

FORM U-1 MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS

As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

1. Manufactured and certified by TRICOR METALS TEXAS DIV. 101 S. TRADE CENTER PKWY. CONROE TX. 77385
(Name and address of Manufacturer)

2. Manufactured for E.I. DUPONT DE NEMOURS HWY. 347 SOUTH, BEAUMONT, TX 77004
(Name and address of Purchaser)

3. Location of installation BEAUMONT, TX.
(Name and address)

4. Type: HORIZONTAL AOP COOLER CONDENSOR 206981-1
(Horiz., vert., or sphere) (Tank, separator, jkt. vessel, heat exh., etc.) (Mfg.'s serial No.)
N/A J-206981 N/A 2006
(CRN) (Drawing No.) (Nat'l. Bd. No.) (Year built)

5. ASME Code, Section VIII, Div. 1 2004/2005 N/A NONE
(Edition and Addenda (date)) (Code Case No.) [Special Service per UG-120 (d)]

Items 6 – 11 incl. to be completed for single wall vessels, jackets of jacketed vessels, shell of heat exchangers, or chamber of multi-chamber vessels.

6. Shell (a) No. of course(s): FOUR (4) (b) Overall length (ft & in.): 19' 6"

Course(s)			Material		Thickness		Long. Joint (Cat. A)			Circum. Joint (Cat. A, B, & C)			Heat Treatment	
No.	Diameter, in.	Length (ft & in.)	Spec./Grade or Type	Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.	Time	
1&4	37 1/4" ID	1' 10"	SA240-316/316L	1"	1/16"	1	SPOT	.85	1	SPOT	.85	—	—	
2&3	37 1/4" ID	6' 11"	SA240-316/316L	3/8"	1/16"	1	SPOT	.85	1	SPOT	.85	—	—	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	

7. Heads: (a) (Mat'l Spec. No., Grade or Type) (H.T. – Time & Temp.) (b) (Mat'l Spec. No., Grade or Type) (H.T. – Time & Temp.)

	Location (Top, Bottom, Ends)	Thickness		Radius		Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure		Category A		
		Min.	Corr.	Crown	Knuckle					Convex	Concave	Type	Full, Spot, None	Eff.
(a)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(b)	—	—	—	—	—	—	—	—	—	—	—	—	—	—

If removable, bolts used (describe other fastening) —

(Mat'l Spec. No., Grade, size, No.)

8. Type of jacket — Jacket closure —
(Describe as ogee & weld, bar, etc.)

If bar, give dimensions — If bolted, describe or sketch.

9. MAWP 100 — psi at max. temp. 200 — °F Min. design metal temp. -20 °F at 150 psi.
(internal) (external) (internal) (external)

10. Impact test NO EXEMPT PER UHA-51 at test temperature of — °F.
[Indicate yes or no and the component(s) impact tested]

11. Hydro., pneu., or comb. test press. 130 PSI Proof test —

Items 12 and 13 to be completed for tube sections.

12. Tubesheet: SA240-316L 3' 8" 2.75" .062 WELDED
[Stationary (Mat'l Spec. No.)] [Dia., in. (subject to press.)] (Nom. thk., in.) (Corr. Allow., in.) [Attachment (welded or bolted)]

CLAD TITANIUM SB265-1 3' 8" .375" .062 EXPLOSION BONDED
[Floating (Mat'l Spec. No.)] (Dia., in.) (Nom. thk., in.) (Corr. Allow., in.) (Attachment)

13. Tubes: SB-338-GR2 TITANIUM 1.00" .065 AVG. WALL 566 STRAIGHT
(Mat'l Spec. No., Grade or Type) (O.D., in.) (Nom. thk., in. or gauge) (Number) [Type (Straight or U)]

Items 14-18 incl. to be completed for inner chambers of jacketed vessels or channels of heat exchangers.

