

# 98866

**FORM U-1 MANUFACTURER'S DATA REPORT FOR UNFIRED  
PRESSURE VESSELS P.O. No. 5376-C20-101**

As Required by the Provisions of the ASME Code Rules

1. Manufactured by **STRUTHERS WELLS CORPORATION, Warren, Penna.**  
(Name and address of Manufacturer)  
2. Manufactured for **The M. W. Kellogg Company, New York, New York**  
(Name and address of Purchaser)  
3. Type **Horiz.** Kind **Heat Exch.** Vessel No. **65-4-4077** - Nat'l Bd. No. **12390** Yr. Built **1966**  
(Horiz. or Vert.) (Tank, Jacketed, Heat Exch.) (Mfrs' Serial) (State & State No.)

Items 4-9 incl. to be completed for ~~shells or tube sheets~~ or shells of heat exchangers.

4. Shell: Material **Fbx.Stl. SA-201-B** T. S. **60,000** Nominal Thickness **1/2** in. Corrosion Allowance **1/16** in. Diam. **3 ft. 1 in.** Length **27 ft. 4-1/8 in.**  
(Kind and Spec. No.) (Fig. or F. B. & lowest T. S.)  
5. Seams: Long **Dbl. Butt** H. T. **Yes** X. R. **Spot** Sectioned **No** Efficiency **80** %  
(Welded, Dbl., Single, Lap, Butt) (Yes or No) (Spot or Complete) (Yes or No)  
Girth **Dbl. Butt** H. T. **Yes** X. R. **Spot** Sectioned **No** No. of Courses **4**  
6. Heads: (a) Material **Fbx.Stl. SA201B** **60,000** (b) Material **T. S.**  
(Top, bottom, ends) Thickness **7/16 Min.** Crown Radius Knuckle Radius Elliptical Ratio Conical Apex angle Hemispherical Radius Flat Diameter Side to Pressure (Convex or Concave)  
(a) **End** **Concave**  
(b)   
If removable, bolts used. Other fastening.  
(Material, Spec. No., T. S., Size, Number) (Describe or Attach Sketch)

If riveted describe seams fully on reverse side of form.

7. Staybolts: **If hollow** Attachment **Pitch** **X** Diam. **Min. Temp** **19** °F. Hydrostatic Test **375** psi.  
(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 ~~Int.~~ pressure of **250** psi. Max. Temp **150** °F. Subzero **19** °F. Hydrostatic Test **375** psi.

Items 10 and 11 to be completed for tube sections. **Integral W Channel**

10. Tube Sheets: Stationary. Material **Fgd.Stl. SA105II** Diam. **33-3/4** in. Thickness **6-3/4** in. Attachment **Channel**  
(Kind & Spec. No.) (Subject to Pressure) (Welded, Bolted)  
Floating. Material **Welded Stl.** Diam. **SA-214** in. Thickness **0.083** inches Attachment **U**  
(Kind & Spec. No.) (Straight or U)

Items 12-15 incl. to be completed for ~~floating tube sheets~~ channels of heat exchangers.

12. Shell: Material **Fgd.Stl. SA105II** T. S. **70,000** Nominal Thickness **2-9/16** in. Corrosion Allowance **1/16** in. Diam. **3 ft. 2-7/8 in.** Length **2 ft. 3-5/16 in.**  
(Kind and Spec. No.) (Fig. or F. B. & lowest T. S.)  
13. Seams: Long **None** H. T. **Yes** X. R. **Complete** Sectioned **No** Efficiency **100** %  
(Welded, Dbl., Single, Lap, Butt) (Yes or No) (Spot or Complete) (Yes or No)  
Girth **Dbl. Butt** H. T. **Yes** X. R. **Complete** Sectioned **No** No. of Courses **1**  
14. Heads: (a) Material **Fgd.Stl. SA105II** T. S. **70,000** (b) Material **Alloy Stl. SA-193-B7** T. S. **125,000** (c) Material **1-5/8, 20**  
(a) Top, bottom, ends (b) Channel **Cover** **4-7/8** (c) Floating **26-7/8**  
Location Thickness Crown Radius Knuckle Radius Elliptical Ratio Conical Apex angle Hemispherical Radius Flat Diameter Side to Pressure (Convex or Concave)  
If removable, bolts used (a) (Material, Spec. No., T. S., Size, Number) (b) **Alloy Stl. SA-193-B7** **125,000** **1-5/8, 20**  
(c) Other fastening.  
(Describe or Attach Sketch)

If riveted describe seams fully on reverse side of form.

15. Constructed for ~~Int.~~ pressure of **2350** psi. Max. Temp **150** °F. Subzero **29** °F. Hydrostatic Test **3525** psi.

