

FORM U-1 MANUFACTURERS' DATA REPORT FOR PRESSURE VESSELS
As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

1801-70-11-18

1. Manufactured by NOOTER CORPORATION		ST. LOUIS, MISSOURI							
2. Manufactured for DU PONT		KINGWOOD, TEXAS							
3. Location of installation DU PONT		DOWLING, TEXAS							
4. Type HORIZ. EXCH.	Vessel No. W1669	JND66345	10942						
(Horiz. or vert. tank)	(Mfr's Serial No.)	(CRN)	(Nat'l Bld No.)						
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, 1980 and Addenda to S81 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: _____									
(Name of part, item number, mfr's name and identifying item) _____									
Items 6-11 incl. to be completed for single wall vessels, jackets of jacketed vessels, or shells of heat exchangers.									
6. Shell: Material SA240-316L Nom. Thickness 3/8 In. Corrosion Allowance .115 In. Diam. 3 ft. 1 1/4 In. Length 19 ft. 11 3/4 In.									
(Spec. No., Gr.) (Overall)									
7. Seams: Longitudinal DBL R.T. SPOT Efficiency 85 % H.T. Temp. _____ F Time _____ Girth DBL R.T. SPOT No. of Courses 4									
(Obl., Sngl.) (Spot or Full) (Obl., Sngl.) (Spot, Partial or Full)									
8. Heads: (a) Material _____ (b) Material _____									
(Spec. No., Gr.) (Spec. No., Gr.)									
Location (Top, Bottom, Ends)	Minimum Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a)									
(b)									
If removable, bolts used (describe other fastenings) _____									
(Material, Spec. No., Gr., Size, No.)									
9. Type of Jacket _____ Proof Test _____									
10. Jacket Closure _____ If bar, give dimensions _____ If bolted, describe or sketch _____									
(Describe as open & weld, bar, etc.) (Material, Spec. No., Gr., Size, No.)									
11. Constructed for max. allowable working pressure EXT. 15 psi at max. temp. 600 F Min. temp. (when less than 20 F) _____									
Hydrostatic, pneumatic, or combination test pressure 218 psi									
Items 12 and 13 to be completed for tube sections									
12. Tubesheets: Stationary Material SA182-F430 Diam. 44 In. Nominal Thick. 2 1/2 In. Corrosion Allow. .115 In. Attachment WELDED									
(Spec. No., Gr.) (Subject to pressure) (Welded, Bolted)									
Floating Material _____ Diam. _____ In. Nominal Thick. _____ In. Corrosion Allow. _____ In. Attachment _____									
(Spec. No., Gr.)									
13. Tubes: Material SB338-2 O.D. 1 1/2 In. Nominal Thickness #18 In. of gauge Number 566 Type STRAIGHT									
(Spec. No., Gr.) (straight or U)									
Items 14-17 incl. to be completed for inner chambers of jacketed vessels or channels of heat exchangers									
14. Shell: Material _____ Nominal Thickness _____ In. Corrosion Allowance _____ In. Diam. _____ ft. _____ In. Length _____ ft. _____ In.									
(Spec. No., Gr.)									
15. Seams: Longitudinal _____ R.T. _____ Efficiency _____ % H.T. Temp. _____ F Time _____ Girth _____ R.T. _____ No. of courses _____									
(Obl., Sngl.) (Spot or Full) (Obl., Sngl.) (Spot, Partial or Full)									
16. Heads: (a) Material _____ (b) Material _____									
(Spec. No., Gr.) (Spec. No., Gr.)									
Location (Top, Bottom, Ends)	Minimum Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a)									
(b)									
If removable, bolts used (describe other fastenings) _____									
(Material, Spec. No., Gr., Size, No.)									
17. Max. allowable working pressure EXT. 15 psi at max. temp. 600 F Min. temp. (when less than 20 F) _____									
Hydro. pneu. or comb. test pressure 241 psi									
Items below to be completed for all vessels where applicable									
18. Safety Valve Outlets: Number _____ Size _____ Location _____									

This form may be obtained from the National Board of Boiler and Pressure Vessel Inspectors, 1055 Crupper Ave., Col's, O. 43226

19. Nozzles:

Purpose (Inlet, Outlet, Drain)	Number	diam. or size	Type	Material	Nominal Thickness	Reinforcement Material	How Attached
IN-OUT	4	12"	CPLG	SA 105	1/4"	SA240-316	WELDED
SA 105	4	2"	CPLG	SA 182-316L	XH	SA 240-316	WELDED
SA 105	4	3/4"	CPLG	SA 182-316L	3000#	SA 240-316	WELDED
SA 105	4	1/2"	CPLG	SA 182-316L	3000#	SA 240-316	WELDED
SA 105	4	1/2"	CPLG	SA 182-316L	3000#	SA 240-316	WELDED
SA 105	4	1/2"	CPLG	SA 182-316L	3000#	SA 240-316	WELDED
SA 105	4	1/2"	CPLG	SA 182-316L	3000#	SA 240-316	WELDED
SA 105	4	1/2"	CPLG	SA 182-316L	3000#	SA 240-316	WELDED
SA 105	4	1/2"	CPLG	SA 182-316L	3000#	SA 240-316	WELDED
SA 105	4	1/2"	CPLG	SA 182-316L	3000#	SA 240-316	WELDED

20. Inspection Openings:

Manholes No. _____ Size _____ Location _____

Handholes No. _____ Size _____ Location _____

Threaded No. _____ Size _____ Location _____

21. Supports: Skirt NO Lugs NO Lugs NO Other SADDLES Attached WELDED

(Yes or no) (No.) (No.) (No.) (Describe) (Where and how)

22. Remarks: DU PONT ORDER NO. BP98690-F

EN NO. 1801-7011-27

CERTIFICATE OF 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.

Date JAN 19 1993 Signed NOOTER CORPORATION by E. Brown

"U" Certificate of Authorization No. 2297 expires MAY 17 1983

CERTIFICATE OF SHOP INSPECTION

Vessel made by NOOTER CORPORATION at ST. LOUIS, MISSOURI

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and the State or Province of _____ and employed by COMMERCIAL UNION INS. CO.

of BOSTON, MA have inspected the pressure vessel described in this Manufacturers' Data Report on 1/13/83 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 employee makes any warranty, expressed or implied, concerning the pressure vessel described in the Manufacturers' Data Report. Furthermore, neither the Inspector nor his employee 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 1/19/83

Signed E. A. Brown Commissions N.B. 3259

(Inspector) (Not Noted, State, Province and No.)

CERTIFICATE OF COMPLIANCE FOR FIELD WORK

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.

Date _____ Signed _____

(Manufacturer) (Representative)

"U" Certificate of Authorization No. _____ expires _____, 19 _____

CERTIFICATE OF FIELD ASSEMBLY 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 _____ and employed by _____

of _____ have compared the statements in this Manufacturers' 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 that, 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.

