

77081

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 CUST-O-FAB, INC. 8888 WEST 21st STREET SAND SPRINGS, OKLAHOMA 74063
(Name and address of Manufacturer)

2. Manufactured for THERMAL & PROCESS SALES, INC. BATON ROUGE, LA. 70879
(Name and address of Purchaser)

3. Location of installation ENRON METHANOL CO. PASADENA, TX. 77503
(Name and address)

4. Type: HORIZONTAL HEAT EXCHANGER 00-861
(Horiz., vert., or sphere) (Tank, separator, etc., vessel, heat exch., etc.) (Mfg's serial No.)
NONE 00-861B, REV 1 5988 2001
(CRN) (Drawing No.) (Nett. Bd. No.) (Year built)
5. ASME Code, Section VIII, Div. 1 1998 / 1999 NONE 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.

8. Shell (a) No. of course(s): TWO (b) Overall length (ft. & in.): 17'-7 1/2"

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	36" ID	11'-10"	SA-516-70		1/2"	1/8"	1	SPOT	.85	1	SPOT	.85	NONE	---
1	36" ID	5'-9 1/2"	SA-516-70		1/2"	1/8"	1	SPOT	.85	1	SPOT	.85	NONE	---

7. Heads: (a) SEE ITEM 12. TUBESHEET (b) ---
(Mater. Spec. No., Grade or Type) H. T. - Time & Temp. (Mater. 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)

NONE

(Mater. Spec. No., Grade, size, No.)

8. Type of jacket NONE Jacket closure NONE

(Describe as ogee & weld, bar, etc.)

If bar, give dimensions NONE

If bolted, describe or sketch.

9. MAWP 262 --- psi at max. temp. 190 --- °F Min. design metal temp. -20 °F at 262 psi.
(internal) (external) (internal) (external)

10. Impact test NO, EXEMPT PER UG-20 (f).

(Indicate yes or no and the component(s) impact tested)

11. Hydro., pneu., or comb. test press. 370 Proof test NONE

Items 12 and 13 to be completed for tube sections.

12. Tubesheet: (2) SA-516-70N 36 1/4" 2 1/4" 3/16" / 1/8" WELDED
Stationary (Mater. Spec. No.) Dia., in. (subject to press.) Nom. thk., in. Corr. Allow., in. Attachment (welded or bolted)

NONE

Flaring (Mater. Spec. No.)

Dia., in.

Nom. thk., in.

Corr. Allow., in.

Attachment

13. Tubes: SA-179 3/4" .0830 846 STRAIGHT
Mater. 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 / ONE (b) Overall length (ft. & in.): 2'-6 3/8", 0'-7 5/8".

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	36" ID	2'-6 3/8"	SA-516-70		1/2"	1/8"	1	SPOT	.85	1	SPOT	.85	1150	1 HR.
1	36" ID	0'-7 5/8"	SA-516-70		1/2"	1/8"	1	SPOT	.85	1	SPOT	.85	1150	1 HR.

15. Heads: (a) (2) SA-516-70, NONE (b) (2) SA-105, 1 HR. @ 1150 DEG.F.
(Mater. Spec. No., Grade or Type) H. T. - Time & Temp. (Mater. Spec. No., Grade or Type) H. T. - Time & Temp.
(c) (2) SA-105, 1 HR. @ 1150 DEG.F.
(Mater. 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) CVRS	2 3/8"	3/16"						37 1/8"			S	NONE	1.0
(b) ENDS	41 1/4" OD X 36" ID X 3 3/8" THK ASME CODE HUB FLANGES												
(c) ENDS	41 1/4" OD X 36" ID X 3 3/8" THK ASME CODE HUB FLANGES												

If removable, bolts used (describe other fastening)

(b) & (c) SA-197-B7, 3/4" DIA., 40 (EACH) / SA-194-2H, HEX NUTS, 80 (EACH)

(Mater. Spec. No., Grade, Size, No.)

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16. MAWP 78 --- psi at max. temp. 170 --- °F Min. design metal temp. -20 °F at 78 psi.
(internal) (external) (internal) (external)

