

**FORM U-2 MANUFACTURER'S PARTIAL DATA REPORT**  
**A Part of a Pressure Vessel Fabricated by One Manufacturer for Another Manufacturer**  
**As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1**

**BUNDLE AND  
CHANNEL**

1. Manufactured and certified by OHMSTEDE LTD, LA PORTE PLANT, 12415 HIGHWAY 225 LA PORTE, TEXAS 77571  
(Name and address of Manufacturer)

Manufactured for GIANT YORKTOWN REFINERY, 2201 GOODWIN NECK ROAD, GRAFTON VA 23692  
(Name and address of Purchaser)

3. Location of installation GIANT YORKTOWN REFINERY, 2201 GOODWIN NECK ROAD, GRAFTON VA 23692  
(Name and address)

4. Type: BUNDLE AND CHANNEL 526203 -  
(Description of vessel part (shell, two-piece head, tube bundle)) (Mfg's serial No.) (CRN)  
1145 526203 OHMSTEDE LTD 2006  
(Nat'l. Bd. No.) (Drawing No.) (Drawing prepared by) (Year built)

5. ASME Code, Section VIII, Div. 1 2004 - -  
Edition and Addenda (date) Code Case No. Special Service per UG-120(d)

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

6. Shell (a) No. of course(s): - (b) Overall length ft & in.: -

Course(s)			Material	Thickness		Long. Joint (Cat. A)			Circum. Joint (Cat. A, B, & C)			Heat Treatment	
No.	Diameter, in.	Length ft & in.	Spec./Grade or Type	Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.	Time
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-

7. Heads: (a) - (b) -  
(Mat'l Spec. No., Grade or Type) H.T. - Time & Temp (Mat'l Spec. No., Grade or Type) H.T. - Time & Temp

	Location (Top, Bottom, Ends)	Thickness		Radius		Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure		Category A		
		Min.	Corr.	Crown	Knuckle					Convex	Concave	Type	Full, Spot, None	Eff.
(a)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(b)	-	-	-	-	-	-	-	-	-	-	-	-	-	-

If removable, bolts used (describe other fastening) -  
(Mat'l Spec. No., Grade, Size, No.)

8. Type of jacket - Jacket closure -  
(Describe as ogee & weld, bar, etc.)

If bar, give dimensions - If bolted, describe or sketch.

MAWP - - psi at max. temp. - - °F Min. design metal temp. - °F at - psi.  
(internal) (external) (internal) (external)

10. Impact test - at test temperature of - °F  
(Indicate yes or no and the component(s) impact tested)

11. Hydro. ~~pressure~~ test press. - Proof test -

Items 12 and 13 to be completed for tube sections.

12. Tubesheet: SA-516-70 /SB-127 440 32 3/4 " 1 7/8 " 1/8 " BOLTED  
Stationary (Mat'l Spec. No.) Dia., in. (subject to press.) Nom. thk., in. Corr. Allow., in. Attachment (welded or bolted)  
SA-516-70 /SB-127 440 31 1/2 " 1 7/8 " 1/8 " BOLTED  
Floating (Mat'l Spec. No.) Dia., in. Nom. thk., in. Corr. Allow., in. Attachment  
13. Tubes: SB-338 Gr 2 Wld 3/4" 0.049 659 STRAIGHT  
Mat'l Spec. No., Grade or Type O.D., in. Nom. thk., in. or gauge Number Type (Straight or U)

Items 14 - 18 incl. to be completed for inner chambers of jacketed vessels or channels of heat exchangers.

14. Shell (a) No. of course(s): 1 (b) Overall length (ft & in.): 1 '2 1/4 "

Course(s)			Material	Thickness		Long. Joint (Cat. A)			Circum. Joint (Cat. A, B, & C)			Heat Treatment	
No.	Diameter, in.	Length ft & in.	Spec./Grade or Type	Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.	Time
1	33 " I.D.	1' 2 1/4 "	SA-240 TP316/L	.250"	0.00"	1	FULL	1	1	FULL	1	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-

[illegible]

(Mat'l Spec. No., Grade, Size, No.)

