

1. Manufactured by Joseph Oat Sons, Inc. Camden, New Jersey
(Name and address of Manufacturer)
2. Manufactured for Hercules Incorporated Wilmington, North Carolina 104247
(Name and address of Purchaser)
3. Type Horiz. Kind Heat Exch. Vessel No. (2120-A) () Natl. Bd. No. 540 Yr. Built 1973
(Horiz. or Vert.) (Tank, Jacketed, Heat Exch.) (Mfrs. Serial) (State & State No.)

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 SA515GR70 T.S. 70000 Nominal Thickness 5/16 In. Allowance 1/16 In. Diam. 2 Ft. In. Length 12 Ft. 0 In.
(Kind and Spec. No.) (Fig. or F.B. & Spec. Min. T.S.)
5. SEAMS: Long DBW H.T. No R.T. Spot Sectioned No Efficiency 85 %
(Welded, Dbl., Single, Lap, Butt) (Yes or No) (Spot or Complete) (Yes or No)
Girth DBW H.T. No R.T. Spot Sectioned No No. of Courses 2
6. HEADS (a) Material T.S. (b) Material SA515GR70 T.S. 70000
(Top, bottom, ends) Thickness Crown Radius Knuckle Radius Elliptical Ratio Conical Apex Angle Hemispherical Radius Flat Diameter (Side to Pressure (Convex or Concave))
(a) 5/16 26 1-3/4 - - - - -
(b) 5/16 26 1-3/4 - - - - -

If riveted describe seams fully on reverse side of form.

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. 175 psi at max. temp. 375 °F. less than -20° - °F. Hydrostatic Test Press 267.5 psi.
Min. temp. (when Hydrostatic Test Press 267.5 psi.)
allowable working press. 175 psi at max. temp. 375 °F. less than -20° - °F. Hydrostatic Test Press 267.5 psi.

Items 10 and 11 to be completed for tube sections.

10. TUBE SHEETS: Stationary. Material SA240T304 Diam. 28 In. Thickness 1-7/8 In. Attachment Welded
(Kind & Spec. No.) (Subject to Pressure) (Welded, Bolted)
Floating. Material SA249 Diam. 28 In. Thickness 1-7/8 In. Attachment Welded
(Kind & Spec. No.) (Subject to Pressure) (Welded, Bolted)
11. TUBES: Material T304 O.D. 3/4 In. Thickness 16 In. Attachment Welded
(Kind & Spec. No.) (Subject to Pressure) (Welded, Bolted)

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

12. SHELL Material SA240T304 T.S. 75000 Nominal Thickness 1/2 In. Allowance 0 In. Diam. 2 Ft. In. Length 1 Ft. 9 In.
(Kind and Spec. No.) (Fig. or F.B. & Spec. Min. T.S.)
13. SEAMS: Long DBW H.T. No R.T. Spot Sectioned No Efficiency 85 %
(Welded, Dbl., Single, Lap, Butt) (Yes or No) (Spot or Complete) (Yes or No)
Girth DBW H.T. No R.T. Spot Sectioned No No. of courses 1
14. HEADS (a) Material SA240T304 T.S. 75000 (b) Material Same T.S. 75000 (c) Material Same T.S. 75000
(a) 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 5/16 26 1-3/4 - - - - - Concave
(b) Channel 5/16 26 1-3/4 - - - - - Concave
(c) Floating 5/16 26 1-3/4 - - - - - Concave
If removable, bolts used (a) SA193 B7 32 3/4 10UNC (b) SA193 B7 32 3/4 10UNC
(Material, Spec. No., T.S., Size, Number) (Material, Spec. No., T.S., Size, Number)
(c) SA193 B7 32 3/4 10UNC
(Material, Spec. No., T.S., Size, Number)

If riveted describe seams fully on reverse side of form.

15. Constructed for max. allowable working press. 150 psi at max. temp. 375 °F. less than -20° - °F. Hydrostatic Test Press 261 psi.
Min. temp. (when Hydrostatic Test Press 261 psi.)
allowable working press. 150 psi at max. temp. 375 °F. less than -20° - °F. Hydrostatic Test Press 261 psi.

