

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

D350 NB-B1

1. Manufactured and certified by Precision Stainless, Inc., 501 N. Belcrest, Springfield, MO 65802  
(Name and address of manufacturer)

2. Manufactured for Polaroid Corporation, 119 Windsor St., Cambridge, MA 02139  
(Name and address of purchaser)

3. Location of installation Polaroid Corporation, 100 Duchaine Blvd., New Bedford, MA 02745  
(Name and address)

4. Type Vert. Tank 8419-1 --- 43505D, Rev. A 2231 1988  
(Horiz. or vert., tank) (Mfr's serial No.) (CRN) (Drawing) (Nat'l. Bd. No.) (Year built)

5. The chemical and physical properties of all parts meet the requirements of material specifications of the ASME Boiler and Pressure Vessel Code. The design, construction, and workmanship conform to ASME Rules, Section VIII, Division 1 1986  
Year

A-86 ---  
Addenda (date) Code Case No.

# 91573

Special service per UG-120(d)

Items 6-11 incl. to be completed for single wall vessels, jackets of jacketed vessels, or shells of heat exchangers

6. Shell: SA240 304L .063" 0 4'-5" 7'-3.75" OAL  
Matl. (Spec. No., Grade) Nom. Thk. (in.) Corr. Allow. (in.) Diam. I.D. (ft & in.) (Length (Overall)) (ft & in.)

7. Seams: Weld Sngl. Butt --- 70 ---  
Long. (Dbl., Sngl.) R.T. (Spot or Full) Eff. (%) H.T. Temp. (°F)

--- Weld Lap Fillet --- 2  
Time Girth (Dbl., Sngl.) R.T. (Spot, Partial, or Full) No. of Courses

8. Heads: (a) Matl. SA240 304L (b) Matl. ---  
(Spec. No., Grade) (Spec. No., Grade)

Location (Top, Bottom, Ends)	Minimum Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a) Bottom	.063"	0	41.25"	---	---	---	---	---	Concave
(b) ---									

If removable, bolts used (describe other fastenings) ---  
(Matl., Spec. No., Gr., Size, No.)

9. Type of Jacket Dimpled Proof Test UG101 2,700 psi max. test press.

10. Jacket Closure Weld Lap Fillet If bar, give dimensions --- If bolted, describe or sketch.  
(Describe as ogee & weld, bar, etc.)

11. MAWP 120 psi at max. temp. 325 °F. Min. design metal temp. --- °F at --- psi.  
Hydro., ~~XXXXXXX~~ test press. 191 psi.

Items 12 and 13 to be completed for tube sections

12. Tubesheets:

Stationary Matl. (Spec. No., Gr.)	Diam. (in.) (Subject to pressure)	Nom. Thk. (in.)	Corr. Allow. (in.)	Attach. (Welded, Bolted)
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Floating Matl. (Spec. No., Gr.)	Diam. (in.)	Nom. Thk. (in.)	Corr. Allow. (in.)	Attach.
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13. Tubes:

Matl. (Spec. No., Gr.)	O.D. (in.)	Nom. Thk. (in. or Gauge)	Number	Type (Straight or "U")
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Items 14-17 incl. to be completed for inner chambers of jacketed vessels or channels of heat exchangers

14. Shell: SA240 316L .25" 0 4'-4" 8'-6.5" OAL  
Matl. (Spec. No., Grade) Nom. Thk. (in.) Corr. Allow. (in.) Diam. I.D. (ft & in.) (Length (Overall)) (ft & in.)

15. Seams: Weld Sngl. Butt --- 70 ---  
Long. (Dbl., Sngl.) R.T. (Spot or Full) Eff. (%) H.T. Temp. (°F)

--- Weld Dbl. Butt --- 1  
Time Girth (Dbl., Sngl.) R.T. (Spot, Partial, or Full) No. of Courses

16. Heads: (a) Matl. SA240 316L (b) Matl. SA240 316L  
(Spec. No., Grade) (Spec. No., Grade)

Location (Top, Bottom, Ends)	Minimum Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a) Top	.218"	0	41.25"	6"	---	---	---	---	Concave
(b) Bottom	.218"	0	41.25"	6"	---	---	---	---	Concave

If removable, bolts used (describe other fastenings) ---  
(Matl., Spec. No., Gr., Size, No.)