Items below to be completed for all vessels where applicable.

16. Safety Valve Outlets: Number **3** Size **4 x 150#** Location **Lg. Weld Nks.**  
17. Nozzles: Purpose (Inlet, Outlet, Drain) Number Diam. or Size Type Material Thickness Reinforcement Material How Attached

| Purpose (Inlet, Outlet, Drain) | Number | Diam. or Size | Type          | Material | Thickness | Reinforcement Material | How Attached |
|--------------------------------|--------|---------------|---------------|----------|-----------|------------------------|--------------|
| Shell Inlets                   | 3      | 4 x 150#      | Lg. Weld Nks. | Fgd.Stl. | 0.75      | None                   | Welded       |
| " Outlets                      | 3      | 8 x 150#      | "             | "        | 0.875     | "                      | "            |
| Tube In&Out                    |        |               | Stub end      | "        | 3.0625    | "                      | "            |

18. Inspection Manholes, No. **3** Size **4 x 150#** Location **Lg. Weld Nks.**  
Openings: Handholes, No. **3** Size **8 x 150#** Location **"**  
Threaded, No. **3** Size **3.0625** Location **"**

19. Supports: Skirt **Saddles** Attached **Weld to shell**  
(Yes or No) (Number) (Number) (Describe) (Where & How)

20. Remarks: **Feed and recycle gas chiller with NH<sub>3</sub> refrigerant on shell side and feed and recycle gas on tube side.**

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

Form No. 541E **Item 118-C** (Over) **31'9-1/4 OAL**

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

Date Aug 22, 1966 Signed Struthers Wells Corporation By E. J. Honhart  
(Manufacturer)

Certificate of Authorization Expires December 31st 1967

**CERTIFICATE OF SHOP INSPECTION**

VESSEL MADE BY Struthers Wells Corporation at Warren, Pennsylvania

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State of HARTFORD, CONN. and employed by HARTFORD STEAM BOILER INSP. & INS. CO. of HARTFORD, CONN. have inspected the pressure vessel described in this manufacturer's data report on 1966, 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 Aug 22, 1966 Inspectors Signature [Signature] Commissions 3760 Nat'l Board or State and No. 3760

**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 CONN. and employed by CONN. of CONN. 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 150 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.

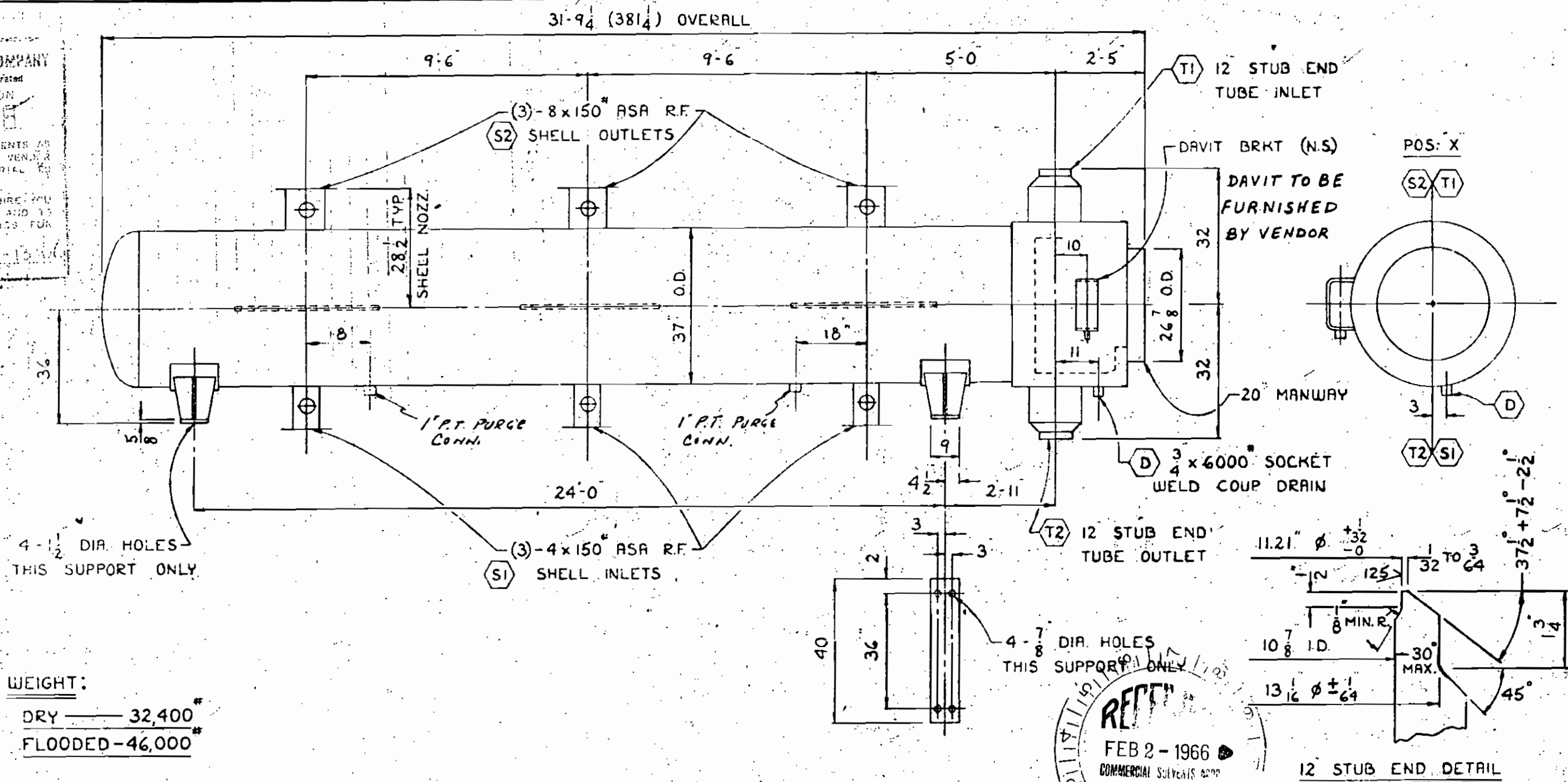
Date Aug 22, 1966 Inspectors Signature [Signature] Commissions 3760 Nat'l Board or State and No. 3760

