

230490

Worham Enterprises, Inc.  
TULSA, OKLAHOMA  
AIR COOLED EXCHANGER APPLICATION SHEET

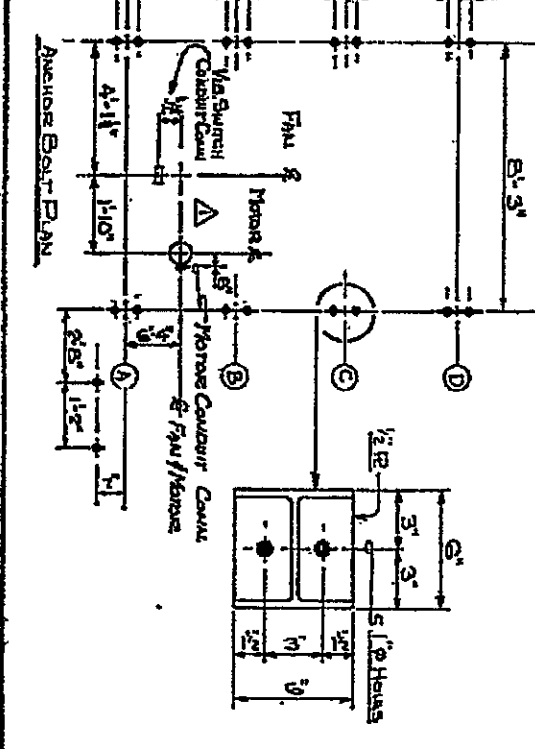
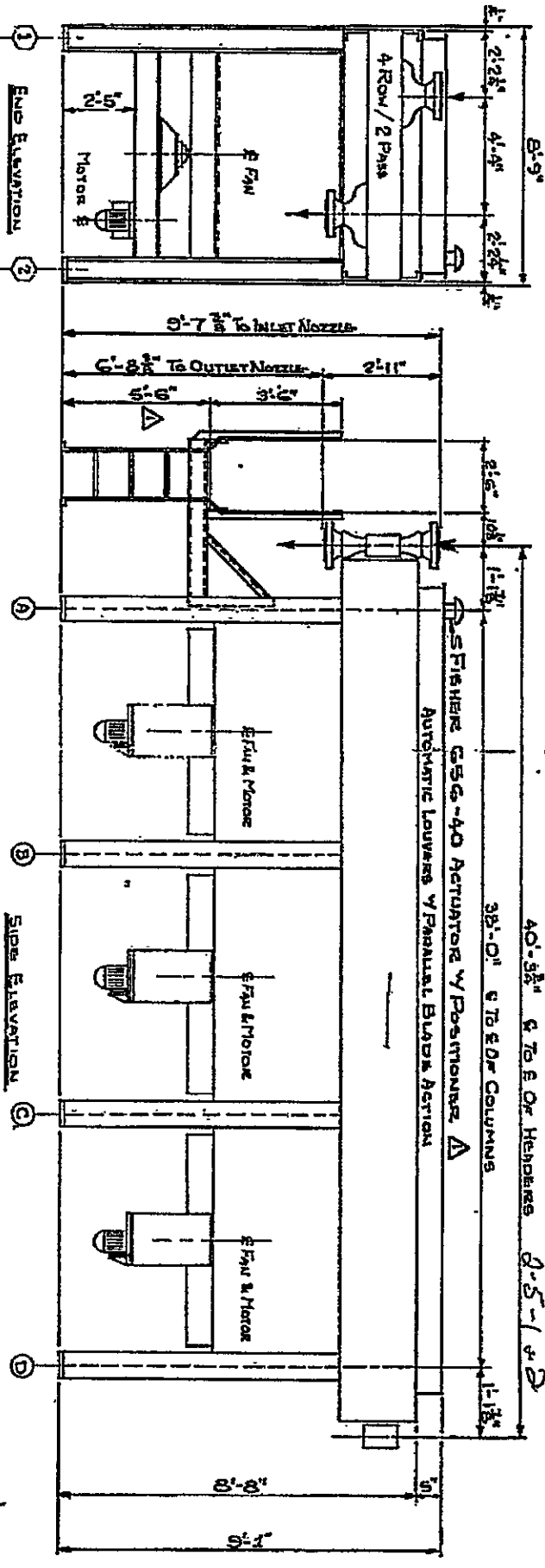
Job No. 7883-1  
Process No. 3-1062  
Date 2/5/79

