

CELANESE CORPORATION OF AMERICA
PROCESS ENGINEERING
HEAT EXCHANGER SPECIFICATION SHEET

Spec. No.	Page 1 of 1	Date 8/6/74
Item No. HE-2561/2556	No. Units TWO	Engineer JLT & TMK
Service LT. ENDS COL. FEED PREHEATERS (T-279/T-187) NEW		
Type BEM	Size 8-240	
OS Surface/Unit 104 FT ²	OS Surface Total 208 FT ²	

PERFORMANCE - ONE UNIT

	SHELL SIDE	TUBE SIDE
Fluid Circulated NOTE 1	CRUDE MEDH FEED	FIN. COL. H ₂ O RECYCLE
Total Fluid Entering	79674 lb/hr	18400 lb/hr
Vapor	lb/hr	lb/hr
Liquid	79674 lb/hr	18400 lb/hr
Steam	lb/hr	lb/hr
Non-Condensables	lb/hr	lb/hr
Fluid Vaporized or Cond.		
Amount Vaporized or Cond.	lb/hr	lb/hr
DENSITY, LBS/FT ³	48.89	59.56
Molecular Weight	28.86	18.11
Specific Heat	.707 Btu/lb	1.013 Btu/lb
Temperature In	133.6 °F	256 °F
Temperature Out	156.7 °F	186 °F
Operating Pressure	60 psig	50 psig
Number of Passes	1	4
Velocity	2.23 fps	4.34 fps
Pressure Drop	4.00 psi	3.90 psi
Max. Allowable Working Press.	85 psi	75 psi
Heat Exchanged-Btu/hr 1,304 MM	LMTD (cor) 62.4	
Transfer Rate U-Clean 358.3	Service 202.4 Fouling Resistance .00215	

CONSTRUCTION

Tubes-Material NOTE 2	Number/Unit 20	OD 1.0" Bwg 14.0 AW.
Length 19'-11 3/4"	Pitch 1 1/4"	60° Triangular Spacing
Shell-Material SS ✓	ID 8"	Baffle Spacing 12.0"
Baffle Opening 32.43% DIA.	SEG.	Baffle Cnt Vertical Spacing
Tube Sheet-Material SS	Channel-Material CS	
Removable Tube Bundle	Fixed Tube Sheet	
Connections-Shell-In 4"	Out 4"	
Channel-In 2"	Out 2"	

REMARKS OVERDESIGN 11.9 %

- 1) FLOWS ARE 117.65% OF FLOWSHEET FLOWS
- 2) 304SS TUBES SUPPLIED BY CELANESE

GROOVE TUBESHEET AND ROLL TUBES PER TEMA 'C'
HEAT TRANSFER COEFFICIENTS (BTU/HR °F FT² OUTSIDE) $h_i = 1295.6$ $h_o = 800.7$

FINAL ISSUE
APPROVED BY

PH 6/4/75

DAVY POWERGAS INC.

PROJ. AREA P.O. SEQ. SUB. ITEM

4207 500 35 14 B

HUNT TOOL COMPANY

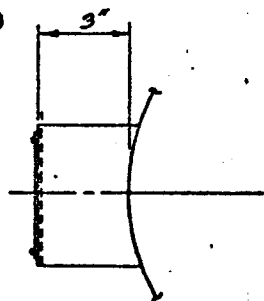
HEAT EXCHANGER DIVISION, CORPUS CHRISTI, TEXAS

U
W

ITEM NO. * SIZE B-240
P.O. 040041-50035 SHELLSIDE TUBESIDE
MAX. DESIGN PRESSURE P.S.I. 85 F.V. 75 F.V.
DESIGN TEMPERATURE °F. 400 400
MAX. TEST PRESSURE P.S.I. 140 113
MFG. SERIAL NO. * * N.B. DATE
WT. 1,500

HUNT TOOL CODE NAME PLATE

NAME 2: TYPE 302 STNLS. STL. (4"x8")
BRACKET: 10 GA. C. STL.
ALL BRACKET WELDS TO BE C.W.



