

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

C4100
114389

1. Manufactured and certified by ALLOY FABRICATORS, INC., 102 SOUTH INDUSTRIAL DRIVE, TRENTON GA 30752
(Name and address of Manufacturer)

2. Manufactured for SOFIX CORP., 2800 RIVERPORT RD., CHATTANOOGA TN 37406
(Name and address of Purchaser)

3. Location of installation SOFIX CORP, 2800 RIVERPORT RD., CHATTANOOGA TN 37406
(Name and address)

4. Type: VERTICAL JACKET VESSEL 00-155
(Horiz., vert., or sphere) (Tank, separator, jkt. vessel, heat exch., etc.) (Mfg's serial No.)

N/A 00-155-A 1576 2000
(CRN) (Drawing No.) (Nat'l. Bd. No.) (Year built)

5. ASME Code, Section VIII, Div. 1 1998/1999 N/A N/A
(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): 1 (b) Overall length (ft & in.): 3'-4 1/2" (RADIUS)

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
	2 3/8"	*	SA-312TP-304L		.187"	0	1	NONE	70	1	NONE	70	-	-

7. 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)													

8. removable, bolts used (describe other fastening) N/A
(Mat'l Spec. No., Grade, size, No.)

Type of jacket HALF PIPE JACKET (FIG. 9-2, TYPE 3) Jacket closure ELBOW / WELDED
(Describe as ogee & weld, bar, etc.)

If bar, give dimensions 2" SCH 40 SA-403-WP-304L

MAWP 125 - psi at max. temp. 360 - °F Min. design metal temp. -20 °F at 125 psi.
(internal) (external) (internal) (external)

If bolted, describe or sketch.

9. Impact test EXEMPT PER UHA-51
(Indicate yes or no and the component(s) impact tested)

1. Hydro., pneu., or comb. test press. 168 PSI Proof test _____

Items 12 and 13 to be completed for tube sections.

2. 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

3. 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.

4. 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
	7'-11 1/2"	4'-0"	SA-240-304L		1/4"	0	1	SPOT	85	1	SPOT	85	-	-
	7'-11 1/2"	4'-0"	SA-240-304L		1/4"	0	1	SPOT	85	1	SPOT	85	-	-
	7'-11 1/2"	4'-0"	SA-240-304L		1/4"	0	1	SPOT	85	1	SPOT	85	-	-

5. Heads: (a) SA-240 304L (b) SA-240-304L
(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) TOP	5/16"	0	96"	6 1/2"	-	-	-	-	YES	NO	S	NONE	100
(b) BOTTOM	5/16"	0	96"	6 1/2"	-	-	-	-	YES	YES	S	NONE	100

removable, bolts used (describe other fastening) N/A
(Mat'l Spec. No., Grade, size, No.)

i. MAWP $\frac{33}{\text{(internal)}}$ $\frac{-7}{\text{(external)}}$ psi at max. temp. $\frac{360}{\text{(internal)}}$ $\frac{360}{\text{(external)}}$ °F. Min. design metal temp. $\frac{-20}{\text{(internal)}}$ °F at $\frac{33/-7}{\text{(external)}}$ psi.

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

l. Hydro., pneu., or comb. test press. 45 Proof test

1. Nozzles, inspection, and safety valve openings:

[illegible]

Supports: Skirt	NO (Yes or no)	Lugs	0 (No.)	Legs	4 (No.)	Others	- (Describe)	Attached	WELDED TO SHELL (Where and how)
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. 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)

J.M. HUBER HINGED CLOSURE - S/N BA19, AUTHORIZATION NO. 10052

Remarks: * HALF PIPE JACKET WAS ROLLED TO A MINIMUM RADIUS OF 12" W/(6) TURNS ON 4 3/4" PITCH, OUT TO A MAXIMUM RADIUS OF 40 1/2".

SEE ATTACHED U-4 FORM FOR FURTHER DESCRIPTION OF VESSEL

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. 7,251 Expires 04/28/ 2002

Date 9-21-00 Name ALLOY FABRICATORS, INC.

Signed [Signature]
(Representative)

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 GA and employed by HARTFORD STEAMBOILER INSPECT. & INSURANCE CO of HARTFORD CT have inspected the pressure vessel described in this Manufacturer's Data Report on 9-21, 2000, 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 9-21-00 Signed *James N. McGinn* Commissions NB10822A GRA 268
(Authorized Inspector) (Nat'l Board incl. endorsement, State, Province and No.)

