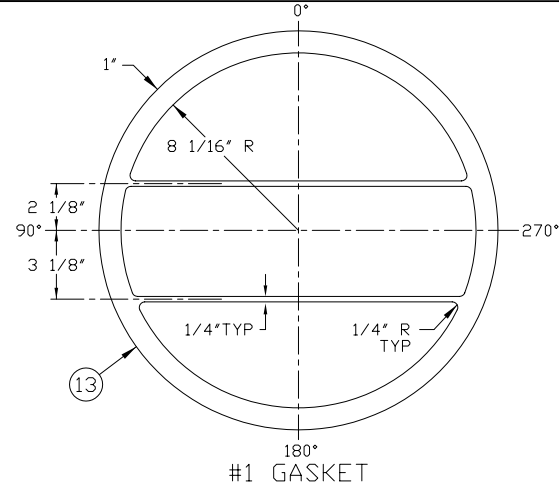
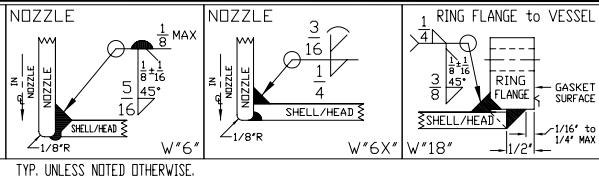
TITLE: **TUBESHEET & BUNDLE DETAIL**
For 16" O.D. X 15'-0" F-F HORIZ. CHILLER

REFRIGERATION VALVES and SYSTEMS CORP.

(CAD) DALLAS COWBOYS 1520 CROSSWIND DRIVE BRYAN, TEXAS 77808

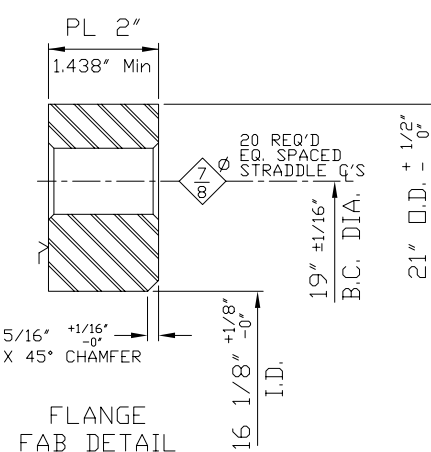
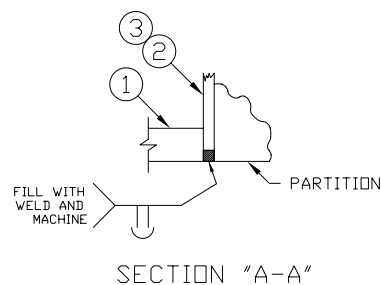
DRAWN BY: **BANDA** SERIAL NO.: **96407** SCALE: **FULL** DRAWING NO.: **N0250B**
CHK'D BY: _____ TO SHOP: _____ DATE: **6-13-96**

- GENERAL NOTES**
- 1) ALL PIPE NOZZLES EXTEND 6" OUTSIDE SHELL UNLESS INDICATED OTHERWISE.
 - 2) ALL WELDS: WPS 109, 1002, 1005, 2002, AND 4004 APPLY UNLESS INDICATED OTHERWISE.
 - 3) SA516-70 MAY BE SUBSTITUTED FOR SA36.
 - 4) SA106B PIPE MAY BE SUBSTITUTED FOR SA53B SEAMLESS AND VICE VERSA.
 - 5) ALL BOLT HOLES STRADDLE CENTERLINE.



#1 CHANNEL REF. END

#2 CHANNEL



TEST WITH ASME DATA PLATE

ASME DATA PLATE

NATIONAL BOARD NO. _____

CERTIFIED BY REFRIGERATION VALVES and SYSTEMS CORPORATION BRYAN, TEXAS

SHELL SIDE: M.A.W.P. _____ PSI AT _____ °F

TUBE SIDE: M.A.W.P. _____ PSI AT _____ °F

YEAR BUILT _____

BILL of MATERIALS

NOZZLE SCHEDULE							SHELL, HEADS, INTERNALS, & SUPPORTS						
ITEM	QTY	SIZE	TYPE	RATING	MATERIAL	SERVICE	ITEM	QTY	SIZE	RATING	MATERIAL	LENGTH	
16	80	3/4\"			SA194-2H	HEAVY HEX NUT	17	1	15 7/16\"	6 3/4\"	SA36		
15	40	3/4\"			SA193-B7	STUD BOLT	18	1	14 3/16\"	10 3/4\"	SA36		
14	1	18 1/8\"	OD x 16 1/8\"	TD	NA-1000	GASKET	19	1	14 15/16\"	10 3/4\"	SA36		
13	1	18 1/8\"	OD x 16 1/8\"	TD	NA-1000	GASKET	20	2	21\"	OD x 16 1/8\"	TD		
12	3	3/4\"			SA194-2H	HEAVY HEX NUT							
11													
10													
9													
8													
7	1	15 7/16\"	x 6 3/4\"		SA36	PLATE	21	1	16\"		SA36	8 1/2\"	
6	1	14 3/16\"	x 10 3/4\"		SA36	PLATE	22	1	16\"		SA36	12 1/2\"	
5	1	14 15/16\"	x 10 3/4\"		SA36	PLATE	23	1	2\"		SA516-70 Norm		
4	2	15 3/8\"	OD		SA516-70 Norm	PLATE (DROP FROM ITEM 1)	24	1	2\"		SA53B-ERW	8 1/2\"	
3	1	16\"				PIPE (NO BEVELS)	25	1	2\"		SA53B-ERW	12 1/2\"	
2	1	16\"				PIPE (NO BEVELS)	26	1	2\"		SA516-70 Norm		
1	2	21\"	OD x 16 1/8\"	TD	SA516-70 Norm	PLATE							

CUSTOMER GARTNER REFRIGERATION

P.O. NO. 18324-4

VESSEL DESIGN SPECIFICATIONS

DESIGN & CONSTRUCTION IN ACCORDANCE WITH SECTION VIII DIV. 1 ASME CODE FOR PRESSURE VESSELS 1995 EDITION & ADDENDA TONG ADDENDA

SHELL: SA53B-ERW S/10 1/4\"

SHELL SIDE M.A.W.P.: _____ P.S.I. AT _____ °F

TUBE SIDE M.A.W.P.: _____ P.S.I. AT _____ °F

RT: _____ HT: _____ CA: _____

HEADS: SA516-70 PL 2\"

TO: _____ °F HYDROTEST: _____ P.S.I.

TO: _____ °F HYDROTEST: _____ P.S.I.

PAINT: _____ EMPTY WEIGHT: _____ Lbs

REVISIONS

NO.	DATE	BY	DESCRIPTION
1			
2			
3			
4			
5			

TITLE CHANNEL & GASKET DETAILS (4-PASS)
For 16\"

DRAWN BY: BANDA **SERIAL NO.:** 95407 **SCALE:** 3\"=1'-0\"

CHK'D BY: _____ **TO SHOP:** _____ **DATE:** 6-13-96

DRAWING NO. N0250C