Items below to be completed for all vessels where applicable.

16. SAFETY VALVE OUTLETS: Number 1 Size 1/2 Location In Piping
17. NOZZLES

Purpose (Inlet, Outlet, Drain)	Number	Diam. or Size	Type	Material	Thickness	Reinforcement Material	How Attached
A-B	2	6"	Pipe	SA312T304	SCH 40	SA240T304	Welded
C	1	3"	"	SA53GRB	"	None	"
D	1	1-1/2"	"	"	SCH 80	"	"
E, F, G	3	1"	"	"	"	"	"

P.O. 026-52008-FCD

EQU. No. E-2513-68R

PROJ. 026052

FORM U-1 (back)

18. INSPECTION Manholes, No. _____ Size _____ Location _____
 OPENINGS: Handholes, No. _____ Size _____ Location _____
 Threaded, No. 4 Size 1" & 3/4" Location Nozzle A&B Shell
 19. SUPPORTS: Skirt No Lugs 2 Legs _____ Other _____ Attached Welded
 (Yes or No) (Number) (Describe) (Where & How)

20. REMARKS: Vessel is a Pure Melter Heater constructed to Oat Dwg. 5303-1 and the
1971 ASME Code Section VIII.

Equipment No. 4513-6A

(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 Pressure Vessels, Section VIII, Division I.

Date 2/9 1973 Signed Joseph Oat & Sons, Inc. By Donald Christensen
 (Manufacturer)

Certificate of Authorization Expires #184 12/31/73

CERTIFICATE OF SHOP INSPECTION

VESSEL MADE BY Joseph Oat & Sons, Inc. at Camden, New Jersey

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province N. J. and employed by Royal Indemnity Company of New York, N. Y.

have inspected the pressure vessel described in this manufacturer's data report on 1973, 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 2/9 1973
Inspector's Signature Commissions N.B. 6900
 Nat'l Board, State, or Province and No.

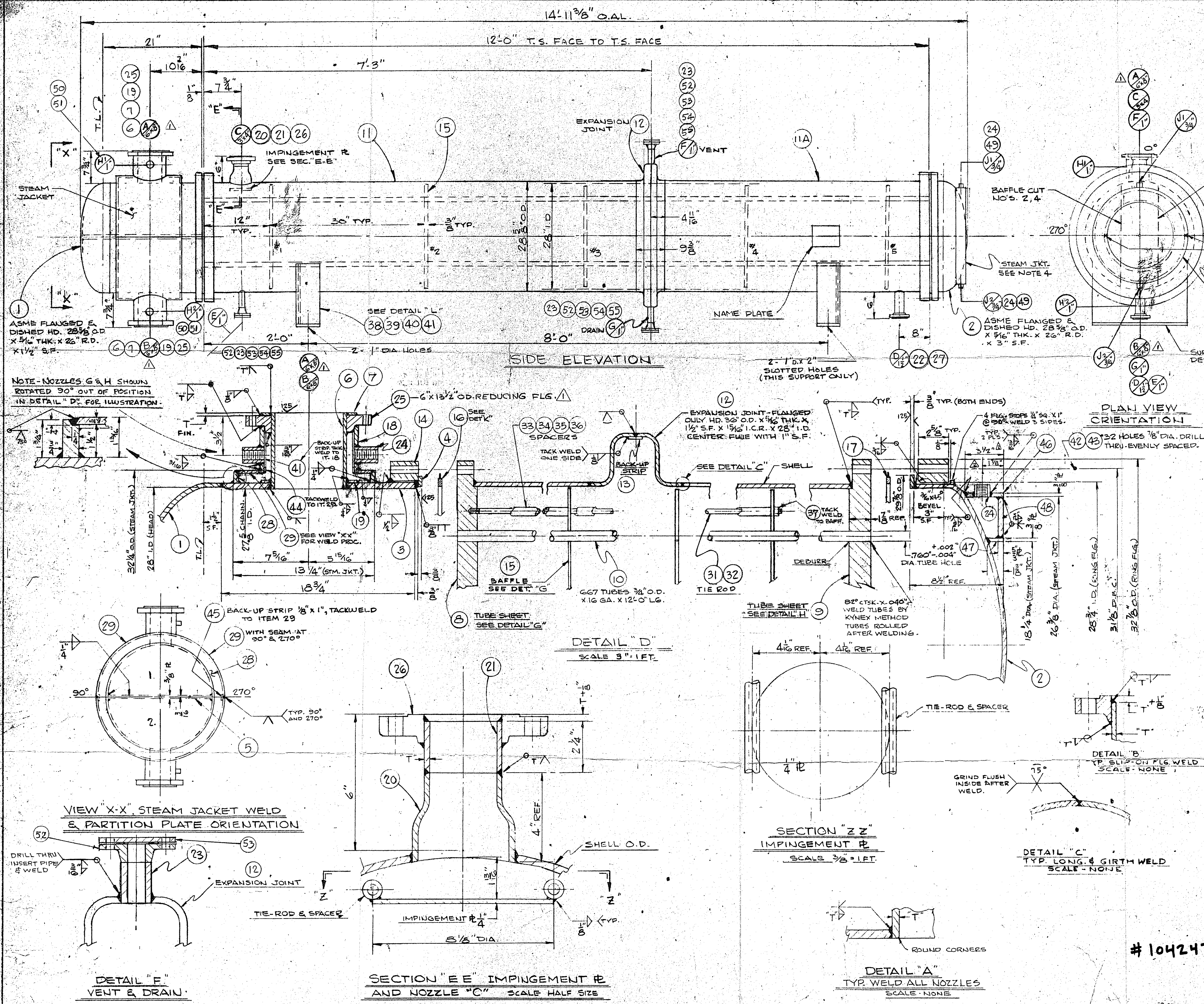
CERTIFICATE OF FIELD ASSEMBLY INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province _____ 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____
Inspector's Signature Commissions _____
 Nat'l Board, State, or Province and No.