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 _____ (Assembler) Signed _____ (Representative)

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 _____ (Authorized Inspector) Commissions _____ (Net! Board Incl. endorsement, State, Province and No.)

FORM U-4 MANUFACTURER'S DATA REPORT SUPPLEMENTARY SHEET
As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

1. Manufactured and certified by ALLOY FABRICATORS, INC. 102 SOUTH INDUSTRIAL DRIVE, TRENTON GA 30752
(name and address of manufacturer)

2. Manufactured for SOFIX CORP., 2800 RIVERPORT RD., CHATTANOOGA TN 37406
(name and address of purchaser)

3. Location of installation SOFIX CORP., 2800 RIVERPORT RD., CHATTANOOGA TN 37406
(name and address)

4. Type: VERTICAL JACKET VESSEL 00-155
(horiz., vert., or sphere) (tank, separator, heat exch., etc.) (mfg's serial no.)
N/A 00-155-A 1576 2000
(CRN) (drawing no.) (Nat'l. Bd. no.) (year built)

Data Report Item Number	Remarks							
PURPOSE	NO	DIA/SIZE	TYPE	MATL	NOM THK	MATL	ATTACHED	LOCATION
AGITATOR	N1	10"	150# RFSO	SA-182-F304L	SCH 40S		FIG UW-16.1(C)	TOP HEAD
125# STEAM IN	N2	2"	150# RFSO	SA-182-F304L	SCH 40S		FIG UW-16.1(C)	COIL
125# STEAM OUT	N3	2"	150# RFSO	SA-182-F304L	SCH 40S		FIG UW-16.1(C)	COIL
EX. HEADER	N4	3"	150# RFSO	SA-182-F304L	SCH 40S		FIG UW-16.1(C)	TOP HEAD
EX. HEADER	N5	6"	150# RFSO	SA-182-F304L	SCH 40S		FIG UW-16.1(C)	TOP HEAD
NITROGEN IN	N6	2"	150# RFSO	SA-182-F304L	SCH 40S		FIG UW-16.1(C)	TOP HEAD
TEMP	N7	1 1/2"	150# RFSO	SA-182-F304L	SCH 40S		FIG UW-16.1(C)	SHELL
FLUID	N8	2"	150# RFSO	SA-182-F304L	SCH 40S		FIG UW-16.1(C)	BTM HD
LEVEL	N9	3"	150# RFSO	SA-182-F304L	SCH 40S		FIG UW-16.1(C)	TOP HEAD
SIGHT GLASS	N10	4"	PAD FLANGE	SA-240-304L	-		FIG UW-16.1(C)	TOP HEAD
SIGHT GLASS	N11	4"	PAD FLANGE	SA-240-304L	-		FIG UW-16.1(C)	TOP HEAD
SAFETY VALVE	N13	3"	150# RFSO	SA-182-F304L	SCH 40S		FIG UW-16.1(C)	TOP HEAD
MANWAY	N14	20"					FIG UW-16.1(C)	TOP HEAD
STEAM IN	N15	2"	150# RFSO	SA-182-F304L	SCH 40S		FIG UW-16.1(C)	JACKET
STEAM OUT	N16	2"	150# RFSO	SA-182-F304L	SCH 40S		FIG UW-16.1(C)	JACKET
SPARE	N17A	2"	150# RFSO	SA-182-F304L	SCH 40S		FIG UW-16.1(C)	TOP HEAD
SPARE	N17B	2"	150# RFSO	SA-182-F304L	SCH 40S		FIG UW-16.1(C)	TOP HEAD
ALKALI IN	N18	3"	150# RFSO	SA-182-F304L	SCH 40S		FIG UW-16.1(C)	TOP HEAD
TOLUENE	N19	2"	150# RFSO	SA-182-F304L	SCH 40S		FIG UW-16.1(C)	TOP HEAD
SPARE	N20	2"	150# RFSO	SA-182-F304L	SCH 40S		FIG UW-16.1(C)	TOP HEAD

VESSEL HAS INTERNAL COIL MADE UP OF 2" SCH 40S PIPE SA-312TP-304L ROLLED TO 72"
CENTERLINE DIAMETER WITH 15 1/2" TURNS ON 1 6" PITCH.
COIL MAWP = 125 PSI MAX TEMP (INT. & EXT.) = 360 DEG. F
COIL MDMT = 20 DEG. F @ 125 PSI
IMPACT TESTING EXEMPT PER UHA-51

Certificate of Authorization: Type "U" No. 7,251 Expires 4/28/ 2002

Date 9-21-00 Name ALLOY FABRICATORS, INC. Signed [Signature]
(manufacturer) (representative)

Date Sept. 21, 2000 Name [Signature] Commission NB108224 GA 268
(Authorized Inspector) (Nat'l. Board incl. endorsement, state, province and no.)