14. Shell (a) No. of course(s): ONE (1) (b) Overall length (ft. & in.): 1' 9 11/16"

Course(s)			Material		Thickness		Long. Joint (Cat. A)			Circum. Joint (Cat. A, B, & C)			Heat Treatment	
No.	Diameter, in.	Length (ft & in.)	Spec./Grade or Type	Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.	Time	
1	37 7/8" O.D.	1' 9 11/16"	SA-240-304L	.312	.062	1	SPOT	.85	1	SPOT	.85	N/A	—	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	

15. Heads: (a) (SA-240-304L) (N/A) (b) (Mat'l Spec. No., Grade or Type) (H.T. – Time & Temp.)

	Location (Top, Bottom, Ends)	Thickness		Radius		Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure		Category A		
		Min.	Corr.	Crown	Knuckle					Convex	Concave	Type	Full, Spot, None	Eff.
(a)	INLET	.3125	.062	—	—	2:1	—	—	—	—	—	—	—	—
(b)	—	—	—	—	—	—	—	—	—	—	—	—	—	—

If removable, bolts used (describe other fastening) SA193-B7 40-1 1/8"-7 UNC X 8 3/4" LG STUDS, SA194-SH 80-1 1/8"-7 UNC HVY. HEX NUTS

(Mat'l Spec. No., Grade, size, No.)

Section VIII --DIVISION 1
FORM U-1 (BACK)

16. MAWP 100 (internal) — (external) psi at max. temp. 200 (internal) — (external) °F. Min. design metal temp. -20 °F at 150 psi

17. Impact test NO at test temperature of —
[Indicate yes or no and the component(s) impact tested]

18. Hydro., pneu., or comb. test press. 214 TUBE SIDE

Proof test —

19. Nozzles, inspection, and safety valve openings:

Purpose (Inlet, Outlet, Drain, etc.)	No.	Diameter or Size	Flange Type	Material		Nozzle Thickness		Reinforcement Material	How Attached	Location (Insp. Open.)
				Nozzle	Flange	Nom.	Corr.			
INLET	1	14"	RF LJ	SA240-304L	SA182-304L	5/16"	1/16"	SA240-304L	UW-16-1(C)	CHANNEL SHELL

20. Supports: Skirt YES (Yes or no) Lugs NO (No.) Legs NO (No.) — (Describe) — (Where and how)

21. Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of the report:
(List the name of part, item number, mfg's. name and identifying number)

EXCHANGER SHELL, SERIAL NO. CJ-706, JAKE HARRIS & SONS INC., ID. NO. 16,260

22. Remarks: NON-LETHAL SERVICE

CERTIFICATE OF SHOP COMPLIANCE

We certify that the statements made in this report are correct and that all details of design, material, construction, and workmanship of this vessel conform to the ASME Code for Pressure Vessels, Section VIII, Division 1.

U Certificate of Authorization No. 29,548 Expires APRIL 16, 2006

Date 4-14-06 Name TRICOR METALS TEXAS DIV. Signed J.D. Williams
(Manufacturer) (Representative)

CERTIFICATE OF SHOP INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of TEXAS and employed by IB&M RE of DALLAS

have inspected the pressure vessel described in this Manufacturer's Data Report on April 14, 2006 and state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel in accordance with ASME Code, Section VIII, Division 1. By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date 4/18/06 Signed William D. Sullivan Commissions TX1106 NB7432B
(Authorized Inspector) (Nat'l Board incl. endorsement, State, Province, and No.)

CERTIFICATE OF FIELD ASSEMBLY COMPLIANCE

We certify that the statements on this report are correct and that the field assembly construction of all parts of this vessel conforms with the requirements of ASME Code, Section VIII, Division 1.