17. MAWP 75 psi at max. temp. 325 °F. Min. design metal temp. --- °F at --- psi.  
Hydro., ~~XXXXXXX~~ test press. 120 psi.

Form U-1 (Back)

18. Nozzles, Inspection and Safety Valve Openings:

Purpose (Inlet, Outlet, Drain, etc.)	No.	Diam. or Size	Type	Matl.	Nom. Thk.	Reinforcement Matl.	How Attached	Location
Inspection	1	16"	Manway	SA240 316L	.25"	SA240 316L	Weld	Top Head
Agitator	1	8"	Pipe	SA312 316L	Sch. 40	SA240 316L	Weld	
Vent-Inlet	1-1	2"	Pipe	SA312 316L	Sch. 40	--	Weld	
Spare-Recycle	2-1	2"	Pipe	SA312 316L	Sch. 40	--	Weld	
Level	1	4"	Pipe	SA312 316L	150#	--	Weld	
Outlet	1	3"	Pad Flg.	SA351 CF3M	3,000#	--	Weld	
CIP	2	.75"	Cplg.	SA182 316L	3,000#	--	Weld	
Inlet-Outlet	1-1	1.5"	Cplg.	SA182 304L	3,000#	--	Weld	
Drain	1	1.5"	Cplg.	SA182 304L	3,000#	--	Weld	
Relief	1	1.5"	Cplg.	SA182 304L	3,000#	--	Weld	
Vent	1	.5"	Cplg.	SA182 304L	3,000#	--	Weld	

19. Supports: Skirt No Lugs 4 Legs -- Other -- Attached Shell Weld  
(Yes or no) (No.) (No.) (Describe) (Where and how)

20. Remarks: Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of the report: \_\_\_\_\_  
(Name of part, item number, mfr's. name and identifying stamp)

Vessel designed to operate at 29.92 In. Hg. vacuum. Bottom head has a Foxboro spud made from SA479 316L.

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. 11658 expires 12-15, 19 89  
 Date 12-5-88 Co. name Precision Stainless, Inc. Signed Douglas W Morgan  
(Manufacturer) (Representative)

CERTIFICATE OF SHOP INSPECTION

Vessel constructed by Precision Stainless, Inc. at Springfield, MO

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of \_\_\_\_\_ and employed by Commercial Union Insurance Co.

of Boston, MA 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 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 the 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, State, Province and No.)

CERTIFICATE OF FIELD ASSEMBLY COMPLIANCE

We certify that the field assembly construction of all parts of this vessel conforms with the requirements of Section VIII, Division 1 of the ASME Boiler and Pressure Vessel Code.

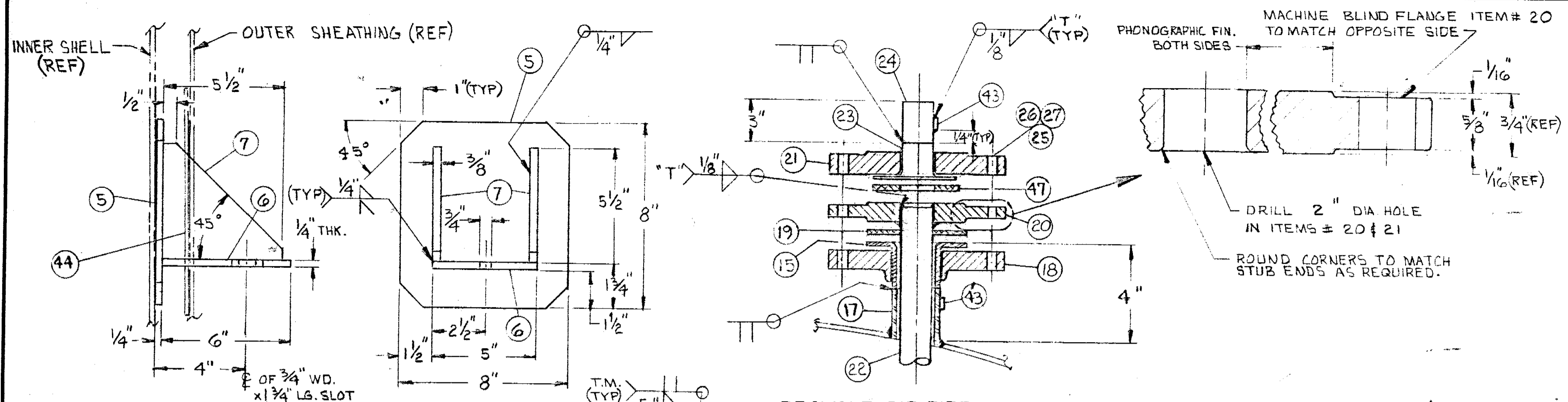
"U" Certificate of Authorization No. \_\_\_\_\_ expires \_\_\_\_\_, 19 \_\_\_\_\_  
 Date \_\_\_\_\_ Co. name \_\_\_\_\_ Signed \_\_\_\_\_  
(Assembler that certified and constructed field assembly) (By Representative)

