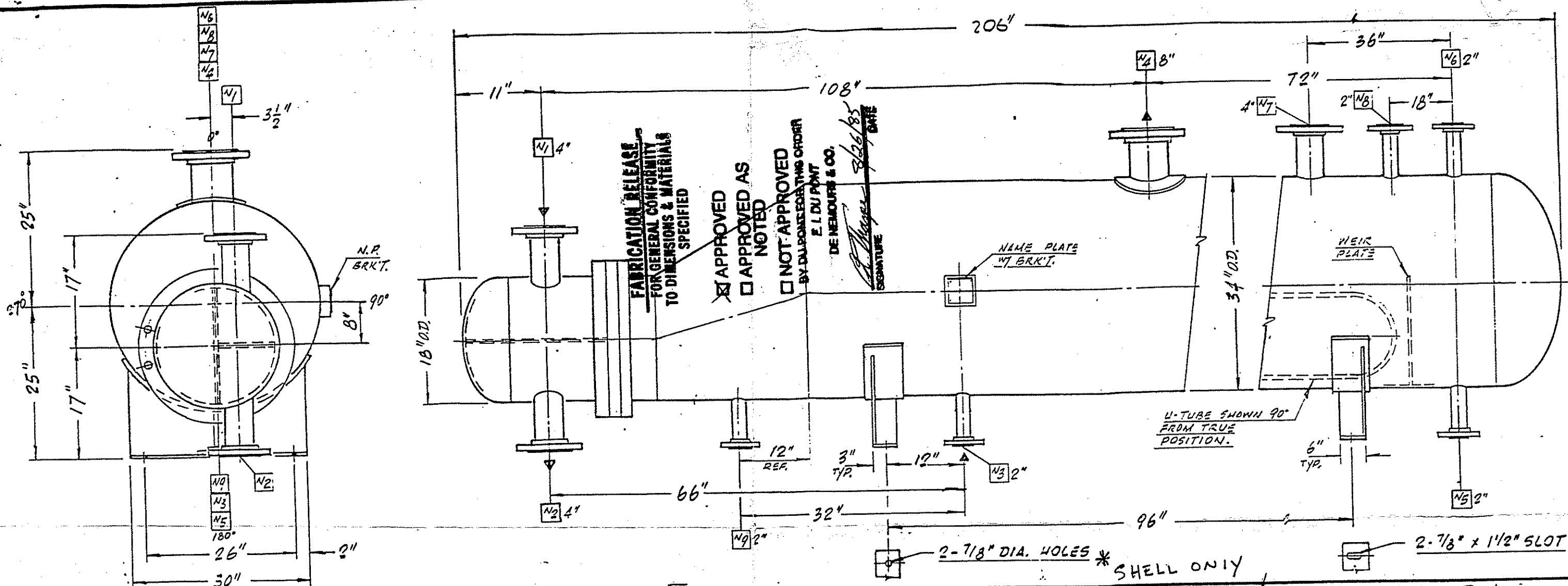


1801-7010-07



FABRICATION RELEASE FOR GENERAL CONFORMITY TO DIMENSIONS & MATERIALS SPECIFIED

APPROVED AS NOTED

APPROVED AS NOTED

NOT APPROVED

BY: D. J. PONT FOR THIS ORDER

E. I. DUPONT DE NEMOURS & CO.

8/26/85

DATE

SIGNATURE

CONNECTION SCHEDULE

MARK	SIZE	RATING	TYPE	SERVICE
N1	4"	300#	RFSO	TUBE SIDE INLET
N2	4"	300#	RFSO	TUBE SIDE OUTLET
N3	2"	300#	RFSO	SHELL SIDE INLET
N4	8"	300#	RFSO	SHELL SIDE OUTLET
N5	2"	300#	RFSO	DRAIN
N6	2"	300#	RFSO	VENT
N7	4"	300#	RFSO	RELIEF
N8	2"	300#	RFSO	VENT
N9	2"	300#	RFSO	BLOWDOWN

GENERAL NOTES

- 1) ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES.
- 2) ALL NOZZLE FLANGES TO HAVE PROTECTIVE COVERS FOR SHIPMENT.
- 3) ALL THREADED OPENINGS FURNISHED WITH PLUGS.

