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Surplus Industrial Superstore
305-428-2777
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CHAPTER 9

CUSTOMER SERVICE AND PARTS

FURNISH COMPLETE INFORMATION WHEN ORDERING PARTS - When ordering parts or spares, give the description and the quantity of parts desired, together with the complete nameplate data, including all electrical requirements.

WHERE TO ORDER PARTS - Repair and replacement parts should be ordered from your local Cleaver-Brooks authorized representative.

CB BOILER HORSEPOWER	SHELL DIAMETER
400 - 800	96"
250 - 350	78"
125 - 200	60"
50 - 100	48"
15 - 100	36"

Cleaver-Brooks
CB PACKAGED BOILER

MODEL SERIAL NO

MAX. PRESSURE PSI DATE

INPUT BTU/HR GAS GPH OIL

ELECTRICAL REQUIREMENTS

MAIN POWER SUPPLY

VOLTS PH HZ AMP

MINIMUM CIRCUIT AMPACITY AMP

MAX. RATING OF CIRCUIT PROTECTION AMP

BLOWER MOTOR HP

AIR COMPRESSOR MOTOR HP

OIL HEATER KW

CONTROL CIRCUIT

120 VOLTS 1 PH HZ 7 AMP

OIL PUMP MOTOR

VOLTS PH HZ AMP

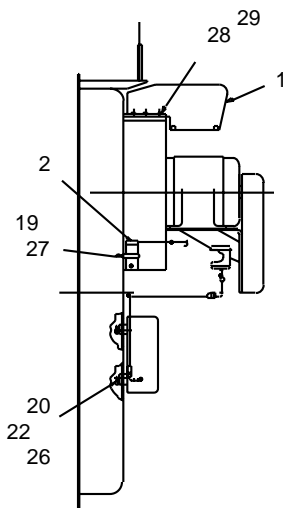
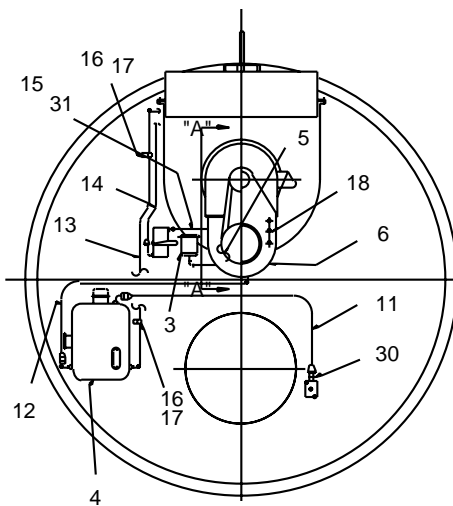
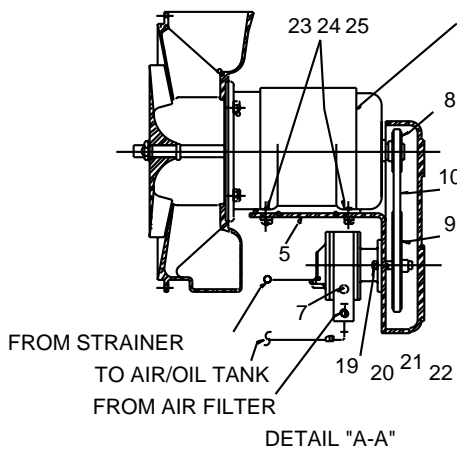
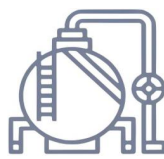
CLEAVER-BROOKS DIVISION
AQUA-CHEM, INC.
MILWAUKEE, WISCONSIN, U.S.A.

Contact your local Cleaver-Brooks authorized representative for prompt supply of replacement parts.

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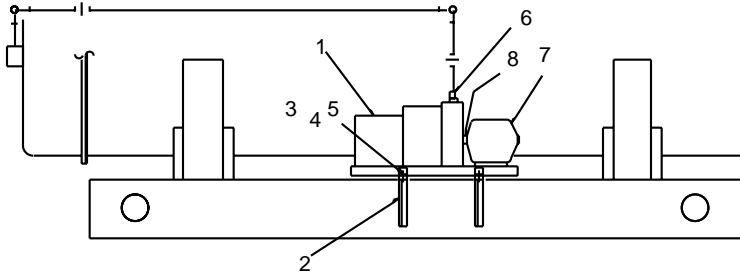
Notes



ITEM	QTY	PART NO.	DESCRIPTION	USED ON
1	1	530-B-97	AIR INLET ASSEMBLY	FUELS 100, 101, 200, 400, & 600
	1	530-B-96	AIR INLET ASSEMBLY	FUEL 700 ONLY
2	1	333-A-20	STRAINER ASSEMBLY	-
3	1	923-79	AIR CLEANER 3/4"	-
4	1	538-B-135	AIR-OIL TANK ASSEMBLY	-
5	1	SEE TABLE	AIR COMPRESSOR BRACKET (NOTE 4)	SEE TABLE
6	1	450-B-13	BELT GUARD ASSEMBLY	-
7	1	505-B-100	AIR PUMP ASSEMBLY	-
8	1	SEE TABLE	SHEAVE	SEE TABLE
	1	921-451	SHEAVE	60 HZ.
9	1	921-452	SHEAVE	50 HZ.
	1	809-144	V-BELT	-
10	1	809-144	V-BELT	-
11	1	507-B-1010	TUBING, AIR-OIL TANK TO MANIFOLD	-
12	1	507-B-1011	TUBING, AIR-OIL TANK TO COMPRESSOR	-
13	1	507-B-1013	TUBING, AIR-OIL TANK TO FINNED TUBING	-
14	1	507-B-2647	TUBING, STRAINER TO FINNED TUBING	-
15	1	507-A-2648	TUBING, STRAINER TO COMPRESSOR	-
16	2	928-39	PIPE STRAP 3/8"	-
17	4	860-7	SCREW, MACH, RD HD 1/4-20 X 1/2" LG.	-
18	3	860-229	SCREW, MACH, FLAT HD 1/4-20 X 3/8" LG.	-
19	3	868-157	CAPSCREW, HEX HD 3/8-16 X 1-1/4" LG.	-
20	5	952-93	LOCKWASHER, 3/8"	-
21	2	952-106	WASHER, 3/8"	-
22	5	869-30	HEX NUT, 3/8-16"	-
23	4	868-158	CAPSCREW, HEX HD 3/8-16 X 1-1/2" LG.	250 H.P.
	4	868-176	CAPSCREW, HEX HD 1/2-13 X 2" LG.	300-350 H.P.
24	4	952-93	LOCKWASHER, 3/8"	250 H.P.
	4	952-94	LOCKWASHER, 1/2"	300-350 H.P.
25	4	869-30	HEX NUT 3/8-16	250 H.P.
	4	869-15	HEX NUT, 1/2-13	300-350 H.P.
26	3	77-28	SPACER	-
27	1	928-49	PIPE STRAP, 2"	-
28	6	952-92	LOCKWASHER, 1/4"	-
29	6	868-136	CAPSCREW, HEX HD 1/4-20 X 3/4" LG.	-
30	1	845-39	FLARED ADAPTER, 3/4" NPT X 3/4" ODC	-
31	1	845-8	FLARED NUT, 45 X 1/4" ODC	-

TABLE ITEMS 5 & 8					
		60 HZ.		50 HZ.	
	H.P.	ITEM 5	ITEM 8	ITEM 5	ITEM 8
CB	250	8-C-2323	921-595	8-C-2326	921-461
&	300	8-C-2326	921-584	8-C-2326	921-461
CBW	350	8-C-2326	921-584	8-C-2327	921-461
CBW	400	8-C-2326	921-584	8-C-2327	921-461

BOLT HEAD
ON TOP



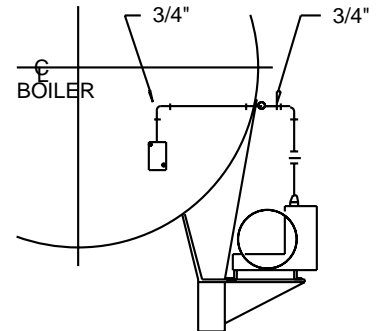
SIDE ELEVATION 78 "

BILL OF MATERIAL FOR 60" & 78" DIA.				
ITEM	QTY	PART NO.	DESCRIPTION	USED ON
1	1	505-113	COMPRESSOR ASSEMBLY	-
2	2	8-A-2345	BRACKET	-
3	4	868-104	CAPSCREW, HEX. HD. 5/16"-18 X 1" LG.	-
4	4	952-114	LOCKWASHER, 5/16"	-
5	4	952-133	WASHER, 5/16"	-
6	1	847-469	BUSHING, RED. 1" X 3/4"	78"
7	1	SEE TABLE	MOTOR	-
8	1	SEE TABLE	COUPLING, HALF	-

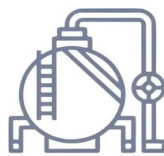
TABLE ITEMS 11 & 12			
ITEM	200-460V (60 HZ)	600V (60 HZ)	200-380V (50 HZ)
7	894-3431	894-3432	894-2291
8	819-158	819-158	819-150

NOTES:

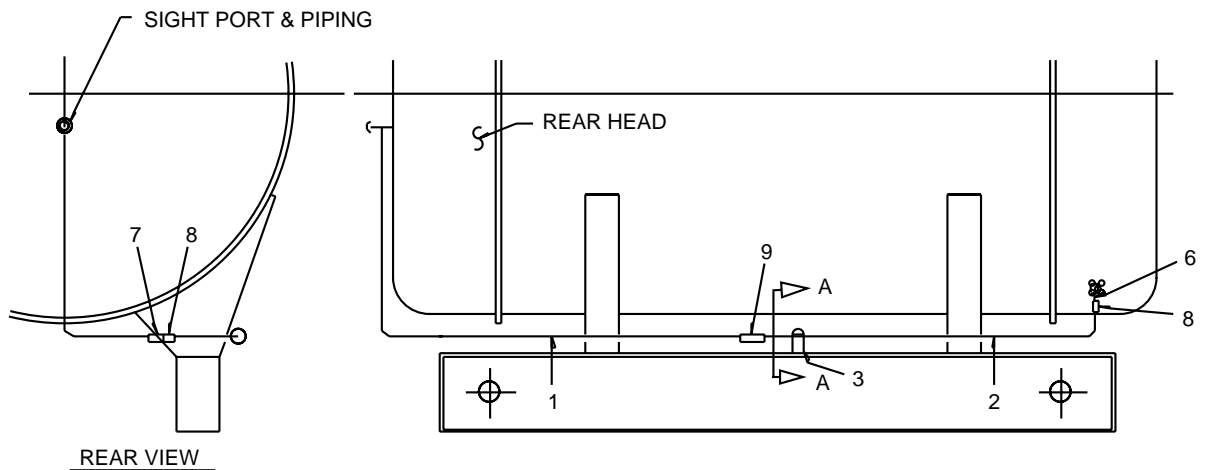
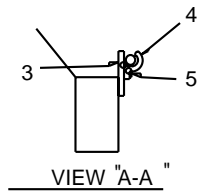
1. UNLESS OTHERWISE NOTED, ALL PIPE TO BE SCH. 40 ASTM A120 WELDED BLACK STL. AND ALL FITTINGS TO BE 150# M.I..
2. ALL DIMENSIONS ARE APPROXIMATE.



