FORM U-1 (Cont'd)

8/8

National Board Number: 21807
Mfg Representative: [signature] Date: 4-5-17
Authorized Inspector [signature] Date: 4/5/17

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 BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1,

U Certificate of Authorization No. 982 Expires January 31, 2020

Date 4-5-17 Name Doyle & Roth Mfg. Co.,Inc. (Manufacturer) Signed [signature] (Representative)

CERTIFICATE OF SHOP INSPECTION

I, the undersigned, holding a valid commission issued by The National Board of Boiler and Pressure Vessel Inspectors and employed by: OneCIS Insurance Company of Lynn, MA and have inspected the pressure vessel described in this Manufacturer's Data Report on 04/05/2017, and state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel in accordance with ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. By signing this certificate neither the Inspector nor his /her employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his/her employer shall be liable in any manner for any personal injury or property damage or loss of any kind arising from or connected with this inspection.

Date 04/05/2017 Signed [signature] (Authorized Inspector) Commissions NB 9541 [National Board (ind. endorsements)]

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 BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1,

U Certificate of Authorization No. _____ Expires _____

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

CERTIFICATE OF FIELD ASSEMBLY INSPECTION

I, the undersigned, holding a valid commission issued by The National Board of Boiler & Pressure Vessel Inspectors 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 BOILER AND PRESSURE VESSEL CODE, Section VIII Division 1. The described vessel was inspected and subjected to a hyrdrostatic test of _____ psi. By signing this certificate neither the Inspector nor his/her employer makes any warranty, expressed or or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his/her 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 _____ [National Board (ind. endorsements)]

17230
MWO

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

As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

1. Manufactured and certified by **Enerquip, LLC, 611 North Road, Medford, Wisconsin, 54451-0467**
(Name and address of Manufacturer)

2. Manufactured for **J.O. Galloup Company, 5101 South Sprinkle Road, Portage, Michigan, 49002**
(Name and address of Purchaser)

3. Location of installation **Kalsec, Incorporated, 3713 West Main Street, Kalamazoo, Michigan, 49006-2842**
(Name and address)

4. Type **Horizontal** (Horizontal, vertical, or sphere) | **Heat Exchanger** (Tank, separator, jkt. vessel, heat exch., etc.) | **17549** (Manufacturer's serial number)

N/A (CRN) | **SA-4909-C** (Drawing number) | **15227** (National Board number) | **2014** (Year built)

5. ASME Code, Section VIII, Div. 1 **2013/ N/A** [Edition and Addenda, if applicable (date)] | **2305** (Code Case Number) | **N/A** [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 multichamber vessels.

6. Shell: (a) Number of course(s) **1** (b) Overall length **0' 127.94"**

Course(s)			Material	Thickness		Long. Joint (Cat. A)			Circum. Joint (Cat. A, B, & C)			Heat Treatment	
No.	Diameter	Length	Spec./Grade or Type	Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.	Time
1	16.00" OD	127.94"	SA-312 TP304L WLD	.188"	N/A	Welded	None	1	7	N/A	N/A	N/A	N/A

Body Flanges on Shells

No.	Type	ID	OD	Flange Thk	Min Hub Thk	Material	How Attached	Location	Bolting			
									Num & Size	Bolting Material	Washer (OD, ID, thk)	Washer Material
1	Loose	16.06"	19.50"	1.94"	N/A	SA-240 316L - No H.T.	Welded	END	N/A	N/A	N/A	N/A

7. Heads: (a) **SA-240 304L - No H.T.** (Material spec. number, grade or type) (H.T. - time and temp.) (b) **N/A** (Material spec. number, grade or type) (H.T. - time and 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	.87"	N/A	N/A	N/A	N/A	N/A	N/A	16.00"			N/A	N/A	N/A
(b)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			N/A	N/A	N/A

Body Flanges on Heads

	Location	Type	ID	OD	Flange Thk	Min Hub Thk	Material	How Attached	Bolting			
									Num & Size	Bolting Material	Washer (OD, ID, thk)	Washer Material
(a)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A

8. Type of jacket **N/A** Jacket closure **N/A** (Describe as ogee & weld, bar, etc.)

If bar, give dimensions **N/A** If bolted, describe or sketch.

9. MAWP **150 psi** (Internal) **N/A** (External) at max. temp. **375 °F** (Internal) **N/A** (External) Min. design metal temp. **-20 °F** at **150 psi**

10. Impact test **No, Impact Testing Not Required Per UHA-51(d), (d)(1)(a) & (g)** at test temperature of **N/A**
[Indicate yes or no and the component(s) impact tested]

11. Hydro., pneu., or comb. test pressure **Hydro. at 204 psi** Proof test **N/A**

Items 12 and 13 to be completed for tube sections.