U Certificate of Authorization No. — Expires —

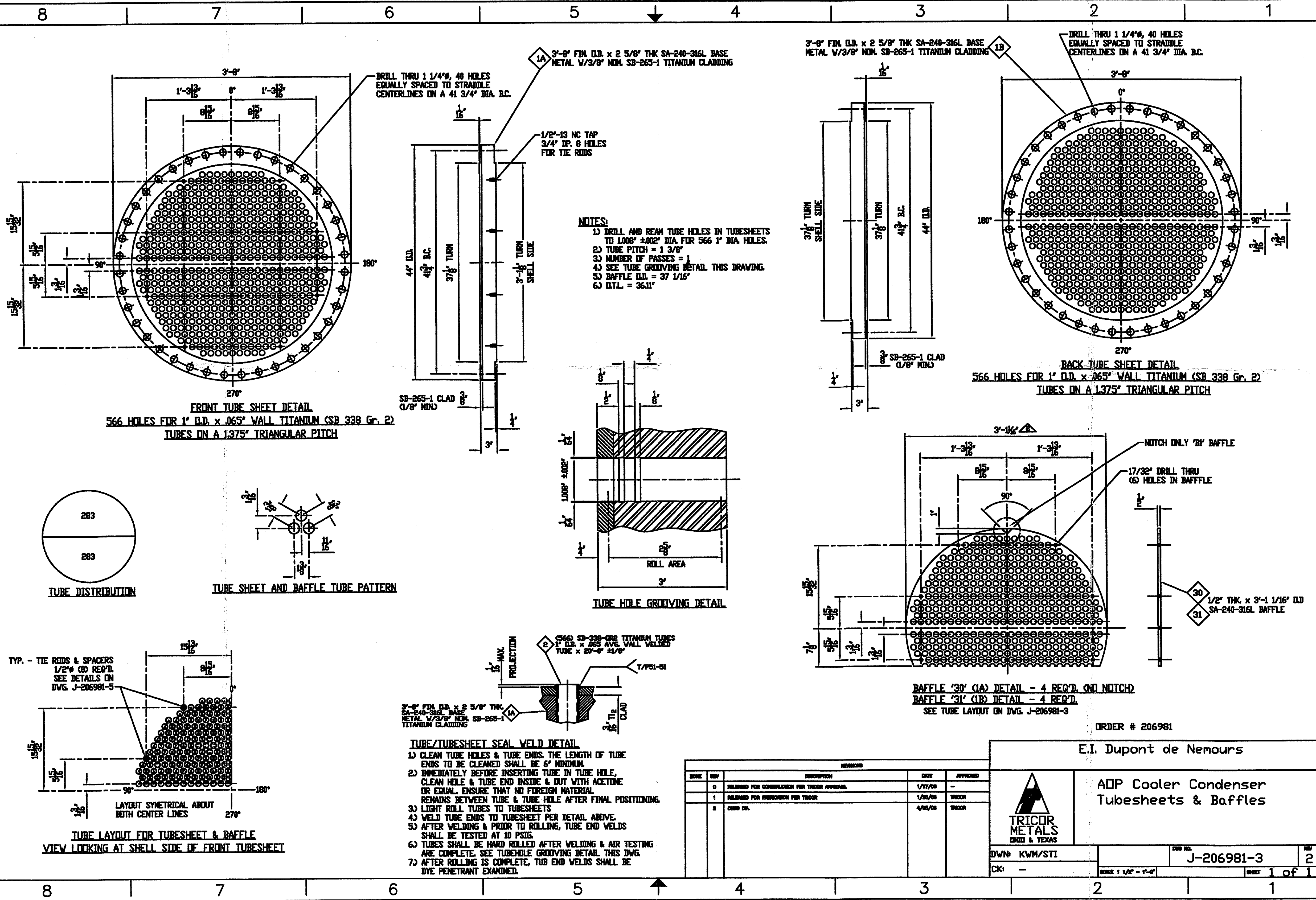
Date — Name — Signed —
(Assembler) (Representative)