FABRICATION DIVISION  
COMMENTS: NONE  
AS NOTED

COMMENTS NONE OF COMMENTS ARE  
NOTED DO NOT BELIEVE THE VENDOR  
FROM SUPPLYING MATERIAL  
& CONFORM TO ORDER.

COMMENTS AS NOTED REQUIRE YOU  
TO PROCEED ACCORDINGLY AND  
SUBMIT REVISED DRAWINGS FOR  
RECORD PURPOSES.

BY W. H. F. DATE 1-10-19



WEIGHT:

DRY ——— 32,400  
FLOODED — 46,000

|                  | SHELL<br>SIDE                           | TUBE<br>SIDE                            |
|------------------|-----------------------------------------|-----------------------------------------|
| DESIGN<br>PRESS. | 250 <sup>PSI</sup> /□                   | 2350 <sup>PSI</sup> /□                  |
| TEST<br>PRESS.   | 375 <sup>PSI</sup> /□                   | 3525 <sup>PSI</sup> /□                  |
| DESIGN<br>TEMP.  | 19 <sup>°F</sup> /<br>150 <sup>°F</sup> | 29 <sup>°F</sup> /<br>150 <sup>°F</sup> |
| CORR.<br>ALLOW.  | 0.063                                   | 0.063                                   |

M. W. KELLOGG, CO

CUST. ORD. NO. 5376-C-20-101

CUST. ITEM No 118C

SERVICE: FEED & RECYCLE GAS

SECOND STAGE CHILLER

S. W. CORP. ORD. NO. 65-4-4077

NOTE:

BOLT HOLES FLGD. CONNS. TO STRAD. C.S.  
SHELL COUPS. TO BE 6000" STD THRD. PLUGGED  
SHELL NOZZ'S. TO HAVE ONE  $\frac{3}{4}$  P.T. N.S. &  
ONE  $\frac{3}{4}$  P.T. F.S.