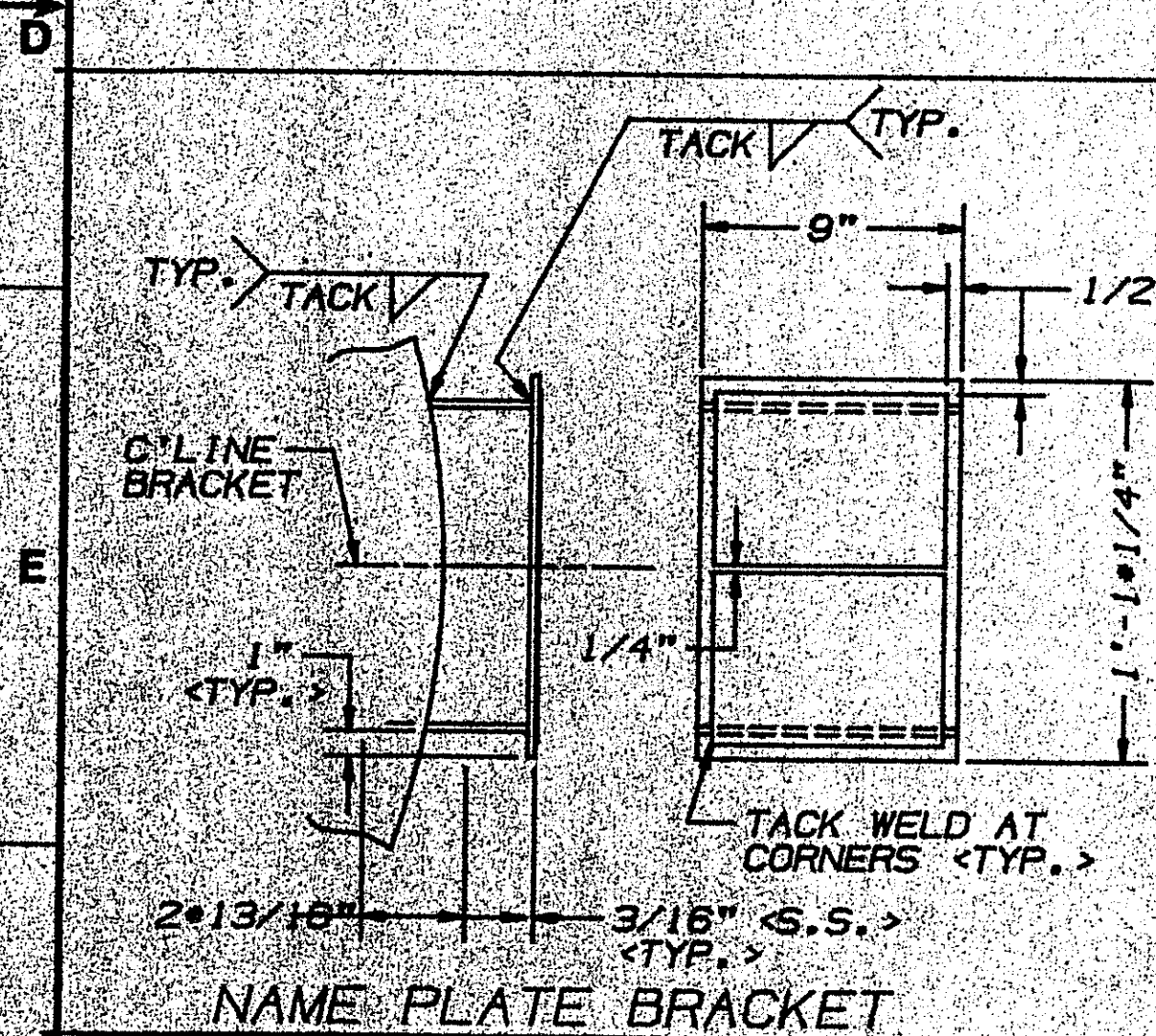
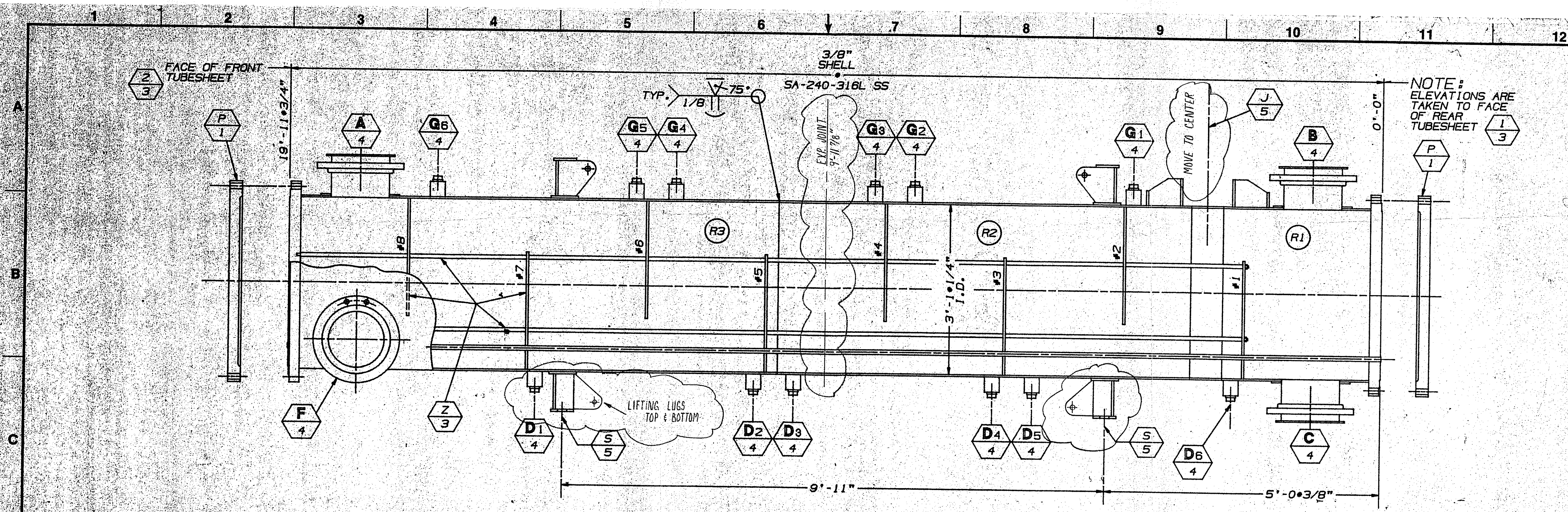
The described vessel was inspected and subjected to a hydrostatic test of _____ psi.