CERTIFICATE OF FIELD ASSEMBLY INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province 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 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.

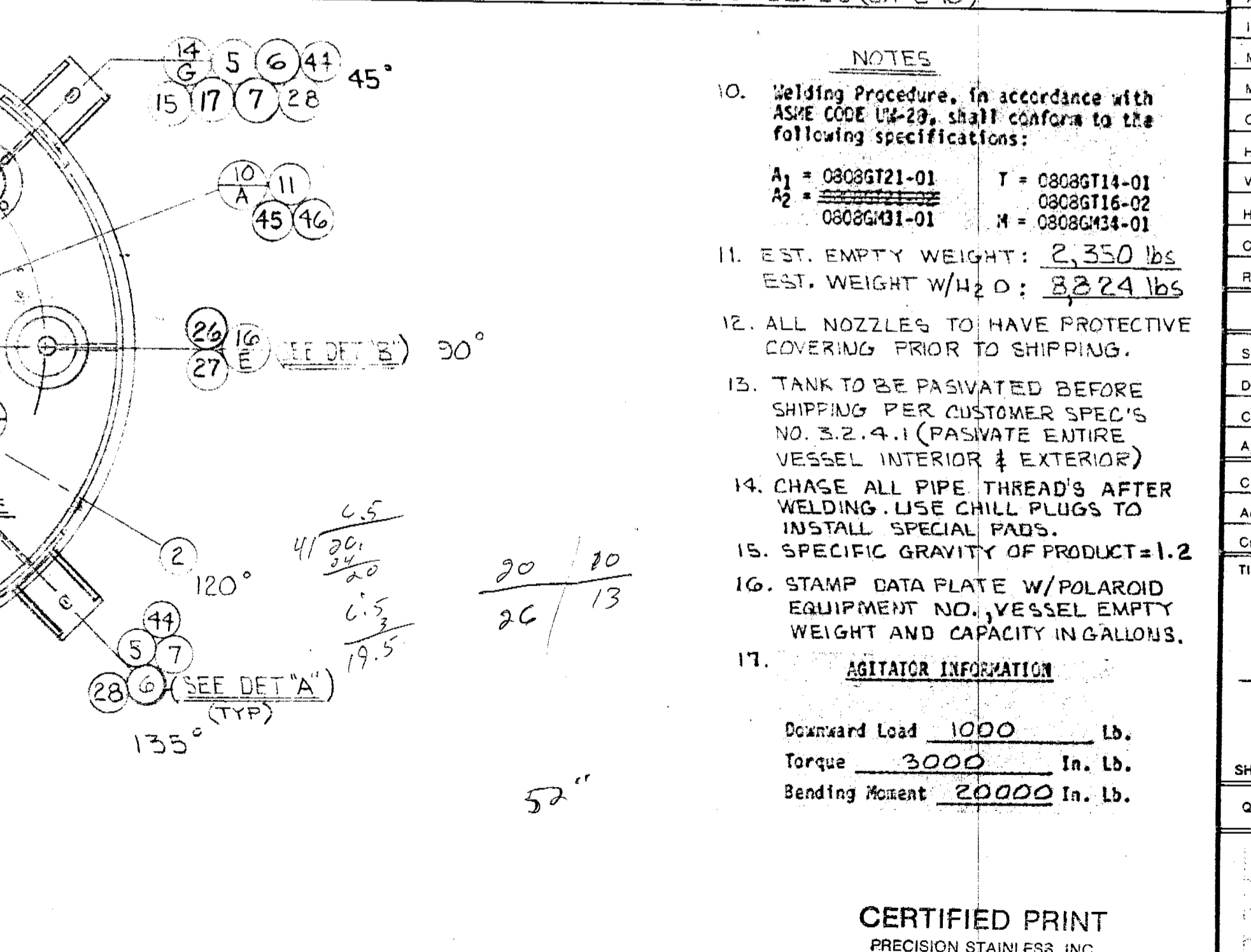
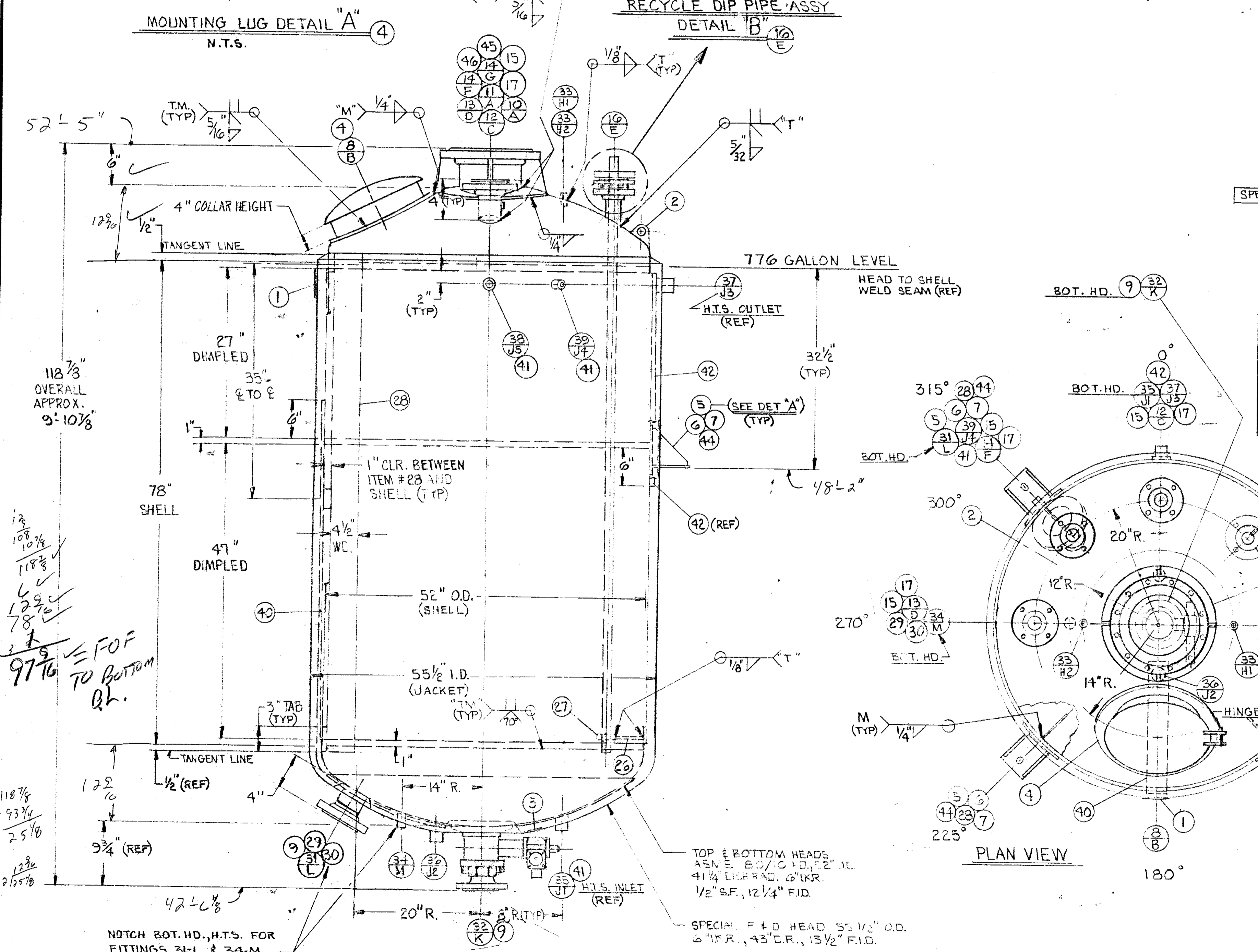
Date \_\_\_\_\_ Signed \_\_\_\_\_ Commissions \_\_\_\_\_  
(Authorized Inspector) (Nat'l Board (incl. endorsements), State, Prov., and No.)