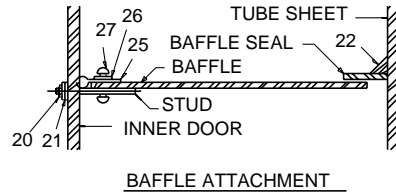
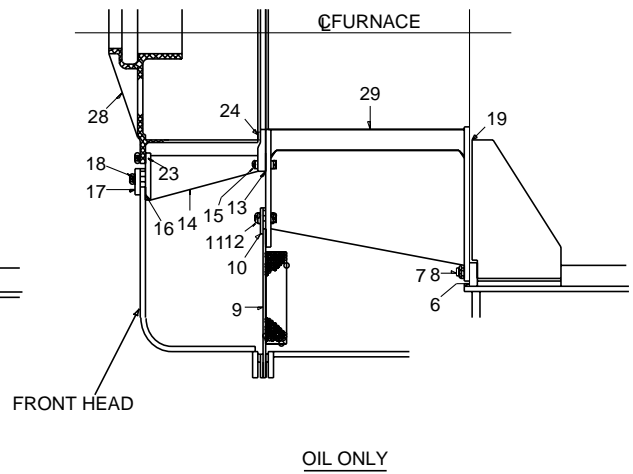
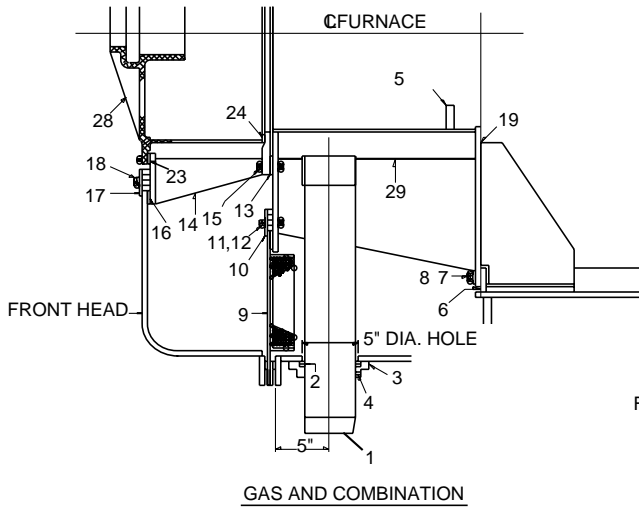
FRONT ELEVATION 78 "



ITEM	QTY	PART NO.	DESCRIPTION
1	1	827-8	BULK CONDUIT, 1/2" THINWALL EMT. X "B" LG. APPROX.
2	1	827-8	BULK CONDUIT, 1/2" THINWALL EMT. X "A" LG. APPROX.
3	1	8-A-2833	BRACKET
4	1	928-33	PIPE STRAP, 1/2" CONDUIT
5	1	868-136	CAPSREW, HEX HD. 1/4"-20 X 3/4" LG.
6	1	859-118	ELBOW, STREET, 1/2" X 45 (SEE NOTE 3)
7	1	848-141	COUPLING, 1/2" CONDUIT
8	2	848-325	CONNECTOR, STRAIGHT, 1/2" EMT. CONDUIT
9	1	848-398	COUPLING, UNION, 1/2" EMT. CONDUIT

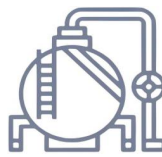


AIR LINE PIPING



STANDARD 78" CB BOILER TABLE ITEM 28				
FUEL H.P.	100	101-200	400-600	700
250	429-D-1266	429-D-1270	429-819	429-D-1273
300	429-D-1266	429-1271	429-819	429-D-1273
350	429-1268	429-1272	429-820	429-1274

78" "LE" BOILER TABLE ITEM 28				
FUEL H.P.	100	101-200	400-600	700
250	--	--	429-1389	429-1387
300	--	--	429-1389	429-1387
250 & 300 60 PPM ONLY	429-1356	429-1358	--	--
350	--	--	429-1390	429-1388
350 60 PPM 250-350 30,25,20 PPM	429-1357	429-1359	--	--

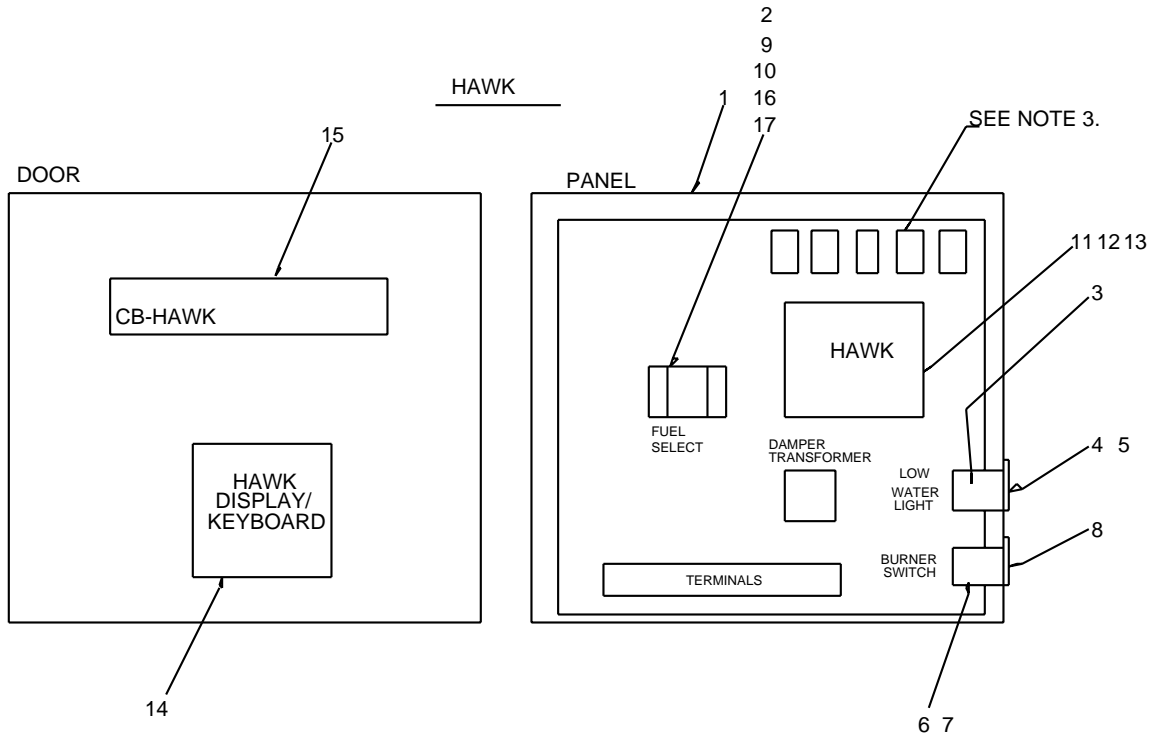


BILL OF MATERIAL FOR 78" CB, CBW, & "LE" BOILERS							
ITEM	QTY	PART No.	DESCRIPTION	HP	FUEL	USED ON	OPTION CODE
1	1	57-1125	BULK PIPE - 4" x 19-1/4" T.B.E.	-	GAS/COMB	-	A8
2	1	853-348	BULK PACKING - 1/4" DIA. x 12"	-	GAS/COMB	-	A8
3	1	65-B-177	RETAINER - GASKET	-	GAS/COMB	-	A8
4	3	860-15	SET SCREW - SOCKET HEAD	-	GAS/COMB	-	
5	1	146-334	SPUD KIT AND PATTERN				
6	1	656-7967	INSTALLATION-GASKET (656D7965)	-	-	-	
7	20	952-286	WASHER - 1/2"	-	-	-	
8	20	869-29	NUT HEX. - 1/2-13	-	-	-	
9	1	465-B-635	INSULATED FRONT HEAD PLATE, LH SWING	-	-	STD. CB ONLY	CR
	1	465-B-138	INSULATED FRONT HEAD PLATE, RH SWING	-	-	STD. CB ONLY	CR
10	1	15-B-121	FLANGE RING	-	-	ALL EXCEPT 78"LE	A2
	8	296-A-19	CLAMPS	-	-	78" LE	A2
11	8	952-106	WASHER - 3/8" BRASS	-	-	-	
12	8	869-37	NUT HEX. - 3/8-16 BRASS	-	-	-	
13	2	32-A-928	GASKET - BURNER HOUSING SUPPORT	-	-	-	A2
14	1	85-C-444	SUPPORT - BURNER HOUSING	-	-	-	A2
15	8	869-29	NUT HEX. - 1/2-13 BRASS	-	-	-	
16	1	853-3	SET-PACKING - 3/8" x 71-1/2" LG.	-	-	-	A2
17	1	15-B-39	FLANGE RING	-	-	-	A2
18	8	869-15	NUT HEX. - 1/2-13	-	-	-	
19	10#	872-390	CEMENT - REFRACTORY	-	-	-	A3
20	3	869-37	NUT HEX. - 3/8" BRASS	-	-	ALL EXCEPT "LE"	
21	6	952-326	WASHER - 3/8" FLAT BRASS	-	-	ALL EXCEPT "LE"	
22	5oz.	872-558	THERMO SILICATE CEMENT	-	-	-	
23	1	32-A-927	GASKET - BURNER PLATE	-	-	STANDARD	
	2	32-A-927	GASKET - BURNER PLATE	-	-	HIGH TURN DOWN ONLY	A8
24	1 *	853-1017	GASKET-1/8" x 1" x 42-13/16" SILICON	-	-		
25	1 *	853-394	GASKET 2" x 78"	-	-	ALL EXCEPT "LE"	A2
26	6.5FT	971-291	STRIP - PERFORATED	-	-	ALL EXCEPT "LE"	A2
27	24	841-A-551	RIVET	-	-	ALL EXCEPT "LE"	
28	1	SEE TABLE	BURNER DRAWER	-	-	-	A5
29	1	40-C-402	HOUSING - BURNER	250-350	NATURAL	STANDARD, GAS, & COMBINATION	A8,B6
	1	40-C-446	HOUSING - BURNER	250-350	PROPANE		PG
	1	40-C-396	HOUSING - BURNER	250-350	OIL	STANDARD & HIGH TURN DOWN, OIL	A8
	1	40-C-565	HOUSING - BURNER	-	-	HIGH TURN DOWN, GAS, & COMBINATION	A8,PG ,BG

* SOLD BY THE FOOT

CONTROL CABINET (HAWK)					
ITEM	QTY	PART NO.	DESCRIPTION	USED ON	OPTION
1	1	283-B-2978	CONTROL CABINET	-	C3
2	1	SEE TABLE 1	SWITCH BRACKET	-	C3
3	1	881-231	PILOT LIGHT	-	C3
4	1	881-232	LENS, RED	-	C3
5	1	118-644	NAMEPLATE, LOW WATER	-	C3
6	1	836-620	SWITCH, OPERATOR	-	C3
7	1	836-623	SWITCH CONTACT BLOCK	-	C3
8	1	118-1382	NAMEPLATE, BURNER OFF-ON	-	C3
9	1	836-261	FUEL SELECTOR SWITCH	FUEL 200,400	C3
10	1	118-196	NAMEPLATE,GAS-OIL	FUEL 200,400	C3
11	1	833-2415	HAWK CHASSIS	-	C3
12	1	833-2421	HAWK AMPLIFIER	-	C3
13	1	833-2418	HAWK PROGRAM MODULE	-	C3
14	1	833-2419	HAWK KEYBOARD/DISPLAY	-	C3
15	1	118-2462	LABEL,CB HAWK	-	C3
16	1	836-210	OIL HEATER SWITCH	FUEL 400,600	C3
17	1	118-204	NAMEPLATE,OIL HEATER	FUEL 400,600	C3