By signing this certificate neither the Inspector nor his employee makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturers' Data Report. Furthermore, neither the Inspector nor his employee 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 _____

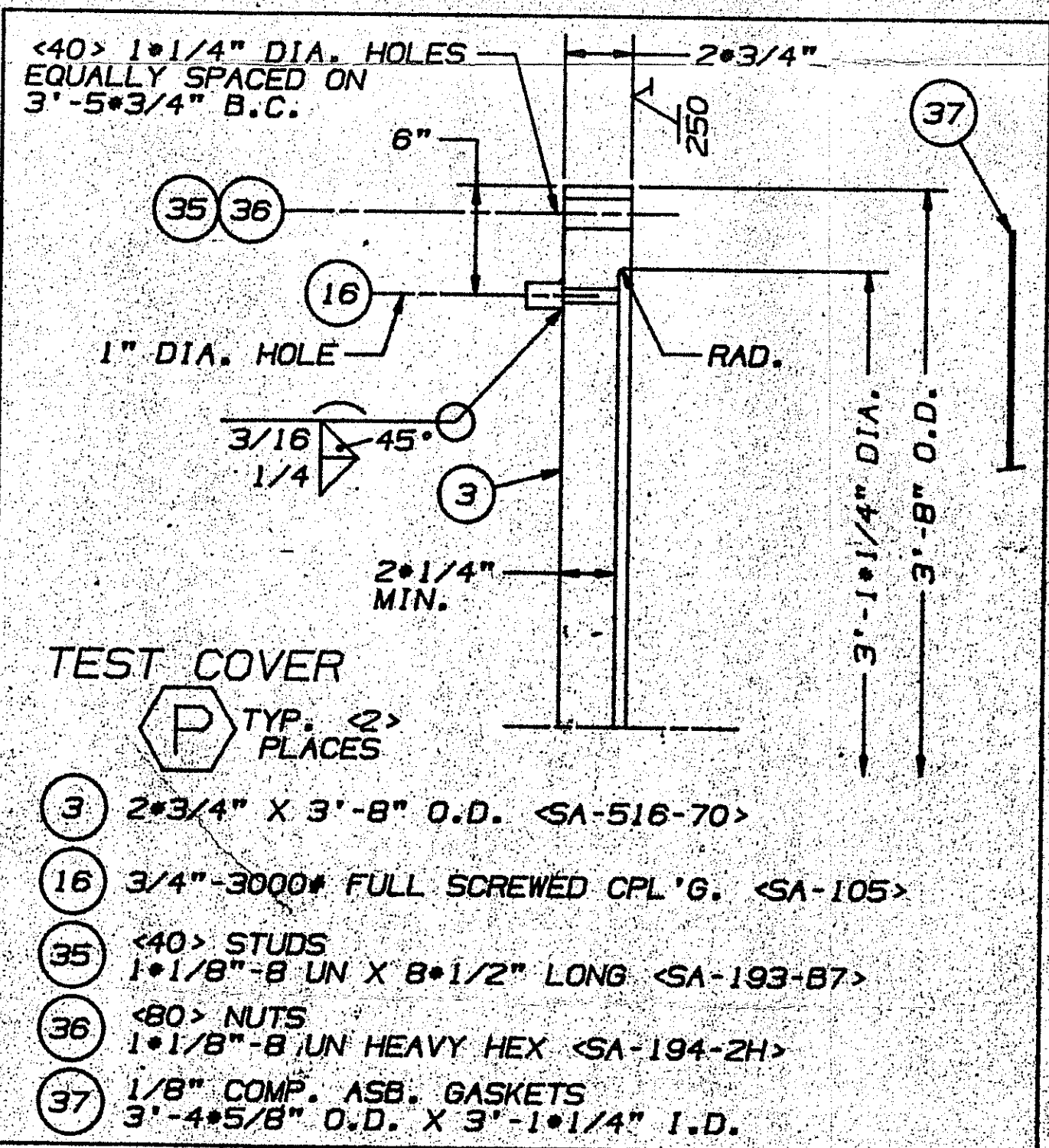
Signed _____ Commissions _____

(Authorized Inspector) (Not Noted, State, Province and No.)



STAMP THE FOLLOWING INFORMATION ON THE CODE NAMEPLATE:
 DUPONT EN. NO. 1801-7011-27
 DUPONT ORDER NO. 4 BP98690-F
 INSPECTOR'S INITIALS:
 WEIGHT EMPTY 11,500 LBS.
 FURN. FIXED TUBESHEET SUPPLEMENTAL NAMEPLATE & ATTACH TO BRACKET.

NATIONAL BOARD NO. 10942			
NOOTER CORPORATION ST. LOUIS, MISSOURI			
MAXIMUM ALLOWABLE WORKING PRESSURE RT-3 PHT	SHELL SIDE	INT. 125	EXT. 115
		600	600
TUBE SIDE	INT. 125	EXT. 115	
	600	600	
SERIAL NUMBER 11-1889 MAR 1982			



TEST COVER

- 3 2 3/4" X 3'-8" O.D. <SA-516-70>
- 16 3/4"-3000# FULL SCREWED CPL'G. <SA-105>
- 35 <40> STUDS 1 1/8"-8 UN X 8 1/2" LONG <SA-193-B7>
- 36 <80> NUTS 1 1/8"-8 UN HEAVY HEX <SA-194-2H>
- 37 1/8" COMP. ASB. GASKETS 3'-4 5/8" O.D. X 3'-1 1/4" I.D.

SA-182-F-430
 ANNEALED AT 1400° F.
 WATER QUENCHED

AIR TEST
 SEE NOTE #3

GENERAL NOTES

- ALL BOLT HOLES TO STRADDLE NATURAL CENTERLINES.
- BASIC MATERIAL OF CONSTRUCTION: SA-240-316L SS.
- AFTER HYDRO TEST HAS BEEN COMPLETED FILL SHELL SIDE WITH WATER & AIR TEST TUBE SIDE AT 75 PSIG & INSPECT FOR AIR BUBBLES AT OPEN SHELL SIDE NOZZLE.
- POST WELD HEAT TREAT TUBESHEETS
 HEAT TO 1375°F ±25°F, HOLD 8 1/2 HOURS, FURNACE COOL TO 1100°F RAPID COOL TO 800°F.
- PAINT C.S. SUPPORTS PER DUPONT SPEC. #83D
 PRIMER COAT-BANICIN INORGANIC ZINC #347-Y-931, FINISH COAT-HI-HEAT ALUMINUM #812-706.