P.O. 1564
S. 3-9581

FORM U-2A MANUFACTURER'S PARTIAL DATA REPORT (ALTERNATIVE FORM)
A Part of a Pressure Vessel Fabricated by One Manufacturer for Another Manufacturer
As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

1. Manufactured and certified by J.M. HUBER CORPORATION 10906 FM 2920 TOMBALL, TEXAS 77375
(Name and address of Manufacturer)
2. Manufactured for ALLOY FABRICATORS P.O. BOX 850 TRENTON, GA 30752
(Name and address of Purchaser)
3. Location of installation UNKNOWN
4. Type: (2) 20" SWING BOLT CLOSURE BA19, BA20 N/A
(Description of vessel part (shell, two-piece head, tube bundle)) (Mfg's. serial No.) (CRN)
- N/A 8356RO J.M. HUBER CORPORATION 1994
(Net'l. Bd. No.) (Drawing No.) (Drawing prepared by) (Year built)
5. ASME Code, Section VIII, Div. 1 1992 ADDENDA 92 N/A N/A
(Edition and Addenda (date)) (Code Case No.) (Special Service per UG-120(d))
6. Shell (a) No. of course(s): 1 (b) Overall length (ft & in.): 0 FT-03.0 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
1	19.500	0-03.0	SA240-304L		250	N/A	S	NONE	1	S	NONE	1	N/A	N/A

7. Heads: (a) SA240-304L (b) N/A
(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)	END	.438	N/A			2:1					X	S	NONE	1
(b)														

- If removable, bolts used (describe other fastening) (4) 3/4 X 5 -SA 449 EYEBOLTS TYPE 1
(Mat'l Spec. No., Grade, Size, No.)
8. MAWP 100 *SEE REMARKS 200 psi at max. temp. °F Min. design metal temp. -20 °F at 100 psi.
(Internal) (external) (Internal) (external)
9. Impact test NØ PER UHA-51 (a)
(Indicate yes or no and the component(s) impact tested)

10. Hydro., pneu., or comb. test press. **SEE REMARKS Proof test
11. Nozzles, inspection, and safety valve openings: UG-125(a) NOTE 39

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	

12. Supports: Skirt Lugs Legs Others Attached
(Yes or no) (No.) (No.) (Describe) (Where and how)
13. Remarks: *THIS TEMPERATURE APPLICABLE TO CLOSURE METAL COMPONENTS ONLY. ACTUAL SERVICE TEMPERATURE IS DETERMINED BY TEMPERATURE LIMITATIONS OF O-RING MATERIAL.
UG120(c)2 DESIGN & CALCULATION BY J.M. HUBER CORPORATION. **CLOSURE ASSEMBLY IS NOT PLANT HYDROSTATICALLY TESTED.

CERTIFICATE OF SHOP/FIELD COMPLIANCE

We certify that the statements made in this report are correct and that all details of material, construction, and workmanship of this pressure vessel part conform to the ASME Code for Pressure Vessels, Section VIII, Division 1.

U Certificate of Authorization No. 10052 Expires JULY 16, 19 96
Date JAN 7, 1994 Name J.M. HUBER CORPORATION Signed [Signature]
(Manufacturer) (Representative)

CERTIFICATE OF SHOP/FIELD 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 TEXAS and employed by HARTFORD STEAM BOILER INSPECTION & INSURANCE CO. OF CONNECTICUT have inspected the pressure vessel part described in this Manufacturer's Data Report on 01-07-94, 19 , and state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel part 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 part 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 01-07-94 Signed [Signature] Commissions TX 755
(Authorized Inspector) PAVC 2295 OHIO COMM 07-01-94