TABLE 1						
ITEM	FUEL SERIES					
	100	101	200	400	600	700
2	-	-	8-801	8-3228	8-801	-



CONTROL PANEL - CB,CB-LE

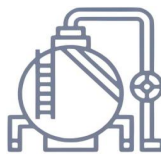


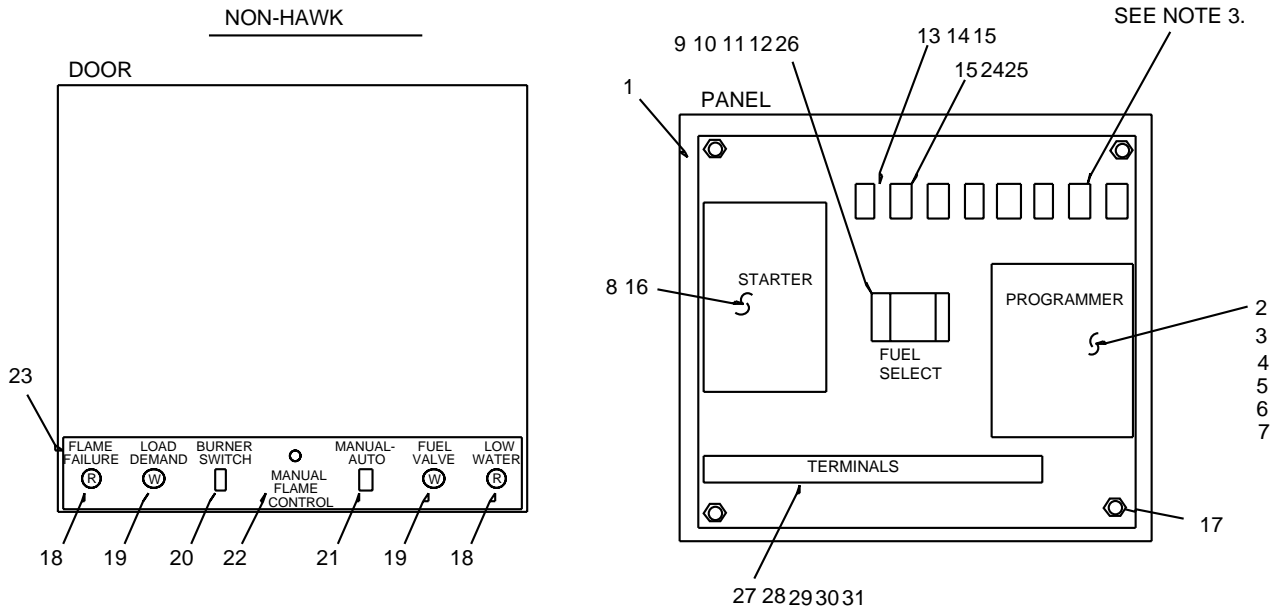
TABLE 1 - ITEM 8					
BM HP	VOLTAGE				
	200-208V	220-240V	346-416V	440-480V	575-600V
2	833-1884	833-1884	833-1884	833-1884	833-1884
3	833-1884	833-1884	833-1884	833-1884	833-1884
5	833-1885	833-1885	833-1884	833-1884	833-1884
7-1/2	833-1885	833-1885	833-1885	833-1885	833-1885
10	833-1886	833-1886	833-1885	833-1885	833-1885
15	833-1197	833-1886	833-1886	833-1886	833-1886
20	833-1197	833-1197	833-1886	833-1886	833-1886
30	NOTE 1	833-1197	833-1197	833-1197	833-1197
40	NOTE 1	NOTE 1	833-1197	833-1197	833-1197
50	NOTE 1	NOTE 1	833-1197	833-1197	833-1197
60	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1

TABLE 2						
ITEM	FUEL SERIES					
	100	101	200	400	600	700
11	-	-	8-801	8-3228	8-801	-

TABLE 3							
FLAME SAFEGARD	ITEM	2	3	4	5	6	7
		BASE	DISPLAY	CHASSIS	AMP. (IR)	MODULE	FD (IR)
CB780	(D4)	833-2725	833-2727	833-2718	833-2722	833-2730	817-1742
CB100E	(D0)	833-2581	833-2714	833-2709	833-2584	833-2583	817-2261
E110	(D5)	833-2214	833-2713	833-2708	833-2384	833-2383	817-1933

CONTROL CABINET (NON-HAWK)					
ITEM	QTY	PART NO.	DESCRIPTION	USED ON	OPTION
1	1	119-405	CONTROL CABINET (W/SUB BASE)	-	D3
2	1	SEE TABLE 3	PROGRAMMER-BASE	-	SEE TABLE 3
3	1		PROGRAMMER-DISPLAY	-	
4	1		PROGRAMMER-CHASSIS	-	
5	1		PROGRAMMER-AMPLIFIER	-	
6	1		PROGRAMMER-MODULE	-	
7	1		PROGRAMMER-FLAME DETECTOR	-	
8	1		SEE TABLE 1	STARTER (SEE NOTE 2)	
9	1	836-746	SWITCH,GAS-OIL	FUEL 200,400	D3
10	1	118-196	NAMEPLATE,GAS-OIL	FUEL 200,400	D3
11	1	SEE TABLE 2	BRACKET	-	D3
12	1	836-210	SWITCH,OIL HEATER	FUEL 400,600	D3
13	1	833-2261	RELAY	FUEL 200,400	D3
14	1	833-2263	BASE	FUEL 200,400	D3
15	2	841-1483	SCREW, SELF-TAPPING	WITH ITEM 14,25	-
16	3	841-801	SCREW, SELF-TAPPING	WITH ITEM 8	-
17	4	841-89	NUT, SELF-LOCKING	-	-
18	2	881-225	LIGHT ASSEMBLY, RED LENS	-	C4
19	2	881-226	LIGHT ASSEMBLY, WHITE LENS	-	C4
20	1	836-210	SWITCH, BURNER	-	C4
21	1	836-211	SWITCH, MANUAL - AUTO	-	C4
22	1	836-209	SWITCH, MANUAL FLAME CONTROL	-	C4
23	1	118-1689	NAMEPLATE	-	C4
24	1	833-2261	RELAY (AIR PURGE)	FUEL 400,600	D3
25	1	833-2263	BASE (AIR PURGE)	FUEL 400,600	D3
26	1	118-204	NAMEPLATE-OIL HEATER	FUEL 400,600	D3
27	38	832-749	TERMINAL LUG	-	-
28	1	832-751	END BARRIER	-	-
29	2	832-752	RETAINING CLIP	-	-
30	1	832-750	CHANNEL	-	-
31	1	832-753	MARKING STRIP	-	-

- NOTES: 1. STARTER IS IN OWN ENCL. MOUNTED ON THE FRONT HEAD. SEE REFERENCE DWG. 146-C-121.
 2. OVERLOADS ARE TO BE SUPPLIED BASED ON MOTOR NAMEPLATE AMP. RATING.
 3. FOR NON-HAWK PANEL, MAXIMUM QUANTITY OF RELAYS, TIMERS, OR COMBINATION OF BOTH IS 8. FOR HAWK PANEL THE MAXIMUM QUANTITY IS 5.



CONTROL PANEL - CB,CB-LE

MOTOR, OIL HEATER, & CCT FUSE SIZING

RECOMMENDED MAXIMUM "FUSETRON" FUSE SIZES

FUSE PART NO.S

ELECTRICAL LOAD	SINGLE PHASE 50/60 HERTZ		THREE PHASE 50/60 HERTZ				
	110-120 V	220-240 V	200-208 V	220-240 V	346-416 V	440-480 V	550-660 V
1/4 HP MOTOR	FRN-8	FRN-4-1/2	FRN-1-8/10	FRN-1-8/10		FRS-1	FRS-8/10
1/3 HP MOTOR	FRN-9	FRN-4-1/2	FRN-1-8/10	FRN-1-8/10		FRS-1	FRS-8/10
1/2 HP MOTOR	FRN-12	FRN-6-1/4	FRN-2-8/10	FRN-2-8/10	FRS-1-8/10	FRS-1-4/10	FRS-1
3/4 HP MOTOR	FRN-17-1/2	FRN-9	FRN-4-1/2	FRN-4-1/2	FRS-2-1/4	FRS-1-8/10	FRS-1-4/10
1 HP MOTOR	FRN-20	FRN-10	FRN-5	FRN-5	FRS-3-2/10	FRS-2-1/4	FRS-1-8/10
1-1/2 HP MOTOR	FRN-25	FRN-12	FRN-7	FRN-7	FRS-4	FRS-3-2/10	FRS-2-1/2
2 HP MOTOR	FRN-30	FRN-15	FRN-9	FRN-9	FRS-5-6/10	FRS-4-1/2	FRS-3-1/2
3 HP MOTOR	FRN-40	FRN-20	FRN-12	FRN-12	FRS-8	FRS-6-1/4	FRS-5
5 HP MOTOR		FRN-35	FRN-20	FRN-20	FRS-12	FRS-10	FRS-8
7-1/2 HP MOTOR		FRN-50	FRN-30	FRN-30	FRS-17-1/2	FRS-15	FRS-12
10 HP MOTOR		FRN-60	FRN-40	FRN-35	FRS-20	FRS-17-1/2	FRS-15
15 HP MOTOR			FRN-60	FRN-50	FRS-30	FRS-25	FRS-20
20 HP MOTOR			FRN-70	FRN-70	FRS-40	FRS-35	FRS-25
25 HP MOTOR			FRN-90	FRN-80	FRS-50	FRS-40	FRS-35
30 HP MOTOR			FRN-100	FRN-100	FRS-60	FRS-50	FRS-40
40 HP MOTOR			FRN-150	FRN-150	FRS-80	FRS-70	FRS-50
50 HP MOTOR			FRN-175	FRN-175	FRS-100	FRS-80	FRS-70
60 HP MOTOR			FRN-200	FRN-200	FRS-125	FRS-100	FRS-80
75 HP MOTOR			FRN-250	FRN-250	FRS-150	FRS-125	FRS-100
100 HP MOTOR			FRN-350	FRN-300		FRS-150	FRS-125
125 HP MOTOR			FRN-450	FRN-400		FRS-200	FRS-150
150 HP MOTOR			FRN-500	FRN-450		FRS-225	FRS-200
200 HP MOTOR				FRN-600		FRS-300	FRS-250
2 KW HEATER	FRN-20	FRN-12	FRN-7	FRN-7		FRS-4-1/2	FRS-3-2/10
3 KW HEATER	FRN-30	FRN-15	FRN-10	FRN-10	FRS-6-1/4	FRS-5-6/10	FRS-4-1/2
5 KW HEATER	FRN-50	FRN-25	FRN-15	FRN-15	FRS-10	FRS-8	FRS-6-1/4
7-1/2 KW HEATER			FRN-25	FRN-25	FRS-15	FRS-12	FRS-10
10 KW HEATER			FRN-30	FRN-30	FRS-25	FRS-17-1/2	FRS-12
15 KW HEATER			FRN-45	FRN-45	FRS-35	FRS-25	FRS-20
CONTROL CIRCUIT XFMR VOLTAGE	1/2 KVA.		1 KVA.		1-1/2 KVA.		2 KVA.
110-120	FRN-7		FRN-15		FRN-17-1/2		FRN-25
200-208	FRN-4		FRN-8		FRN-12		FRN-15
220-240	FRN-3-1/2		FRN-7		FRN-10		FRN-12
346-416	FRS-2-8/10		FRS-4		FRS-6-1/4		FRS-8
440-480	FRS-2-1/2		FRS-3-1/2		FRS-5-6/10		FRS-7
550-600	FRS-2		FRS-3-1/2		FRS-4-1/2		FRS-5-6/10
SECONDARY FUSE	FRN-5-6/10		FRN-12		FRN-15		FRN-20