CUST. LETTER	ITEM NO.	NO. REQ'D	PART NO. (OR DRAWING NO.)	DESCRIPTION
	1	1	30086-2A	PSI ASME DATA PLATE (SEE NOTE 16)
	2	2	30000-2-4-B	LIFTING LUG 3/8 THK. 304 5/8 R 120 GRIT
	3	1	300017-B	VENT SCREEN 20 GA. 304 5/8 PERFORATED
	4	1		REINFORCING MANWAY FAD 1/4" PLT. x 20" O.D. 316L 5/8 (SA-240) HRAP
	5	4	SEE DET. "A"	REINFORCING PAD 1/4" THK. 304 5/8 R (SA-240) 120 GRIT
	6	1		BASE PLATE 1/4" THK. 304 5/8 R 120 GRIT
	7	8		GUSSET 3/8" THK. 304 5/8 R 120 GRIT
B	8	1	300159-B	MANWAY 16" G/LG COVER 2" CLR. x 1/4" THK. 316L 5/8 R 14" (SA-240) # PD-0028
	9	1		W/ EPDM GASKET
	10	1		ALCOVE 14 GA. 304 5/8 R 28/120 (SA-240)
A	11	1		EXTENSION 8" SCH 40 316L 5/8 PIPE (SA-312) (POL. I.D. & O.D.) (AGITATOR)
C	12	1		FLANGE 8" 150# ANSI RESO. 316L 5/8 (SA-182) (AGITATOR)
D	13	1		FLANGE 2" 150# ANSI L.J. 304 5/8 (SA-182) (VENT)
F & G	14	2		FLANGE 2" 150# ANSI L.J. 304 5/8 (SA-182) (INLET)
	15	5		FLANGE 2" 150# ANSI L.J. 304 5/8 (SA-182) (SPARE)
E	16	1	SEE DET. "B"	STUB ENDS 2" SCH 40 316L 5/8, MSS 2" LG. TYPE A (SA-403)
	17	5		RECYCLE DIP PIPE ASSY
	18	1		EXTENSION 2" SCH 40 316L 5/8 PIPE (SA-312) (POL. I.D. & O.D.)
	19	1		FLANGE 2" 150# ANSI L.J. 304 5/8 (SA-182)
	20	1		GASKET TEFLON ENVELOPE W/ 1/8" EPR FILLER FOR 2" FLANGE
	21	1		FLANGE 2" 150# ANSI BLIND 316L 5/8 (SPECIAL) (SA-182)
	22	1		FLANGE 2" 150# ANSI BLIND 304 5/8 (SPECIAL) (SA-182)
	23	1		DIP PIPE 1 1/2" SCH 40 316L 5/8 (SA-312) (POL. I.D. & O.D.)
	24	1		STUB END 1 1/2" SCH 40 316L 5/8, MSS 2" LG. TYPE A (SA-403)
	25	4		EXTENSION 1 1/2" SCH 40 316L 5/8 PIPE (SA-312) (POL. I.D. & O.D.)
	26	1		H.H. CAPSCREW 5/8" H.N.C. x 4" LG. (SA-193) W/ HEX NUT (36-164-100)
	27	1		1 LOCK WASHER 304 5/8 W/ MONEL NUTS
SPECIAL	28	4	300199-B	GUIDE SUPPORT 1/2" DIA. 316L 5/8 ROD (SA-479) 120 GRIT
	29	1		GUIDE 2 1/2" SCH 40 x 3/4" LG. 316L 5/8 PIPE (SA-312) (POL. I.D. O.D.)
L	30	1		BAFFLE 3/8" 316L 5/8 R x 9 1/2" WIDE x 79" LG. (SA-240) (LESS SUPPORTS)
K	31	1		EXTENSION 4" SCH 40 316L 5/8 PIPE (SA-312) (POL. I.D. & O.D.)
H. H2	32	1		STUB END 4" SCH 40 316L 5/8, MSS 3" LG. TYPE A (SA-403)
M	33	1	WPT A-15	FLANGE 4" 150# ANSI L.J. 304 5/8 (SA-182) (LEVEL CONN.)
J1	34	1		FLUSH MNT. BALL VALVE 3" 316 5/8 W/ PNEUMATIC SPRING RETURN ACTUATOR (PBM 3" FT. H.H. 19-F15-2-H6-PS-130) (SA-351) (304 5/8 F.M.)
J2	35	1		FULL COUPLING 3/4" NPT 3000# 316L 5/8 (SA-182) (SPRAY BALL)
J3	36	1		FOIL BORO 316L 5/8 POL. O.D. (SA-479) DWG. GF-11261 "U" LGTH = 5"
J4	37	1		FULL COUPLING 1 1/2" NPT 3000# 304L 5/8 (SA-182) (H.T.S. INLET)
	38	1		FULL COUPLING 1 1/2" NPT 3000# 304L 5/8 (SA-182) (H.T.S. DRAIN)
	39	1		FULL COUPLING 1 1/2" NPT 3000# 304L 5/8 (SA-182) (H.T.S. OUTLET)
	40	1	300145-1-B	FULL COUPLING 1 1/2" NPT 3000# 304L 5/8 (SA-182) (H.T.S. VENT)
	41	3	300126-B	JUMPER HEADER 7GA 304L 5/8 28/25 (SA-240)
	42	1		PIPE CHAIR 2" SCH 40 304L 5/8 (SA-312) HRAP / BOX HEADER 7GA 304L 5/8 28/25 (SA-240)

