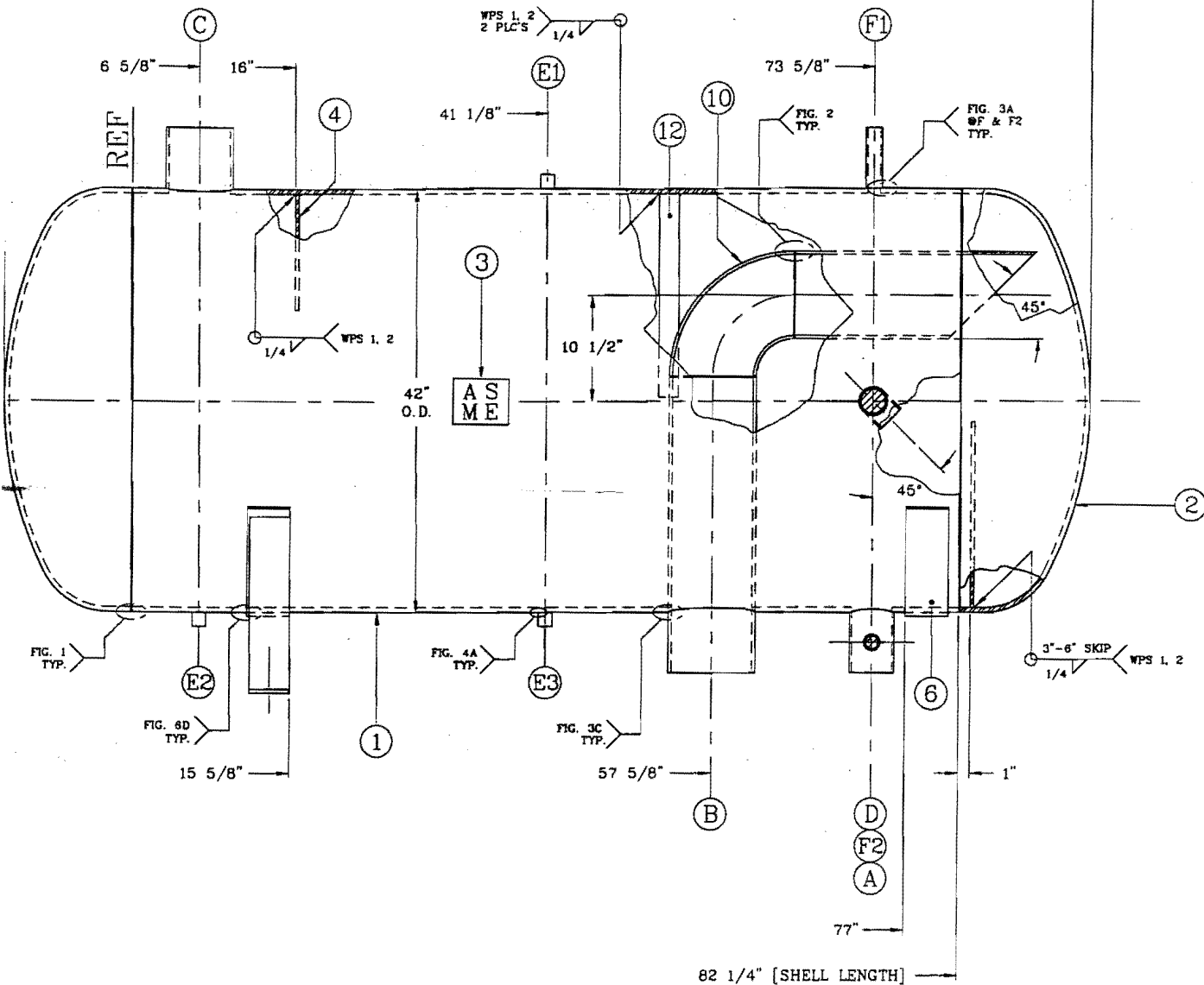


CONSTRUCTION NOTES

- INSIDE OF VESSEL TO BE FREE OF SLAG, SCALE, AND RUST.
- ALL SHARP EDGES TO BE BOUND SMOOTH.
- SANDBLAST UNIT PRIOR TO PAINT.
- PAINT: (1) COAT STD. SHOP PRIMER.
- EMPTY WEIGHT: 2870#