12. Tubesheet **SA-240 316L - No H.T.** [Stationary (material spec. no.)] | **16.595"** [Diameter (subject to press.)] | **1.63"** (Nominal thickness) | **N/A** (Corr. allow.) | **Bolted** Attachment (welded or bolted)

N/A [Floating (material spec. no.)] | **N/A** (Diameter) | **N/A** (Nominal thickness) | **N/A** (Corr. allow.) | **N/A** (Attachment)

13. Tubes **SA-249 TP316L** (Material spec. no., grade or type) | **.375"** (O. D.) | **.035"** (Nominal thickness) | **402** (Number) | **U** [Type (Straight or U)]

FORM U1-(Cont'd)

NB Number 15227

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 **2.19"**

Course(s)			Material	Thickness		Long. Joint (Cat. A)			Circum. Joint (Cat. A, B, & C)			Heat Treatment	
No.	Diameter	Length	Spec./Grade or Type	Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.	Time
1	17.562" OD	2.19"	SA-240 316L - No H.T.	.781"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Body Flanges on Shells

No.	Type	ID	OD	Flange Thk	Min Hub Thk	Material	How Attached	Location	Bolting			
									Num & Size	Bolting Material	Washer (OD, ID, thk)	Washer Material
1	Intergral	16.00"	19.50"	2.19"	N/A	SA-240 316L - No H.T.	Integral	END	5/8-11 - 7.50"	16)Stud SA-193 B8 CL2; 32)Nut SA-194 Gr8	N/A	N/A

15. Heads: (a) **SA-240 316L - No H.T.** (Material spec. number, grade or type) (H.T. - time and temp.) (b) **N/A** (Material spec. number, grade or type) (H.T. - time and 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	.88"	N/A	N/A	N/A	N/A	N/A	N/A	16.00"			N/A	N/A	N/A

Body Flanges on Heads

	Location	Type	ID	OD	Flange Thk	Min Hub Thk	Material	How Attached	Bolting			
									Num & Size	Bolting Material	Washer (OD, ID, thk)	Washer Material
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

16. MAWP **150 psi** (Internal) **N/A** (External) at max. temp. **375 °F** (Internal) **N/A** (External) Min. design metal temp. **-20 °F** at **150 psi**.

17. Impact test **No, Impact Test Not Required Per UHA-51(d), (d)(1)(a) & (g)** [Indicate yes or no and the component(s) impact tested] at test temperature of **N/A**.

18. Hydro., pneu., or comb. test pressure **Hydro. at 204 psi** Proof test **BTR-SFC-01 UG-101(m); 20 Sept 2013; AI Acceptance 13 Oct 2014**

19. Nozzles, inspection, and safety valve openings:

Purpose (Inlet, Outlet, Drain, etc.)	No.	Diameter or Size	Type	Material		Nozzle Thickness		Reinforcement Material	Attachment Details		Location (Insp. Open.)
				Nozzle	Flange	Nom.	Corr.		Nozzle	Flange	
Tube Inlet/Outlet	2	2.198" O.D.	Sanitary	SA-479 316L		.164"			(b)		
Shell Inlet/ Outlet	2	6" NPS	150# SO	SA-312 TP304L WLD	SA-182 F304L	.134"			(c)	(k)	
Shell Vent/ Drain	2	1" NPT	Coupling	SA-182 F304L		3000#			(p)		
Auxillary Port	4	1" NPT	Coupling	SA-182 F304L		3000#			(L)		

20. Supports: Skirt **No** (Yes or no) Lugs **N/A** (Number) Legs **2** (Number) Others **Pad** (Describe) Attached **Shell, Welded** (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, Manufacturer's name, and identifying number):

N/A

22. Remarks

(19.) Nozzle Attachments Described Above Are Per Those Described In UW-16.1 & UW-16-2
Pressure And/Or Temperature Devices Are Not By Enerquip, LLC
SA-240 304L Lifting Lugs (Qty 2)Welded To Shell

CERTIFICATE OF SHOP COMPLIANCE

We certify that the statements in this report are correct and that all details of design, material, construction, and workmanship of this vessel conform to the ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. U Certificate of Authorization Number **38115** Expires **December 15, 2014**

Date 10/30/2014 Name **Enerquip, LLC** (Manufacturer) Signed (Representative)

CERTIFICATE OF SHOP INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and employed by

HSB Global Standards, of Hartford, CT

have inspected the pressure vessel described in this Manufacturer's Data Report on **October 30, 2014**, and state that,

to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel in accordance with ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. By signing this certificate neither the Inspector nor his/her employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his/her 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 10/30/2014 Signed (Authorized Inspector) Commissions: **14870A, WI1254765, MNc0669328** [National Board (incl. endorsements)]

CERTIFICATE OF FIELD ASSEMBLY COMPLIANCE

We certify that the statements made in this report are correct and that the field assembly construction of all parts of this vessel conforms with the requirements of ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. U Certificate of Authorization Number Expires

Date Name (Assembler) Signed (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 employed by

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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 the ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. The described vessel was inspected and subjected to a hydrostatic test of . By signing this certificate neither the Inspector nor his/her employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his/her 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) Commission [National Board (incl. endorsements)]