- NOTES**
- Flange Bolt Holes To Straddle Major Vertical And Horizontal Vessel Centerlines Unless Indicated Otherwise.
  - The Corrosion Resistance Of The Equipment Is Not The Responsibility Of Precision Stainless, Inc. With Written Acceptance Based On A Specific Service.
  - Suitable Pressure And/or Vacuum Relief Valve (s) Must Be Installed By Customer For Vessel And/or Heat Transfer Surface Operation.
  - All Tolerances Are In Accordance With The Latest Edition Of The "ASME" Boiler And Pressure Vessel Code, Section VIII, Division 1, 1986, Addendum A-22.
  - Production To Provide Protection For All Nozzles And Fittings Prior To Shipping. Vessel Must Be Adequately Vented.
  - Weld Seams In Vessel Head And Shell Should Be Located, Where Possible, To Avoid All Nozzles, Access Openings, And Reinforcement Pads.
  - All Reinforcement Pads Must Be Provided With (1) One 1/8" Dia. Weephole Located At Lowest Point When Vessel Is In Its Normal Operating Position.
  - Vessel to be hydrostatically tested for (2) hours. Check for defects, repair & re-test if necessary.
  - All welding to be done by certified welders in accordance with the requirements of the ASME Pressure Vessel Code, Section IX.

