

**FORM U-1 MANUFACTURERS' DATA REPORT FOR UNFIRED PRESSURE VESSELS**  
As required by the Provisions of the ASME Code Rules

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1. Manufactured by RYAN INDUSTRIES, INC. CLEVELAND, OHIO  
(Name and address of manufacturer)  
2. Manufactured for NATIONAL CYLINDER GAS CO., DIV. OF CHEMETRON CORP., CHICAGO, ILL.  
(Name and address of Purchaser)  
3. Type VERTICAL Kind JACKETED Vessel No. 2115 (Mfrs. Serial) (State & State No.)  
Natl. Bd. No. 2115 Yr. Built 1964  
(Horiz. or Vert.) (Tank, Jacketed, Heat Exch.)

Items 4-9 incl. to be completed for single wall vessels (such as air tanks), jackets of jacketed vessels, or shells of heat exchangers.

4. SHELL: Material T.S. Nominal Thickness            In. Corrosion Allowance            In. Diam.            Ft. In. Length            Ft. In.  
(Kind and Spec. No.) (Fig. or F.B. & Spec. Min. T.S.)  
5. SEAMS: Long            S.R.            X.R.            Sectioned            Efficiency            %  
(Welded, Dbl., Single, Lap, Butt) (Yes or No) (Spot or Complete) (Yes or No)  
Girth            S.R.            X.R.            Sectioned            No. of Courses             
6. HEADS: (a) Material            T.S.            (b) Material            T.S.             
Location (Top, bottom, ends) Thickness Crown Radius Knuckle Radius Elliptical Ratio Conical Apex Angle Hemispherical Radius Flat Diameter Side to Pressure (Convex or Concave)  
(a)             
(b)             
If removable, bolts used            Other fastening             
(Material, Spec. No., T.S., Size, Number) (Describe or Attach Sketch)  
7. STAYBOLTS:            If hollow            Attachment            Pitch            X            Diam.             
(Material) (Size of Hole) (Threaded, Welded) (Horiz.) (Vert.) (Nominal)  
8. JACKET CLOSURE:             
(Describe as ogee & weld, bar, etc. If bar give dimensions, if bolted, describe or sketch)  
9. Constructed for max. allowable working press.<sup>1</sup>            psi. at max. temp.            °F. Min. temp. (when less than -20°)            °F.            Test Press.            psi.  
(Pneumatic or Combination)

If riveted describe seams fully on reverse side of form

Items 10 and 11 to be completed for tube sections.

10. TUBE SHEETS: Stationary. Material            (Kind & Spec. No.) Diam.            In. Thickness            In. Attachment            (Welded, Bolted)  
Floating. Material            (Kind & Spec. No.) Diam.            In. Thickness            In. Attachment             
11. TUBES: Material            O.D.            In. Thickness            Inches or Gage Number            Type            (Straight or U)

Items 12-15 incl. to be completed for inner chambers of jacketed vessels, or channels of heat exchangers.

12. SHELL: Material 304 S.S. SA-240 T.S. 75,000 Nominal Thickness .390 In. Corrosion Allowance            In. Diam. 4 Ft.            In. Length 7 Ft. 9-1/16 In.  
(Kind and Spec. No.) (Fig. or F.B. & Spec. Min. T.S.)  
13. SEAMS: Long DBL. BUTT WELD S.R. NO X.R. COMPLETE Sectioned NO Efficiency 90 %  
(Welded, DBL., Single, Lap, Butt) (Yes or No) (Spot or Complete) (Yes or No)  
Girth DBL. BUTT WELD S.R. NO X.R. COMPLETE Sectioned NO No. of courses 1  
14. HEADS: (a) Material 304 S.S. SA-240 T.S. 75,000 (b) Material            T.S.            (c) Material            T.S.             
Location Thickness Crown Radius Knuckle Radius Elliptical Ratio Conical Apex Angle Hemispherical Radius Flat Diameter Side to Pressure  
(a) Top, bottom, ends .347 MIN.            ELLIP. 2:1 RATIO            CONCAVE  
(b) Channel             
(c) Floating             
If removable, bolts used (a)            (b)             
(Material, Spec. No., T.S., Size, Number) (Describe or Attach Sketch)  
15. Constructed for max. allowable working press.<sup>1</sup> 250 psi. at max. temp. +100 °F. Min. temp. (when less than -20°) -320 °F.            Test Press. 404 psi.  
(Hydrostatic) (Pneumatic or Combination)

If riveted describe seams fully on reverse side of form

Items below to be completed for all vessels where applicable.

16. SAFETY VALVE OUTLETS: Number            Size            Location             
17. NOZZLES:  
Purpose (Inlet, Outlet, Drain) Number Diam. or Size Type Material Thickness Reinforcement Material How Attached  
           3 - 3/4" SA-240 ROD DRILLED .385 I.D.            WELDED  
           1 - 1-1/8" " " .885 I.D. " "  
           3 - 1-1/2" " " 1.135 I.D. " "  
18. INSPECTION Manholes, No.            Size            Location             
OPENINGS: Handholes, No.            Size            Location             
Threaded, No.            Size            Location             
19. SUPPORTS: Skirt            Lugs            (Number) Legs 3 (Number) Other 3 BRACE RODS Attached SIDE SHELL (Where & How)  
20. REMARKS: 48" I.D. LOX STORAGE VESSEL (INNER VESSEL ONLY) BRACE RODS WELDED TO TOP HEAD

(Brief description of purpose of the vessel, as Air Tank, After Cooler, Jacketed Cooker, etc. State contents of each part. (Over)  
<sup>1</sup> List other internal or external pressures with coincident temperature when applicable.)

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

Date FEB 19 1964 19 Signed RYAN INDUSTRIES, INC. (Manufacturer) By J. Magyer

Certificate of Authorization Expires #956 12/31/64

**CERTIFICATE OF SHOP INSPECTION**

Inspection Agency's Serial No. HSB #2502

VESSEL MADE BY RYAN INDUSTRIES, INC. at CLEVELAND, OHIO

I, the undersigned, holding a Certificate of Competency as an Inspector of Boilers and Unfired Pressure Vessels in THE STATE OF NATIONAL BOARD and employed by HARTFORD STEAM BOILER INSPECTION & INSURANCE CO. of HARTFORD, CONN. inspected internally and externally, the vessel described in this report on FEB 19 1964, and certify that the statements made in this report are correct corresponding with mill test reports of materials furnished by the builders, and measurements made of the vessel and that this vessel is constructed in accordance with the ASME Code for Unfired Pressure vessels.

Date FEB 19 1964 19  
J. Magyer  
Inspector's Signature

Ohio #1186  
Penna. #WC-982  
N.B. #3342  
Commissions State or Nat'l Bd. & Number

**CERTIFICATE OF FIELD ASSEMBLY INSPECTION**

I, the undersigned, holding a Certificate of Competency as an Inspector of Boilers and Unfired Pressure Vessels in THE STATE OF \_\_\_\_\_ and employed by \_\_\_\_\_ of \_\_\_\_\_ have compared the statements in this manufacturers' data report with the completed vessel, and certify that parts referred to as data items were completed in the field in accordance with the requirements of the ASME Code for Unfired Pressure Vessels. The completed vessel was inspected and subjected to a hydrostatic test of \_\_\_\_\_ psi.

Date \_\_\_\_\_ 19 \_\_\_\_\_  
Inspector's Signature

Commissions State or Nat'l Bd. & Number