AMP RATING	BUSSMAN FRN	BUSSMAN FRS
.8		832-491
1	832-1211	832-141
1.4		832-492
1.8	832-480	832-493
2		832-497
2.25	832-279	832-494
2.5	832-482	832-495
2.8	832-460	832-416
3.2	832-483	832-142
3.5	832-484	832-433
4	832-662	832-441
4.25	832-152	832-496
4.5	832-299	832-442
5	832-485	832-143
5.6	832-421	832-472
6.25	832-135	832-498
7	832-402	832-144
8	832-636	832-332
9	832-486	832-366
10	832-136	832-145
12	832-481	832-471
15	832-347	832-146
17.5	832-137	832-448
20	832-298	832-147
25	832-461	832-148
30	832-627	832-626
35	832-138	832-149
40	832-653	832-499
45	832-139	832-622
50	832-487	832-500
60	832-574	832-1115
70	832-140	832-501
80	832-477	832-502
100	832-476	832-847
110	832-488	832-443
125	832-489	832-1002
150	832-478	832-1026
175	832-490	832-1104
200	832-1025	832-1040
225		832-1033
250	832-621	832-444
300	832-1034	832-1041
350	832-1035	
400	832-1036	
450	832-1037	
500	832-1038	
600	832-1039	

CONSULT YOUR LOCAL CLEAVER-BROOKS REPRESENTATIVE FOR "FUSETRON" FUSE SIZE FOR POWER SYSTEMS WITH VOLTAGE, FREQUENCY OR PHASE NOT MENTIONED ABOVE.

STARTER PART NO.S
THREE-PHASE, 120 VAC CONTROL COIL

MAIN POWER TERMINAL
BLOCK PART NO.S

STARTER SIZE	SQ-D		A-B	
	OPEN TYPE	NEMA 1 ENCL	OPEN TYPE	NEMA 1 ENCL
00	833-2570	-	-	-
0	833-1884	833-1360	833-1362	833-1979
1	833-1885	833-970	833-1363	833-1904
2	833-1886	833-929	833-1447	833-1838
3	833-1197	833-1029	833-1544	833-1626
4	833-2098	833-1023	833-1298	833-1623
5	-	833-2178*	-	-

AMPS	PART NO.
30	832-780
70	832-781
125	832-782
250	832-964

MOTOR AMP DRAWS & STARTER SIZING
AMP DRAWS BASED ON NEC TABLE 430-148.
VOLTAGE-SINGLE PHASE

HORSE-POWER	115		200		230	
	AMPS	STARTER	AMPS	STARTER	AMPS	STARTER
1/6	4.4	00	2.4	00	2.2	00
1/4	5.8	00	3.2	00	2.9	00
1/3	7.2	00	4	00	3.6	00
1/2	9.8	0	5.4	00	4.9	00
3/4	13.8	0	7.6	00	6.9	00
1	16	0	8.8	0	8	00
1-1/2	20	1	11	0	10	0
2	24	1	13.2	0	12	0
3	34	2	18.7	1	17	1
5	56	3	30.8	2	28	2

MOTOR AMP DRAWS & STARTER SIZING
AMP DRAWS BASED ON NEC TABLE 430-150.
VOLTAGE-THREE PHASE

HORSE-POWER	200		230		380		460		600	
	AMPS	STARTER	AMPS	STARTER	AMPS	STARTER	AMPS	STARTER	AMPS	STARTER
1/2	2.5	00	2	00	1.2	00	1	00	1	00
3/4	3.5	00	3	00	1.7	00	1.5	00	1	00
1	4.0	00	3.5	00	2.1	00	2	00	1.5	00
1-1/2	5.5	00	5	00	3.1	00	2.5	00	2	00
2	7.5	0	7	0	4.1	00	3.5	00	3	00
3	11	0	9.5	0	5.8	0	5	0	4	0
5	17	1	15	1	9.2	0	7.5	0	6	0
7-1/2	24	1	22	1	13.3	1	11	1	9	1
10	31	2	28	2	16.9	1	14	1	11	1
15	46	3	42	2	25.4	2	21	2	17	2
20	59	3	54	3	32.6	2	27	2	22	2
25	75	3	68	3	41.1	2	34	2	27	2
30	88	4	80	3	48.4	3	40	3	32	3
40	114	4	104	4	62.9	3	52	3	41	3
50	143	5	130	4	78.6	3	65	3	52	3
60	169	5	154	5	93.2	4	77	4	62	4

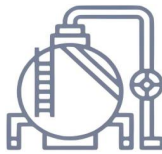
CONTROL CIRCUIT TRANSFORMER AMP DRAWS

KVA	VOLTAGE-THREE PHASE				
	208	230	380	460	575
1/2	2.4	2.2	1.1	1.3	0.9
1	5	4.3	2.6	2.1	1.7
1-1/2	7.5	6.5	3.9	3.3	2.6
2	10	8.7	5.3	4.3	3.5

WHEN SIZING TOTAL BOILER AMP DRAW USE 125% OF THE LARGEST LOAD.

OIL HEATER AMP DRAWS

KW RATING	VOLTAGE-THREE PHASE				
	200	230	380	460	600
3	8.3	7.5	4.6	3.8	3
5	13.9	12.6	7.6	6.3	5
7-1/2	20.8	18.8	11.4	9.4	7.5
10	27.8	25.1	15.2	12.6	10

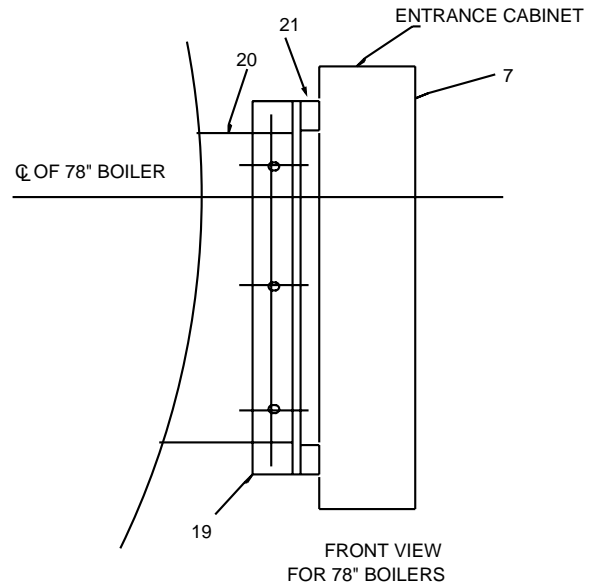
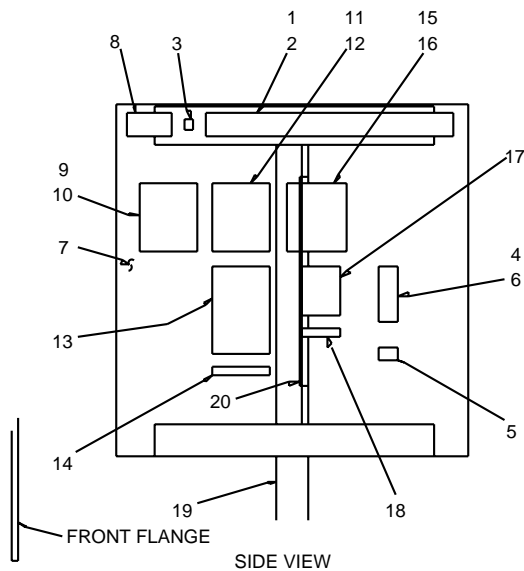


BILL OF MATERIAL FOR ENT. BOX

ITEM	QTY	PART NO.	DESCRIPTION	USED ON	OPTION
1	1	434-61	TERMINAL STRIP, 25 TERMS		C8
2	1	118-1865	PLATE, I.D. FOR TERM. STRIP		C8
3	1	884-78	GROUND LUG		C8
4	1	848-223	FUSE BLOCK, CONTROL CIRCUIT		C8
5	1	118-297	NAMEPLATE, DECAL CONTROL CIRCUIT		C8
6	1	832-347	FUSE, FRN-15	-	C8
7	1	848-1083	ENT. BOX (18 X 15 X 6) (NEMA 1)	FUEL 700	C8
	1	848-338	ENT. BOX (24 X 18 X 6) (NEMA 1)	FUEL 100, 101, & 200	
	1	848-375	ENT. BOX (24 X 24 X 6) (NEMA 1)	FUEL 400 & 600 & "LE"	
8	1	SEE TABLE	MAIN POWER TERMINAL BLOCK	DETERMINED BY TOTAL AMP LOAD	C8
9	3	SEE TABLE	BLOWER MOTOR FUSE	-	C8
10	*	SEE TABLE	BLOWER MOTOR FUSE BLOCK	-	C8
11	3	SEE TABLE	AIR COMPRESSOR MOTOR FUSE	-	C8
12	*	SEE TABLE	AIR COMPRESSOR MOTOR FUSE BLOCK	-	C8
13	1	SEE TABLE	AIR COMPRESSOR MOTOR STARTER	-	C8
14	1	118-1667	AIR COMPRESSOR EMBLEM	W/ ITEMS 11, 12, & 13	C8
15	3	SEE TABLE	OIL HEATER FUSE	-	C8
16	*	SEE TABLE	OIL HEATER FUSE BLOCK	-	C8
17	1	833-2197	OIL HEATER CONTACTOR	W/ ITEMS 15 & 16	C8
18	1	118-299	OIL HEATER EMBLEM	W/ ITEMS 15, 16, & 17	C8
19	-	8-275	UNIVERSAL UPRIGHT	-	
20	1	8-3186	BRACKET, E-BOX	78" BOILERS	
21	1	8-3222	E-BOX CROSSBAR		
	1	8-3223	E-BOX CROSSBAR		
	1	8-3224	E-BOX CROSSBAR		

* = QTY 1 ON VOLTAGE 240, <
 QTY 3 OTHERWISE

* = QTY 1 ON VOLTAGE 240, <
 QTY 3 OTHERWISE



ENTRANCE BOX - CB,CB-LE

BLOWER MOTOR ITEM 1

BOILER H.P.	FUEL	MOTOR H.P.	60 HZ.				50 HZ.	
			ODP		TEFC	TEFC & HI-EFF.	MOTOR H.P.	ODP
			200-230-460V	600V	200-230-460V	200-230-460V		
250	GAS	7-1/2	894-2431	894-2432	894-3171	894-3396	7-1/2	894-2433
		7-1/2	894-2431	894-2432	894-3171	894-3396	10	894-2449
300	GAS	7-1/2	894-2431	894-2432	894-3171	894-3396	10	894-2449
		10	894-2447	894-2448	894-3272	894-3399	15	894-2465
350	GAS	15	894-2463	894-2464	894-3215	894-3402	15	894-2465
		15	894-2463	894-2464	894-3215	894-3402	20	894-2477