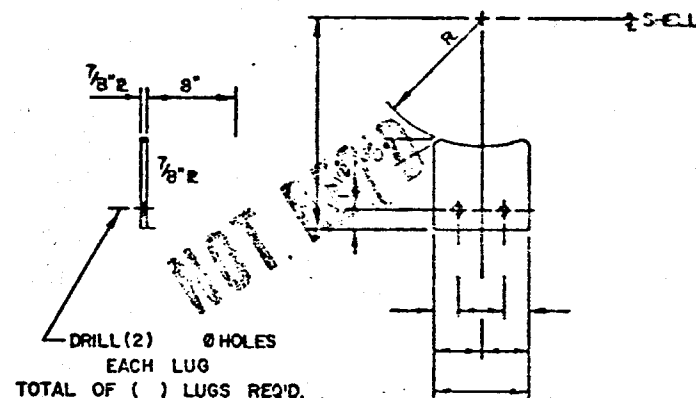
NAME 2 BRACKET

* HE-2556
HE-2561

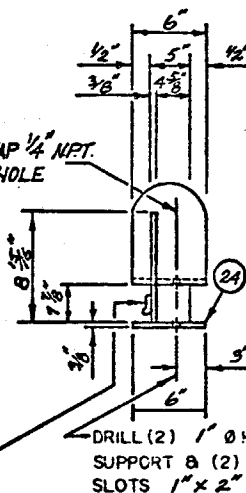
** HE-3447-A
HE-3447-B

Certified
FOR CONSTRUCTION

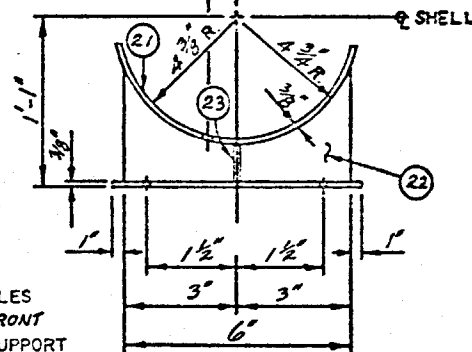
GROUND LUG LOCATED
ON REAR SUP'T. ONLY



DRILL & TAP 1/4" NPT.
WEEP HOLE



NPT. HOLE 1/4" (IN PAD ONLY)
C. OF EXCH.



ALL ASSEMBLY & ATTACHMENT WELDS TO BE CONTINUOUS 1/4" FN.
SHIP LOOSE.

