FORM U-1 MANUFACTURERS' DATA REPORT FOR UNFIRED PRESSURE VESSELS

As required by the Provisions of the ASME Code Rules

1. Manufactured by RYAN INDUSTRIES, INC. CLEVELAND, OHIO
(Name and address of Manufacturer)

2. Manufactured for NATIONAL CYLINDER GAS DIVISION OF CHEMETRON CORP. CHICAGO, ILLINOIS
(Name and address of Purchaser)

3. Type VERTICAL (Horiz. or Vert.) Kind JACKETED (Tank, Jacketed, Heat Exch.) Vessel No. (Mfrs. Serial) 4006 ( ) (State & State No.) Natl. Bd. No. 4006 Yr. Built 1966

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 (Kind and Spec. No.) T.S. (Fig. or F.B. & Spec. Min. T.S.) Nominal Thickness In. Corrosion Allowance In. Diam. Ft. In. Length Ft. In.

5. SEAMS: Long (Welded, Dbl., Single, Lap, Butt) H.T. (Yes or No) X.R. (Spot or Complete) Sectioned (Yes or No) Efficiency %

Girth H.T. X.R. Sectioned No. of Courses

If riveted describe seams fully on reverse side of form.

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 (Material, Spec. No., T.S., Size, Number) Other fastening (Describe or Attach Sketch)

7. STAYBOLTS: (Material) If hollow (Size of Hole) Attachment (Threaded, Welded) Pitch (Horiz.) X (Vert.) Diam. (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[2] psi at max. temp. °F. Min. temp. (when less than −20°) °F. Hydrostatic / Pneumatic or Combination Test Press psi.

Items 10 and 11 to be completed for tube sections.

10. TUBE SHEETS: Stationary. Material (Kind & Spec. No.) Diam. (Subject to Pressure) In. Thickness In. Attachment (Welded, Bolted)

Floating. Material (Kind & Spec. No.) Diam. In. Thickness In. Attachment

11. TUBES: Material (Kind & Spec. No.) 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 (Kind and Spec. No.) T.S. 75,000 (Fig. or F.B. & Spec. Min. T.S.) Nominal Thickness .349 In. Corrosion Allowance 0 In. Diam. 4 Ft. 0 In. Length 5 Ft. 5 In.

13. SEAMS: Long DBL. BUTT WELD (Welded, Dbl., Single, Lap, Butt) H.T. NO (Yes or No)[2] X.R. COMPLETE (Spot or Complete) Sectioned NO (Yes or No) Efficiency 100 %

Girth DBL. BUTT WELD H.T. NO X.R. COMPLETE Sectioned NO No. of courses 1

If riveted describe seams fully on reverse side of form.

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 (Convex or Concave)
(a) Top, bottom, ends	.347" MIN.			2:1				CONCAVE
(b) Channel								
(c) Floating								

If removable, bolts used (a) (Material, Spec. No., T.S., Size, Number) (b)

(c) Other fastening (Describe or Attach Sketch)

15. Constructed for max. allowable working press[2] 250 psi at max. temp. +100 °F. Min. temp. (when less than −20°) −320 °F. W/FULL EXT. VAC. Hydrostatic / ~~Pneumatic~~ / ~~Combination~~ Test Press 405 psi.

Items below to be completed for all vessels where applicable. WELD I.T.

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"O.D.	SA-240 TYPE 304 S.S.	ROD BORED	.385"I.D.		WELDED
	3	1-1/2"O.D.	SA-240 TYPE 304 S.S.	ROD BORED	1.135"I.D.		WELDED
	1	1-1/8"O.D.	SA-240 TYPE 304 S.S.	ROD BORED	.885"		WELDED

[1] If postweld heat-treated. [2] List under remarks other internal or external pressures with coincident temperature when applicable.

(Over)

FORM U-1 (back)

18. INSPECTION OPENINGS: Manholes, No. _____ Size _____ Location _____
Handholes, No. _____ Size _____ Location _____
Threaded, No. _____ Size _____ Location _____

19. SUPPORTS: Skirt _____ (Yes or No) Lugs _____ (Number) Legs 3 WELDED TO SIDE OF SHELL Other 3 BRACE RODS (Describe) Attached WELDED TO TOP HEAD (Where & How)

20. REMARKS: 48" I.D. LIQUID OXYGEN STORAGE VESSEL - LENGTH O.A. 7' 8-3/4"
INNER VESSEL ONLY

JACKET VACUUM SERVICE - NOT CODE STAMPED
DIA. 64" LENGTH O.A. 9' 5"

(Brief description of purpose of the vessel, as Air Tank, After Cooler, Jacketed Cooker, etc. State contents of each part.)

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 Unfired Pressure Vessels.

Date JUL 25 1966 19 Signed RYAN INDUSTRIES, INC. (Manufacturer) By _____

Certificate of Authorization Expires #956 12/31/67

CERTIFICATE OF SHOP INSPECTION

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

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State of NATIONAL BOARD and employed by HARTFORD STEAM BOILER INSPECTION & INSURANCE CO. of HARTFORD, CONN. have inspected the pressure vessel described in this manufacturer's data report on _____ 19 ___, and state that to the best of my knowledge and belief, the manufacturer has constructed this pressure vessel in accordance with the applicable sections of the ASME Boiler and Pressure Vessel Code.

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 JUL 25 1966 19 ___

OHIO # 1186
PENNA # WC 982
N.B. # 334

_____ Commissions _____
Inspectors Signature Nat'l Board or State and No.

CERTIFICATE OF FIELD ASSEMBLY INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State 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 that to the best of my knowledge and belief the manufacturer has constructed and assembled this pressure vessel in accordance with the applicable sections of the ASME Boiler and Pressure Vessel Code. 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 _____ 19 ___

_____ Commissions _____
Inspector's Signature Nat'l Board or State and No.

Printed in U.S.A. (2/66) This Form is obtainable from the ASME, 345 E. 47th St., New York, N.Y. 10017