

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

42412(20612)-4953
F1tr

1. Manufactured and certified by Littleford Day, Inc. 7451 Empire drive, PO Box 128, Florence, KY 41042
(Name and address of Manufacturer)
2. Manufactured for B.F. Goodrich, P.O. Box 41256, Brecksville, OH 44141
(Name and address of Purchaser)
3. Location of installation B.F. Goodrich, 9921 Brecksville Road, Brecksville, OH 44141
(Name and address)
4. Type: Vertical Jacketed Vessel 13322 --- 1000858/A 1583 1997
(Horiz., vert., or sphere) (Tank, separator, jkt. vessel, heat exh., etc.) (Mfg's serial No.) (CRN) (Drawing No.) (Nat'l. Bd. No.) (Year built)
5. ASME Code, Section VIII; Div. 1 1995, 1995 ----- -----
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' 3-5/16"

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	17-1/2" ID	3' 3-5/16"	SA240-316		3/16"	Nil	2	None	65%	--	None	---	NA	NA

7. Heads: (a) None (b) None
(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) -----

8. Type of jacket Fig. 9-2 Type 1 Jacket closure Ogee & Weld Fig. 9-5 (b-2)
(Mat'l Spec. No., Grade, size, No.) (Describe as ogee & weld, bar, etc.)

- If bar, give dimensions ----- If bolted, describe or sketch
9. MAWP 150 --- psi at max. temp. 400 --- °F Min. design metal temp. 32 °F at 150 psi.
(Internal) (external) (Internal) (external)

10. Impact test No per UHA 51 (d) & (e)
(Indicate yes or no and the component(s) impact tested)

11. Hydro., pneu., or comb. test press. 250 PSI 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): 1 (b) Overall length (ft & in.): 3' 8-1/4"

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	15-1/2" ID	3' 8-1/4"	SA240-316		1/4"	Nil	1	None	70%	--	None	--	NA	NA

15. Heads: (a) SA240-316 HT-NA (b) None
(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 | .625 | Nil | -- | -- | -- | -- | -- | 15-1/2" | -- | -- | -- | None | -- |
| (b) | | | | | | | | | | | | | | |

If removable, bolts used (describe other fastening) -----

(28) Bolts - SA193-B7 1" 8NC, Nuts-SA194-GR2H 1"-8NC
(Mat'l Spec. No., Grade, Size, No.)

RR 1026.10

16. MAWP 50 150 psi at max. temp. 400 400 °F Min. design metal temp. 32 °F at 50 psi.
(internal) (external) (internal) (external)

17. Impact test No per UHA 51 (d) & (e)

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

18. Hydro., pneu., or comb. test press. 95 PSI

Proof test ----

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	
Vapor Outlet	1	2"	CL #150 Flg.	SA312-316	SA182-316	.154"	Nil	Inherent	UW16.1(d)	2-4(9)	Drum
Nitrogen Inlet	2	3/4"	W.E.	SA-312-316	----	.113"	Nil	Inherent	UW16.1(e)	---	Drum
Jacket	4	1"	CL #150 Flg.	SA312-316	SA182-316	.133"	Nil	Inherent	UW16.1 (c)	2-4(9)	Jacket
Inlets/Outlets											
Top and Bottom Flange	2	22"OD	F.F. Flg.	----	SA240-316	1-3/8"	Nil	----	----	2-4(9)	Drum

20. Supports: Skirt No Lugs -- Legs -- Others Bottom Flange Attached Welded to Inner Drum
(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)

22. Remarks: Exempt from Impact Testing per UHA 51 (d) & (e). Jacket is for non-corrosive service only. Safety relief by user.

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. 1,193 Expires Jan. 30, 19 98

Date 7/1/97 Name Littleford Day, Inc. Signed [Signature]
(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 the State or Province of Kentucky and employed by Commercial Union Insurance Co. of Boston, MA have inspected the pressure vessel described in this Manufacturer's Data Report on 7-1, 19 97, 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 7-1-97 Signed [Signature] Commissions 10168A 14,875
(Authorized Inspector) (Nat'l 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 , 19

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 the State or Province of and employed by 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
(Authorized Inspector) (Nat'l Board incl. endorsement, State, Province and No.)