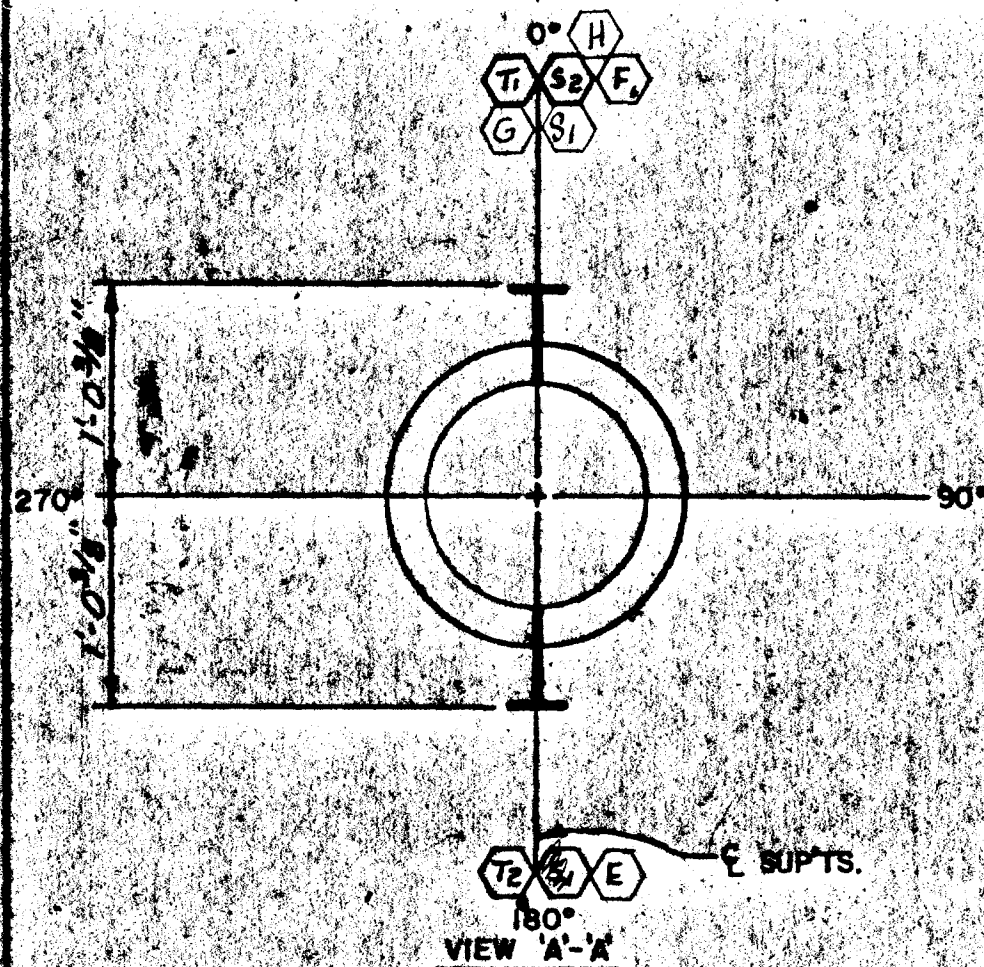
REVISION: ADD NOTE/CUST
4-30-75 V.M. km

90752

HUNT			
TOOL COMPANY			
HEAT EXCHANGER DIVISION			
CORPUS CHRISTI, TEXAS			
DATE	N.V.H.	1-15-75	
CHG'D	FM	1-22-75	
APP'D			

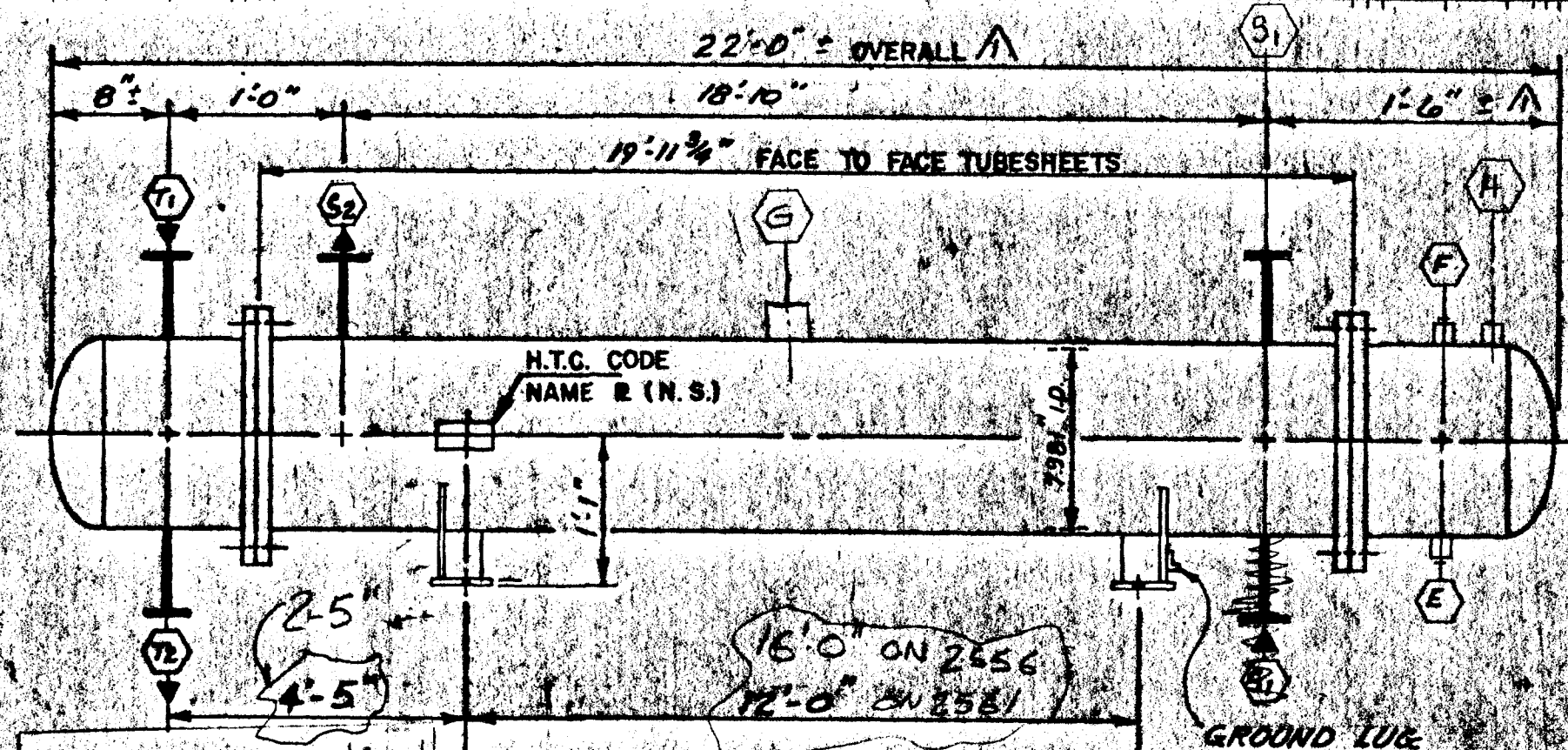
NAME 2: TYPE 302 STNLS. STL.

CUST ITEM NO HE-2556 & HE-2561
1.9 EACH. REQ TWO (2) TUBE BEM.
DWG. NO HE-3447 A/B 5-SHEET 1 OF 12



GENERAL NOTES

1. BOLT HOLES TO STRADDLE MAJOR C'S UNLESS OTHERWISE NOTED.
 2. PROTECT FLANGE FACES FOR SHIPMENT.
 3. PLUG ALL THRD. OPENINGS.
 4. INSPECTION: (H.T.C.), (COMMERCIAL UNION COMPANIES), (CUSTOMER)
 5. SURFACE PREP.: HAND TOOL CLEAN PER (SSPC-SP2-63)
- PAINT: NONE



10. APPROVED - MFG. MAY PROCEED.
11. APPROVED - SUBMIT FINAL DWG. - MFG. MAY PROCEED.
12. APPROVED - EXCEPT AS NOTED - MAKE CHANGES AND SUBMIT FINAL DWG. - MFG. MAY PROCEED.
13. APPROVED - CORRECT AND RESUBMIT.
14. NOT APPROVED - REVIEW NOT REQUIRED - MFG. MAY PROCEED.
15. APPROVED - THIS DRAWING DOES NOT REQUIRE THE APPROVAL OF THE RESPONSE FOR ACCURACY OF DIMENSIONS, PERFORM THE DESIGN DETAILS OR CONFORMANCE TO SPECIFICATION AND PURCHASE ORDER REQUIREMENTS.