BILL OF MATERIALS

NOZZLE SCHEDULE							SHELL, HEADS, INTERNALS, SUPPORTS				
ITEM	QTY	SIZE	TYPE	RATING	MATERIAL	SERVICE	LENGTH	ITEM	QTY	DESCRIPTION	MATERIAL
P								16	2	BACKING RINGS	SA109
Q								15		**** MAT'L'S NOT SHOWN ****	
N								14			
M								13			
L								12	1	ANGLE: 3" x 3" x 1/4" THK x 18" LG. (BRACE)	SA36
K								11	1	2 1/2" x S/40, 90° S.R. ELL	SA234-WFH
J								10	1	8" x S/40, 90° S.R. ELL	SA234-WFH
I								9	1	4" x 4" x 3/8" THK x 7 3/8" LG SQ. TUBING	SA36
H								8	2	ANGLE: 4" x 4" x 3/8" THK x 17 1/8" LG.	SA36
G								7	1	PL: 4" x 3/8" THK x 36" LG.	SA36
F	2	1 1/4"	PIPE	S/80	SA106B	COLUMN CONN	6 9/16", 6 7/16"	6	2	44" x 3/8" THK x 4 1/2" W. (ø42")	SA53B-2RT
E	3	3/4"	CPLT	3000#	SA105	VENT/DRAIN/RELIEF		5	1	PERF. PL: ø40 7/8" x 3/8" THK x 18 1/2" HL	SA36
D	1	2 1/2"	PIPE	S/40	SA106B	LIQUID FEED	9"	4	1	PL: ø40 7/8" x 3/8" THK x 11 1/2" HL	SA36
C	1	6"	PIPE	S/40	SA106B	SUCTION	6 7/8"	3	1	STD. ASME NP BRKT, 2" DEEP	SA36
B	1	8"	PIPE	S/40	SA106B	WET RETURN	29 3/8", 23 7/8"	2	2	42" O.D. x 1/2" THK ASME 2 : 1 ELLIP.	SA516-7C
A	1	4"	PIPE	S/40	SA106B	LIQUID LEG	6 3/4"	1	1	42" O.D. x 1/2" THK x 82 1/4" LG.	SA516-7C



OFFICE DWG

NAT'L BD. NO. 1073		
CERTIFIED BY: THERMOFLUID INTERNATIONAL, INC Mansfield, Texas		
SHELL MAWP	250	PSI at 200
TUBE MAWP		PSI at F
SHELL MDMT	-20	F at 250
TUBE MDMT		F at PSI
98236V	RH-4209	1998
Serial Number	Model	Year Built
ThermoFluid International, Inc Manufacturer of Heat Transfer Equipment and Systems Mansfield, Texas TEL: (817)453-2400 FAX: (817)453-2224		

DESIGN SPECIFICATION		
DESIGN CONSTRUCTION IN ACCORDANCE WITH SECTION VIII, DIV 1 ASME CODE FOR PRESSURE VESSELS 1998, EDITION & ADDENDA TO A98		
DESIGN	SHELL SIDE	TUBE SIDE
PRESS. - PSIG	250	
TEMP. °F	-20/200	
CORR. ALLOW.	0	
STRESS REL.	NONE	
RADIOGRAPH	NONE	
TEST PRESS.	375	
TEST FLUID	WATER	
NDT	NONE	
MDMT Clause	UCS 66(a)	

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED
TOLERANCES UNLESS OTHERWISE SPECIFIED:
FRACTIONAL: +/- 1/16, DECIMAL: +/- .015, ANGLES: +/- 1 DEG.

FORM 12/

1	REL FOR FABRICATION	I.S.S.	19JAN99
0	REL FOR APPVL	I.S.S.	13JAN99
NO.	REVISION	BY	DATE
DRAWN:	CHK'D:	APP'D:	
I.S.S.	A.K.	Z.A.	
<input type="checkbox"/> APPROVAL <input checked="" type="checkbox"/> FAB <input type="checkbox"/> RECORD			
REF.: A98-348			