DESIGN	SHELL SIDE	TUBE SIDE
CODE	1980 ASME SECT VIII-DIV. 1	
LATEST ADDENDA	SUMMER '81 ADDENDA & TEMA "B"	
MAX DESIGN PRESS	125 PSIG & F.V.	125 PSIG & F.V.
MAX DESIGN TEMP	800° F.	800° F.
JOINT EFF. HEADS		
JOINT EFF. SHELL	85%	
CORR. ALLOWANCE	.115"	NONE
HYDRO TEST	218 PSIG	241 PSIG-PER CUST.
LIMITED BY	DESIGN	DESIGN
HEAT TREATMENT	SEE NOTE #4	NONE
RADIOGRAPHY		
SHELL LONG SEAMS	SPOT PER CODE	
HEAD SEAMS		
HEAD/SHELL SEAMS		
OTHER SHELL		
CLIM. SEAMS	SPOT PER CODE	

ORIENTATION
 TUBESHEET AND BAFFLE DETS. JN-D 6
 NOZZLE DETAILS JN-D 6
 VESSEL SUPTS. & EXP. JOINT JN-D 6

REVISION	DATE	12/18/81	DRAWN	JIMI	JOB NO.	W-16
	CHKD	J. Evan	CHKD	Howell	DRG. NO.	JN-D 663
	APPR.	W.A.S.	APPR.	Fleisher	APPR.	Litsch
	SHEET 1 OF					
	11					

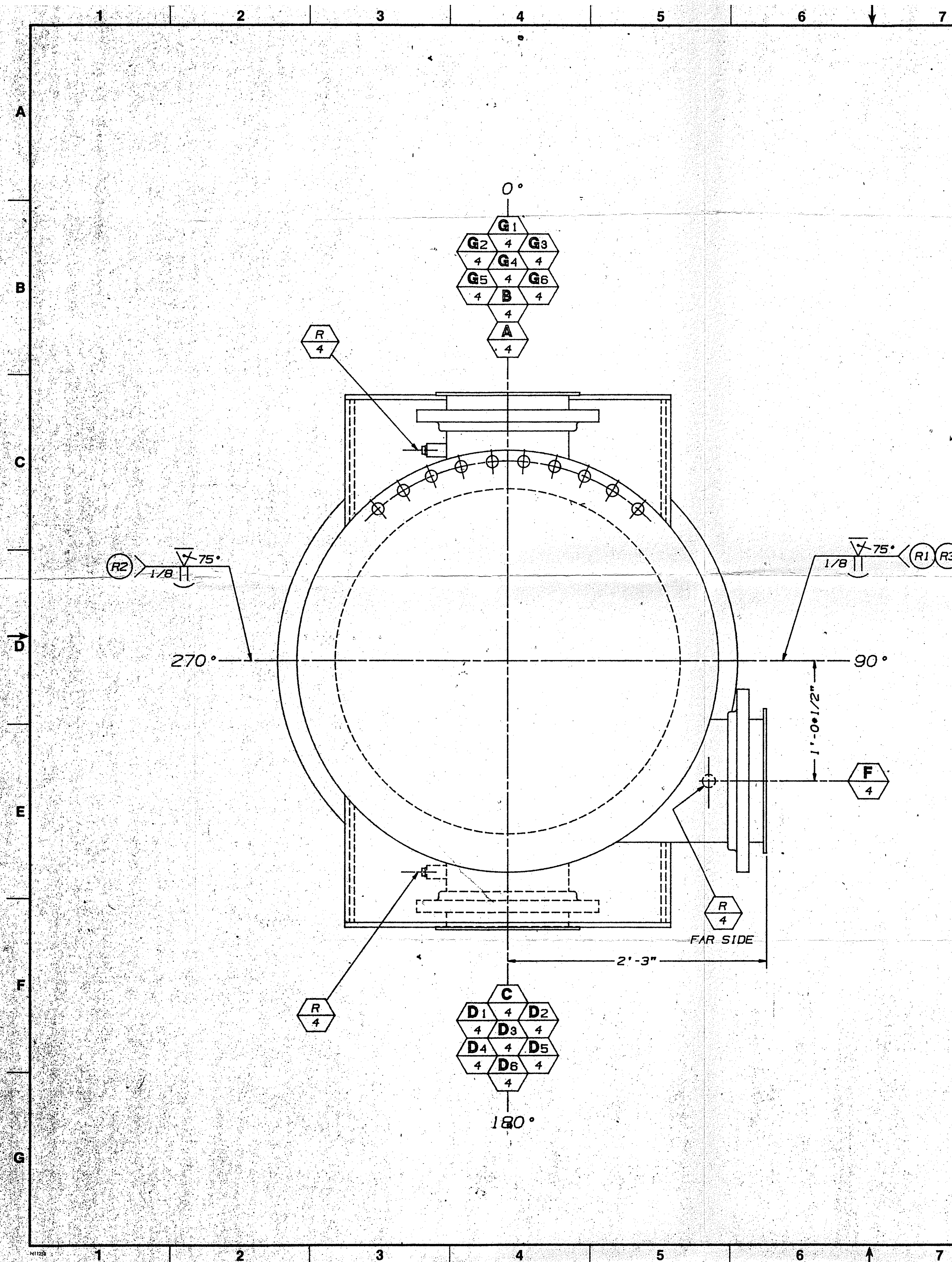
NOOTER CORPORATION
 P.O. BOX 451
 ST. LOUIS, MISSOURI 63118
 MAR 18 1982

MAIN ASSEMBLY
 COOLER CONDENSER
 ITEM NO. 1801-7011-27 FOR
 E.I. DUPONT
 KINGWOOD, TEX.

MAR 17 1982
DPF 265381
 SHEET # 1
 PLANT: BEAUMONT
 PROJECT NO: 443212
 P.O. NO: BP-98690-F
 ENGR. NO: 1801-7011-27
 WEIGHT: 11,500

FABRICATION BELIEVED
 FOR BEAUMONT CONFORM
 TO DIMENSIONS & MATERIAL
 SPECIFIED

☐ APPROVED
☒ APPROVED AS NOTED
☐ NOT APPROVED
 BY DU PONT FOR THIS
 E.I. DU PONT
 DE NEWMARK & CO.
 W.A. Fowler 3-1
 SIGNATURE



NOZZLE DATA					
NOZ.	SIZE/ TYPE	LOCATION			
A	12" NOZZLE	SHELL	18'-8 1/4"	0°	----
B	12" NOZZLE	SHELL	1'-3 1/4"	0°	----
C	12" NOZZLE	SHELL	1'-3 1/4"	180°	----
D 1	2" CPLG.	SHELL	15'-5 7/16"	180°	----
D 2	2" CPLG.	SHELL	11'-5 1/2"	180°	----
D 3	2" CPLG.	SHELL	10'-8 3/4"	180°	----
D 4	2" CPLG.	SHELL	7'-1 1/8"	180°	----
D 5	2" CPLG.	SHELL	6'-4 3/8"	180°	----
D 6	2" CPLG.	SHELL	2'-8 3/4"	180°	----
F	12" NOZZLE	SHELL	18'-8 3/4"	SEE ORIENT.	----
G 1	2" CPLG.	SHELL	4'-6 9/16"	0°	----
G 2	2" CPLG.	SHELL	8'-6 1/2"	0°	----
G 3	2" CPLG.	SHELL	9'-3 1/4"	0°	----
G 4	2" CPLG.	SHELL	12'-10 7/8"	0°	----
G 5	2" CPLG.	SHELL	13'-7 5/8"	0°	----
G 6	2" CPLG.	SHELL	17'-3 1/4"	0°	----

