FORM P-4 MANUFACTURERS' PARTIAL DATA REPORT
as required by the provisions of the ASME Code rules

98860

1. Manufactured by ENERGY EXCHANGER COMPANY 1844 N. GARNETT TULSA, OKLAHOMA 74116
(name and address of manufacturer)

2. Manufactured for KOCH NITROGEN COMPANY STERLINGTON, LOUISIANA
(name and address of purchaser)

3. Identification of part(s)

Name of Part	Quantity	Line No.	Mfr's. Serial Nos.	Manufacturer's Drawing No.	CRN	Nat'l. Bd. No.	Year Built
(1)	1	6(a)	X-5555	X-5555-A		3461	1997

4. The chemical and physical properties of all parts meet the requirements of material specifications of the ASME BOILER AND PRESSURE VESSEL CODE. The construction and workmanship conform to ASME Code, Section I 1995 (year) and addenda to 1995 (date)

6. (a) Drums:

No.	Inside Diameter, in.	Inside Length ft. in.	Shell Plates			Tubesheets		Tube Hole Ligament Efficiency	
			Mat'l. Spec. No., Grade	Thickness in.	Inside Radius in.	Thickness in.	Inside Radius in.	Longitudinal	Circumferential
1	57"	13'-3.625"	SA-516-70(N)	3.25"	28.5"	6"			
2	58"	3'-6.4375"	SA387-11CL.2(N&T)	1"	29"				
3									
4									

No.	Longitudinal Joints		Circum. Joints		Heads						Hydrostatic Test, psi
	No. & Type*	Efficiency	No. & Type	Efficiency	Mat'l. Spec. No., Grade	Thickness, in.		Type**	Radius of Dish	Manholes No. Size	
1	1	100	1	100							2530
2	1	100	1	100	SA-387-11 CL.2 (N & T)	.917"(min)		Ellip.	2:1		750
3			1	100	SA-387-11 CL.2 (N & T)	.917"(min)		Ellip.	2:1		750
4											

*Indicate if (1) seamless; (2) fusion welded.

**Indicate if (1) flat; (2) dished; (3) ellipsoidal; (4) hemispherical.

6. (b) Boiler tubes:

Diameter	Thickness	Mat'l. Spec. No., Grade
1" OD	8 BWG(Min)	SA-213-T11

6. (c) Headers no.: _____
(box or sinuous or round; mat'l. spec. no.; thickness)

Heads or ends _____ Hydro. test _____
(shape; mat'l. spec. no.; thickness) (psi)

6. (d) Staybolts: _____
(mat'l. spec. no.; diameter; size telltale; net area)

Pitch _____ in. Net area _____ in.^{2} (supported by one bolt) MAWP _____ psi

6. (e) Mud drum: _____ Heads or ends _____ Hydro. test _____
(for sect. header boilers, state size; shape; mat'l. spec. no.; thickness) (shape; mat'l. spec. no.; thickness) (psi)

7. (a) Waterwall headers:

No.	Size and Shape	Material Spec. No.	Thickness in.	Heads or Ends: Shape	Heads or Ends: Thickness in.	Heads or Ends: Material Spec. No.

7. (b) Waterwall tubes:

Hydro. Test, psi	Diameter in.	Thickness in.	Material Spec. No.

FORM P-4 (back)

8. (a) Economizer headers:

8. (b) Economizer tubes:

No	Size and Shape	Material Spec No.	Thickness in	Heads or Ends: Shape	Heads or Ends: Thickness in	Heads or Ends: Material Spec No	Hydro Test psi	Diameter in	Thickness in.	Material Spec. No

9. (a) Superheater headers:

9. (b) Superheater tubes:

10. (a) Other parts: (1) Channel Inlet (2) Channel Outlet (3) Shell Inlet & Outlet

10. (b) Tubes for other parts:

1	1	24" 600#	RF V3 LWN	SA182-F11CL.2(N&T)	4.8125"	.125"	Weld	Welded		
2	1	24" 600#	RF V# LWN	SA182F11CL.2(N&T)	4.8125"	.125"	Weld	Welded		
3	2/2	8"	Stub End	SA-266-2N	2.53125"	.125"	Weld	Welded		

11. Openings (1) Steam 2/2 8" Stub Ends (See No. 3 Above) (no., size, and type of nozzles or outlets) (2) Safety Valve --- (no., size, and type of nozzles or outlets)

(3) Blowoff ------ (no., size, and type of nozzles or outlets) (4) Feed --- (no., size, type, and location of connection)

12.

		Maximum Allowable Working Pressure	Code Par. and/or Formula on Which MAWP is Based	Shop Hydro. Test psi	Heating Surface sq. ft.
a	Boiler	1685 PSIG	TEMA	2530 PSIG	6,056
b	Waterwall				
c	Economizer				
d	Superheater				
e	Other parts				

Heating surface to be stamped on drum heads. This heating surface not to be used for determining minimum safety valve capacity.

13.

Field Hydro. Test psi

14. Remarks: P.O.# 9601124 Tag # 103-C Service: HTS Conv. Effluent Waste Heat Boiler
Size: 57" x 180" Type: BHM Tubes designed w/0" Corrosion Allowance
Lines 6a (2) includes: (1) Ring - 70.5"OD x 58"ID x 9.875" thk. SA-182-F11 (N & T)
Lines 6a (3) includes: (1) Ring - 70.5"OD x 58"ID x 9.875" thk. SA-182-F11 (N & T)

(1) HTS Conv. Effluent Waste Heat Boiler

CERTIFICATE OF COMPLIANCE

We certify the statements in this Manufacturers' Partial Data Report to be correct and that all details of material, construction and workmanship of this boiler part conform to the ASME BOILER AND PRESSURE VESSEL CODE.

Certificate of Authorization no. 12,371 to use the (PP) or (S) S symbol expires 9-27, 19 98.