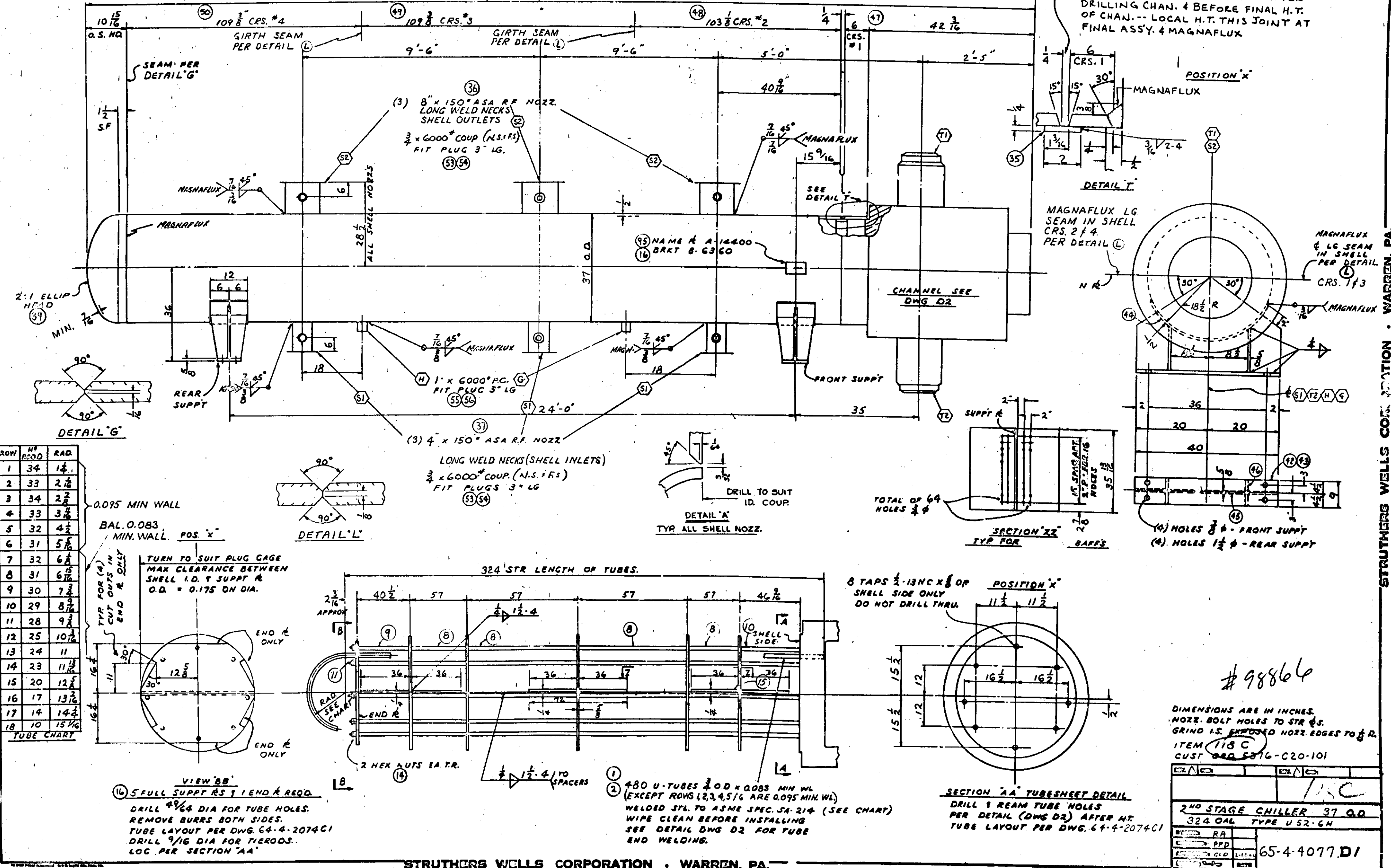
RECEIVED  
FEB 2 - 1966  
COMMERCIAL SOLVENTS GROUP  
TERRE HAUTE, IND.

|                                                                                            |         |      |                                                                                            |                      |  |
|--------------------------------------------------------------------------------------------|---------|------|--------------------------------------------------------------------------------------------|----------------------|--|
| REV.  | CHK: RA | I-4  | REV.  | CHK:                 |  |
| REVISED SYND ENDS                                                                          |         |      |                                                                                            |                      |  |
| SETTING PLAN FOR HEAT EXCH.                                                                |         |      |                                                                                            |                      |  |
| 36 I.D. x 27-0 S.T.L. TYPE: 36-27U-52H                                                     |         |      |                                                                                            |                      |  |
| DRAWN: TLS                                                                                 |         | 728  |                                                                                            | 65-4-4077 B!<br>118C |  |
| CHECKED: JH                                                                                |         | 728  |                                                                                            |                      |  |
| APPROVED: CLD                                                                              |         | P-6  |                                                                                            |                      |  |
| SCALE: 02                                                                                  |         | DATE |                                                                                            |                      |  |