17. Impact test \_\_\_\_\_ EXEMPT PER UHA 51 \_\_\_\_\_ at test temperature of \_\_\_\_\_ °F  
(Indicate yes or no and the component(s) impact tested)

18. Hydro., ~~proof, 1000 lb.~~ test press. 150 Proof test                     

**19. Nozzles, inspection, and safety valve openings:**


[illegible]

20. Supports: Skirt NO Lugs - Legs - Others - Attached -  
(Yes or No) (No.) (No.) (Describe) (Where and How)

21. Remarks: MDMT PER UHA 51

CUSTOMER ITEM NO. C-308 1A

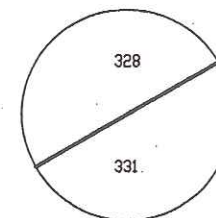
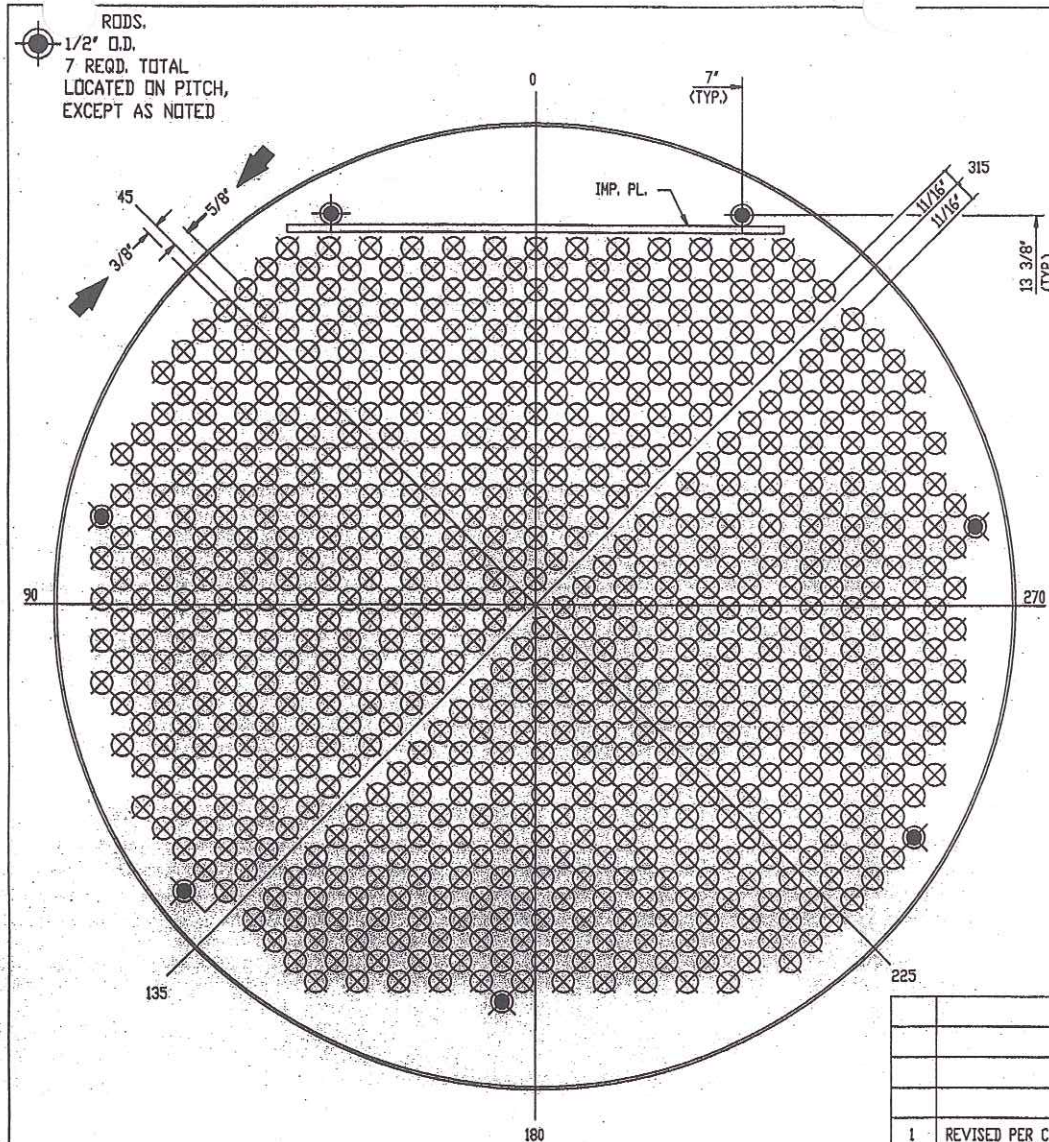
We certify that the statements made in this report are correct and that all details of material, construction, and workmanship of this pressure vessel part conform to the ASME Code for Pressure Vessels, Section VIII, Division 1.