① = 316L 9/5 MATERIAL (ALL PER DUPONT SPEC. SW300M)

MATERIALS:	TUBE SIDE	SHELL SIDE
U-TUBES 5/8" D.D. x 16 B.W.G. (AVG.)	SA-240-①	
TUBE SHEET	SA-240-①	
SHELL	SA-240-①	SA-516-70
BODY FLANGE	SA-105 5/8" JOINT	SA-105
HEAD	SA-240-①	SA-516-70
NOZZLE NECK	SA-312-①	SA-106-B
NOZZLE FLANGE	SA-182-①	SA-105

DESIGN DATA

	SHELL SIDE	TUBE SIDE
DESIGN PRESSURE	300 P.S.I.	150 P.S.I.
DESIGN TEMPERATURE	212 °F.	212 °F.
HYDRO TEST PRESSURE	450 P.S.I.	225 P.S.I.
CORROSION ALLOWANCE	.125	0
RADIOGRAPH	PARTIAL	SPOT
STRESS RELIEVE	NONE	NONE
NO. OF PASSES	1	4

TUBE SURFACE	SQ. FT. (EXTERNAL)		
511	EMPTY	FULL H ₂ O	REM. BNDL
	4,971#	11,262#	1,657#

DESIGN & CONSTRUCTION IN ACCORDANCE WITH:

A.S.M.E. SECT. VIII, DIV. I, STAMPED

DUPONT SPEC. SG1E., G1C, G5C, SG15, SG25, SW300M

NO.	DATE	DESCRIPTION	BY	CHK.
1	8-1-85	PER CUSTOMER APPROVAL	RM	DVS
2	7-19-85		RM	DVS
3	3-21-85	CORRECTED O.A.L. TO 206"	RM	DVS

CUSTOMER: E. I. DUPONT DENEMOURS & Co. KINGWOOD, TEXAS

ONE UNIT(S) REQUIRED

TAG: H.T.S. NO. 10760

ITEM NO. 1801-7010-7

P.O. NO. LBP-124211

DIMENSIONAL OUTLINE

PLANT: BEAUMONT TEXAS

ANILINE P-3453

AMMONIA VAPORIZER

SIZE: 17/34-144 TYPE BKU

HEAT TRANSFER SYSTEMS, INC. DESIGNER & MANUFACTURER

ST. LOUIS, MO. 63115

SURFACE FINISH: (EXTERNAL CARBON STEEL)

PREP. — NOT REQ'D.

PAINT. — NOT REQ'D.

BOLTING: SA-193-B7 GASKETS: COMP. ASBESTOS

CERTIFIED

CORRECT FOR FABRICATION, BY _____ DATE _____

DR. BY RM HTS 10760

DATE 2-21-85 DWG. NO. B-10760-A

CHK. BY 9/5

FORM U-1 MANUFACTURERS' DATA REPORT FOR PRESSURE VESSELS

CERTIFIED & As Required by Provisions of the ASME Code Rules, Section VIII, Division 1 EN 1801-7010-7

- 1. Manufactured by HEAT TRANSFER SYSTEMS, INC. 5101 FARLIN AVE., ST. LOUIS, MO 63115
2. Manufactured for E. I. DuPont Denemours & Co., One Kingwood Place, Kingwood, Tx. 77339
3. Location of installation unknown
4. Type Horiz. H.E. Vessel No. 10760 B-10760-A 264 Year Built 1985
5. The chemical and physical properties of all parts meet the requirements of material specifications of the ASME BOILER AND PRESSURE VESSEL CODE. The design, construction, and workmanship conform to ASME RULES, Section VIII, Division 1 1983 and Addenda to winter 84 and Code Case no. Special service per UG-120(d)
Manufacturers' Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of the report:

- Items 6-11 incl. to be completed for single walled vessels, jackets of jacketed vessels, or shells of heat exchangers
6. Shell: Material SA516-70 Nominal Thickness 50 in. Corrosion Allowance 125 in. Diam. 2 ft 10 in. Length 11 ft 6.25 in.
7. Seams: Longitudinal dbl. butt R.T. 100 Efficiency % H.T. Temp F
8. Heads: (a) Material SA-516-70 (b) Material

Table with 6 columns: Location (Top, Bottom, Ends), Minimum Thickness, Corrosion Allowance, Crown Radius, Knuckle Radius, Elliptical Ratio. Rows (a) and (b) for end, and Conical Apex Angle, Hemispherical Radius, Flat Diameter, Side to Pressure.