1	Customer	Worham Enterprises	Process No.	3-1062
2	Job No.	7883-1	Date	2/5/79
3	Unit	Evaporator Condenser Cooler	Process	3
4	Capacity	9-30 TON	Process	3
5	Discharge, Ft.	1	Process	3
6	Weight	10	Process	3
7	Performance of one unit			
8	Capacity	1	Process	3
9	Unit	Evaporator	Process	3
10	Heat Exchanger	4,400,000	Process	3
11	Transfer Rate, Tons Evaporator - Base	6.28	Process	3
12	LATD (Corrected)	10.14	Process	3
13	Surface, External	80,000	Process	3
14	Base	4,316	Process	3
15	Tube Quantity	12,000	Process	3
16	Tube	200,000	Process	3
17	Weight	10	Process	3
18	Material	10	Process	3
19	Non-Condensibles	10	Process	3
20	System Condensate	10	Process	3
21	Transfer Rate, Tons	130	Process	3
22	Pressure, Inlet	GR. PSI	Process	3
23	Pressure, Outlet	5.0	Process	3
24	Velocity, Liquid	CP	Process	3
25	Velocity, Vapor	28,054	Process	3
26	Pressure Drop	1.1	Process	3
27	Material, L.S.	100	Process	3
28	Transfer Rate, Inlet	100	Process	3
29	Transfer Rate, Outlet	118	Process	3
30	Design Pressure, PSI - Total	1500	Process	3
31	ASME Code	ASME	Process	3
32	No. Bolts - Total Per Bolt	2	Process	3
33	No. Bolts - Per Bolt	1/2	Process	3
34	Material	C.S.	Process	3
35	Flange	8" x 8" x 300 RB	Process	3
36	Flange	8" x 8" x 300 RB	Process	3
37	Flange	8" x 8" x 300 RB	Process	3
38	Flange	8" x 8" x 300 RB	Process	3
39	Flange	8" x 8" x 300 RB	Process	3
40	Flange	8" x 8" x 300 RB	Process	3
41	Flange	8" x 8" x 300 RB	Process	3
42	Flange	8" x 8" x 300 RB	Process	3
43	Flange	8" x 8" x 300 RB	Process	3
44	Flange	8" x 8" x 300 RB	Process	3
45	Flange	8" x 8" x 300 RB	Process	3
46	Flange	8" x 8" x 300 RB	Process	3
47	Flange	8" x 8" x 300 RB	Process	3
48	Flange	8" x 8" x 300 RB	Process	3
49	Flange	8" x 8" x 300 RB	Process	3
50	Flange	8" x 8" x 300 RB	Process	3
51	Flange	8" x 8" x 300 RB	Process	3
52	Flange	8" x 8" x 300 RB	Process	3
53	Flange	8" x 8" x 300 RB	Process	3
54	Flange	8" x 8" x 300 RB	Process	3
55	Flange	8" x 8" x 300 RB	Process	3
56	Flange	8" x 8" x 300 RB	Process	3
57	Flange	8" x 8" x 300 RB	Process	3
58	Flange	8" x 8" x 300 RB	Process	3



WORSHAM ENTERPRISES, INC.		ME	TULSA, OK. NAT'L BD.	DESIGN	1600	PST. AT	200	B.
				TEST:	2400	PST. YEAR	1979	
				SERVICE				
				SERIAL #	886	TB		
				PURCH. ORDER	K5905			
				ITEM	1			
				TYPE	F-VI			

# Ethylene Comp. Aftercooler



GAFFNEY CONTRACT  
Flow Fabrication  
P.O. Box 100  
9-22-79

- Notes:
1. Built Per ASME & S&O
  2. Finish & Hardware-Zinc Electroplate
  3. Inlet Nozzle - (1) 5" 90° R.F.W.L. Counter Nozzle - (1) 5" 90° R.F.W.L.
  4. Louvers Open On Air Failure