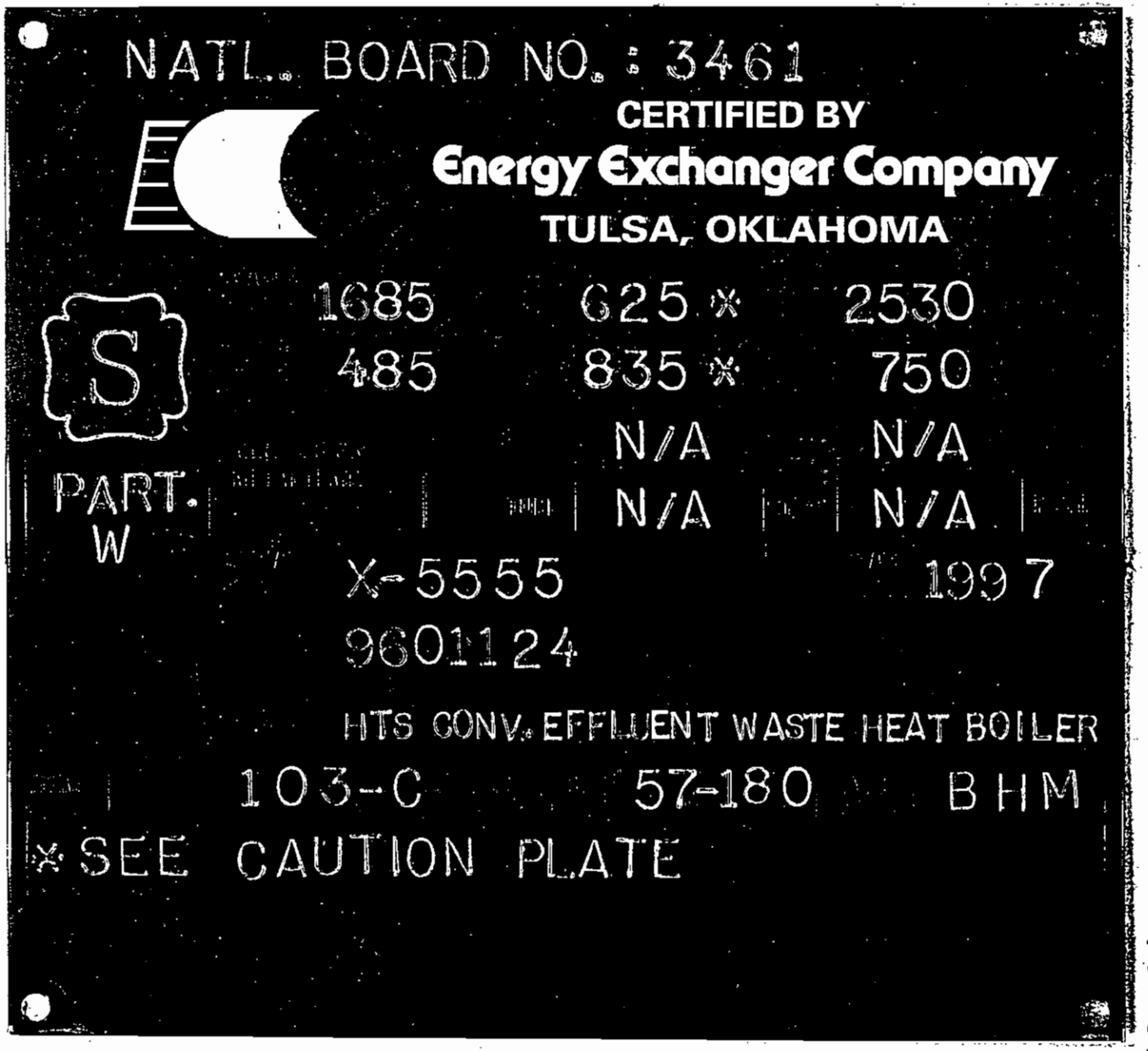
Date 3-11-97 Name Energy Exchanger Company (manufacturer) Signed (authorized representative)

CERTIFICATE OF SHOP 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 Oklahoma and employed by Commercial Union Insurance Company of Boston, Mass. have inspected the part of a boiler described in this Manufacturers' Partial Data Report on 3-11- 19 97, and state that to the best of my knowledge and belief, the manufacturer has constructed this part in accordance with the applicable sections of the ASME BOILER AND PRESSURE VESSEL CODE.

By signing this certificate neither the inspector nor his employer makes any warranty, expressed or implied, concerning the part described in this Manufacturers' Partial 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 3-11-97 Signed (Authorized Inspector) Commissions N.B.# 5745 "A" Okla.# 251 (Nat'l. Bd. (incl. endorsements) state, prov. and no.)


NATL. BOARD NO. : 3461
CERTIFIED BY
Energy Exchanger Company
TULSA, OKLAHOMA
1685 625 * 2530
485 835 * 750
N/A N/A
PART. N/A N/A
W
X-5555 1997
9601124
HTS CONV. EFFLUENT WASTE HEAT BOILER
103-C 57-180 BHM
* SEE CAUTION PLATE

■ SHOP TO ASSIGN AT COMPLETION OF FABRICATION

N. B. NO.: ■ 3461

CERTIFIED BY

Energy Exchanger Company

TULSA, OKLAHOMA

S	MAWP SHELL	1685	P.S.I. @	625 *	°F	2530 TEST P.S.I.G.
W	MAWP TUBE	485	P.S.I. @	835 *	°F	750 TEST P.S.I.G.
	MIN. DESIGN METAL TEMP.	SHELL	N/A	°F @	N/A	P.S.I.
		TUBE	N/A	°F @	N/A	P.S.I.