STARTER BRACKET TABLE ITEM 29

ITEM 29 P/N.	USED W/STARTER P/N.
8-2938	833-970
8-2939	833-929
8-2943	833-1029

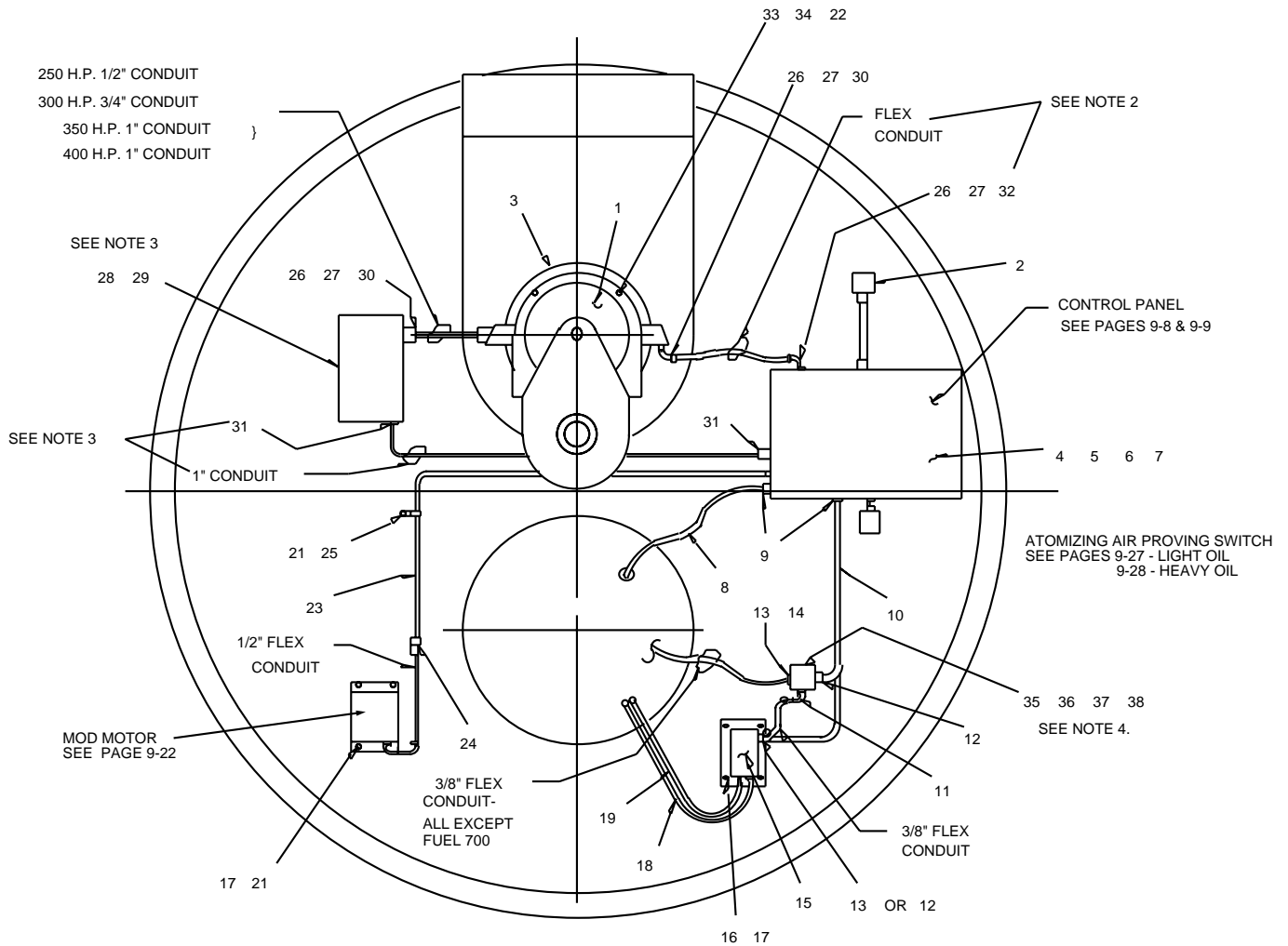
ITEM 26, 27, 30, & 32 TABLE

BOILER H.P.	QTY.	ITEM 26	QTY.	ITEM 27	QTY.	ITEM 30	QTY.	ITEM 32
250	2	848-10	2	848-101	1	848-371	1	848-151
300	2	848-85	2	848-307	1	848-6	1	848-6
350	2	848-86	2	848-287	-	-	-	-

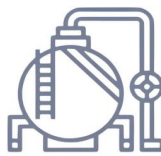
BLOWER MOTOR STARTER ITEM 28

MOTOR H.P.	VOLTAGE		
	200	220 & 230	380-600
7-1/2	833-970	833-970	833-970
10	833-929	833-929	833-970
15	833-1029	833-929	833-929

- NOTES:**
1. MOTOR SIZES BASED ON SEA LEVEL.
 2. ITEM 32 AND FLEX CONDUIT USED AS SHOWN ON NON-HAWK ONLY.
 3. ITEMS 28, 29, 31, AND 1" CONDUIT USED AS SHOWN ON HAWK ONLY.
 4. FOR FUEL 700 ONLY, USE 2 OF ITEM #38 AND PLUG HOLES ON R.H. SIDE OF FRONT HEAD WHERE ITEM # 35 IS SHOWN.



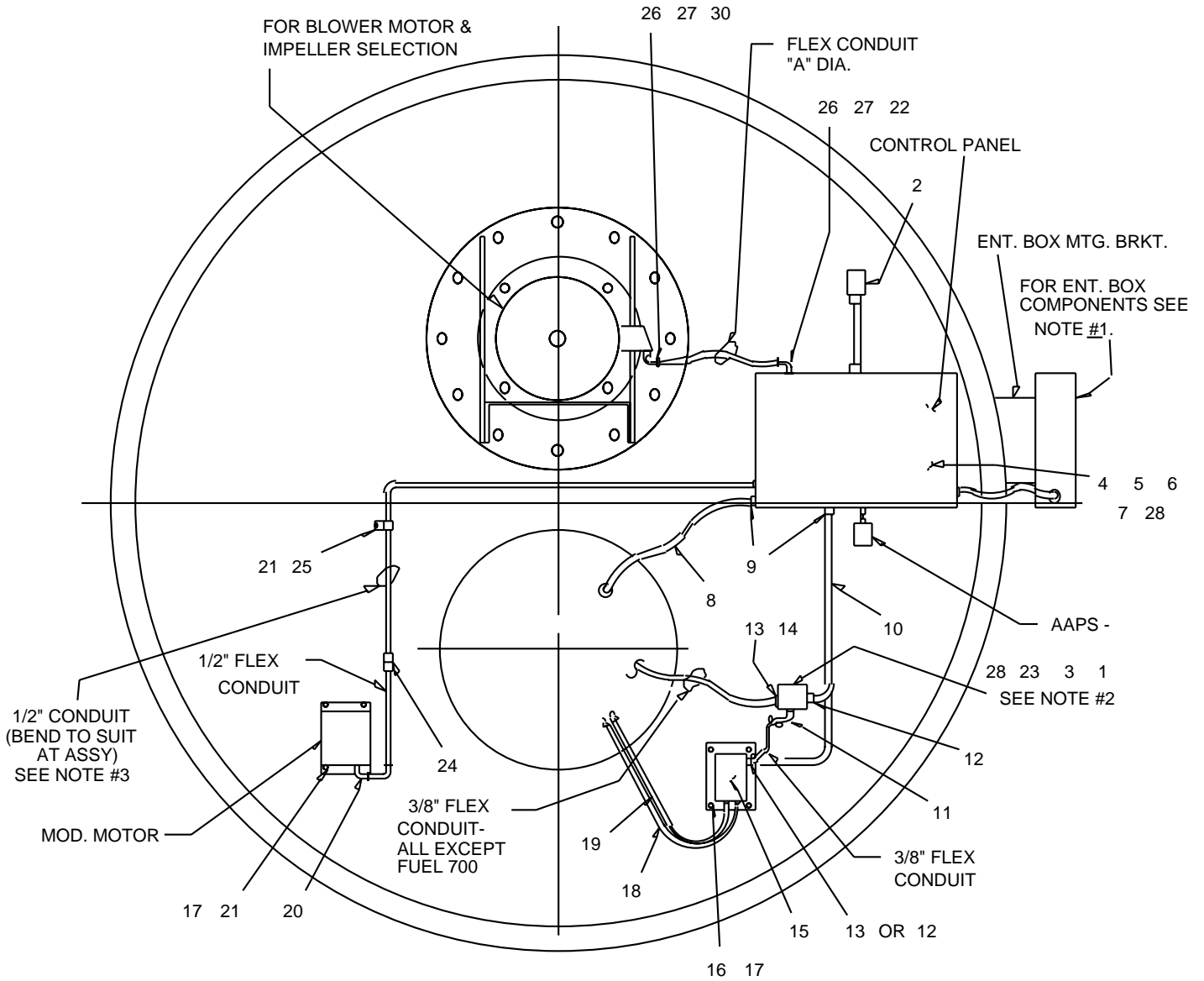
FRONT HEAD (ELECTRICAL) STANDARD CB



ITEM	QTY	PART NO.	DESCRIPTION	USED ON
1	1	SEE TABLE	BLOWER MOTOR	-
2	1	817-436	CAPS	-
3	1	255-A-26	ADAPTER RING	-
4	4	841-659	STUD, 5/16"-18 X 1-5/8" LG.	-
5	4	869-36	NUT, HEX 5/16"	-
6	4	952-114	LOCKWASHER, 5/16"	-
7	4	77-A-57	SPACER, 9/16" O.D. X 5/16" LG.	-
8	1	817-1742	SCANNER ASSEMBLY	-
9	2	848-325	CONNECTOR, 1/2" STRAIGHT	-
10	1	113-A-11	CONDUIT, JUNCTION BOX TO PANEL	ALL EXCEPT FUEL 700
	1	113-B-7	CONDUIT, JUNCTION BOX TO PANEL	700
11	1	848-16	CONNECTOR BOX, 3/8" X 90	-
12	1	848-382	CONNECTOR, 1/2" X 90	-
13	1	848-3	CONNECTOR, 2 SCREW TYPE, 3/8"	-
14	2	848-100	BUSHING, ANTI-SHORT 3/8"	-
15	1	832-118	IGNITION TRANSFORMER	OIL ONLY 60 HZ
	1	832-107	IGNITION TRANSFORMER	GAS & COMB. 60 HZ
	1	832-286	IGNITION TRANSFORMER	ALL 50 HZ
16	4	860-7	MACHINE SCREW, 1/4"-20 X 1/2" LG.	-
17	8	952-92	LOCKWASHER, 1/4"	-
18	1	292-95	IGNITION CABLE	-
19	1	292-66	IGNITION CABLE	OIL ONLY
20	1	848-10	CONNECTOR, SQUEEZE TYPE 1/2" X 90	-
21	5	868-137	CAPSCREW, 1/4"-20 X 1" LG.	-
22	4	868-133	BOLT, HEX HD. 3/4"-10	7-1/2 H.P. B.M.
	4	868-199	BOLT, HEX HD. 3/4"-10	10, 15, 20 H.P. B.M.
23	1	113-B-8	CONDUIT, MOD MOTOR TO PANEL	-
24	1	848-473	COUPLING, 1/2" EMT. X 1/2" FLEX	-
25	1	928-14	CLAMP, CONDUIT 1/2"	-
26	-	SEE TABLE	CONNECTOR, SQUEEZE TYPE	-
27	-	SEE TABLE	BUSHING, ANTI-SHORT	-
28	1	SEE TABLE	STARTER	HAWK ONLY
29	1	SEE TABLE	STARTER BRACKET	HAWK ONLY
30	-	SEE TABLE	WASHER, REDUCING	-
31	2	848-407	CONNECTOR, STRAIGHT 1"	HAWK ONLY
32	-	SEE TABLE	WASHER, REDUCING	NON-HAWK ONLY
33	4	952-95	LOCKWASHER, 3/4"	-
34	4	869-18	NUT, HEX 3/4"-10	-
35	1	848-273	BOX, OUTLET, 4" SQ. X 2-1/8" DEEP	ALL EXCEPT FUEL 700
36	1	848-248	COVER, OUTLET BOX	ALL EXCEPT FUEL 700
37	2	952-92	LOCKWASHER, 3/4"	ALL EXCEPT FUEL 700
38	2	868-135	CAPSCREW, 1/4"-20 X 1/2" LG.	-