DESIGN DATA:	SHELL SIDE	TUBE SIDE
DESIGN AND FABRICATION:	UPPY SECT VII	ASME CODE SEC VIII
DESIGN PRESSURE:	175 PSIG	150 PSIG
DESIGN TEMPERATURE:	375° F.	375° F.
CORROSION ALLOWANCE:	STD.	NONE
WELDING:	UW-47	UW-47
FLANGE FACE FINISH:	125	125
RADIOGRAPHIC EXAMINATION:	SPOT	SPOT
HEAT TREATMENT:		
TEST PROCEDURE:	UG-99	UG-99
FINAL TEST PRESSURE:	262.5 PSIG	221 PSIG
MATERIAL:		
SHELL:	SA-285-GR. C	SA-240-304
HEADS:		
SUPPORTS:	SA-285-GR. C	SA-240-304
NOZZLE NECKS:	SA-53-GR. B	SA-53-GR. B
STEAM JACKET (SEE NOTE 4):		
REINFORCING RINGS:		
NOZZLE FLANGES:	SA-181-GR. 1	SA-181-GR. 1
SHELL AND HEAD FLANGES:		
BOLTS:	SA-193-B7	SA-193-B7
NUTS:	SA-194-2H	SA-194-2H
GASKETS (SEE DET. "K"):	FLEXITALLIC	FLEXITALLIC
TUBES:	SA-219-304	SA-219-304
BAFFLES/PART. R:	SA-285-GR. C	SA-240-304
TIE RODS & SPACERS:	CARB. STL.	CARB. STL.
TUBE SHEETS:	SA-240-304	SA-240-304
EXPANSION JT:	SA-285-GR. C	SA-240-304
COUPLINGS:	SA-105-GR. 1	SA-105-GR. 1
TEST PRESSURE BASED ON 1 1/2 X DESIGN PRESSURE		
STRESS RATIO		
WEIGHT EMPTY:	6432 LBS.	
WEIGHT FULL OF WATER:	8200 LBS.	
PAINTING:	CARB. STL. ONLY: SHOP COAT-PARON PRIMER	
INSULATION:	HERCULES-OAT-UNDERWRITER	
STAMPING:	ASME CODE STAMP	
ALL MANHOLE AND NOZZLE OPENINGS SHALL MEET THE REQUIREMENT FOR REINFORCEMENT OF OPENINGS PER THE ASME CODE FOR UNFIRE PRESSURE VESSELS		
MANHOLES AND NOZZLES SHALL BE IN ACCORDANCE WITH THE FOLLOWING:		
MANHOLES:	NOZZLES: SEE NOTE 3CH	
UNLESS OTHERWISE NOTED		
ALL BOTTOM NOZZLES SHALL BE FLUSH WITH INSIDE OF VESSEL. OTHER NOZZLES SHALL BE FLUSH		
BOLT HOLES SHALL STRADDLE THE NORMAL VESSEL CENTER LINES		
STEAM JACKETS		
DESIGN DATA: DESIGN & FAB:	ASME CODE: UG-115/UG-116	
DESIGN PRESSURE:	175 PSIG	
DESIGN TEMPERATURE:	375° F.	
TEST PRESSURE:	247.6 PSIG	