SERIAL NO. X-5555 YEAR BUILT 1997

P.O. NO. 9601124

SERVICE HTS CONV. EFFLUENT WASTE HEAT BOILER

ITEM 103-C SIZE 57-180 TYPE BHM

* SEE CAUTION PLATE

(16)

NAME PLATE DETAIL

TEMA®

Registration Nameplate

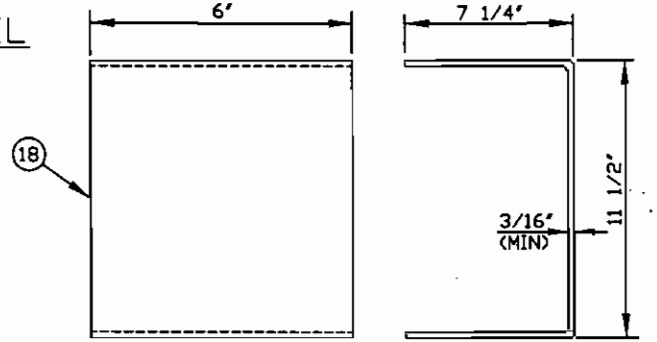
(19)

This heat exchanger is recorded in the TEMA Heat Exchanger Registration System. The Manufacturer certifies that it was manufactured in accordance with the Standards of the Tubular Exchanger Manufacturers Association, Inc. Certified members of TEMA meet the specific engineering and manufacturing criteria established by TEMA.

TEMA Registration No: ■ 209728

Tubular Exchanger Manufacturers Association, Inc.
25 North Broadway, Tarrytown, NY 10591
Tel: 914-332-0040 ®

TEMA PLATE DETAIL



NAME PLATE BRACKET DETAIL

Ammonia I-5105 103-C

Energy Exchanger Co.

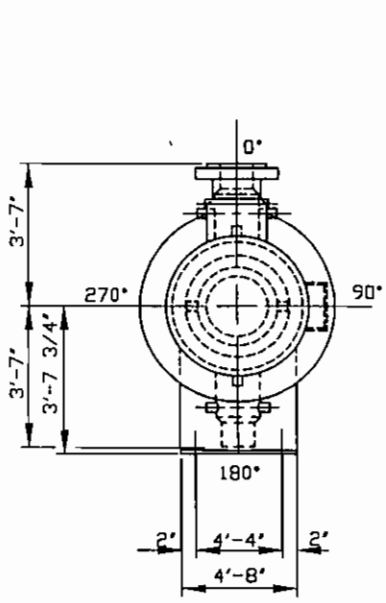
1844 No. Garnett Rd. • Tulsa, Okla.74116