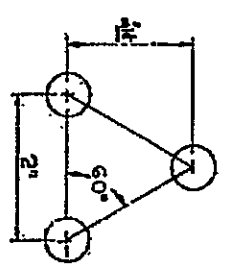
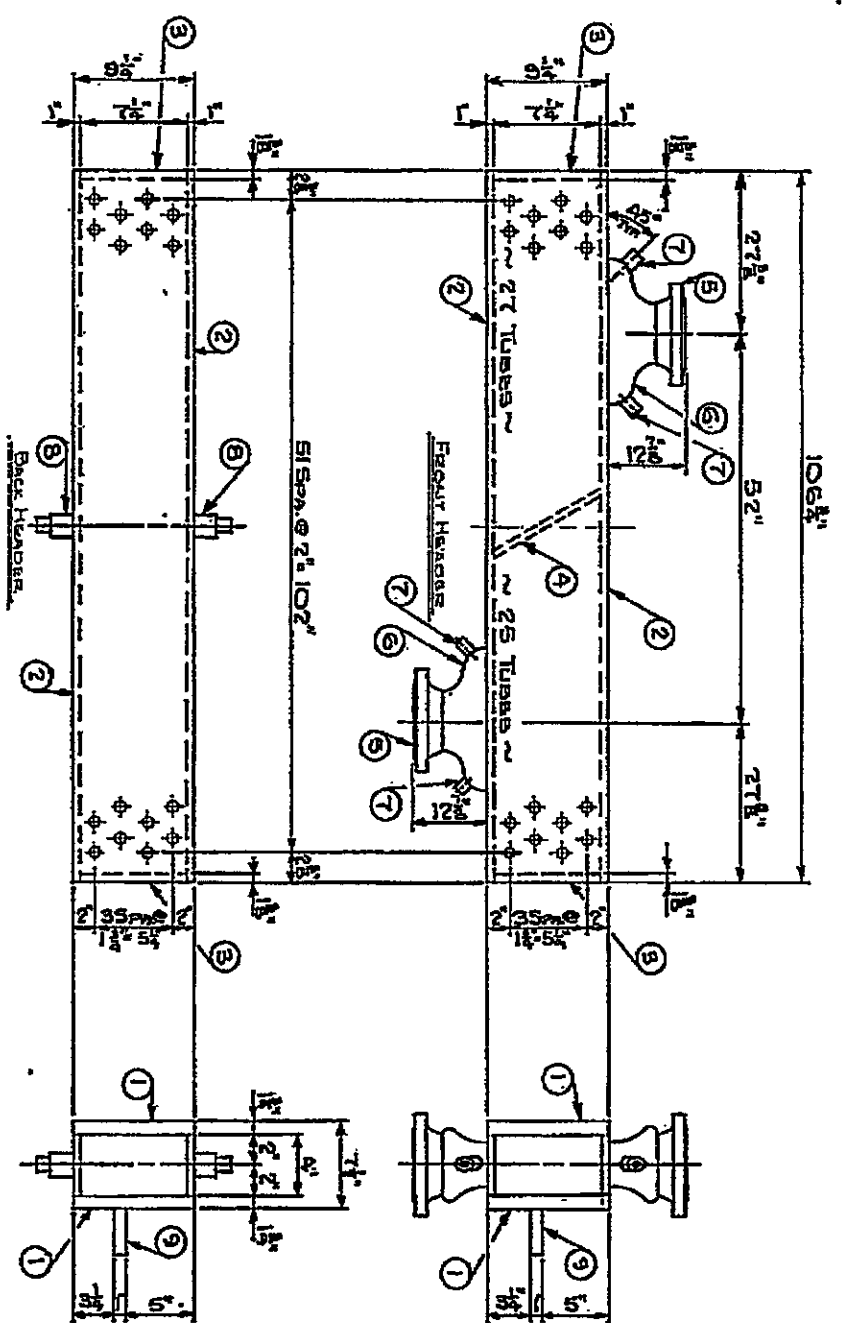
NO.	DATE	DESCRIPTION
1	5-27-79	Per Cust. Request
2		

LINE	DESCRIPTION	QTY	UNIT PRICE	TOTAL
1	DEAD LOAD	1	9865	9865
2	DEAD LOAD W/ WATER	1	4200	4200
	WIND REACTION	1	295	295
	SEISMIC REACTION	1	375	375

CUSTOMER: WAREEN PETROLEUM COMPANY  
UNIT LOCATION: MONT BRUYER, TEXAS  
P.O. NO.: 33905 W.O. 10307-805  
ITEM NO.: 1

**WORSHAM ENTERPRISES, INC.**  
TULSA, OKLAHOMA

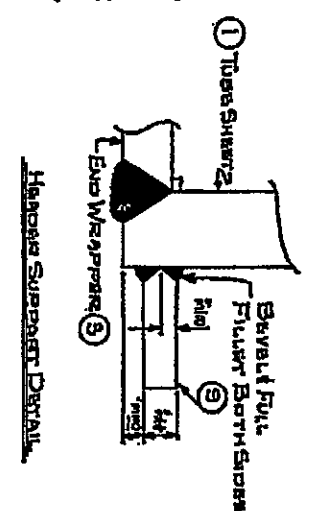
SIZE: 9'-0" TYPE: FWD DWG: ANCHOR BOLT PLAN & ELEVATIONS  
DWG. NO.: 253-1-1 DATE: 5-9-79