U Certificate of Authorization No. 18,673 Expires 06/27/2007  
Date 03/17/2006 Name OHMSTEDE LTD., LA PORTE PLANT Signed   
(Manufacturer) (Representative)

I, the undersigned, holding a valid commission issued by The National Board of Boiler and Pressure Vessel Inspectors and the State or Province of TEXAS and employed by HSB CT of HARTFORD, CT have inspected the pressure vessel part described in this Manufacturer's Data Report on 03/17/2006, and state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel part 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 part 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 03/17/2006 Signed  Commissions N.B. 12906 A, TX 1766  
(Authorized Inspector) (Nat'l Board incl. endorsement, State, Province and No.)





TUBE DISTRIBUTION

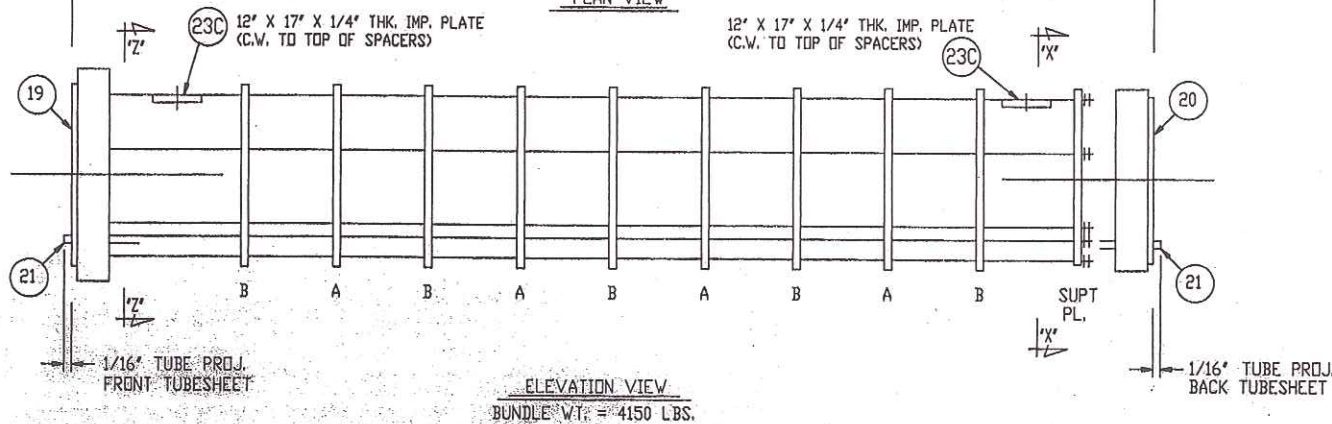
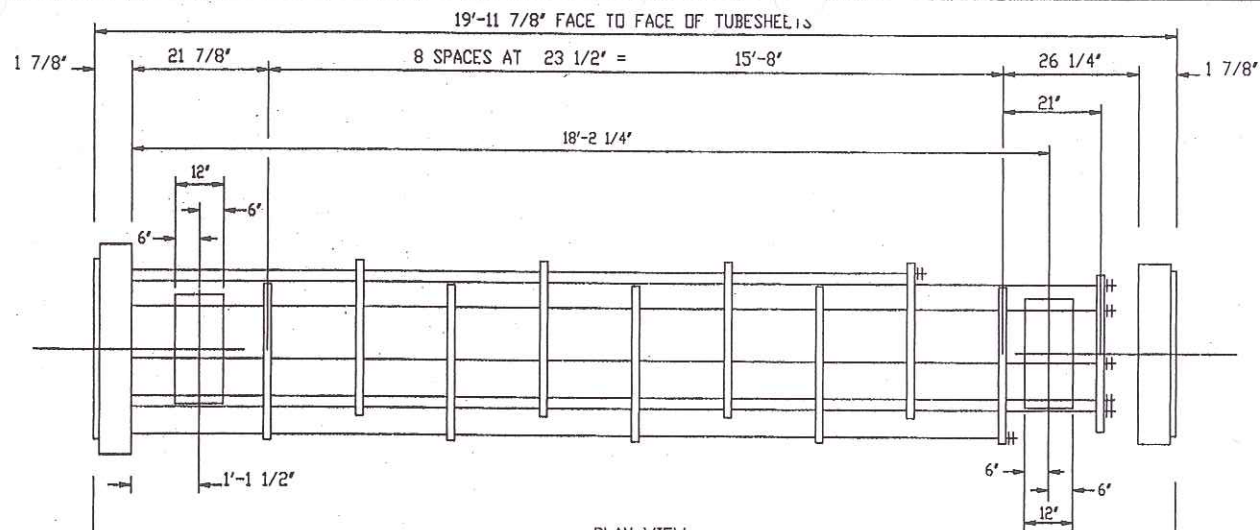
NOTES:

- 1) DRILL AND REAM TUBE HOLES IN  
TUBESHEETS TO  $0.7580" \pm 0.0020"$  DIA.  
FOR 659 - 3/4" O.D. TUBES.
- 2) TUBE PITCH = 1" ROT. SQUARE.
- 3) NUMBER OF PASSES = 2
- 4) SEE DRAWING SHT. NO. 4  
FOR TUBE GROOVING DETAILS.
- 5) BAFFLE O.D. =  $32 \frac{7}{8}"$  ⚠
- 6) O.T.L. = 31'

VIEW LOOKING AT SHELL SIDE OF NO. 19 TUBESHEET

								CUSTOMER: GIANT REFINERY YORKTOWN	▲ JOB NO. 526203	● ITEM NO. C-308
								OHMSTEDE JOB NO. ▲ P. O. NO. 13416	526204	C-308
								ITEM NO. : ●	▲	
								SERVICE : FRACTIONATOR OVERHEAD CONDENSER		
1	REVISED PER CUSTOMER COMMENT			MAG	CT	12-20-05		TUBE LAYOUT		
0	REL. FOR FAB. / CUST. REVIEW			KLB	DG	12-13-05		DRAWING NO.		
NO.	REVISIONS			BY	CHK.	DATE CHK.		OHMSTEDE Ltd. 526203/526204-5		

1	REVISED PER CUSTOMER COMMENT	MAG	CT	12-20-05
0	REL. FOR FAB. / CUST. REVIEW	KLB	DG	12-13-05
NO.	REVISIONS	BY	CHK	DATE CHK.



# NOTES:

- 1) FOR SECTION AND VIEW DETAILS SEE DWG. SHEET #9.
- 2) HYDROTEST BUNDLE AT 100-150 PSIG.

NO.	REVISIONS	BY	CHK.	DATE
1	REVISED PER CUSTOMER COMMENT	MAG	CT	12-20-05
0	REL. FOR FAB. / CUST. REVIEW	KLB	DG	12-13-05

CUSTOMER: GIANT REFINERY  
YORKTOWN  
OHMSTEDE JOB NO. 526203  
P. Q. NO. 13416  
ITEM NO. 526204  
SERVICE: FRACTIONATOR OVERHEAD CONDENSER