NAME PLATE DETAILS

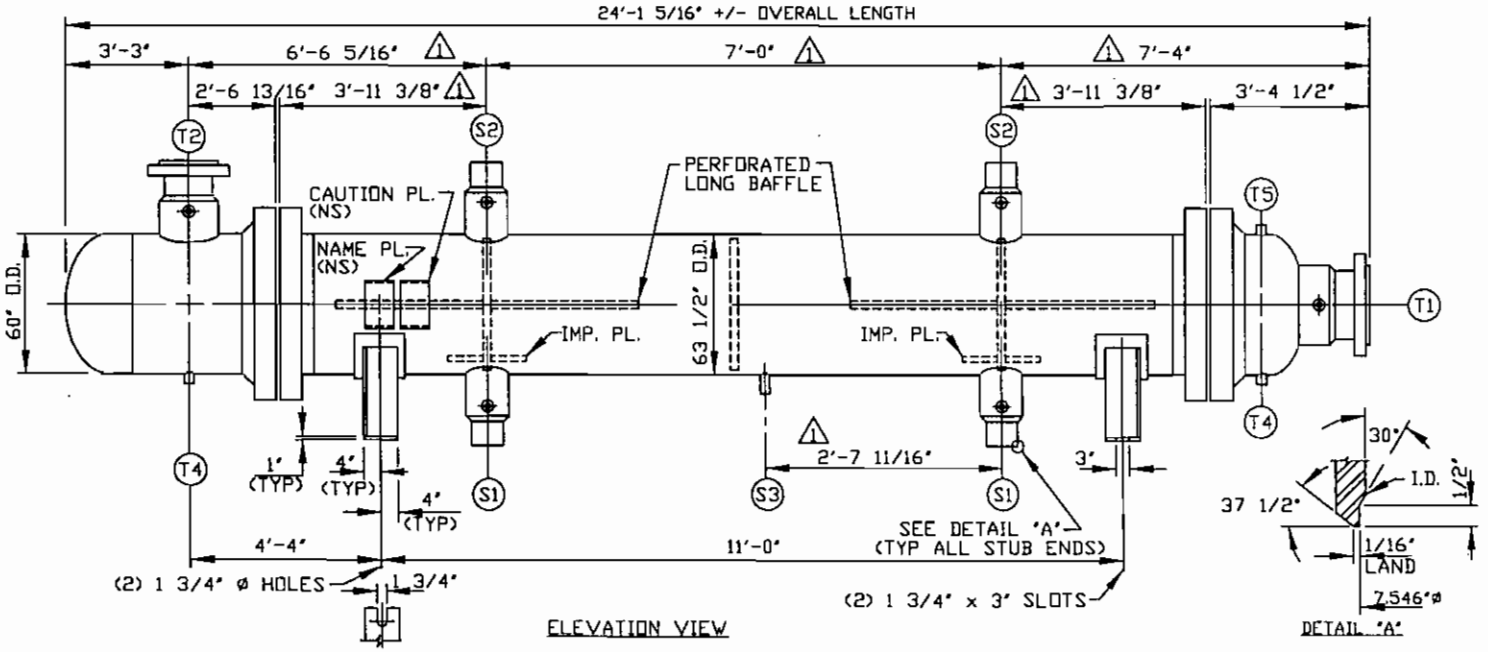
DATE: 12/4/96	DRAWN BY: LS	DRAWING NO. X-5555-M	REV. 0
CHK'D BY: GF			

70060

98860



END VIEW



ELEVATION VIEW

DETAIL "A"

GENERAL NOTES

1. DESIGNED & CONSTRUCTED IN ACCORDANCE W/
   A. SECTION I, 1995 EDITION & 1995 ADDENDA OF THE ASME BOILER & PRESSURE CODE & SO STAMPED WITH NATIONAL BOARD REGISTRATION.
   B. TEMA CLASS "R"
   C. CUSTOMER SPECS
   D. API 660
2. ALL BOLT HOLES TO STRADDLE ℄'S.
3. MIN. TEST METAL TEMP.= 70°F. (DRY W/ AIR AFTER HYDROTEST)
4. TWO SPARE SETS OF GASKETS REQUIRED
5. STRENGTH WELD TUBES TO TUBESHEETS & LIGHT ROLL TO SEAL CREVICE.
6. PAINT: SANDBLAST SUPPORTS PER SSPC-SP6 & PAINT W/ ONE COAT OF CARBOLINE CARBOZINC # 11 (3 MILS D.F.T.).

NOZZLE DATA

MK.	DESCRIPTION	SERVICE
T1	24"-600# RF	INLET
T2	24"-600# RF	OUTLET
(2)S1	8" STUD END	INLET
(2)S2	8" STUD END	OUTLET
S3	1"-6000# CPLG.	BLOW DOWN
(2)T4	3/4"-6000# CPLG.	DRAIN
T5	3/4"-6000# CPLG.	VENT

NOZ. MARKS T1,T2,S1 & S2 TO HAVE (2) 3/4"-6000# CPLG. AS SHOWN. ALL CPLG. TO BE PLUGGED.