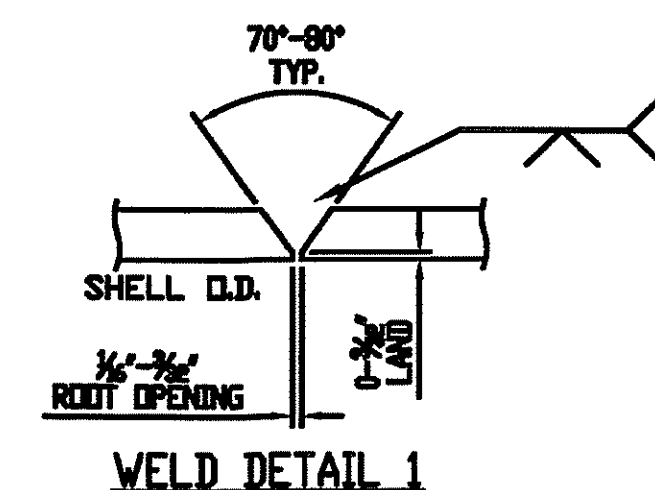
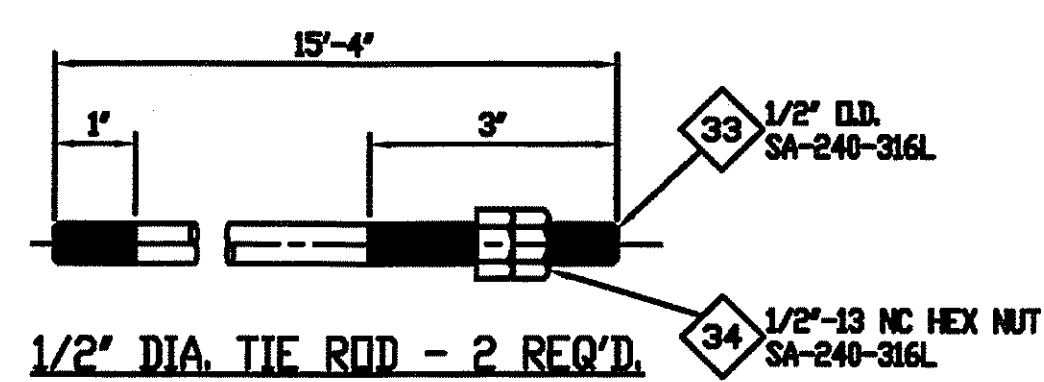
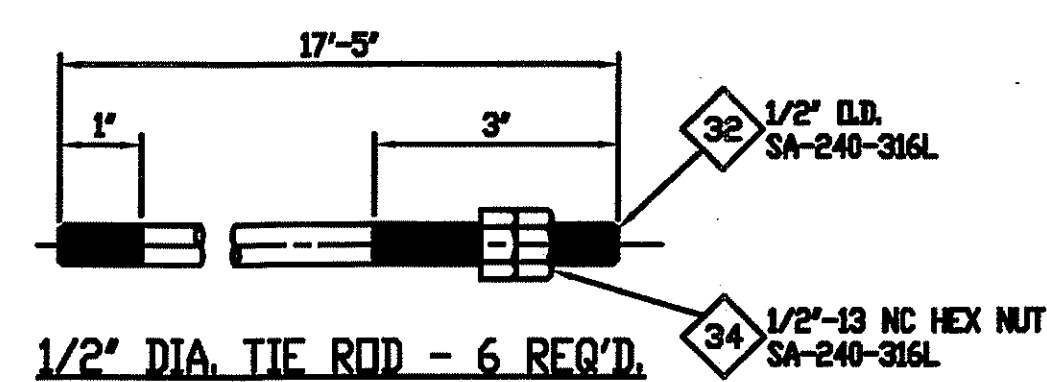