- 9. Type of Jacket Proof Test
10. Jacket Closure If bar, give dimensions If bolted, describe or sketch.
11. Constructed for max. allowable working pressure 300 psi at max. temp. 212 F Min. temp. (when less than -20 F) F. Hydrostatic, pneumatic, or combination test pressure 450 psi

- Items 12 and 13 to be completed for tube sections
12. Tubesheets: Stationary—Material SA240-316L Diam. 22.625 in. Nominal Thickness 2.0 in. Corrosion Allowance 0 in. Attachment bolted Floating—Material
13. Tubes: Material SA240-316L O.D. 625 in. Nominal Thickness 16 No. or gauge Number 130 Type U

- Items 14-17 incl. to be completed for inner chambers of jacketed vessels or channels of heat exchangers.
14. Shell: Material SA240-316L Nominal Thickness 25 in. Corrosion Allowance 0 in. Diam. 1 ft 6 in. Length 1 ft 37.5 in.
15. Seams: Longitudinal dbl. butt R.T. spot 85 % H.T. Temp F Time
16. Heads: (a) Material SA-240-316L (b) Material

Table with 6 columns: Location (Top, Bottom, Ends), Minimum Thickness, Corrosion Allowance, Crown Radius, Knuckle Radius, Elliptical Ratio. Rows (a) and (b) for end, and Conical Apex Angle, Hemispherical Radius, Flat Diameter, Side to Pressure.

If removable, bolts used (describe other fastenings) SA-193-B7 .625 Dia 24 (Material, Spec. No., Gr., Size, No.)

Form U-2 (Back)

15. Heads: (a) SA-240-316LP - (b) ---

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.
	End	1/4"	0	-	-	2:1	-	-	-	-	X	1	Spot
(b)	-	-	-	-	-	-	-	-	-	-	-	-	-

If removable, bolts used (describe other fastening) -

16. MAWP 190 (internal) - (external) psi at max. temp. 370 (internal) - (external) ° F Min. design metal temp. 10 ° F at 190 psi.

17. Impact test NO PER UHA 51 (Indicate yes or no and the component(s) impact tested)

18. Hydro., ~~burst~~, or ~~comb.~~ test press 285 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.		Nozzle	Flange	
Inlet/Outlet	2	4"300#	RFSO	SA-312 Ty TP316 WLD	SA-182 Ty F316L	.237	0	None	welded	welded	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
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-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-

20. Supports: Skirt - (Yes or No) Lugs - (No.) Legs - (No.) Others - (Describe) Attached - (Where and How)

21. Remarks: ITEM# FAA-1801-7010-07
OVERALL LENGTH OF BUNDLE 12'-7 7/16"

CERTIFICATE OF SHOP / FIELD COMPLIANCE

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

U Certificate of Authorization No. 29,649 Expires JUNE 9 2000

Date 3-3-00 Name OHMSTEDE, INC., BEAUMONT TEXAS PLANT Signed Kenneth Ward
(Manufacturer) (Representative)

CERTIFICATE OF SHOP / FIELD INSPECTION

I, the undersigned, holding a valid commission issued by The National Board of Boiler and Pressure Vessel Inspectors and the State or Province of TEXAS and employed by H.S.B.I. & I. CO. of HARTFORD CT. have inspected the pressure vessel part described in this Manufacturer's Data Report on 3-3-2000, and state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel part 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 part 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.

3-3-2000 Signed [Signature] Commissions N.B.A 8510
(Authorized Inspector) (Nat'l Board incl. endorsement, State, Province and No.)