DESIGN DATA

	SHELL SIDE	TUBE SIDE
DES. PRESS.	1685 PSIG	485 PSIG
TEST PRESS.	2530 PSIG	750 PSIG
DES. TEMP.	625 ⊗ °F	835 ⊗ °F
C. A.	.125"	.125"
NO. PASSES	DBL. SPLIT FLOW	1
HEAT TREAT	YES	YES
RADIOGRAPHY	FULL	FULL
INSUL. THK.	?	?

⊗ DURING START-UP & SHUT-DOWN DO NOT EXCEED 50°F DIFFERENTIAL INLET TEMPERATURE TO PREVENT OVER STRESSING TUBES OR SHELL.

NO.	DATE	REVISION	BY
1	1/17/97	REV PER CUST COMMENTS	GF

CUSTOMER: KOCH NITROGEN COMPANY
DESTINATION: STERLINGTON, LOUISIANA
P.O.: 9601124

SERVICE: HTS CONV. EFFLUENT WASTE HEAT BOILER
TUBES: 1635 - 1"O.D. x 8 BWG (MIN) x 15'-0"LG. SA-213-T11
SURF: 6056 ITEM NO: 103-C
SIZE: 57-180 SERIAL NO.: X-5555
TYPE: BHM NO. REQ'D.: ONE
WT: DRY 105400# WET 147600#