THERMOFLUID INTERNATIONAL, INC. Heat Transfer Equipment/System Design & Manufacturing Mansfield, Texas			
THE DRAWING, ITS PRINTS, AND ALL PARTS THEREOF ARE AND SHALL REMAIN THE PROPERTY OF THERMOFLUID INTERNATIONAL, INC AND MAY NOT BE REPRODUCED OR USED FOR ANY PURPOSE WITHOUT WRITTEN CONSENT.			
TITLE: SURGE DRUM 42" O.D. x 108" O.A.L.			
CUSTOMER: AMS MECHANICAL SYSTEMS, INC			
P.O. NO.:	68118	TAG NO.:	
MODEL:	RH-4209	SIZE:	42-108
DRAWING NO.:	98101B	SERIAL NO.:	98236V
SCALE:	1 : 8	DATE:	05JAN99
REV:	1		

FORM U-1A MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS

(Alternative Form for Single Chamber, Completely Shop-Fabricated Vessels Only)
As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

Form U1-A

1. Manufactured and certified by ThermoFluid International, Inc. 101 Sentry Drive Mansfield, TX, U.S.A. 76063
(Name and address of manufacturer)

Manufactured for AMS MECHANICAL SYSTEMS, INC., 140 E. TOWER DRIVE, BURR RIDGE, IL 60521
(Name and address of purchaser)

3. Location of installation UNKNOWN
(Name and address)

4. Type HORIZ. TANK 98236V 98101B 1073 1999
(Horiz. or vert. tank) (Mfg's serial No.) (CRN) (Drawing No.) (Nat'l. Bd. No.) (Year Built)

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 1998
to A-98 Year

6. Shell: SA516-70 0.5" 0" 3' 8" O.D. 6' 10-1/4"
Addenda (Date) Code Case Nos. Special Service per UG 120 (d)

7. Seams: DBL BUTT NONE 70 - - SNGL BUTT* NONE 1
Matl. (Spec. No., Grade) Nom. Thk. (in.) Corr. Allow. (in.) Diam. I.D. (ft. & in.) Length (overall) (ft. & in.)

8. Heads: (a) Matl. SA516-70 (b) Matl. SA516-70
(Spec. No., Grade) (Spec. No., Grade)

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) END	0.438"	0"			2:1				CONCAVE
(b) END	0.438"	0"			2:1				CONCAVE

If removable, bolts used (describe other fastenings)

9. MAWP 250 psi at max. temp. 200 °F
(Matl., Spec. No., Gr., Size, No.)

Min. design metal temp. -20 °F at 250 psi. Hydro., pneu., or comb. test pressure 375 (hydro.) psi.

10. Nozzles, inspection and safety valve openings:

Purpose (Inlet, Outlet, Drain)	No.	Diam or Size	Type	Matl	Nom. Thk	Reinforcement Matl	How Attached	Location
LIQUID LEG	1	4"	WE	SA106B	0.237"	INHERENT	WELDED	
WET RETURN	1	8"	WE	SA106B	0.322"	INHERENT	WELDED	
SUCTION	1	6"	WE	SA106B	0.280"	INHERENT	WELDED	
LIQUID FEED	1	2-1/2"	WE	SA106B	0.203"	INHERENT	WELDED	
VENT/RAIN/RELIEF	3	3/4"	CPLT	SA105	3000#	INHERENT	WELDED	
COLUMN CONN.	2	1-1/4"	WE	SA106B	0.191"	INHERENT	WELDED	

11. Supports: Skirt NO Lugs (No.) Legs (No.) Other CRADLES Attached WELDED TO SHELL
(Yes or no) (Describe) (Where and how)

12. Remarks: Manufacturer's 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, Mfg's. name and identifying stamp)

MODEL RH-4209 FOR NON-LETHAL, NON-CORROSIVE SERVICE, PRESSURE RELIEF DEVICES BY OTHERS.

EXEMPT FROM IMPACT TEST PER UCS 66(a).

* TYPE 2

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. 26.623

expires OCTOBER 19th, 2001

Date 2/19/1999 Co. Name ThermoFluid International, Inc. Signed [Signature]
(Manufacturer) (Representative)

CERTIFICATE OF SHOP INSPECTION

Vessel constructed by THERMOFLUID INTERNATIONAL, INC. at MANSFIELD, TEXAS, 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 TEXAS and employed by IB&M RE

2-19-99, 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 2-19-99 Signed [Signature] Commissions 9441A-TX, 1066
(Authorized Inspector) Nat'l. Board (Incl. endorsements, State, Prov. and No.)