Tubes Pitch Detail

BOTH HEADERS VIEWED FROM PLUG SHEAR

- Notes:
1. Strain Plug Shear Y Job No. 888, Design & Test Program, Corrosion Allowances 1/8"
  2. Weld Procedure: SMAW II
  3. SMAW II-1 & SMAW II-2
  4. Header Fillet Joint Fillet Spec 5. Tubes & Plug Shear Detailing & Finishing To B & Per DWG WS-C-002
  5. Stressa Failure: 2 Hrs. @ 1100°F PER ASME CODE



Header Support Detail

DESIGN PRESSURE: 1600 PSI		TEST PRESSURE: 2400 PSI	
ITEM NO: 1		DESIGN TEMP: 200 °F	
<b>WORSHAM ENTERPRISES, INC.</b>			
TULSA, OKLAHOMA			
NO	DATE	DESCRIPTION	BY
1	4/27/79	As per Contract Requirements	AD
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ISSUE DATE 3-22-79

# BILL OF MATERIAL

CUSTOMER WARRAN Petroleum Co

BY Mike DATE 3/22/79

ITEM NO.	NAME OF PART	PCS	REQUIRED	DESCRIPTION OF ONE	TYPE OF MATERIAL	SOURCE P.O.	DATE	SUPPLIER/TAKE FROM	PAGE	ONE OF	GROSS UNIT COST
1	Tubes & Plug Sheets	4	Two	Bevel To Match Weldpieces	A-515-70						
2	Top & Bottom Headers	4		1" R 3/8" x 10G 3/4" (Bevel Both Long Sides 37 1/2")							
3	End Headers	4		1 1/8" R 3/4" x 7" (Bevel All Sides 37 1/2")							
4	Plugs R/Ws	ONE		1/2" R 3/8" x 8 3/8"	A-515-70						
5	Inlet Air Noz	2		8" 900° R.F.W.N. Flgs (SCH 80)	A-105						
6	Inlet & Outlet Swages	2		8" SCH 80 - Forged Transition Nozzles	A-234						
7	Temp Press Cou	4		1" 6000° CPUGS Y PLUGS	A-105						
8	Welds/Dryes	2		3/8"-3000° f CRG. Y PLUGS	A-105						
9	Header Surf	4		1/2" x 1" Bar x 0'-6" Lg.	A-3G						
10											
11											
12											
13	Sealweld Plug	4/2		1 1/2" x 1 1/2" U.H Y Soft Iron Gasket <i>1" x 6" Long</i>	C-12/3						
14											
15	TOWERS	206		1" O.D x .075" M.W x 40'-0" Long	A-214						
16	FINs	2835		.016" x .568" (1/2" High x 10 F.P.I)	ALUM.						
17											
18											
19	Side Frames	2		15" C Y 2 1/2" Flgs. Broken From 1/2" R x 39'-7 1/2" Lg.	A-3G						
20	Head Descrpt	2		1 1/2" x 2" #1 TUBING x .120" WALL x 0'-6" Lg (CUT THRU 2" SECT TO MAKE 2RS)							
21	Head Side Seal	4		1/2" x 2" Bar x 2" Lg							
22											
23											
24											
25											
26	TUBE REMAKE	7		1/2" x 2" x 1/4" x 8'-8" LONG							
27	Tube Support	7		5/8" x 7.7" x 8'-8" LONG							
28	Tube Support Feet Bird	28		1/2" x 2" Bar x 0'-4" Lg							
29											
30	LIFT LUGS	4		1/2" R 5" x 8"							
31											
32	TOP Header Seal	2		1/2" x 5" BRKN FROM 10G MATL (PER DETAIL)							
33	Bottom Header Seal	2		1/2" x 5" DEEP Y 4 1/2" Flgs BRKN FROM 10G MATL (PER DETAIL)	A-3G						
34											
35											

P.O. NUMBER: 33905  
 ITEM NO: 1 A 4 B  
 HEADERS: ZINC FLAME SPRAY  
 COIL METAL: HOT DIP GALVANIZED  
 FINISH:  
 TUBE ENDS: COIL TAP EPOXY (SHERWIN WILLIAMS SHEAR-TAP)

1	FINAL BILL	4-10-79
2		
3		
4		

WORSHAM ENTERPRISES, INC.  
 TULSA, OKLAHOMA  
 DWG. NO. 883-1-C  
 PAGE TOTAL