- NOTES:**
- 1) SEE DWG. 5253 FOR ADDITIONAL DETAILS.
 - 2) SHIP ONE (1) SET OF SPARE GASKETS WITH EA VESSEL - (TOTAL OF 4).
 - 3) PAINT EQUIPMENT NUMBER ON SIDE OF VESSEL. 4" HIGH LETTERS AND NUMBERS.
 - 4) STEAM JACKET, Pcs. 46, 47 & 48 MATL. TO BE SA-285 GR. C

HANOVER PLANT	
BPP. NO. 37183-100	DATE 10/17/72
SHEET 12	APPARATUS 513-60
PROJECT & ACCOUNT 26052 R017	NO. F. 2513-160
ORDER NO. 336-026-52008	DATE 10/17/72

DATE	REVISIONS	BY
10-16-72	HOLES IN STEAM JACKET WERE 3/4" DIA. & 1/2" SLOTTED. SL. NOZZLE 'A' WAS 6" & CHANNEL IN - CLARIFIED NOTE 4	RO
9-14-72	ISSUED FOR APPROVAL	RO

JOSEPH OAT & SONS, INCORPORATED	
CHEMICAL ENGINEERS/DESIGNERS/FABRICATORS	
ESTABLISHED 1789 CAMDEN, NEW JERSEY 08104	
PURE MELTER HEATER	
28 5/8" O.D. X 14'-11 3/8" O.A.L.	
2 PASS C/S - 304 STN. STL. CONSTR.	
ITEM E-513-60 ~ ASSEMBLY & DETAIL	
FOR	
HERCULES, INCORPORATED	
HANOVER PLANT	
WILMINGTON, N.C.	
PURCHASE ORDER NO. 336-026-52008-05-000-PCD	
NO. READ TWO	
JOB NO. J-2120A	DRAWN RO
DATE 9-14-72	DRAWING NO. 5303
CHKD: W.C.	

MARK	SIZE	SCH.	FLG. TYPE	PURPOSE	REMARKS	MARK	SIZE	SCH.	FLG. TYPE	PURPOSE	REMARKS
G	1"	80	WNRF	SHELL DRAIN	W/B.F.R.F.	J2	3/4"	3000#	CPL'G	DRAIN	NPT W/PLUG
F	1"	80	WNRF	SHELL VENT	W/B.F.R.F.	J1	3/4"	3000#	CPL'G	VENT	NPT W/PLUG
E	1"	80	WNRF	SHELL DRAIN	W/B.F.R.F.	H2	1"	3000#	CPL'G	STM. OUTLET	NPT W/PLUG
D	1 1/2"	80	S.O.R.F.	SHELL OUT		H1	1"	3000#	CPL'G	STM. INLET	NPT W/PLUG
C	3x4	40	S.O.R.F.	SHELL IN		B	6x8	40	L.J. 150"	CHANNEL IN	REIN. RING 3/4" O.D. X 3/8" THK
MARK	SIZE	SCH.	FLG. TYPE	PURPOSE	REMARKS	MARK	SIZE	SCH.	FLG. TYPE	PURPOSE	REMARKS
						A	6x8	40	L.J. 150"	CHANNEL OUT	