17. Impact test NO, EXEMPT PER UG-20 (f)
(Indicate yes or no and the component(s) Impact tested)

18. Hydro., pneu., or comb. test press. 105 Proof test NONE

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	
SH. INLET	1	18"NPS	150#LWN	SA-105	SA-105	1"	1/8"		WELDED	INTGL	TOP
SH. OUTLET	1	12"NPS	150#LWN	SA-105	SA-105	1 3/16"	1/8"		WELDED	INTGL	BTM
SH. DRAIN	1	1"NPS	150#LWN	SA-105	SA-105	1/2"	1/8"		WELDED	INTGL	BTM
SH. AUX CONN.	1	2"NPS	150#LWN	SA-105	SA-105	.53"	1/8"		WELDED	INTGL	TOP
SH. AUX CONN.	1	2"NPS	150#LWN	SA-105	SA-105	.53"	1/8"		WELDED	INTGL	TOP
SH. PRES. INDTR.	2	3/4"NPS	CPLG	SA-105		8000#	1/8"		WELDED		NOZZLES
F.CH. INLET	1	12"NPS	150#WN	SA-108-B	SA-105	.500"	1/8"		WELDED	WELDED	BTM
F.CH. OUTLET	1	12"NPS	150#WN	SA-108-B	SA-105	.500"	1/8"		WELDED	WELDED	TOP
F.CH. VENT	1	1"NPS	CPLG	SA-105		6000#	1/8"		WELDED		TOP
F.CH. DRAIN	1	1"NPS	150#LWN	SA-105	SA-105	1/2"	1/8"		WELDED	INTGL	BTM
R.CH. VENT	1	1"NPS	CPLG	SA-105		6000#	1/8"		WELDED		TOP
R.CH. DRAIN	1	2"NPS	150#LWN	SA-105	SA-105	.53"	1/8"		WELDED	INTGL	BTM
F.CH. TEMP INDTR.	2	3/4"NPS	CPLG	SA-105		8000#	1/8"		WELDED		NOZZLES

20. Supports: Skirt NO Lugs NONE Legs TWO Others SADDLES Attached WELDED TO SHELL
(Yes or no) (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)
NONE

22. Remarks: 36-216 TEMA TYPE "AGL" HEAT EXCHANGER
SERVICE: LIGHT ENDS OVERHEAD CONDENSER TEMA REG. NO.: 28-00-661-964
P.O. NO.: 5354 (ENRON:00-10130) ITEM NO.: E-250
SAFETY RELIEF DEVICES LOCATED ELSEWHERE IN SYSTEM
OPENING ATTACHMENTS PER FIG. UW-16.1

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. 12768 Expires APRIL 15, 20 02

Date APRIL 4, 2001 Name CUST-O-FAB, INC. Signed Richard M. Gray
(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 OKLAHOMA and employed by COMMERCIAL UNION INSURANCE COMPANY of BOSTON, MA have inspected the pressure vessel described in this Manufacturer's Data Report on 4-4-2001, 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 4-4-01 Signed [Signature] Commissions NB119218A OK823
(Authorized Inspector) (National 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 _____, 20 _____

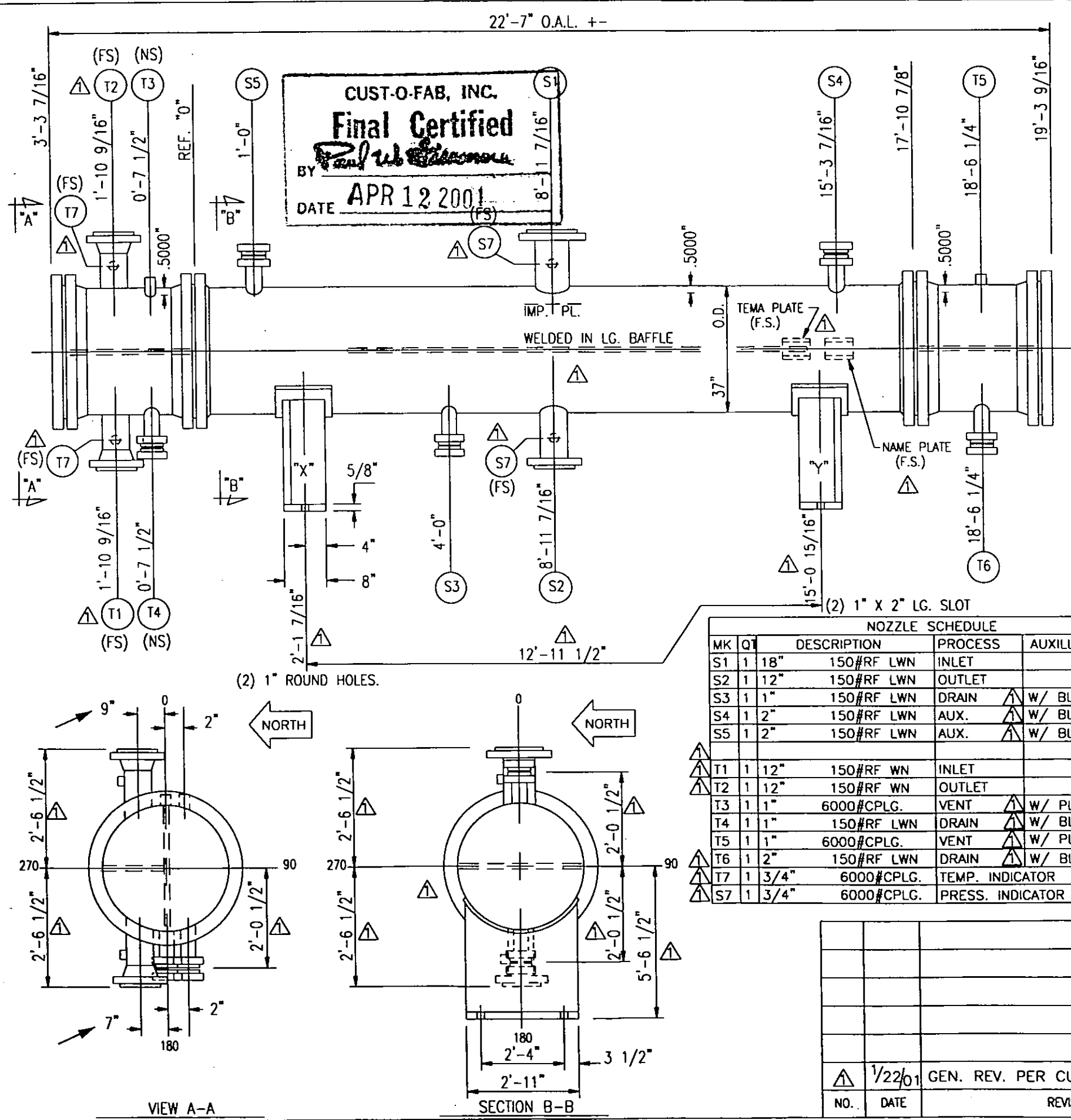
Date _____ Name _____ Signed _____
(Assembler) (Representative)