Ammonia I- 5105 103-C

Energy Exchanger Co.
1844 No. Garnett Rd. • Tulsa, Okla.74116

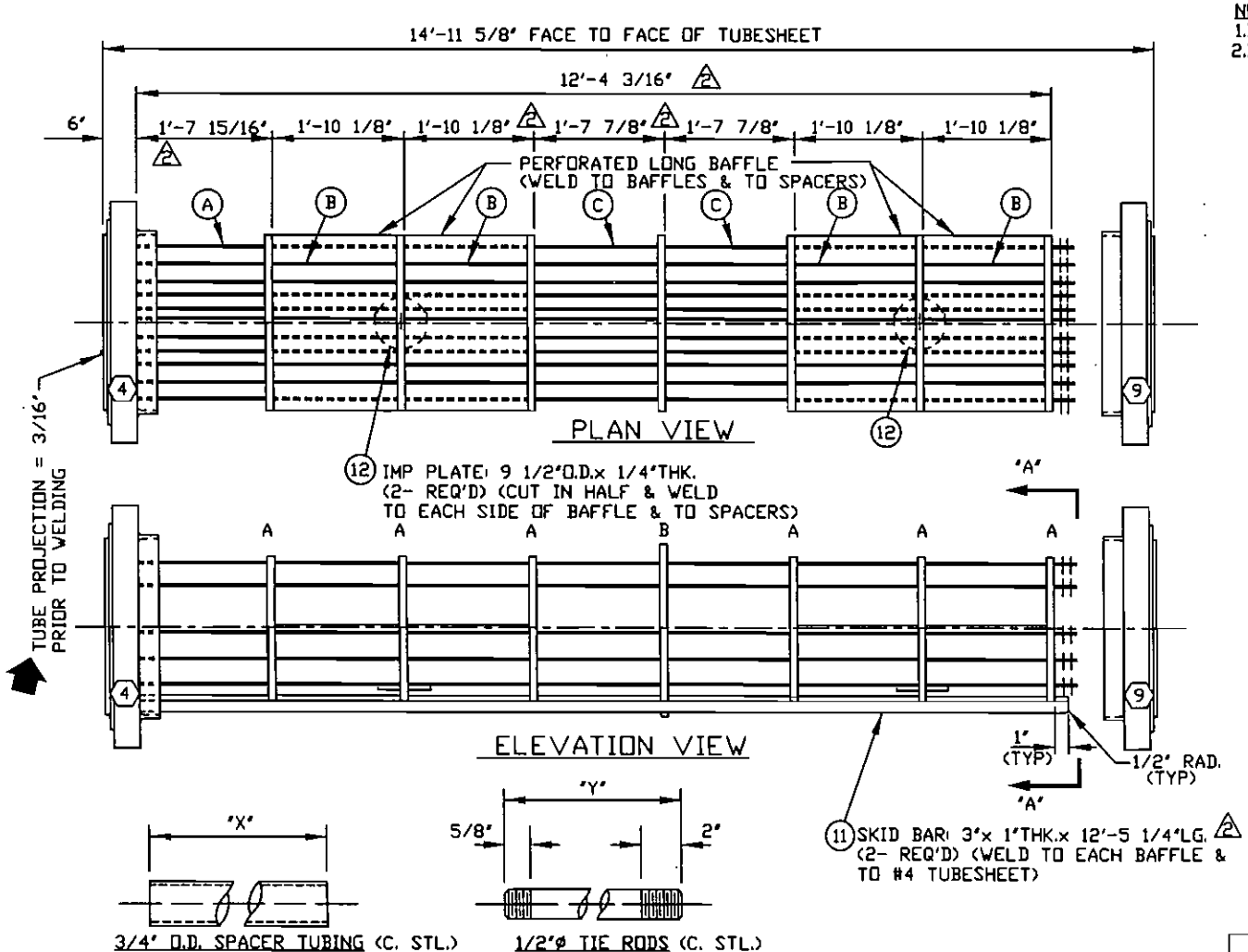
OUTLINE DIMENSIONAL DRAWING F266

DATE: 12/4/96 DR.: LS APP.:

CERTIFIED CORRECT FOR FABRICATION
DATE:_____ BY:_____

DRAWING NO.: X-5555-A REV. 1

98860



NOTES:
1.) SEE DWG. X-5555-J FOR BAFFLE DETAIL, VIEW "A-A".
2.) SEE DWG. X-5555-K FOR LONG BAFFLE DETAILS.

STRENGTH WELD TUBE TO TUBESHEET. REMOVE OIL & GREASE OR OTHER FOREIGN MATTER FROM TUBESHEET, TUBEHOLES & TUBE ENDS PRIOR TO WELDING OF TUBES. HELI-ARC WITH FILLER METAL. WELD EACH TUBE INDIVIDUALLY WITH (2) TWO OR MORE PASSES. W.P.= SW-13-H 1 BUBBLE TEST WELDS W/ 25 PSIG OF AIR PRIOR TO TUBE ROLLING. DYE CHECK TUBE TO TUBESHEET WELDS BEFORE & AFTER TUBE ROLLING.

MK'D	REQ'D	"X" 2
A	15	1'-7 7/16"
B	60	1'-9 5/8"
C	30	1'-7 3/8"

MK'D	REQ'D	"X"

REQ'D	"Y"
15	12'-6 3/8"