DATE: 1-29-75

BY: [Signature]

16. 0" ON 2556

17. 0" ON 2561

GROUND LUG

(2) 1" HOLES

(2) 1" x 2" SLOTS

3"

2 1/2" (TYP)

16.1"

3"

2 1/2" (TYP)

16.1"

3"

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2 1/2" (TYP)

MARK	Nº	SIZE	RATING	FLG. DESCR.	SERVICE	REMARKS
H	1	1"	6000#	COUP.	PSV	
G	1	1"	6000#	COUP.	PSV	
F	T	3/4"	6000#	FULL CPLG.	VENT.	Y PLUG
E	1	3/4"	6000#	FULL CPLG.	DRAIN	Y PLUG
T2	1	2"	150#	RF SO	OUTLET	
T1	1	2"	150#	RF SO	INLET	
S2	1	4"	150#	LAP JT.	OUTLET	
S1	1	4"	150#	LAP JT.	INLET	

CERTIFIED FOR CONSTRUCTION by [Signature] date 12-6-74

RADIOGRAPH SHELL (NONE) CHAN. (NONE)

P.W.H.T.

SHELL (NO) CHAN. (NO)

EXT. TUBE SURFACE PER EXCH.	104	SQ. FT.
WT. EA. EXCH. LBS. DRY:	1500	
WET:	1976	
BOL:		
DESIGN CONDITIONS	SHELLSIDE	TUBESIDE
DESIGN PRESSURE, P.S.I.	85 F.V.	75 F.V.
DESIGN TEMPERATURE, °F	400	400
HYDRO-TEST PRESSURE, P.S.I.	118	113
CORROSION ALLOW., IN.	0"	1/16" (C.S.)
NUMBER OF PASSES,	ONE (1)	FOUR (4)

REVISION: 1/ REV. DIM. INT. 1-29-75 RM



HUNT

TOOL COMPANY
HEAT EXCHANGER DIVISION
CORPUS CHRISTI, TEXAS

DR'M.	R.S.	10-15-74
CHK'D.	RM	10-15-74
APP'D.		

CODES AND SPECIFICATIONS
ASME SECT. VIII PRESS. VESSELS DIV. I, STAMP (YES), TEMA (C)
CELANESE VENDOR REQUIREMENTS
#90752
OUTLINE SIZE 8-240
SERVICE: LT. ENDS COL. FEED PREHEATER
CUST. CELANESE CHEM
CUST. P.O. Nº 040041-50035
CUST. ITEM Nº HE-2556 HE-2561
Nº EXCH'S. REQ'D. TWO (2) TYPE BEM
DWG. Nº: HE- 3447 A/B SHEET 2 OF 12