FORM R-2 REPORT OF ALTERATION

in accordance with provisions of the National Board Inspection Code

<p>1. Work performed by <u>ALLOY FABRICATORS, INC.</u> <small>(name of alteration organization)</small> <u>102 SOUTH INDUSTRIAL DRIVE, TRENTON GA 30752</u> <small>(address)</small></p>	<p><u>00-155</u> <small>(Form R No.)</small></p>
<p>2. Owner <u>SOFIX CORPORATION</u> <small>(name)</small> <u>2800 RIVERPORT RD., CHATTANOOGA TN 37406</u> <small>(address)</small></p>	
<p>3. Location of installation <u>SOFIX CORPORATION</u> <small>(name)</small> <u>2800 RIVERPORT RD., CHATTANOOGA TN 37406</u> <small>(address)</small></p>	
<p>4. Unit identification <u>SWING BOLT CLOSURE</u> Name of original manufacturer <u>J.M. HUBER CORP</u> <small>(boiler, pressure vessel)</small></p>	
<p>5. Identifying nos.: <u>BA19</u> <u>—</u> <u>—</u> <u>8356K3</u> <u>1994</u> <small>(indg serial no.) (National Board No.) (jurisdiction no.) (other) (year built)</small></p>	
<p>6. NBIC Edition/Addenda: <u>1998/1999</u> Original Construction Code: <u>VIII-I 1992 '92 AD.</u> <small>(incl edition and addenda)</small></p>	
<p>7. Description of work: <u>20" SWING BOLT CLOSURE (NEW IN A.F.I. STOCK INVENTORY)</u> <small>(see supplemental sheet, Form R-4, if necessary)</small> <u>WAS RE-RATED TO THE FOLLOWING:</u> <u>MAWP = 33 PSI & -7. PSI (EXT.) AT 360°F MAX. TEMP.</u> <u>MDMT = -20°F @ 33/ -7 PSI</u></p>	
<p><u>ALL DESIGN FUNCTIONS PERFORMED BY AFI, PER ASME SECTION VIII-I, 1998 EDITION, 1999 AD.</u></p>	
<p style="text-align: right;">Pressure Test, if applied <u>45</u> psi</p>	
<p>8. Replacement Parts. Attached are Manufacturer's Partial Data Reports or Form R-3s properly completed for the following items of this report: <u>ORIGINAL "PART" NOW BEING "RE-RATED" U-2A MTR'S PARTIAL DATA REPORT</u> <u>ATTACHED, BY J.M. HUBER CORP., "U" CERT. AUTHORIZATION #10052, PART SER. NO. BA19</u></p>	
<p><small>(name of part, item number, data report type, mfr's name and identifying stamp)</small></p>	
<p>9. Remarks: <u>CLOSURE WAS PULLED FROM AFI STOCK (NEW) AND INSTALLED IN AFI</u> <u>FABRICATED JACKETED VESSEL, NB1576, SN. 00-155. CLOSURE HAD TO BE</u> <u>RE-RATED IN ORDER TO BE USED IN THIS VESSEL</u></p>	

DESIGN CERTIFICATION

I, KEVIN MULLINS, 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. R-1476 expires on 4/28, 2002

Date 9/21, 2000 Signed ALLOY FABRICATORS INC. (name of design organization) K-M (authorized representative)

CERTIFICATE OF DESIGN CHANGE REVIEW

I, James R. Myher, holding a valid Commission issued by The National Board of Boiler and Pressure Vessel Inspectors and certificate of competency issued by the jurisdiction of Georgia and employed by H.S.B.I. Co. of Hartford, CT 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 9-21, 2000 Signed James R. Myher (inspector) Commissions GA 268 (National Board (incl endorsements), and jurisdiction, and no.)

* CONSTRUCTION CERTIFICATION

I, _____, 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. _____ expires on _____, 19 _____

Date _____, 19 _____ Signed _____ (name of alteration organization) (authorized representative)

CERTIFICATE OF INSPECTION

I, _____, holding a valid Commission issued by The National Board of Boiler and Pressure Vessel Inspectors and certificate of competency issued by the jurisdiction of _____ and employed by _____ of _____ have

inspected the work described in this report on _____, 19 _____ 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 _____, 19 _____ Signed _____ (inspector) Commissions _____ (National Board (incl endorsements), and jurisdiction, and no.)

* NO construction changes were required for re-rating. Jan 9-21-00