

**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 ALFA LAVAL THERMAL INC., 5400 International Trade Dr., Richmond, VA 23231  
(Name and address of Manufacturer)

2. Manufactured for M.W. KELLOGG, P.O. Box 4557, Houston, Tx 77210-4557  
(Name and address of Purchaser)

3. Location of installation PHILLIPS PETROLEUM, PASADENA, TX  
(Name and address)

4. Type: VERT. PLATE HEAT EXCHANGER 30102-83040  
(Horiz., vert., or sphere) (Tank, separator, jkt. vessel, heat exch., etc.) (Mfg's serial No.)

88130-111 -C.3 9501 1995  
(ICRN) (Drawing No.) (Nat'l. Bd. No.) (Year built)

5. ASME Code, Section VIII, Div. 1 1992 A93  
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):                      (b) Overall length (ft & in.): 3' X 7'

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
			<u>SA-240-304</u>		<u>0.016</u>									

7. Heads: (a) SA-516-70 (b) SA-516-70  
(Mat'l Spec. No., Grade or Type) H.T. - Time & Temp. (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)	<u>Fixed</u>	<u>2</u>	<u>3/4"</u>					<u>45 X 107"</u>	<u>FLAT</u>					
(b)	<u>Movable</u>	<u>2</u>	<u>3/8"</u>					<u>45 X 101"</u>	<u>FLAT</u>					

If removable, bolts used (describe other fastening) SA-193-B7, (6) 1 1/2" & (4) 2" DIA. BOLTS  
(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+FY (internal) (external) psi at max. temp. 212 °F Min. design metal temp. -5 °F at 100+FY psi.

10. Impact test NO (Impact Exemption UCS 66(b)(1))  
(Indicate yes or no and the component(s) impact tested)

11. Hydro., ~~pressure~~ test press. 172 Proof test                     

Items 12 and 13 to be completed for tube sections.

12. Tubesheet:                      Stationary (Mat'l Spec. No.)                      Dia., in. (subject to press.)                      Nom. thk., in.                      Corr. Allow., in.                      Attachment (welded or bolted)                     

                     Floating (Mat'l Spec. No.)                      Dia., in.                      Nom. thk., in.                      Corr. Allow., in.                      Attachment                     

13. Tubes:                      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)                      (b) Overall length (ft & in.):                     

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

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

# FORM U-1 (Back)

16. MAWP \_\_\_\_\_ psi at max. temp. \_\_\_\_\_ °F. Min. design metal temp. \_\_\_\_\_ °F at \_\_\_\_\_ psi.

17. Impact test \_\_\_\_\_

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

18. 'Hydro., pneu., or comb. test press. \_\_\_\_\_ Proof test \_\_\_\_\_

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	2	14"		STUDS	SA193, B7	1"					
Outlet	2	14"		STUDS	SA193, B7	1"					

20. Supports: Skirt \_\_\_\_\_ Lugs \_\_\_\_\_ Legs \_\_\_\_\_ Others \_\_\_\_\_ Feet \_\_\_\_\_ Attached \_\_\_\_\_ Bolted \_\_\_\_\_

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)

22. Remarks: Customer PO#: 6014-02DI-C810-01  
TAG#: 41-5019 E- 108B WTT# 41001036  
DOC # 88130 - III MDR

## 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. 25,017 Expires August 9, 1996  
Date 6/12/95 Name Alfa Laval Thermal Inc. Signed [Signature]

## 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 VA and employed by Commercial Union Insurance Company of Boston, MA have inspected the pressure vessel described in this Manufacturer's Data Report on 6/12, 1995, 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 6/12/95 Signed [Signature] Commissions NB 7863 B

## 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 \_\_\_\_\_, 19 \_\_\_\_\_  
Date \_\_\_\_\_ Name \_\_\_\_\_ Signed \_\_\_\_\_

## 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 \_\_\_\_\_