NATL. ED. NO. 88



PART

RT3

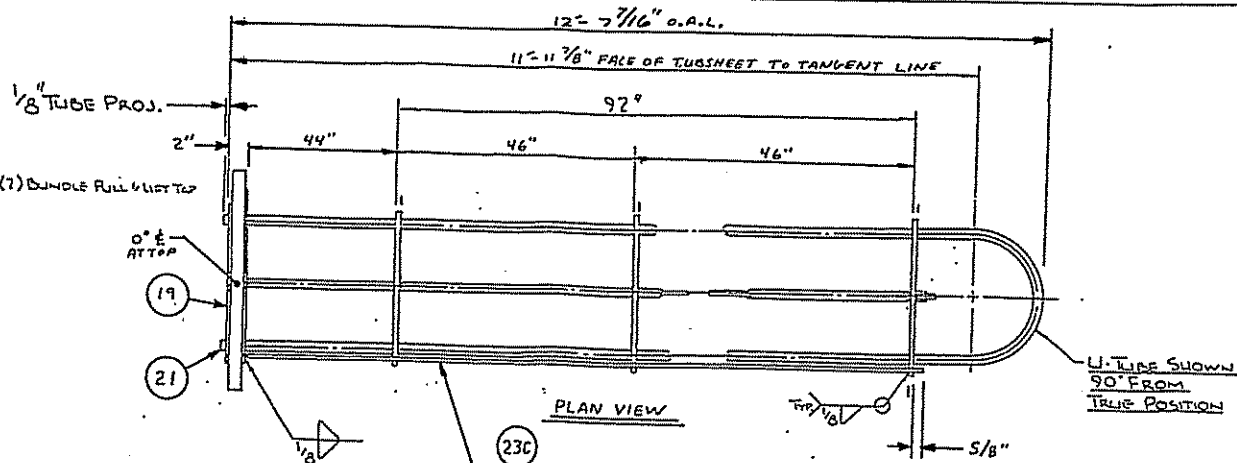
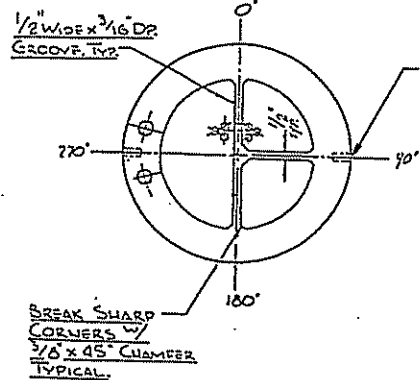
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076421
2000

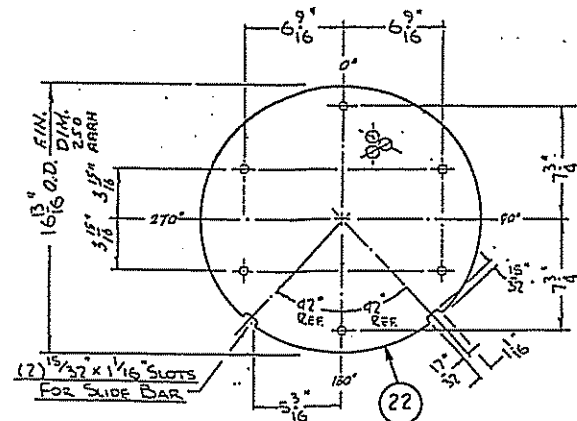
LEP174744

CHANNEL AND BUNDLE ONLY

FAA1801701007 17/34-144



(2) 1/2" THK. x 1" SLIDE BAR (WELD TO BACK OF TUBESHEET #19 AND TO EACH BAFFLE AS SHOWN).



3 - REQ'D THK. 3/16"
TUBE SUPPORT DETAIL
 (SEE DWG. SHT. NO. 4 FOR DRILLING)

BUNDLE WEIGHT = 1,700 LBS.