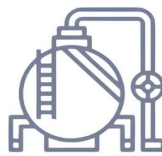
- NOTES:
1. MOTOR SIZES BASED ON SEA LEVEL.
 2. ITEM 32 AND FLEX CONDUIT USED AS SHOWN ON NON-HAWK ONLY.
 3. ITEMS 28, 29, 31, AND 1" CONDUIT USED AS SHOWN ON HAWK ONLY.
 4. FOR FUEL 700 ONLY, USE 2 OF ITEM #38 AND PLUG HOLES ON R.H. SIDE OF FRONT HEAD WHERE ITEM # 35 IS SHOWN.

FRONT HEAD (ELECTRICAL) STANDARD CB



CONDUIT DIAMETER			
H.P.	250	300	350
"A"	1/2"	3/4"	1"

FRONT HEAD (ELECTRICAL) CB-LE



ITEM	QTY	PART NO.	DESCRIPTION	USED ON
1	2	868-135	CAPSCREW, 1/4"-20 X 1/2" LG.	-
2	1	817-436	CAPS	-
3	2	952-92	LOCKWASHER, 3/4"	ALL EXCEPT FUEL 700
4	4	841-659	STUD, 5/16"-18 X 1-5/8" LG.	-
5	4	869-36	NUT, HEX 5/16"	-
6	4	952-114	LOCKWASHER, 5/16"	-
7	4	77-A-57	SPACER, 9/16" O.D. X 5/16" LG.	-
8	1	817-1742	SCANNER ASSEMBLY	-
9	2	848-325	CONNECTOR, 1/2" STRAIGHT	-
10	1	113-A-11	CONDUIT, JUNCTION BOX TO PANEL	ALL EXCEPT FUEL 700
	1	113-B-7	CONDUIT, JUNCTION BOX TO PANEL	700
11	1	848-16	CONNECTOR BOX, 3/8" X 90	-
12	1	848-382	CONNECTOR, 1/2" X 90	-
13	1	848-3	CONNECTOR, 2 SCREW TYPE, 3/8"	-
14	2	848-100	BUSHING, ANTI-SHORT 3/8"	-
15	1	832-118	IGNITION TRANSFORMER	OIL ONLY 60 HZ
	1	832-107	IGNITION TRANSFORMER	GAS & COMB. 60 HZ
	1	832-286	IGNITION TRANSFORMER	ALL 50 HZ
16	4	860-7	MACHINE SCREW, 1/4"-20 X 1/2" LG.	-
17	8	952-92	LOCKWASHER, 1/4"	-
18	1	292-95	IGNITION CABLE	-
19	1	292-66	IGNITION CABLE	OIL ONLY
20	1	848-10	CONNECTOR, SQUEEZE TYPE 1/2" X 90	-
21	5	868-137	CAPSCREW, 1/4"-20 X 1" LG.	-
22	-	SEE TABLE	WASHER, REDUCING	NON-HAWK ONLY
23	1	848-248	COVER, OUTLET BOX	ALL EXCEPT FUEL 700
24	1	848-473	COUPLING, 1/2" EMT. X 1/2" FLEX	-
25	1	928-14	CLAMP, CONDUIT 1/2"	-
26	-	SEE TABLE	CONNECTOR, SQUEEZE TYPE	-
27	-	SEE TABLE	BUSHING, ANTI-SHORT	-
28	1	848-273	BOX, OUTLET, 4" SQ. X 2-1/8" DEEP	ALL EXCEPT FUEL 700
29	1	8-A-2707	STARTER BRACKET	SEE NOTE #6
30	-	SEE TABLE	WASHER, REDUCING	-

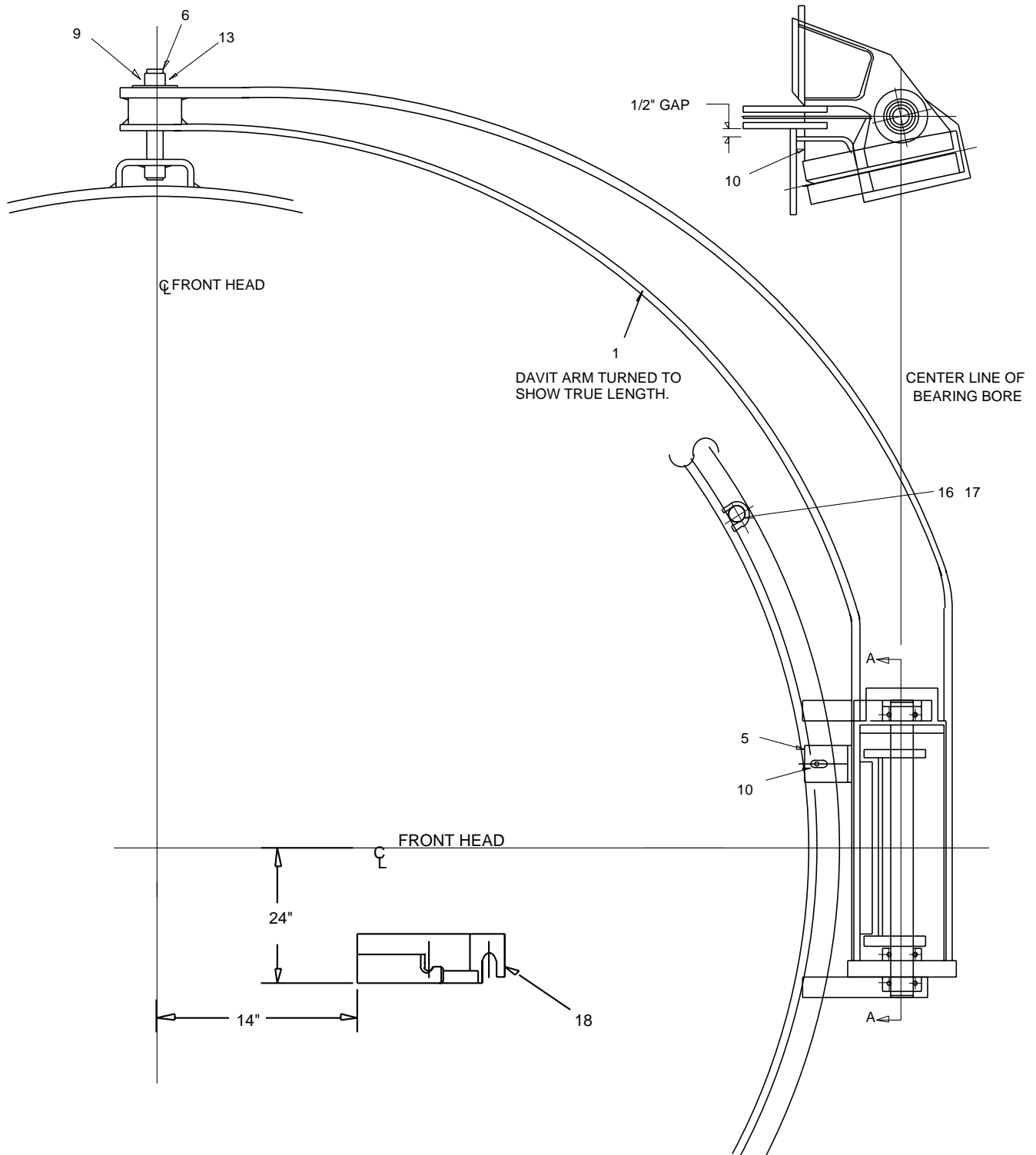
ITEM 22, 26, 27, & 30 TABLE

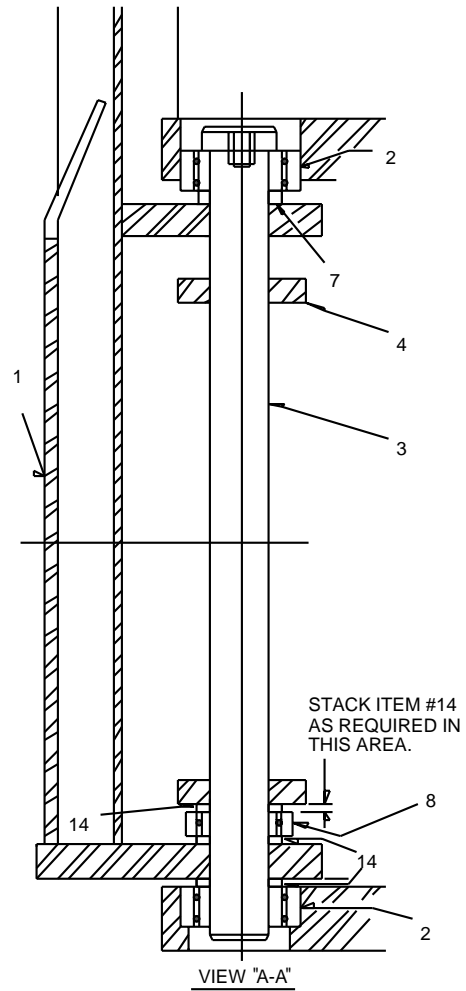
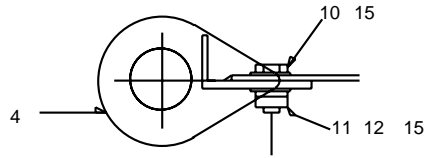
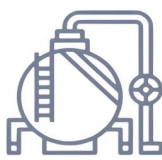
BOILER H.P.	QTY	ITEM 22	QTY	ITEM 26	QTY	ITEM 27	QTY	ITEM 30
250	1	848-151	2	848-10	2	848-101	1	848-371
300	1	848-6	2	848-85	2	848-307	1	848-6
350	-	-	2	848-86	2	848-287	-	-

NOTE:

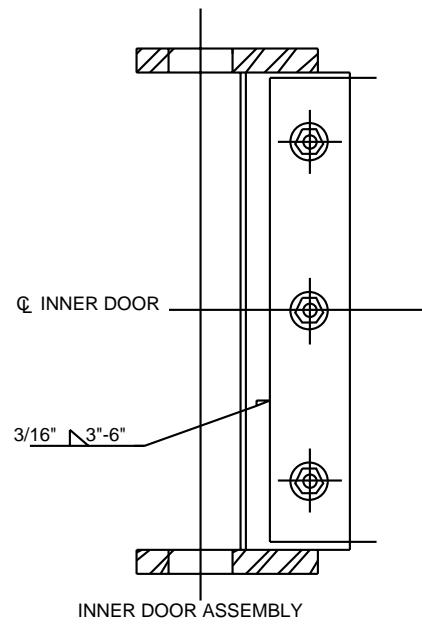
1. BLOWER MOTOR STARTER MOUNTED IN ENT. BOX FOR ALL HAWK AND ANY NON-HAWK W/ SIZE 4 STARTER OR LARGER. ALL OTHER STARTERS ARE MOUNTED IN CONTROL PANEL.
2. FOR FUEL 700 ONLY, USE 2 OF ITEM #1 AND PLUG HOLES ON R.H. SIDE OF FRONT HEAD WHERE ITEM #28 IS SHOWN.
3. 1/2" CONDUIT FROM CONTROL PANEL TO MOD. MOTOR TO RUN BELOW MOTOR CASSETTE ASSEMBLY (AS SHOWN) SO AS NOT TO INTERFERE W/ FUTURE CASSETTE REMOVAL.