MAR 17 1982

BPF 265381

SHEET # 2

BEAUMONT

443212

BP 98670-F

1801-7011-27

11,500

FAST-TRACK RELEASE
FOR GENERAL CONFIDENTIALITY
TO UNCLASSIFIED & MATERIALS
SPECIFIED

APPROVED

NOTED

NOT APPROVED

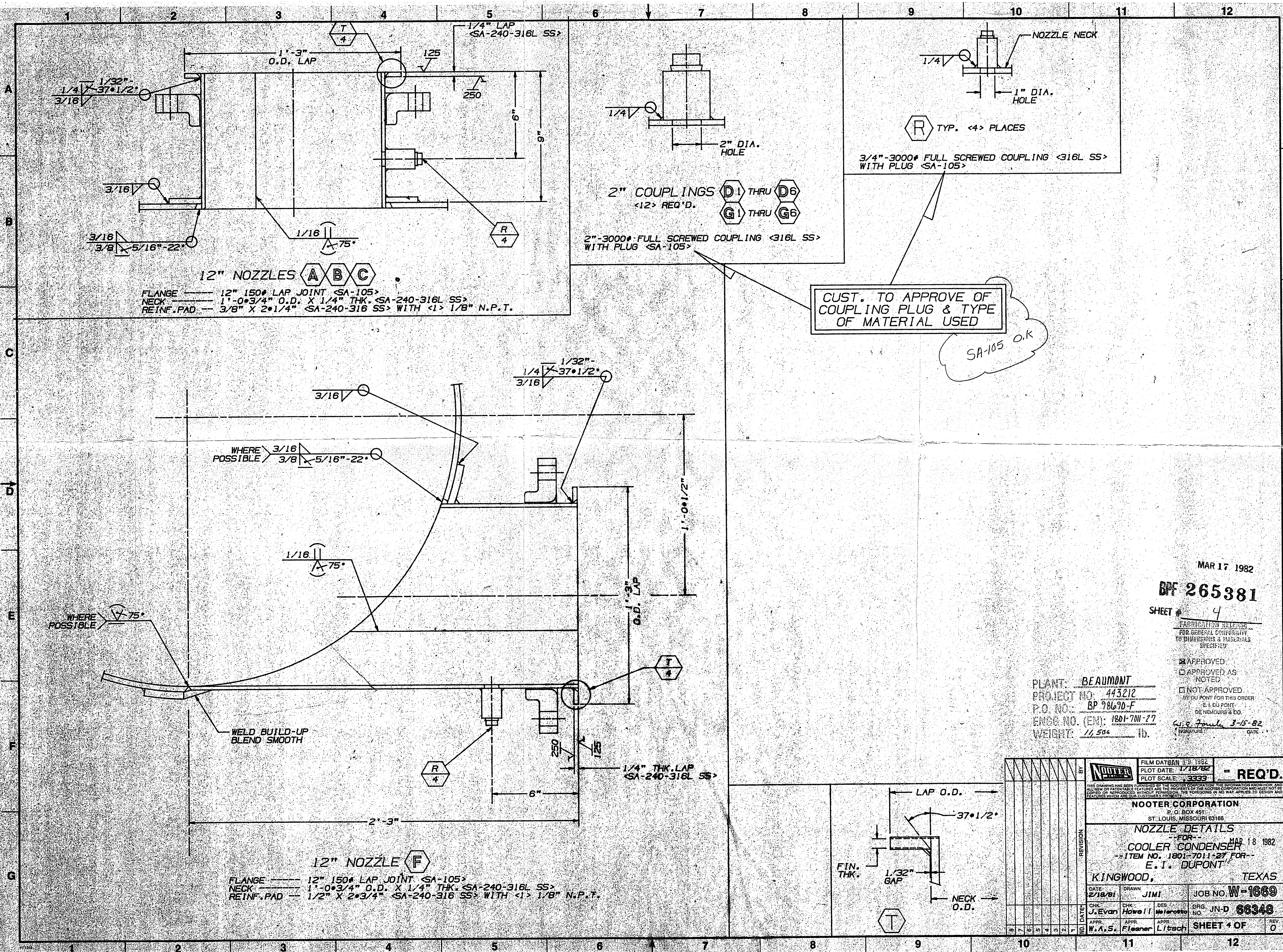
BY DU PONT FOR THIS ORDER

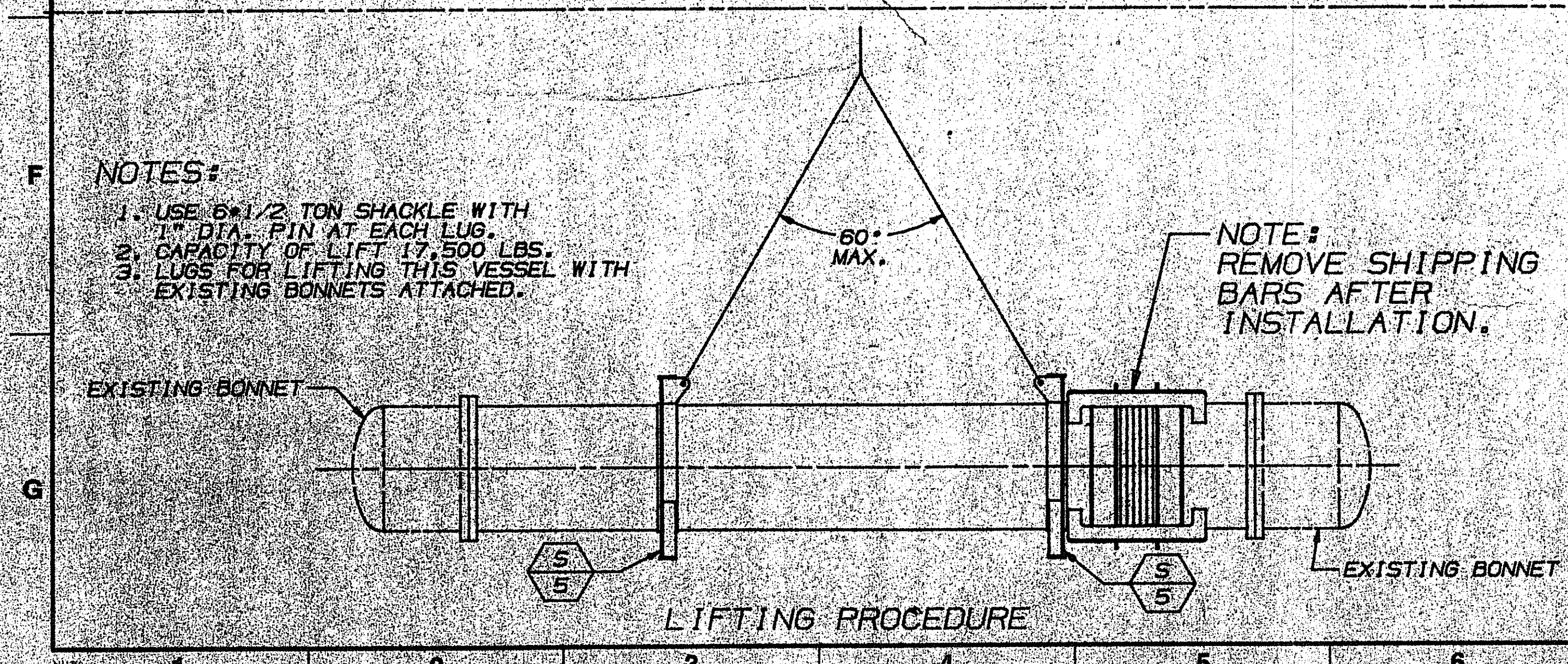