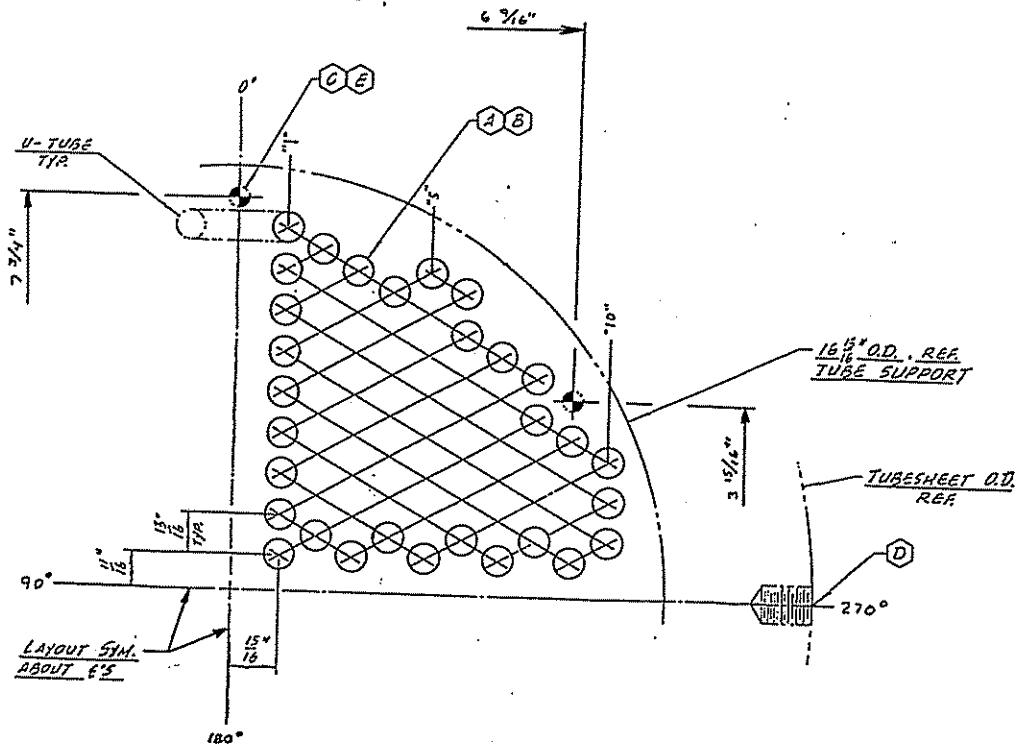
"A"	
1"	3"
(23)	
3/8" O.D. TIE ROOS	
REQ'D.	"A"
6	11'-6 1/8"

"B"	
(23A)	
3/4" O.D. SPACER TUBING	
REQ'D.	"B"
6	44"
12	45 5/8"

NO.	REVISIONS	BY	CHK.	DATE	CHK.
0	RELEASE FOR FABRICATION	MS	JEO	2-02-00	

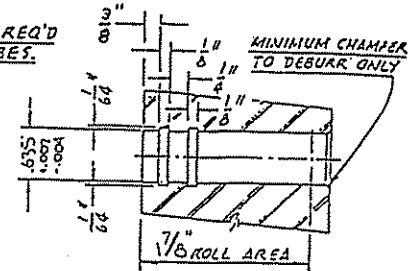
CUSTOMER: DUPONT
 OHMSTEDE JOB NO. 076421
 P.O. NO.: LBP174744
 ITEM NO.: FAA-1801-7010-07

BUNDLE AND BAFFLE DETAILS			
OHMSTEDE	DRAWING NO. 076421	SHEET NO. 6	REV. 0



LAYOUT VIEW FROM SHELLSIDE
OF #19 TUBESHEET

NOTE:
SMOOTH TRANSITION REQ'D
WHEN ROLLING TUBES.