FRONT HEAD (ELECTRICAL) CB-LE





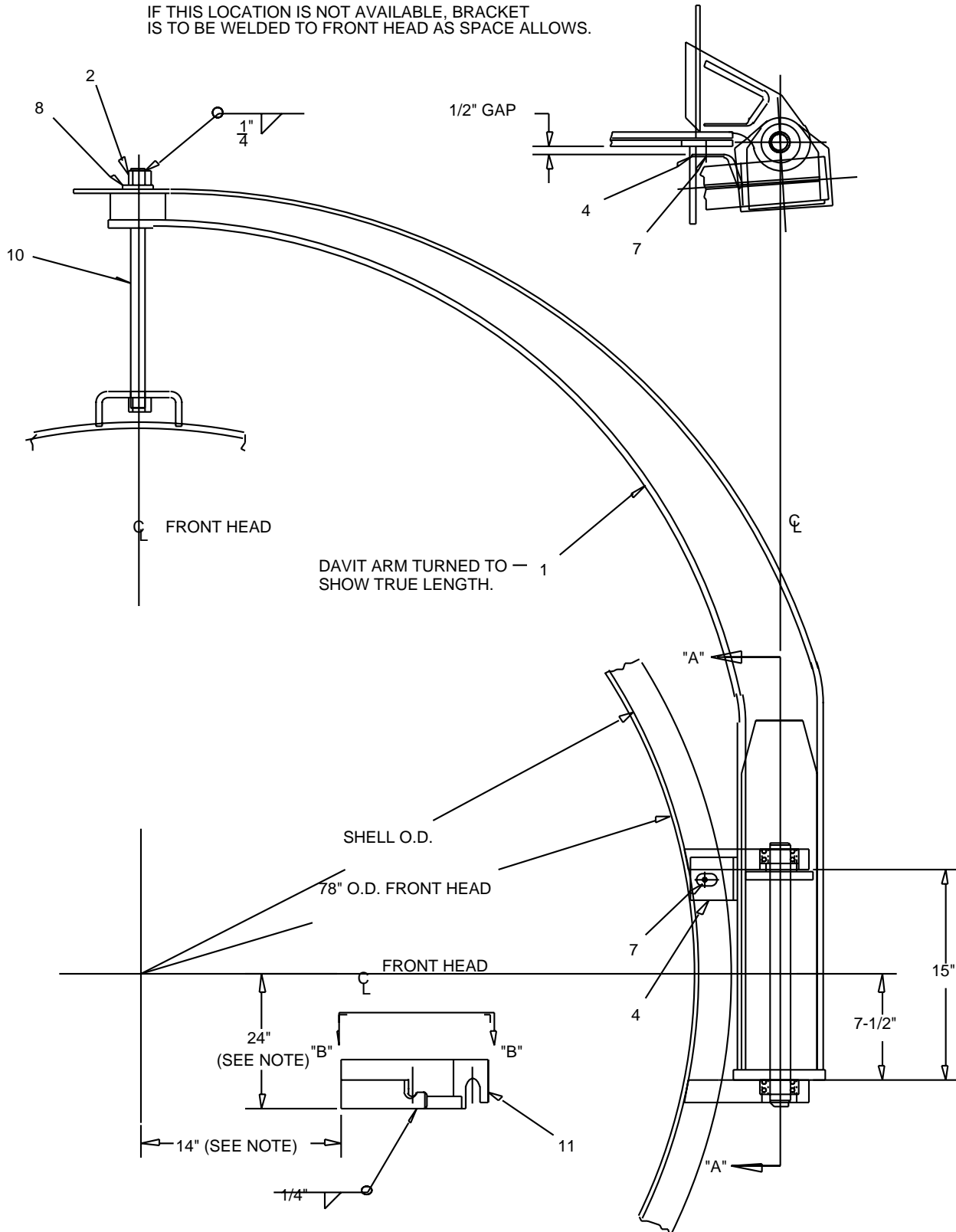
BILL OF MATERIAL DAVIT ASSEMBLY, L.H. & R.H.				
ITEM	QTY	PART No.	DESCRIPTION	USED ON
1	1	287-C-38	ARM ASSY., FRONT DAVIT (RIGHT HAND)	78"
	1	287-39	ARM ASSY., FRONT DAVIT (LEFT HAND)	78"
2	2	807-31	BEARING, BALL, DOUBLE	78"
3	1	56-A-26	PIN, HINGE FRONT	78"
4	1	138-B-15	HINGE, BRACKET ASSY., INTERM. DOOR	78"
5	1	11-A-14	TAB, RESTRAINT, FRONT HEAD	-
6	1	869-398	NUT - ELASTIC LOCKNUT 1"-8	78"
7	1	77-386	SPACER (77A385)	-
8	1	807-322	BEARING, THRUST	78"
9	1	841-658	STUD, 1"-8 X 8" LG.	78"
10	4	868-93	CAP SCREW, HEX. HD. - 1/2-13 x 1-1/4"	-
11	3	952-94	LOCKWASHER - 1/2"	-
12	3	869-15	NUT, HEX. 1/2-13	-
13	1	952-194	WASHER, FLAT - BRASS 1"	78"
14	5	952-245	WASHER, SPECIAL - 1/16" THK. X 1.406" I.D.	78"
15	6	952-286	WASHER, FLAT 1/2"	-
16	13	868-819	CAPSCREW, HEX. HD, 7/8-9 X 6" LG.	-
17	13	952-103	WASHER, FLAT 7/8"	-
18	1	8-B-3171	BRACKET, MOUNTING, OILGUN ASSY	-

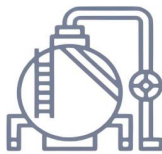


FRONT DAVIT STANDARD CB

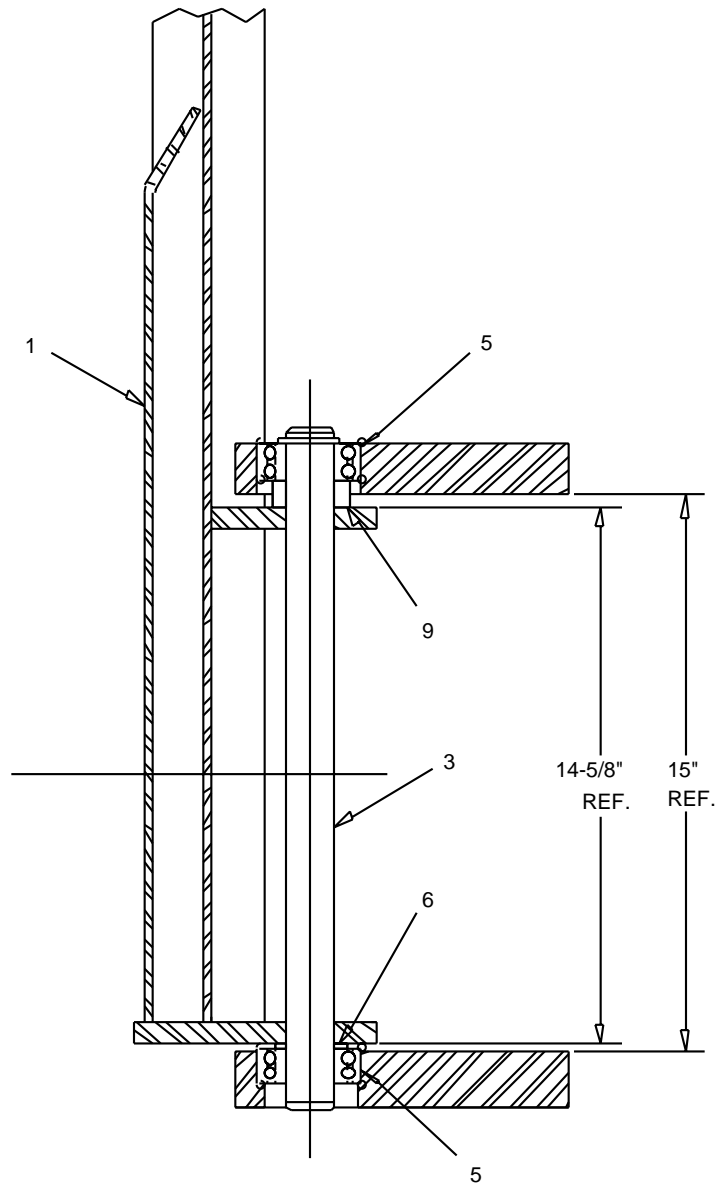
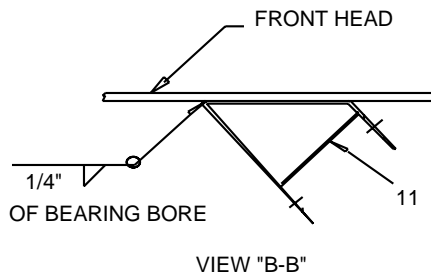
NOTE:

LOCATION OF THE BRACKET IDEALLY TO BE ON THE RIGHT SIDE OF IGNITION TRANSFORMER. IF THIS LOCATION IS NOT AVAILABLE, BRACKET IS TO BE WELDED TO FRONT HEAD AS SPACE ALLOWS.