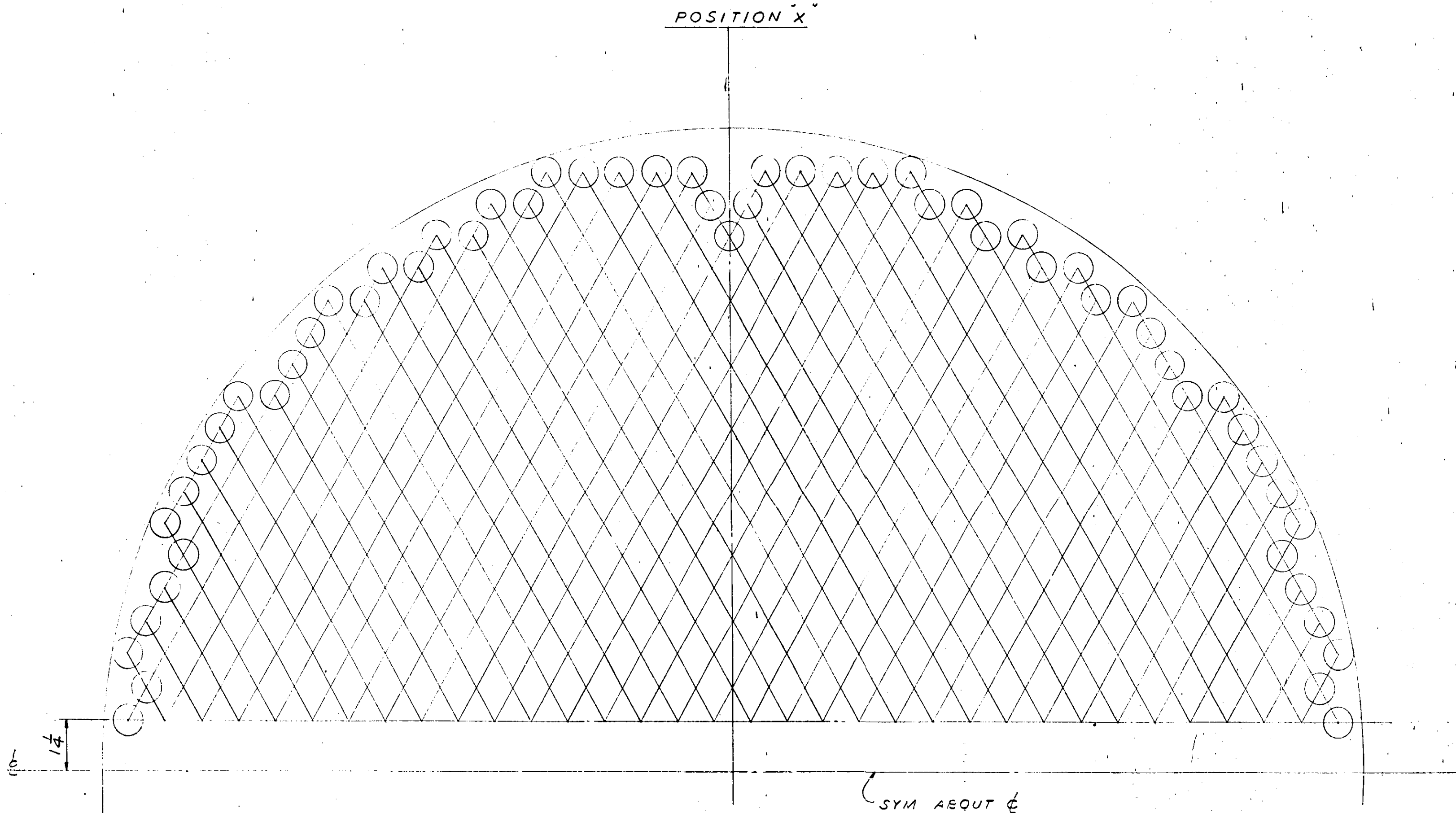
STRUTHERS WELLS CORPORATION • WARREN, PA.

98866

NOTE: CRS. #1 TO BE ATTACHED AFTER  
DRILLING CHAN. 4 BEFORE FINAL H.T.  
OF CHAN.-- LOCAL H.T. THIS JOINT AT  
FINAL ASS'Y. 4 MAGNAFLUX



64-4-2074 C1



32  $\frac{5}{16}$  DIA TUBE LAYOUT

480 U-TUBES  $\frac{3}{4}$ " O.D. @  $\frac{15}{16}$ " TRI 60° P  
SEE TUBESHEET & SUPPORT &  
DETAILS FOR DRILLING.

#98866

|                    |          |               |      |
|--------------------|----------|---------------|------|
| REV. $\Delta$      | CKD:     | REV. $\Delta$ | CKD: |
|                    |          | 1/18C         |      |
| 36 DIA TUBE LAYOUT |          |               |      |
| TYPE U             |          | 2 PASS        |      |
| DRAWN: ENCA        | 11/7/76  | 64-4-2074 C1  |      |
| CHECKED: LK        | 11/15/76 |               |      |
| APPROVED: GLD      | 1-11-76  |               |      |
| SCALE: 6"=1'       | DATE     |               |      |