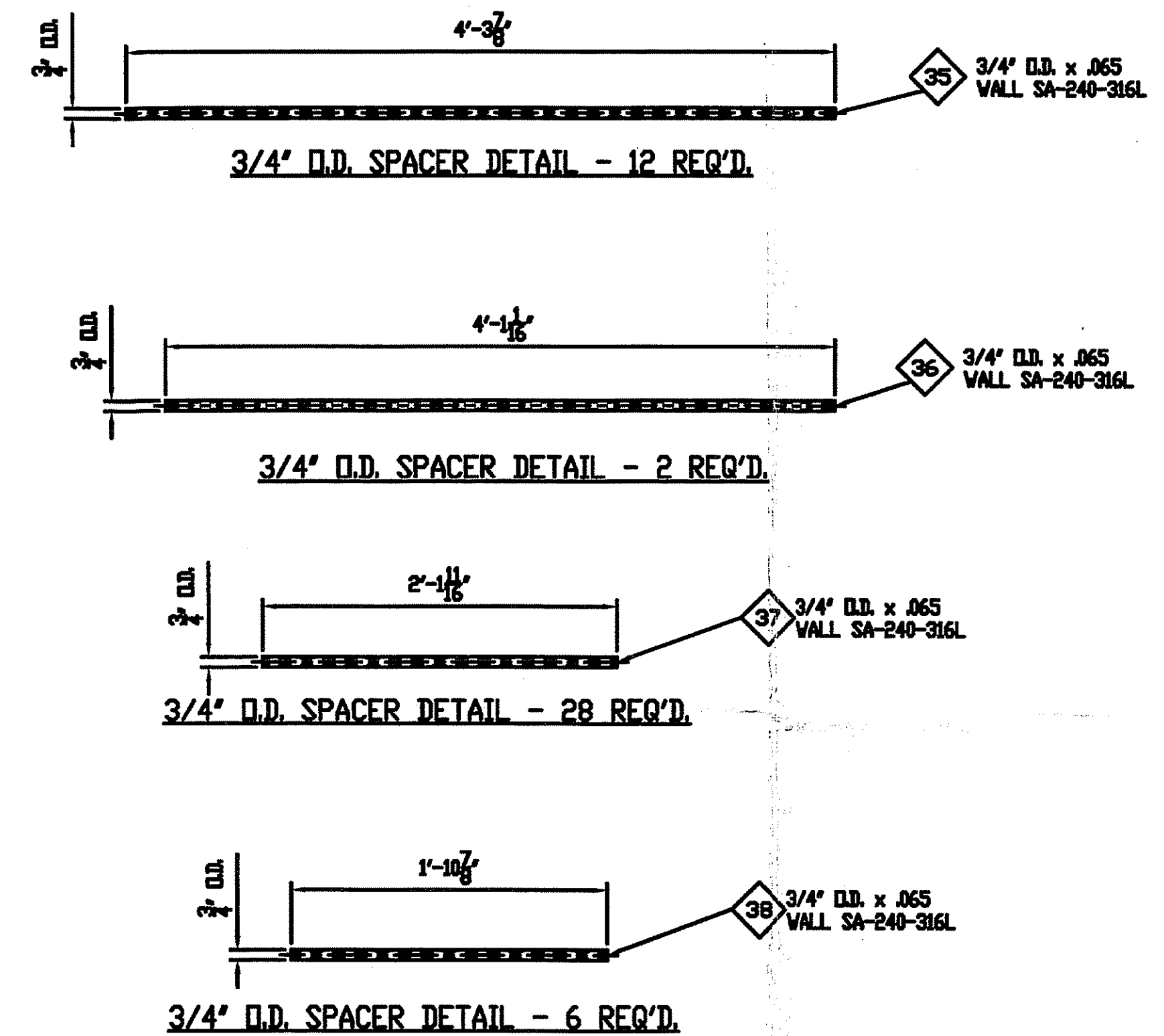
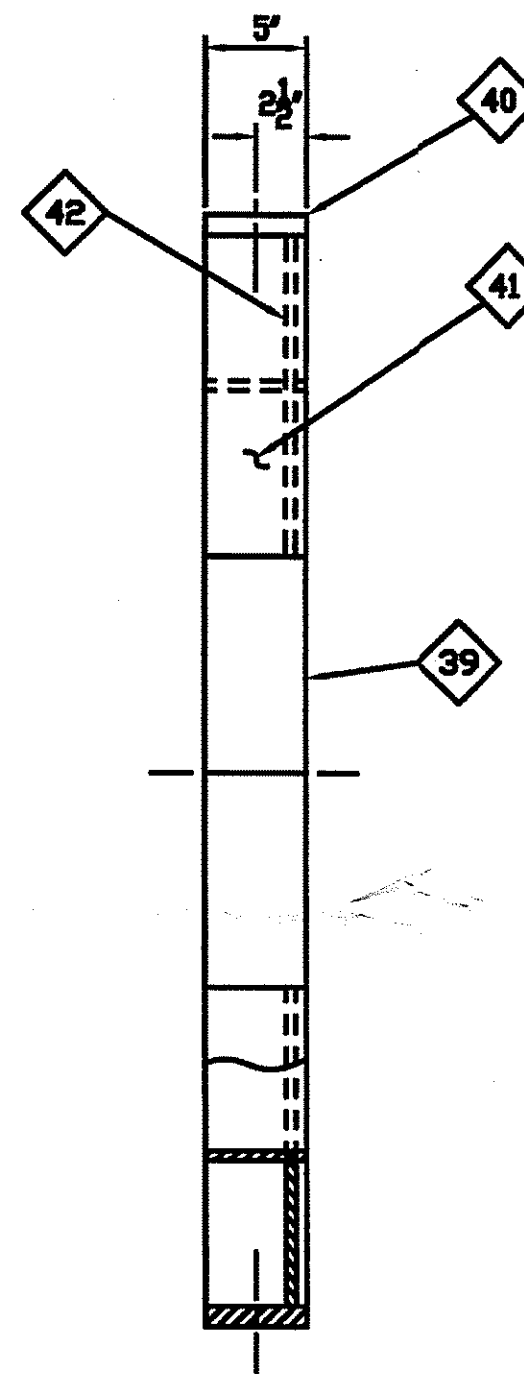
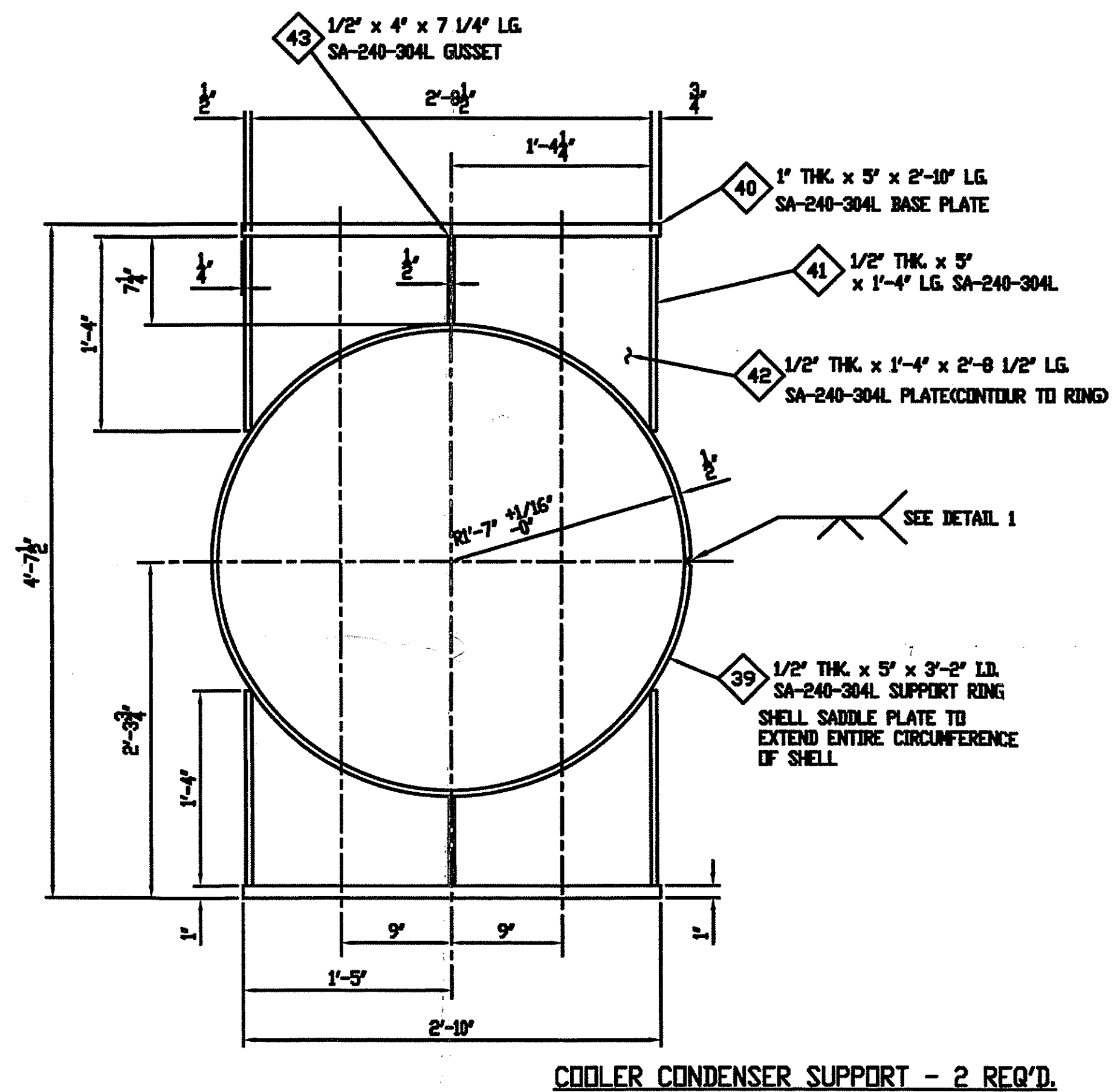
CERTIFICATE OF FIELD ASSEMBLY INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of — and employed by — of —