JOB NO.	ITEM NO.
526203	C-308
526204	C-308

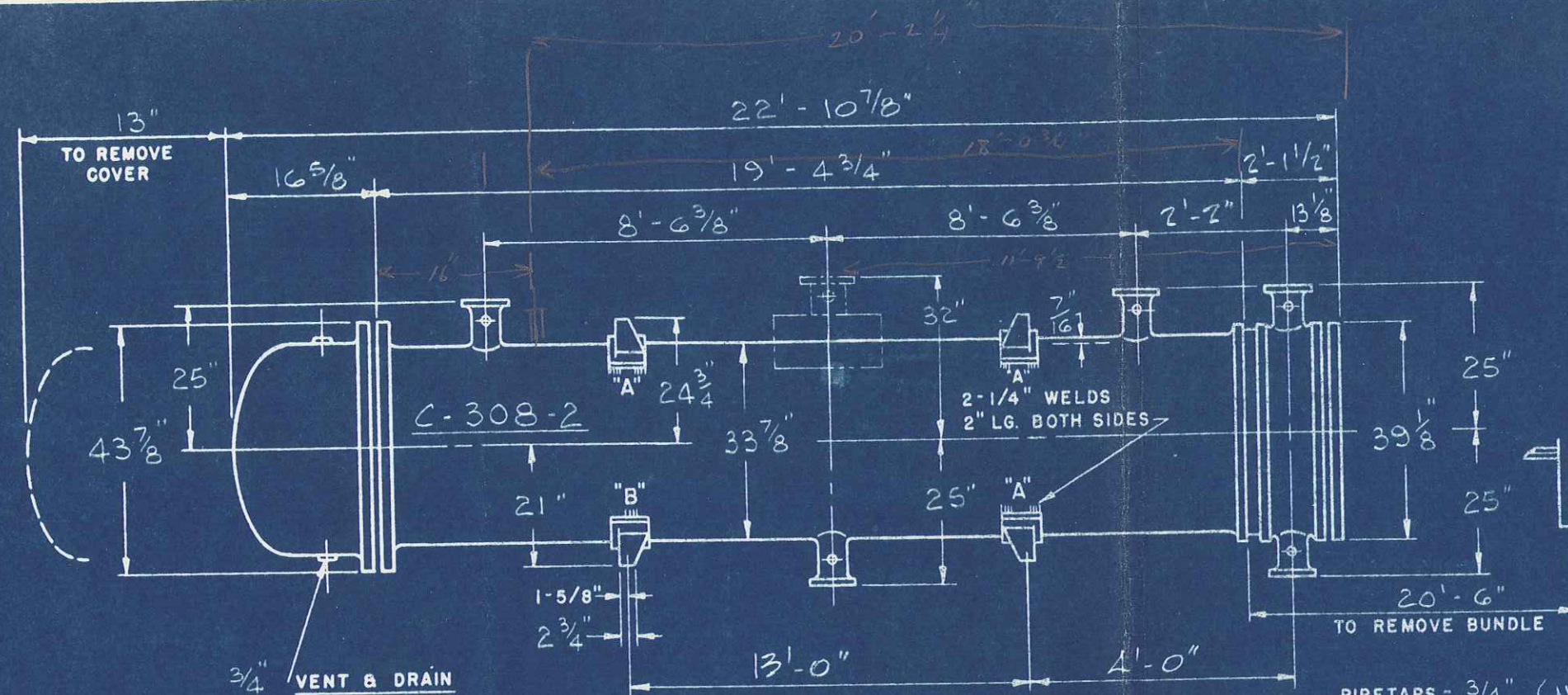
## BUNDLE DETAILS

OHMSTEDE Ltd. DRAWING NO. 526203/526204-6

REQ'D.	'A'
5	19'-5 1/2"
1	17'-8 3/8"
1	15'-8 7/8"

REQ'D.	'B'
5	21 5/8"
2	45 1/8"
24	23"
14	46 1/2"
4	20 7/16"
1	43 15/16"



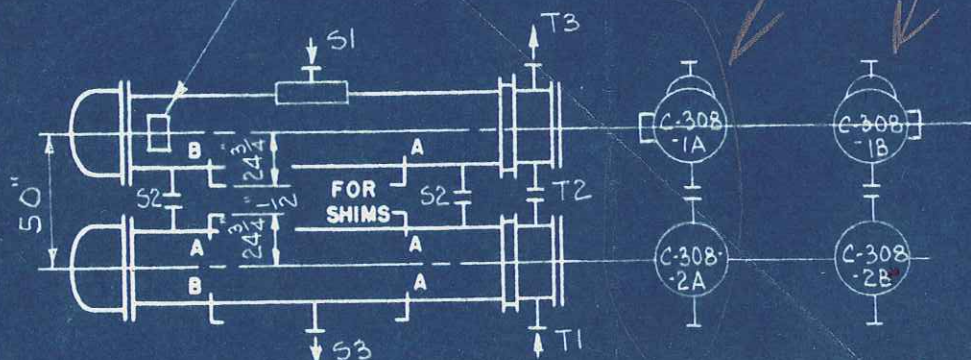


PIPETAPS - 3/4" (N.S.) S1, S2, S3, T1, T2, T3  
1/2" (F.S.) S1, S2, S3, T1, T2, T3

C-308-2B	1	3295
C-308-1B	1	3294
C-308-2A	1	3293
C-308-1A	1	3292

MAX. WORK. TEMP.	SHELL	265 °F	TUBES	150 °F	MARK NO.	NO. REQD	SERIAL NO.
MAX. TEST PRESS.	SHELL	115 #/sq"	TUBES	115 #/sq"	TOTAL NUMBER SECTIONS		
MAX. WORK PRESS.	SHELL	75 #/sq"	TUBES	75 #/sq"	4		