MATERIAL	FINISH
Shell 1/4" R 316L 5/8 (SA-240)	140/HRAP
Head Top 1/4" R 316L 5/8 (SA-240)	140/120
Head Bottom 1/4" R 316L 5/8 (SA-240)	140/HRAP
Jacket 12 GA. 304 5/8	28/120
Head Top	
Head Bottom 10 GA. 304 5/8	28/120
Breast Ring 12 GA. 304 5/8 (SA-240)	28/120
HEAT TRANSFER SURFACE (Ref. Dwg. 300178 A)	SK-101-22D
Shell 16 GA. 304L 5/8 (SA-240)	28/25
Heads 16 GA. 304L 5/8 (SA-240)	28/25
Insulation 1 1/2" INSWOOL	
Paint, Heat Transfer Surface: THURMALOX # 70	
Paint	3-5 MILS THICK
<b>WELD FINISHES</b>	
Interior	GRIND SMOOTH & RIBBON
	POLISH TO 140 GRIT
Exterior	GRIND SMOOTH & RIBBON
	POLISH TO 120 GRIT
Heat Transfer Surface:	AS IS



**NOTES**

- Welding Procedure, in accordance with ASME CODE U2-23, shall conform to the following specifications:  
 A1 = 0808G121-01 T = 0808G114-01  
 A2 = 0808G116-02 C808G116-02  
 0808G131-01 M = 0808G134-01
- EST. EMPTY WEIGHT: 2,350 lbs  
EST. WEIGHT W/H2O: 8,224 lbs
- ALL NOZZLES TO HAVE PROTECTIVE COVERING PRIOR TO SHIPPING.
- TANK TO BE PASIVATED BEFORE SHIPPING PER CUSTOMER SPEC'S NO. 3.2-4.1 (PASIVATE ENTIRE VESSEL INTERIOR & EXTERIOR)
- CHASE ALL PIPE THREADS AFTER WELDING. USE CHILL PLUGS TO INSTALL SPECIAL PADS.
- SPECIFIC GRAVITY OF PRODUCT = 1.2
- STAMP DATA PLATE W/ POLAROID EQUIPMENT NO., VESSEL EMPTY WEIGHT AND CAPACITY IN GALLONS.
- AGITATOR INFORMATION**  
 Downward Load 1000 Lb.  
 Torque 3000 In. Lb.  
 Bending Moment 20000 In. Lb.

**CERTIFIED PRINT**  
 PRECISION STAINLESS, INC.  
 SPRINGFIELD, MO  
 DIMENSIONS TO BE WITHIN MANUFACTURING TOLERANCES FOR THIS TYPE OF EQUIPMENT  
 BY **F.A. LEA** DATE **MAY 13 1988**

**EST. EMPTY WEIGHT - NOTE #11 LBS.**

Scale	Scale	Scale
3/32" = 1"	1" = 1"	1" = 1"

Drawn **R. FABER** Date **2-17-83**  
 Checked **A. LEA** Date **2-29-83**  
 Approved **A. LEA** Date **5-13-83**

Customer **POLAROID CORP.**  
 Address **WALTHAM, MA.**  
 Customer Order No. **B-879103**

**TITLE**  
**750 GALLON TANK**  
 EQUIP. NO. **#91573**  
 SHIP TO: **CUSTOMER TO FURNISH**

**QUANTITY REQ'D (1) ONE**

ITEM NO.	NO. REQ'D	PART NO. (OR DRAWING NO.)	DESCRIPTION
47	1		GASKET TEFLON ENVELOPE W/ 1/8" EPR FILLER FOR 1 1/2" FLANGE
46	4		GUSSET 1/4" THK PLT. 304 5/8 R 120 GRIT (SA-240)
45	1		DOUBLER 1/4" THK PLT. x 16" O.D. x 8 5/8" I.D. 304 5/8 R 120/HRAP (SA-240)
44	4		JACKET SUPPORT 12 GA. 304 5/8 28/25 x 12" SQ.
43	2		FLANGE STOP 1/2" SQ x 1" LG. 304 5/8 (SA-479) HRAP

SYM.	REVISION	REV'D BY	CHECKED BY
A	REV PER CUST.		

**PRECISION STAINLESS**  
 501 North Belcher  
 Springfield, MO 65802  
 317-865-2920

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WORK ORDER NO. **A-8419-1** DRAWING NO. **43505-D**