4707 50035 15 A HE-2561

HUNT TOOL COMPANY
 HEAT EXCHANGER DIVISION, CORPUS CHRISTI, TEXAS

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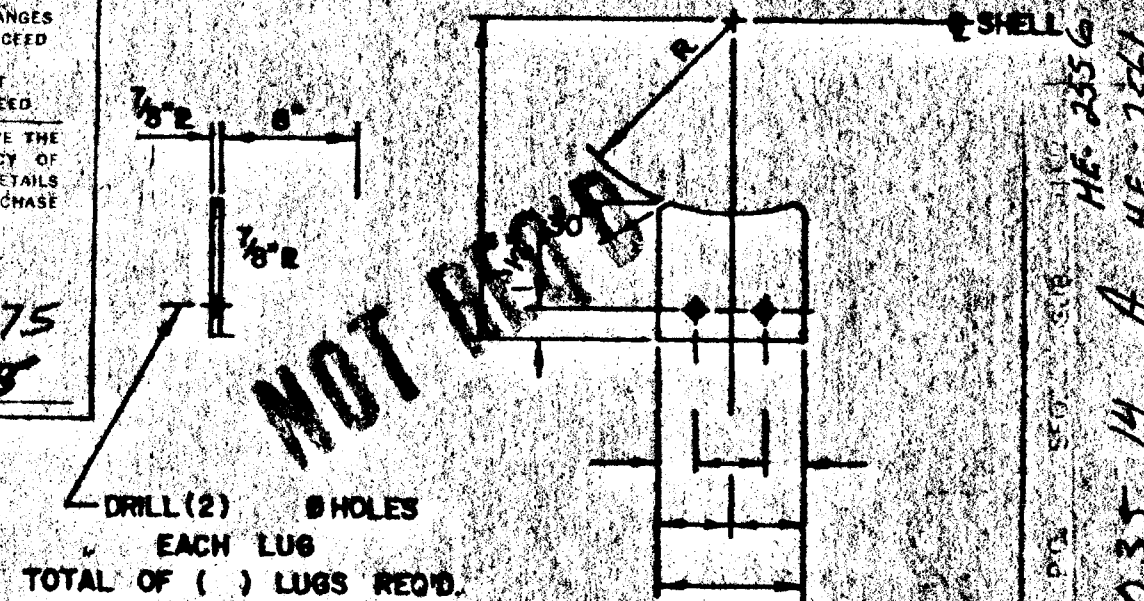
ITEM NO. * SIZE B-240
 P.O. 040041-50035 SHELLSIDE TUBESIDE
 MAX. DESIGN PRESSURE P.S.I. 85 F.V. 75 F.V.
 DESIGN TEMPERATURE °F. 400 400
 MAX. TEST PRESSURE P.S.I. 148 113
 MFG. SERIAL NO. ** N.B. DATE
 WT. 1,500

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 5. REVIEW NOT REQUIRED - MFG. MAY PROCEED.

APPROVAL OF THIS DRAWING DOES NOT RELIEVE THE SUPPLIER OF RESPONSIBILITY FOR ACCURACY OF DIMENSIONS, PLATE MATERIAL, DESIGN, DESIGN DETAILS OR CONFORMANCE TO SPECIFICATION AND PURCHASE ORDER REQUIREMENTS.

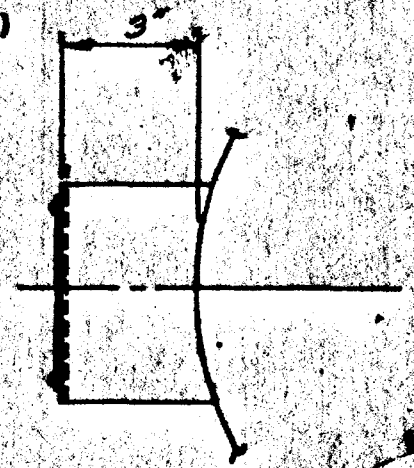
DAVY POWERGAS INC.