have compared the statements in this Manufacturer's Data Report with the described pressure vessel and state that parts referred to as data items —, not included in the certificate of shop inspection, have been inspected by me and to the best of my knowledge and belief, the Manufacturer has constructed and assembled this pressure vessel in accordance with ASME Code, Section VIII, Division 1. The described vessel was inspected and subjected to a hydrostatic test of — psi. By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date — Signed — Commissions —
(Authorized Inspector) (Nat'l Board incl. endorsement, State, Province and No.)





REV	DESCRIPTION	DATE	APPROVED
0	RELEASED FOR CONSTRUCTION PER TRICOR APPROVAL	1/17/88	-
1	RELEASED FOR FABRICATION PER TRICOR	1/25/88	TRICOR

ORDER # 206981

E.I. Dupont de Nemours

ADP Cooler Condenser
Supports & Spacers

TRICOR
METALS
OHIO & TEXAS

DWN: KVM/STI

CK: -

DATE NO. J-206981-4

SCALE 1/4" = 1'-0"

1 of 1

8		7		6		5		4		3		2		1		
MK. NO.		QTY.	MATERIAL DESCRIPTION		MATERIAL	HEAT NO.	MTR PG. NO.		MK. NO.		QTY.	MATERIAL DESCRIPTION		MATERIAL	HEAT NO.	PG. NO.
			TUBESHEETS									BAFFLES/TIE RODS/SPACERS				
1A	1	TUBESHEET 3'-8" FIN. O.D. x 2 5/8" MIN. THK. BASE METAL WITH 3/8" NOM. TITANIUM GRADE 1 CLADDING		SA-240-316L					30	4	1/2" THK. x 3'-1 3/16" O.D.' BAFFLE		SA-240-316L			
1B	1	TUBESHEET 3'-8" FIN. O.D. x 2 5/8" MIN. THK. BASE METAL WITH 3/8" NOM. TITANIUM GRADE 1 CLADDING		SA-240-316L					31	4	1/2" THK. x 3'-1 3/16" O.D.' BAFFLE W/NOTCH		SA-240-316L			
			TUBES						32	6	1/2" O.D. x 17'-5" LG. TIE RODS		SA-240-316L			
2	566	1" O.D. x .065" AVG. WALL WELDED TUBE x 20'-0"± 1/8" LG.		SB-338-GR2					33	2	1/2" O.D. x 15'-4" LG. TIE RODS		SA-240-316L			
			HEADS						34	16	1/2"-13 NC HEX NUT		SA-240-316L			
3	1	3'-1 7/8" O.D. x .3125" MIN. THK. W/24 ELLIPTICAL HEAD W/1 1/2" SF. & 37 1/2" O.S. WELD BEVEL		SA-240-304L					35	12	3/4" O.D. x .065" WALL x 4'-3 7/8" LG. SPACERS		SA-240-316L			
			BODY FLANGES						36	2	3/4" O.D. x .065" WALL x 4'-1 1/16" LG. SPACERS		SA-240-316L			
4	1	3'-8" O.D. x 3'-1 1/4" I.D. x 3 5/16" FIN. MIN. THK. WITH (40) 1-1/4" HOLES ON 3'-5 3/4" B.C.D.		SA-182-304L					37	28	3/4" O.D. x .065" WALL x 2'-1 11/16" LG. SPACERS		SA-240-316L			