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 the 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) (National Board Incl. endorsement, State, Province and No.)

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DESIGN DATA		SHELL		TUBE	
DESIGN PRESSURE P.S.I.G.		75.		75.	
M.A.W PRESSURE P.S.I.G.		262		78	
TEST PRESSURE P.S.I.G.		370		105	
DESIGN TEMP. Deg.F.		190.		170.	
MDMT Deg. F.		-20.		-20.	
CORROSION ALLOWANCE		1/8"		1/8"	
NUMBER OF PASSES		1.		4.	
RADIOGRAPHY		SPOT		SPOT	
HEAT TREAT REQUIRED		NO		YES	
ESTIMATED WEIGHTS, LBS.					
DRY: 21300.		WET: 29300.			
SPECIFICATIONS					
ASME CODE SECT. VIII DIV.1, 1998 EDD. 1999 ADDN. (STAMP YES)					
TEMA CLASS R					
NATIONAL BOARD REGISTRATION REQUIRED					
MATERIAL					
CHANNEL:		SA-516-70			
SHELL:		SA-516-70			
TUBESHEETS:		SA-516-70N			
BAFFLES:		SA36 ▲			
TUBES:		SA-179			
(846.)		3/4"		O.D.X .0830" (MIN) x 18'-0" LG.	
TUBE PITCH		1"		▷ SURFACE 2946. SQ.FT.	
GENERAL NOTES					
ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES.					
TUBE-TUBESHEET JOINT: ROLLER EXPANDED					
⊗ MAWP (HOT & CORR.) SHELL SIDE LIMITED ANSI FLANGES TUBE SIDE LIMITED CHAN. COVER					
MAWP (NEW & COLD) SHELL SIDE 285 PSIG LIMITED ANSI FLANGES TUBE SIDE 81 PSIG LIMITED CHAN. COVER					
■ FIELD HYDRO TEST: 341 PSIG (SHELL) / 101 PSIG (TUBES SIDE)					
GASKETS: .1250" THK.SIDJCF					
2 SETS OF SPARE GASKETS REQUIRED.					
PAINT: SEE DWG. 2.					
CUST:		THERMAL & PROCESS SALES, INC. C/O ENRON METHANOL COMPANY			
P.O. NO.:		5354 (ENRON PO NO.: 00-10130) ▲			
ITEM NO.:		E-250			
SERVICE:		LIGHT ENDS OVERHEAD CONDENSER			
SHIP TO:		PASADENA, TX. ▲			
		ASSEMBLY AND SPECIFICATIONS FOR E-250			
		ONE 36-216 A G L HEAT EXCHANGER			
		DWN. BY RC			
		DATE 12-28-00			
RC/RM		CKD. BY RM			
		DWG.NO. 00-661B-1			
		REV. 1			
		CUST-O-FAB, Inc. SAND SPRINGS, OKLAHOMA			