2 1/16/97 REV PER CUST COMMENTS GF/LS
1 1/6/97 REV WELD PROC. PER EEC LS / GF

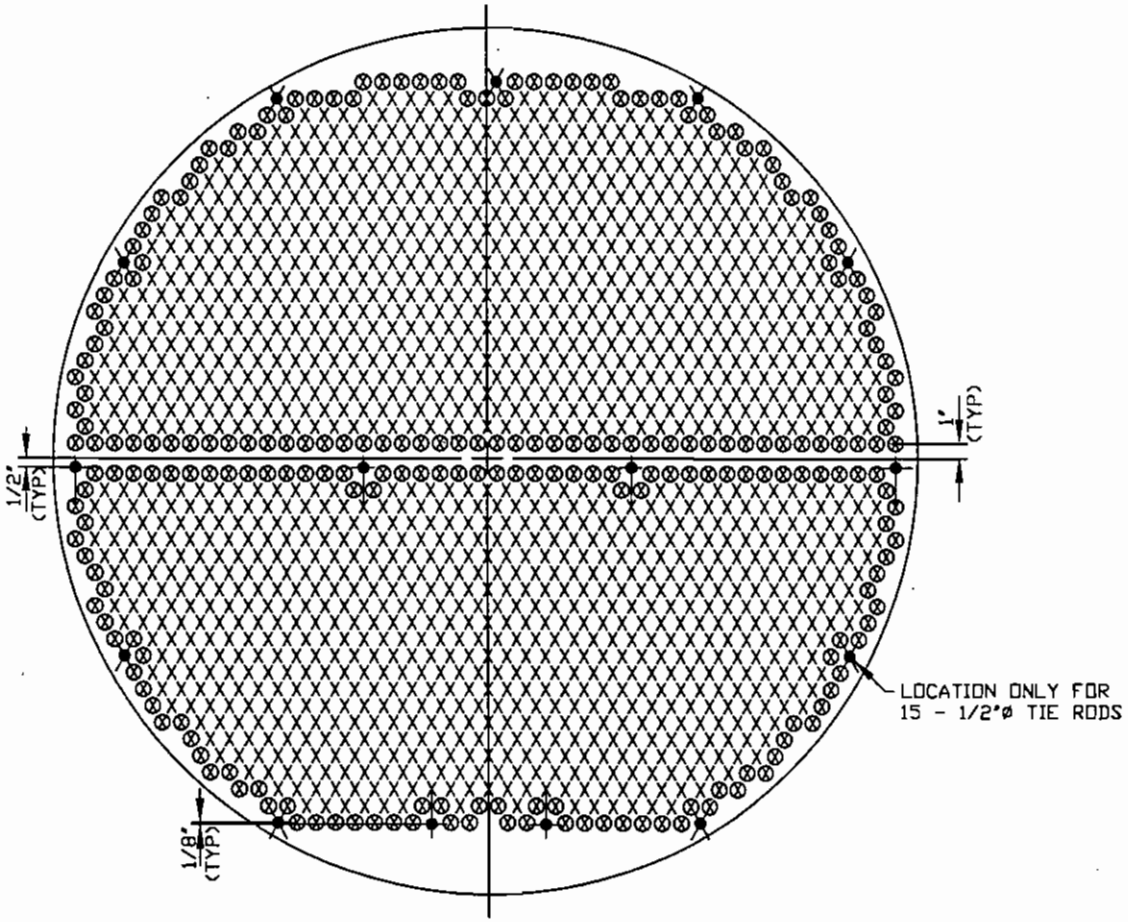
Ammonia I- 5105 103-C

Energy Exchanger Co.
1844 No. Garnett Rd. • Tulsa, Okla.74116

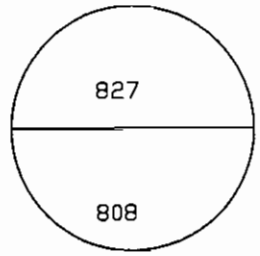
BUNDLE DETAILS

DATE: 12/4/96	DRAWN BY: LS	DRAWING NO. X-5555-H	REV. 2
CHK'D BY: GF			

98860



VIEW LOOKING AT SHELL SIDE OF #4 TUBESHEET



NO. OF HOLES PER PASS

NOTES:
1.) DRILL & REAM TUBE HOLES IN TUBESHEET TO 1.010" $^{+.002}_{-.000}$ DIA. FOR 1635 - 1" O.D. TUBES.
2.) TUBE PITCH - 1.25" TRI.
3.) 55 13/16" TUBE CIRCLE.
4.) SEE DWG. X-5555-F FOR TUBE HOLE GROOVING DETAIL.

Ammonia I-5105 103-C

Energy Exchanger Co.
1844 No. Garnett Rd. • Tulsa, Okla.74116

TUBE LAYOUT

DATE: 11/22/96	DRAWN BY: LS	DRAWING NO. X-5555-G	REV. 0
CHK'D BY: GF			