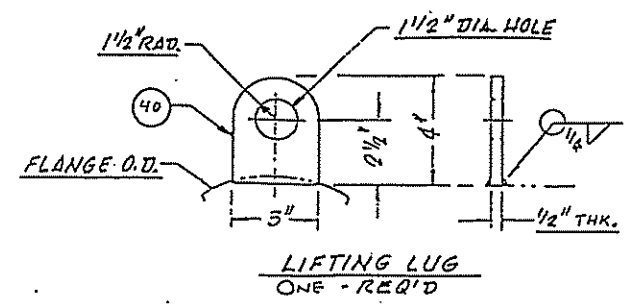
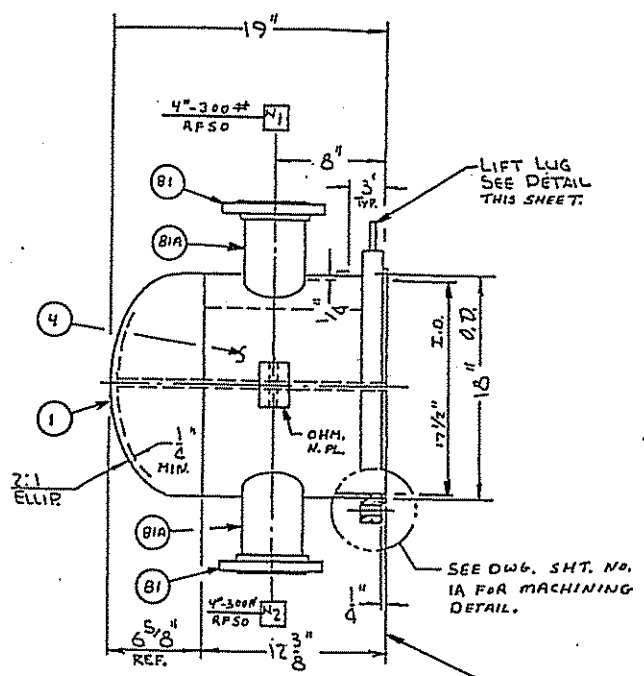
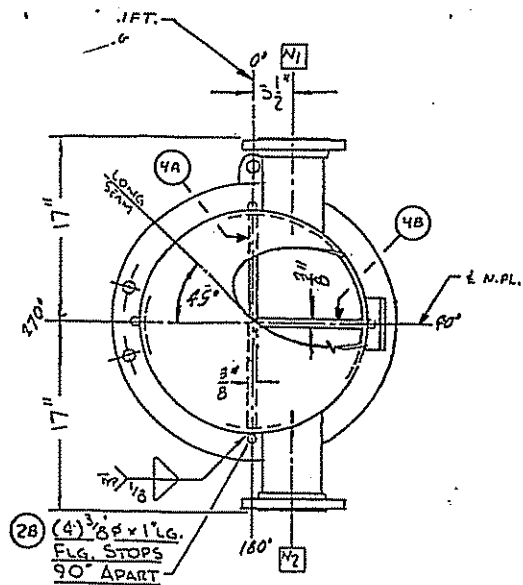


TUBESHEET TUBE HOLE DETAIL

DRILLING
NOTES:

- (A) 260-635 DIA. HOLES ON $1\frac{3}{16}$ " TRI-PITCH.
- (B) 260-2 $\frac{1}{32}$ " DIA. HOLES IN TUBE SUPPORT
- (C) 6- $\frac{7}{16}$ " DIA. HOLES FOR $\frac{3}{8}$ " DIA. TIE-RODS IN TUBE SUPPORT
- (D) TAP 2 HOLES $\frac{3}{4}$ " x 10NC x 1 DR. 180° APART FOR PULLING SLIDS, ON TUBESHEET O.D. @ 90° & 270° REF. (PLUG W/HEAVY GREASE).
- (E) 6- $\frac{3}{8}$ "-16NC x $\frac{1}{2}$ " DR. HOLES IN SHELL SIDE OF TUBESHEET #19 ONLY.

				CUSTOMER: DUPONT		
				OHMSTEDE JOB NO. 076421		
				P.D. NO.: LBP174744		
				ITEM NO.: FAA-1801-7010-07		
				TUBE LAYOUT		
0	RELEASE FOR FABRICATION	MS	JED	2-02-00		
NO.	REVISIONS	BY	CHK.	DATE CHK.	OHMSTEDE	DRAWING NO. 076421
					SHEET NO. 4	REV. 0



NOTE: MACHINE GASKET FACING AFTER ALL WELDING.

FRONT CHANNEL WEIGHT = 325 LBS.

NOTES:

- 1) ALL BOLT HOLES TO STRADDLE CENTER LINES.
- 2) FOR WELD & BEVEL DETAILS SEE DWG. SHEET NO. 9.
- 3) SPOT RADIOGRAPHY.
- 4) INSULATION BY OTHERS.
- 5) HYDROTEST CHANNEL AND BUNDLE TOGETHER AT 285 PSIG.

				CUSTOMER: DUPONT		
				OHMSTEDE JOB NO. 076421		
				P.O. NO.: LBP174744		
				ITEM NO.: FAA-1801-7010-07		
FRONT CHANNEL DETAILS						
0	RELEASE FOR FABRICATION	MS	JEO	2-02-00		
NO.	REVISIONS	BY	CHK.	DATE CHK.	OHMSTEDE	DRAWING NO. 076421
					SHEET NO. 1	REV. 0