			CYLINDERS						38	6	3/4" O.D. x .065" WALL x 1'-10 7/8" LG. SPACERS		SA-240-316L			
5A	1	R&V CYL 37 1/4" I.D. x 3/8" THK. x 7'-3 1/16" LG. (118 3/16" DL.)		SA-240-316/316L												
5B	1	R&V CYL 37 1/4" I.D. x 3/8" THK. x 7'-3 1/16" LG. (118 3/16" DL.)		SA-240-316/316L												
6A	1	R&V CYL 37 1/4" I.D. x 1" THK. x 22' LG. (120 3/16" DL.)		SA-240 316L												
6B	1	R&V CYL 37 1/4" I.D. x 1" THK. x 22' LG. (120 3/16" DL.)		SA-240-316L												
7	1	R&V CYL 37 1/4" I.D. x 5/16" THK. x 21 11/16" LG. (118" DL.)		SA-240 304L												
8	1	R&V CYL 14" O.D. x 5/16" THK. x 10 7/16" LG. (43" DL.)		SA-240 304L												
9	3	R&V CYL 12 3/4" O.D. x 3/8" THK. x 10 3/16" LG. (38 7/8" DL.)		SA-240 316L												
10	1	R&V CYL 12 3/4" O.D. x 3/8" THK. x 2'-0 9/16" LG. (38 7/8" DL.)		SA-240 304L												
11	1	1'-5" O.D. x 1'-1 3/8" I.D. x 5/16" MIN. THK. LAP RING		SA-240 304L												
12	4	1'-3 5/8" O.D. x 1'-0" I.D. x 5/16" MIN. THK. LAP RING		SA-240 316L												
			EXPANSION JOINTS													
14	4	4'-5" MAJ. O.D. x 4'-4 1/4" MAJ. I.D. x 3'-1 1/4" MINOR. I.D. x 3 3/4" O.A. WIDTH x 3/8" NOM. MIN. THK. W/37 1/2" WELD BEVEL BOTH ENDS		SA-240-316/316L												
			NOZZLES													
15	1	14"-300# RF LJ FLANGE		SA-182-F304L												
16	1	1/4" THK. x 14 1/4" I.D. x 20 1/4" O.D. RE-PAD		SA-240-304L												
17	4	12"-150# RF LJ FLANGE		SA-182-316L												
18	8	3/4" 6000# N.P.T. FULL CPLG		SA-182-316L												
19	8	3/4" 6000# N.P.T. PLUG		SA-182-316L												
20	12	2" 6000# N.P.T. FULL CPLG		SA-182-316L												
21	12	2" 6000# N.P.T. PLUG		SA-182-316L												
22	2	12"-150# BLIND FLANGE		SA-182-316L												
			INTERNALS													
25																
26																
27																
		TRICOR METALS		E.I. Dupont de Nemours						TRICOR METALS		E.I. Dupont de Nemours				
														ORDER # 206981		
														E.I. Dupont de Nemours		
														AOP Cooler Condenser Bill of Material		
														TRICOR METALS DALLAS & TEXAS		
														DWN: KWM/STI		
														CK: -		
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