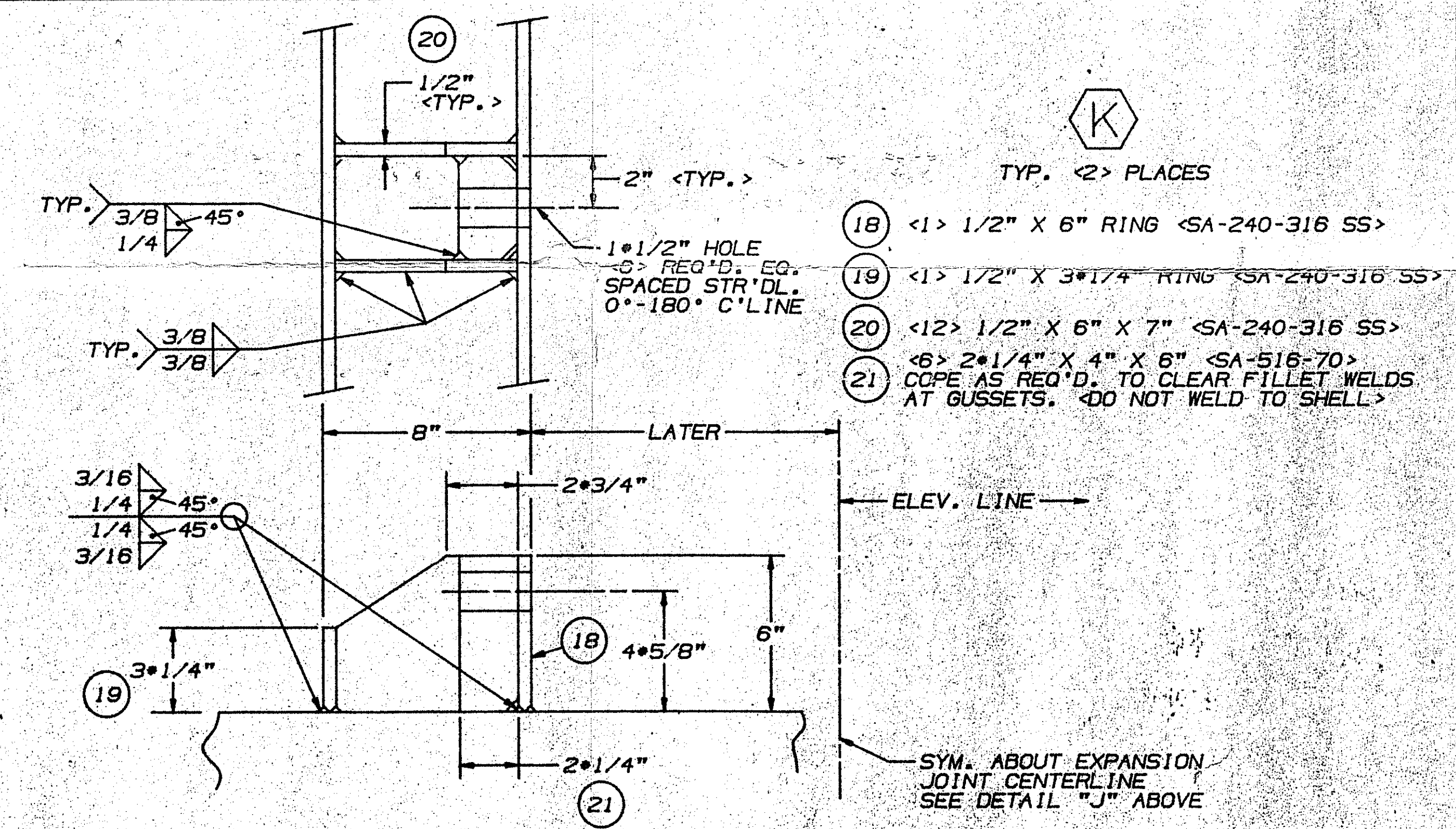
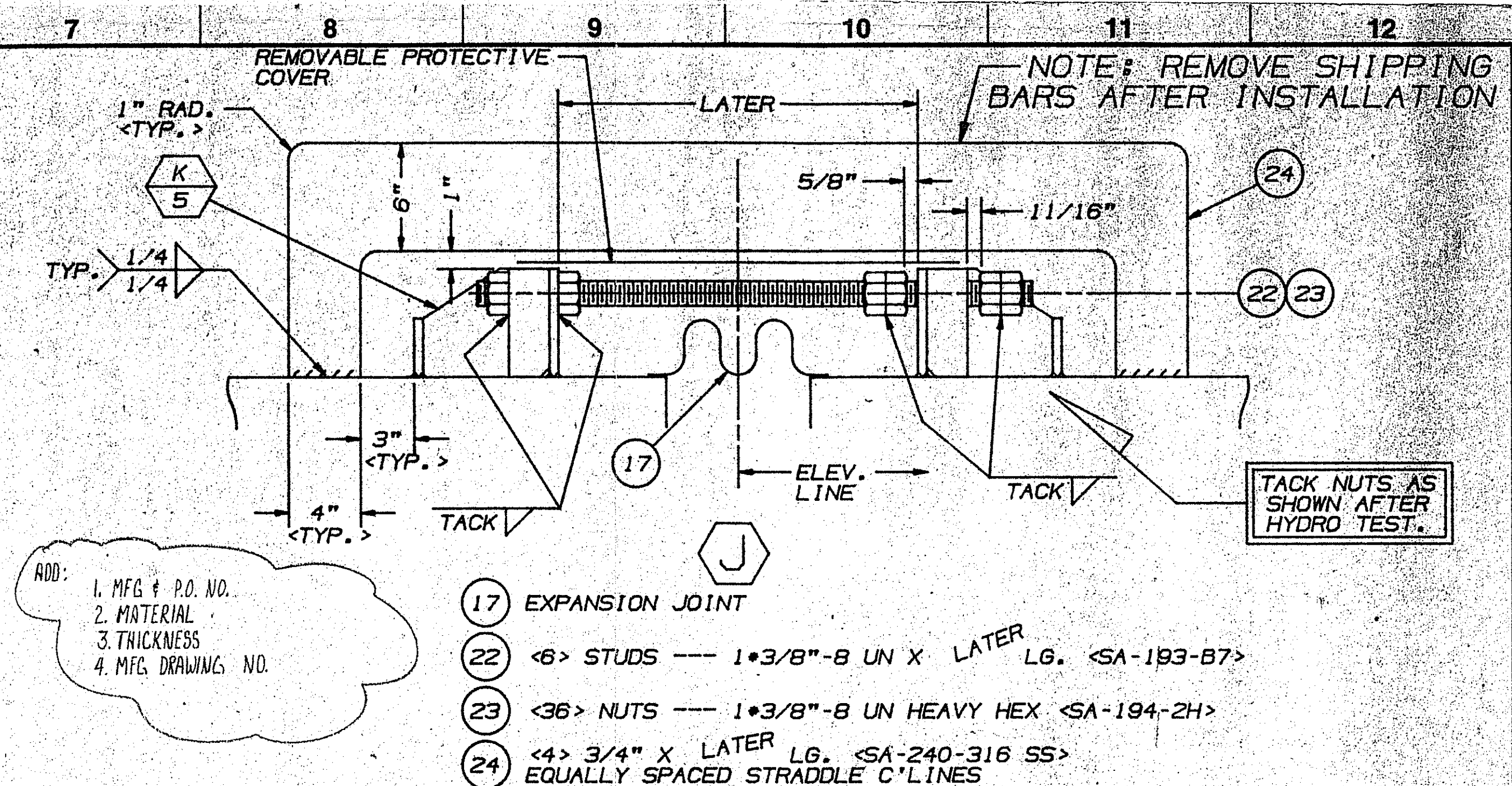
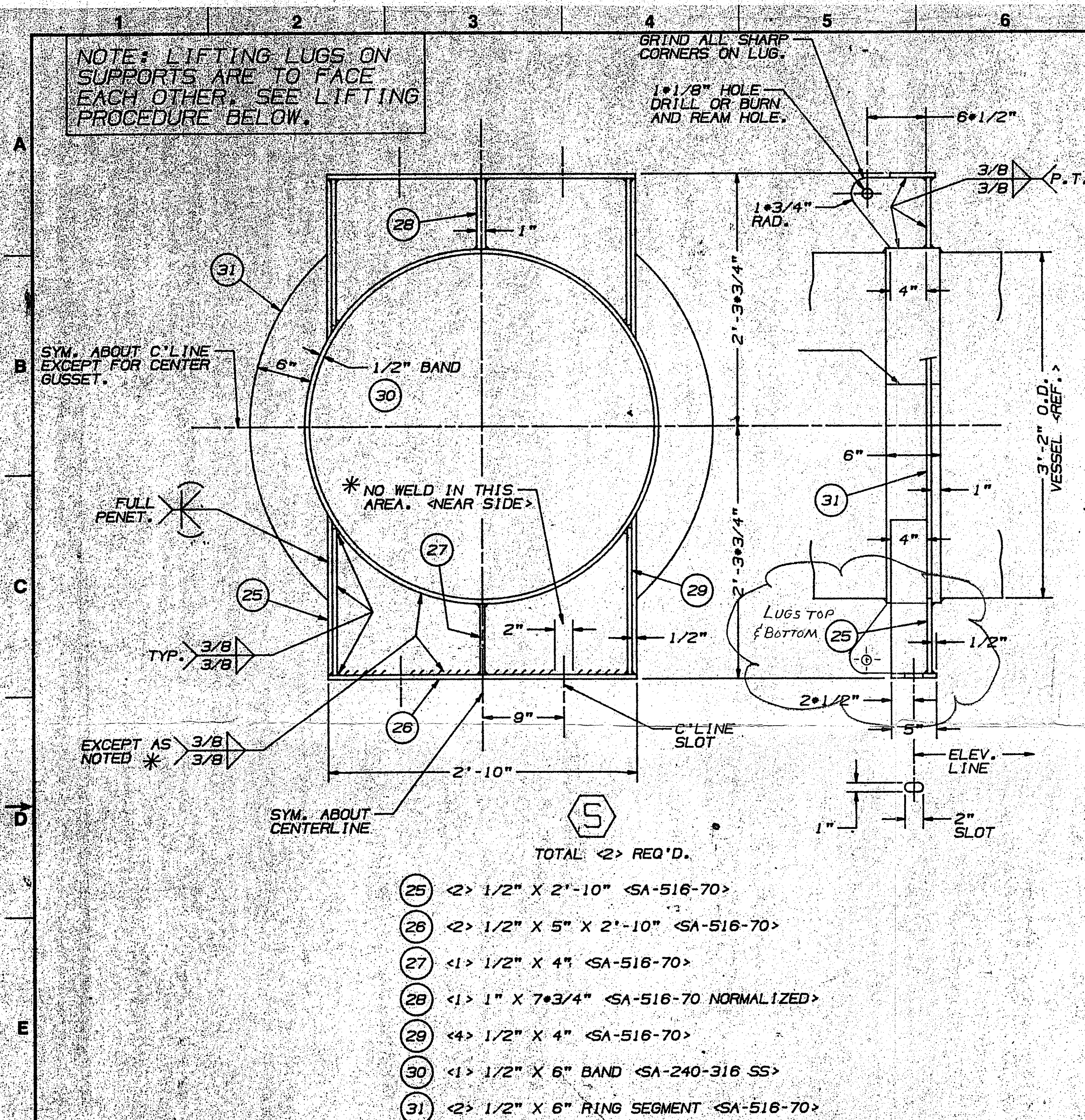
SEE NEWGARD & CO.