PH 3-24-75
 BY *G. ALMOND* DATE ~~3-22-75~~



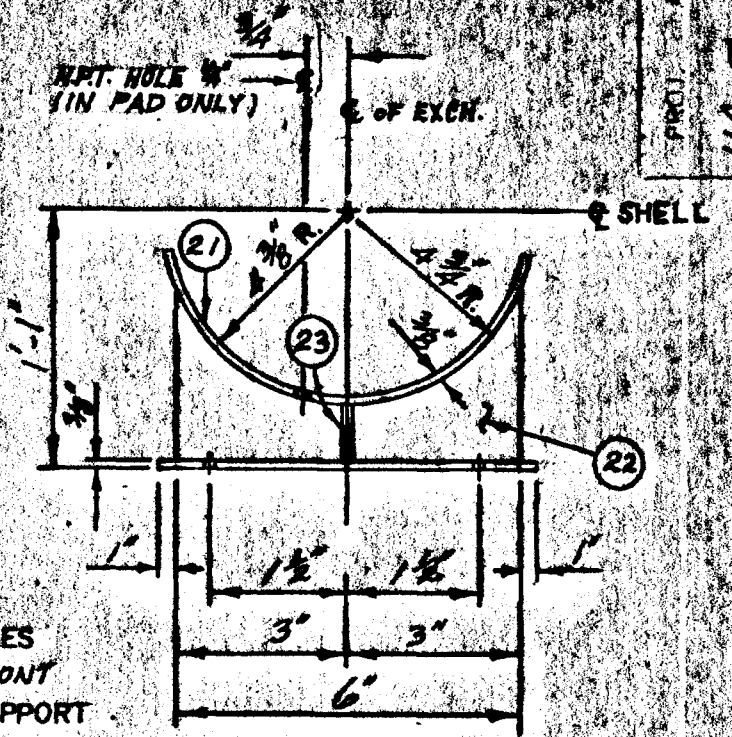
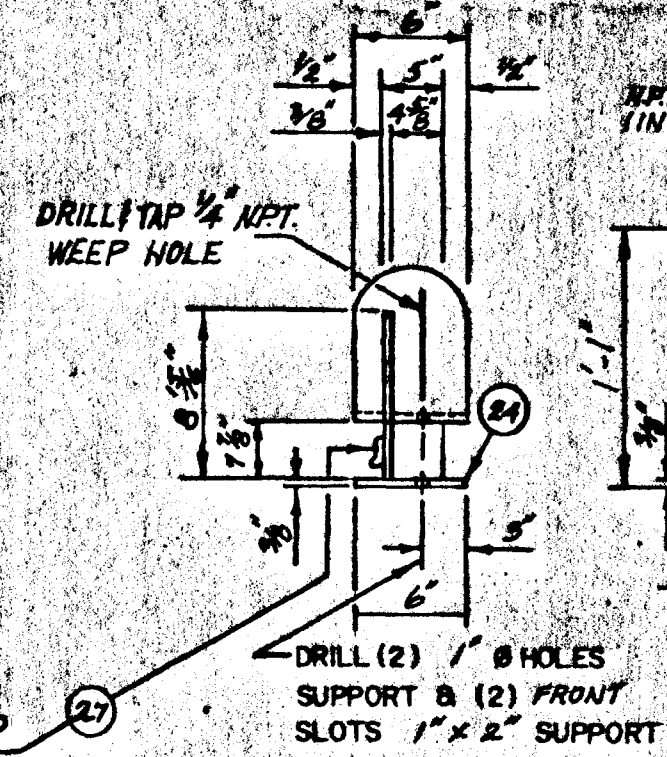
HUNT TOOL CODE NAME PLATE

NAME R: TYPE 302 STNLS. STL. (4"x8")
 BRACKET: 10 GA. C. STL.
 ALL BRACKET WELDS TO BE C.W.



NAME R BRACKET

* HE-2556
 HE-2561
 ** HE-3447-A
 HE-3447-B



GROUND LUG LOCATED ON REAR SUPT. ONLY

SUPPORT DETAILS

ALL ASSEMBLY & ATTACHMENT WELDS TO BE CONTINUOUS & F.W.

SUPPORT SADDLES
 ARE TO BE SHIPPED LOOSE
 AND ATTACHED IN FIELD

REVISION: 			HUNT TOOL COMPANY HEAT EXCHANGER DIVISION CORPUS CHRISTI, TEXAS		# 96752 <u>NAME R & SUPPORT DETAILS</u>	
DR'N.	N.V.H.	1-15-75	CUST. ITEM NO. HE-2556 & HE-2561 NO EXCH'G. REQ'D. TWO (2) TYPE BEM DWG. NO. HE-3447 1/8 SHEET 1 OF 12		HE-2556 HE-2561 HE-3447-A HE-3447-B HE-3447-C HE-3447-D HE-3447-E HE-3447-F HE-3447-G HE-3447-H HE-3447-I HE-3447-J HE-3447-K HE-3447-L HE-3447-M HE-3447-N HE-3447-O HE-3447-P HE-3447-Q HE-3447-R HE-3447-S HE-3447-T HE-3447-U HE-3447-V HE-3447-W HE-3447-X HE-3447-Y HE-3447-Z	
CHK'D.	RM	1-29-75				
APP'D.						