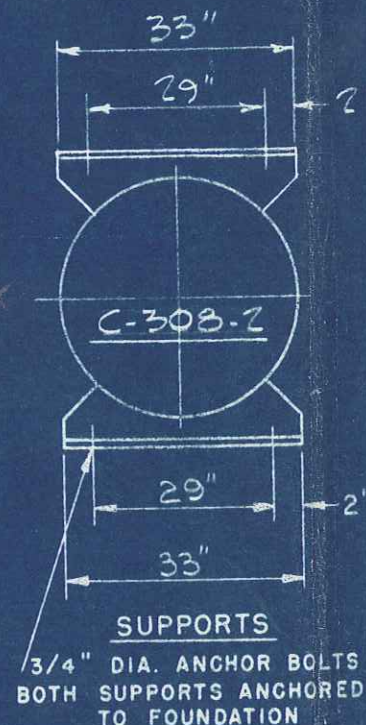
BRACKET (MWK STD DWG S561A1-1) FOR DAVIT ED-3  
(N.S.) FOR C-308-1A  
(F.S.) FOR C-308-1B



SETTING ARRANGEMENT

2 IN PARALLEL  
2 IN SERIES

- SHOP NOTE** - BOTH SUPPORTS WELDED TO SHELL IN SHOP - LOCATE EXACTLY  
- SUPPORT "A" HAS 2-1/4" X 2" LONG WELDS - BOTH SIDES  
- SUPPORT "B" HAS 1-1/4" X 1/2" LONG TACKWELD - BOTH SIDES
- FIELD NOTE** - REMOVE TACKWELDS ON SUPPORT "B" AFTER INSTALLING EXCHANGER  
- PROVIDE BOLTS (EXCEPT ANCHOR), BEVELLED WASHERS, AND SHIMS, WHERE NECESSARY, FOR ALL SUPPORTS.



SUPPORTS

3/4" DIA. ANCHOR BOLTS  
BOTH SUPPORTS ANCHORED  
TO FOUNDATION

LOCATION	MARK	SIZE	SERIES	LOCATION	MARK	SIZE	SERIES
OUTLET	S3	14"	150# ASA STD R.F.	OUTLET	T3	8"	150# ASA STD F.F.
INTERM	S2	(2) 12"	Do	INTERM	T2	8"	Do
INLET	S1	18"	Do	INLET	T1	8"	Do

SHELL SIDE NOZZLES				TUBE SIDE NOZZLES			
HORIZONTAL	33-D-240	3-S-2	BUNDLE	8600 LBS	FRACT	SALT WATER	
POSITION	SIZE	TYPE	SHIPPING	17100 LBS	OVHD		
4	9-14-55		FULL OF WATER	25300 LBS	IN SHELL	IN TUBES	
DWG	ISSUE	DATE	WEIGHTS PER SECTION		MEDIUM		

SCALE: NONE				THE M. W. KELLOGG CO.			
DRAWN: AMARILLI				SETTING PLAN OF - FRACTIONATOR			
CHECKED: 7PARK				OVHD PRODUCT COND.			
APPROVED: [Signature]							
DATED: 9-9-55							
ISSUED FOR FABRICATION							
10-3-55							
ISSUED FOR CONSTRUCTION							
ISSUE & REVISIONS							
NO.	DESCRIPTION	DATE	BY	CHK.	CLASS & ITEM	AREA CONT.	JOB NO. DRAWING NO.
4	REISSUED	9-14-55	P	FR	C-308	5232-3	2252 301B308
3	CHECKED	9-9-55	P	JP			
2	REVISED	7-9-55	FR				
1	PRELIMINARY	5-23-55	FR				