W. A. Fowler 3-15-82

SIGNATURE

BY		FILM DATE: JAN 19 1982		PLOT DATE: 1/18/82		PLOT SCALE: 1/667		REQ'D.	
Nooter Corporation P. O. BOX 451 ST. LOUIS, MISSOURI 63166									
ORIENTATION --FOR--									
18 1982 COOLER CONDENSER --ITEM NO. 1801-7011-27--FOR-- E. I. DUPONT									
KINGWOOD, TEXAS									
DATE		DRAWN		JOB NO.		W-1669			
12/17/81		JIMI							
CHK		CHK		DES		DRG. NO.			
J. Evan		Howell		Meierotto		JN-D 66346			
APPR		APPR		APPR		SHEET 2 OF			
W. A. S. Flesner		L. Isach				REV 0			





FABRICATION RELEASE
FOR GENERAL CONFORMITY
TO DIMENSIONS & MATERIALS
SPECIFIED

☐ APPROVED

☒ APPROVED AS
NOTED

☐ NOT APPROVED

BY DU PONT FOR THIS ORDER

E. I. DU PONT

— DE NEMOURS & CO.

W. G. Fowler 3-15-6

SIGNATURE DATE

MAR 17 1982

BPF 265381

SHEET # 5

PLANT: BEAUMONT
PROJECT NO: 443212
P.O. NO.: BP 98690-F
ENG. NO. (EX): 1801-7011-27
WEIGHT: 11,500 lbs.

BY		FILE DATE JAN. 10, 1982		= REQ'D
		PLOT DATE: 1/18/82		
		PLOT SCALE: 1/250		
	THIS DRAWING IS MADE TO THE NOOTER COMPANY'S STANDARD REQUIREMENTS FOR PRODUCTION OF ALL NEW OR POTENTIALLY REPRODUCIBLE PLOTS AND THE NOOTER COMPANY MUST NOT BE HELD RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY OCCUR IN ANY WAY APPLIES TO DESIGN AND FEATURES WHICH ARE OUR CUSTOMERS PROPERTY.			
	NOOTER CORPORATION			
	P. O. BOX 451 ST. LOUIS, MISSOURI 63166			
REVISION	VESSEL SUPTS. & EXP. JOINT			
	-FOR-			
	COOLER CONDENSER			
	-- ITEM NO. 1801-7011-27 FOR --			
	E. I. DUPONT			
	MAR. 18, 1982 TEXAS			
DATE	DATE	DRAWN	JOB NO. W-1669	
	2/21/81	JIMI		
	CHK: J.Evan	CHK: Howell	DES: M.Larocco	DRG. NO. JN-D 66349
	APPR: W.A.S.G. Flesher	APPR: Litchon		
	SHEET 5 OF			REV 0

FORM R-2 REPORT OF ALTERATION
in accordance with provisions of the National Board Inspection Code

1a. Construction performed by: <u>Southern Heat Exchanger Services Inc.</u> (name of "R" organization responsible for construction)	42 (form "R" No.)
<u>12210-A U.S. 90 East Houston, Texas 77049</u> (address)	05-9016 (PO No., Job No., etc.)
1b. Design performed by: <u>Southern Heat Exchanger Corp.</u> (name of "R" organization responsible for design)	(form "R" No.)
<u>P.O. Box 1850 Tuscaloosa, AL</u> (address)	SB-6200 (PO No., Job No., etc.)

2. Owner: E. I. Dupont
(name)
Dupont, Altamira
(address)

3. Location of installation: E. I. Dupont
(name)
Dupont, Altamira
(address)

4. Unit identification: Heat Exchanger Name of original manufacturer Nooter Corporation
(boiler, pressure vessel)

5. Identifying nos.: W1669 10942 - - 1983
(mfg serial no.) (National Board no.) (jurisdiction no.) (other) (year built)

6. NBIC Edition/Addenda: 2004 2005
edition addenda

Original Code of Construction for Item: ASME SECTION VIII DIV 1 A/89
(name/section/division) (edition/addenda)

Construction Code Used for Alteration Performed: ASME SECTION VIII DIV 1 2004/2005
(name/section/division) (edition/addenda)

7a. Description of construction work: Retube, New Tubesheets, & New Bellows Exp. Jt.
(use supplemental sheet, Form R-4, if necessary)

7b. Description of design scope: Replace Clad Tubesheets With Solid 304 Stainless
(use supplemental sheet, Form R-4, if necessary)

Pressure Test, if applied 130 psi. MAWP 100 psi.

8. Replacement Parts. Attached are Manufacturer's Partial Data Reports or Form R-3s properly completed for the following items of this report:

Bellows Expansion Joint, Item S-6-40784-1A, U-2 Partial, Adsco Manufacturing LLC,

(name of part, item number, data report type, mfr's. name and identifying mark)

9. Remarks: Long Seam L1 on Expansion Joint was removed to correct an out of roundness; Long seam portion removed was rewelded by Southern Heat Exchanger Services and X-Rayed.

DESIGN CERTIFICATION

I, Bo Pugsley certify that to the best of my knowledge and belief the statements in this report are correct and that the Design Change described in this report conforms to the National Board Inspection Code.

National Board "R" Certificate of Authorization No. 6345 expires on 25-Sep 20 06
 Date 5-1 2006 Southern Heat Exchanger Services Inc. Signed Bo Pugsley
(name of design organization) (authorized representative)

CERTIFICATE OF DESIGN CHANGE REVIEW

I, William Tillman, holding a valid Commission issued by The National Board of Boiler and Pressure Vessel Inspectors and certificate of competency issued by the jurisdiction of Texas and employed by International Business & Mercantile of Dallas Texas have

reviewed the design change as described in this report and state that to the best of my knowledge and belief such change complies with the applicable requirements of the National Board Inspection Code.

By signing this certificate, neither the undersigned nor my employer makes any warranty, expressed or implied, concerning the work described in this report. Furthermore, neither the undersigned nor my employer shall be liable in any manner for any personal injury, property damage or loss of any kind arising from or connected with this inspection.

Date 5/1 2006 Signed William Tillman Commissions NB7432 TX 1106
(inspector) (National Board and jurisdiction, and no.)

CONSTRUCTION CERTIFICATION

I, Bo Pugsley certify that to the best of my knowledge and belief the statements in this report are correct and that all material, construction, and workmanship on this Alteration conforms to the National Board Inspection Code.

National Board "R" Certificate of Authorization No. 6345 expires on Sep. 28 20 06
 Date 5-1 2006 Southern Heat Exchanger Services Inc. Signed Bo Pugsley
(name of construction organization) (authorized signature)

CERTIFICATE OF INSPECTION

I, William Tillman holding a valid Commission issued by The National Board of Boiler and Pressure Vessel Inspectors and certificate of competency issued by the jurisdiction of Tx. and employed by International Business & Mercantile of Dallas Texas have

inspected the work described in this report on 5/1 2006 and state that to the best of my knowledge and belief this work complies with the applicable requirements of the National Board Inspection Code.

By signing this certificate, neither the undersigned nor my employer makes any warranty, expressed or implied, concerning the work described in this report. Furthermore, neither the undersigned nor my employer shall be liable in any manner for any personal injury, property damage or loss of any kind arising from or connected with this inspection.

Date 5/1 2006 Signed William Tillman Commissions NB7432B TX1106
(inspector) (National Board and jurisdiction no.)