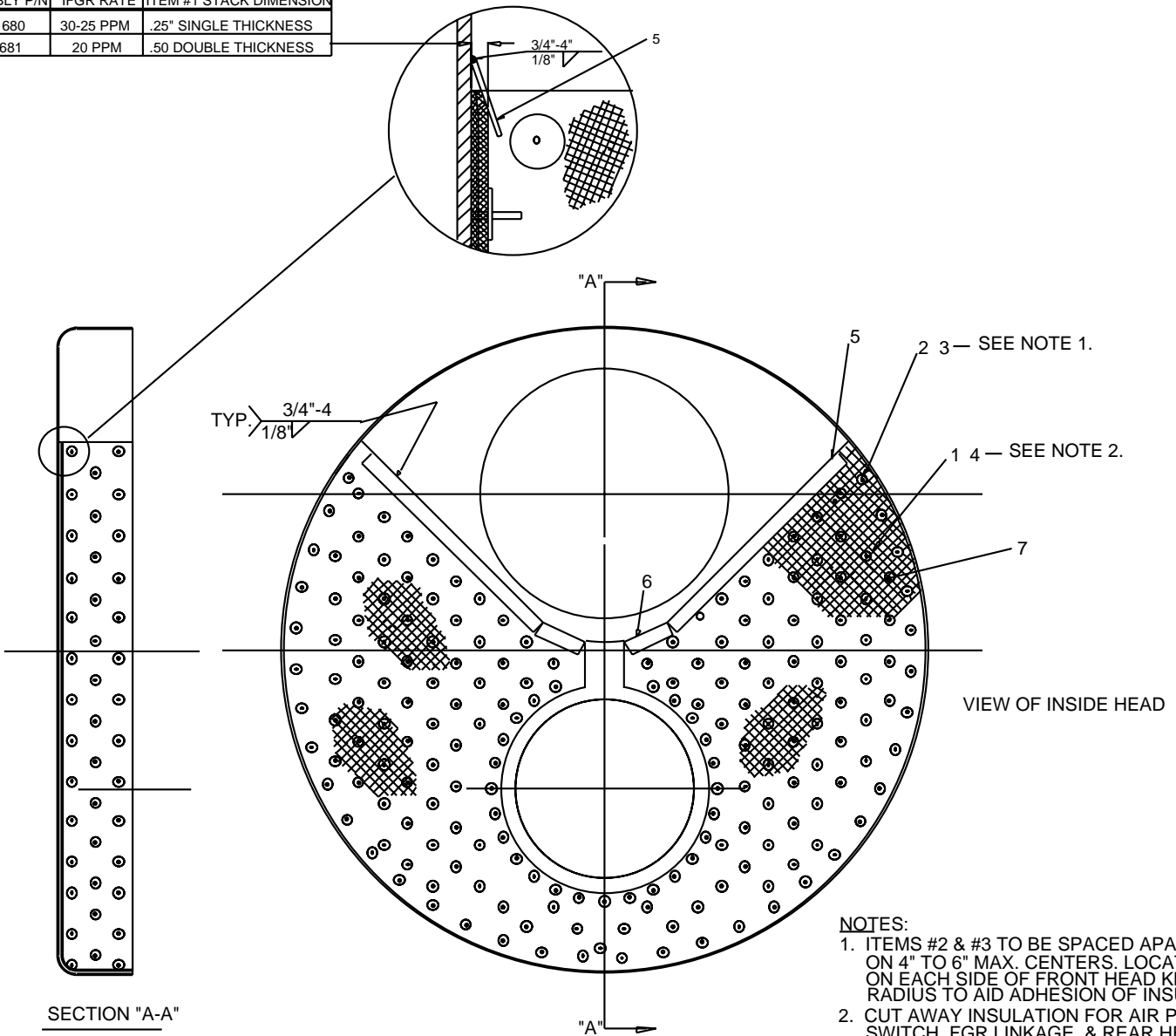


L.H. MIRROR IMAGE		R.H. AS SHOWN		BASIC BILL OF MATERIAL FOR FRONT DAVIT ASSY. R.H. & L.H.			
REQ	PART NO.	REQ	PART NO.	ITEM	REQ	PART NO.	DESCRIPTION
1	287-49	1	287C48	1	-	SEE TABLE	ARM ASSEMBLY, FRONT DAVIT
				2	1	869-320	NUT, HEX., HEAVY. 1"-8
				3	1	56A26	PIN, HINGE, FRONT
				4	1	11A14	TAB, RESTRAINT, FRONT HEAD
				5	2	807-31	BEARING, BALL, DOUBLE ROW
				6	1	952-245	WASHER (SPECIAL)
				7	1	868-93	CAPSCREW, HEX. HD. 1/2"-13 X 1-1/4" LG.
				8	1	952-194	WASHER, FLAT, BRASS 1"
				9	1	77-386	SPACER, DAVIT (77A385)
				10	1	841-1594	STUD, 1"-8 X 17" LG. SPEC.A307TOE 1-1/2"-TOE 3"
				11	1	8B3171	BRACKET, MOUNTING, OIL GUN ASSY



SECTION "A"- "A"

ASSEMBLY P/N	IFGR RATE	ITEM #1 STACK DIMENSION
465C1680	30-25 PPM	.25" SINGLE THICKNESS
465 1681	20 PPM	.50 DOUBLE THICKNESS

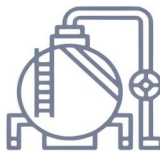


NOTES:

1. ITEMS #2 & #3 TO BE SPACED APART ON 4" TO 6" MAX. CENTERS. LOCATED ON EACH SIDE OF FRONT HEAD KNUCKLE RADIUS TO AID ADHESION OF INSULATION.
2. CUT AWAY INSULATION FOR AIR PROVING SWITCH, FGR LINKAGE, & REAR HEAD COOLING LINE CONNECTIONS.
3. NO ADHESIVE ITEM#4 IS USED BETWEEN THE TWO LAYERS OF INSWOOL ITEM#1 FOR 20 PPM SYSTEM.

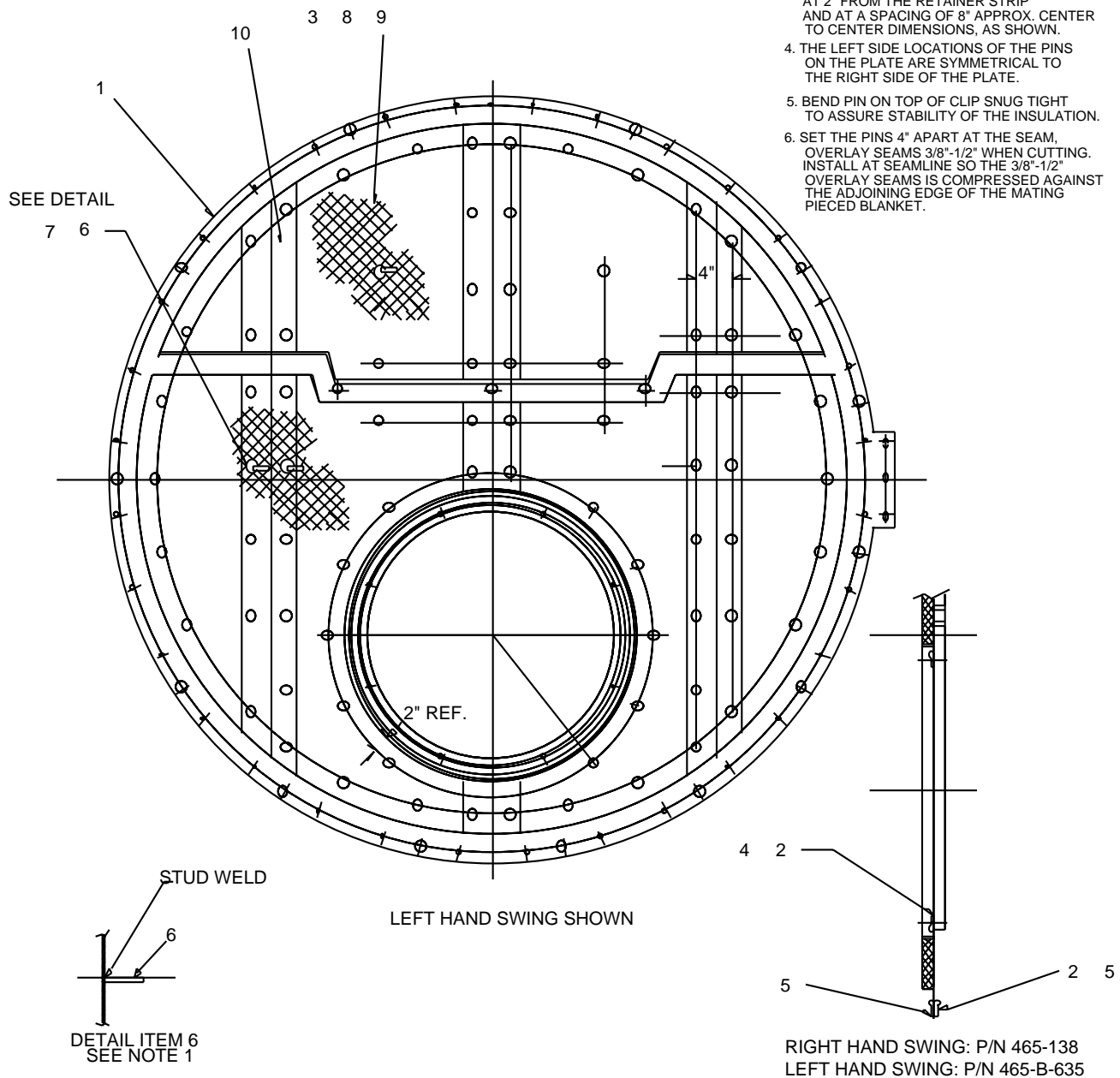
ITEM	25-30 PPM	20 PPM	78" GENERAL BILL OF MATERIAL	
	465-1680	465-1681	PART NO.	DESCRIPTION
1	57 SQ FT	114 SQ FT	872-688	BULK INSULATION, INSLWOOL, 1/4" THK.
2	150	150	903-297	PIN, WELDING, #10 GA. X 2-1/2" LG. ST. STL.
3	150	150	828-39	CLIP, WELDING ST. STL
4	128 OZ	128 OZ.	872-512	ADHESIVE, SCOTCHGRIP #42NF
5	2	2	971-355	STRIP, 14 GA. x 1-1/2" x 32-1/2" LG.
6	2	2	971-355	STRIP, 14 GA. x 1-1/2" x 9-1/2" LG.
7	57 SQ FT	57 SQ FT	930-57	SCREEN 1/2" 19 GA. GALV.

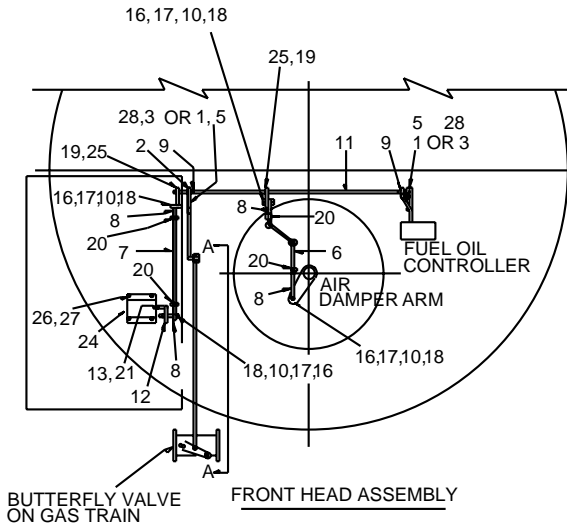
FRONT HEAD INSULATION (LE ONLY)



ITEM	QTY	PART NO.	DESCRIPTION
1	1	SEE TABLE	INTERMEDIATE FRONT HEAD
2	41	841-551	RIVET, SPLIT ROUND HEAD (841-A-551)
3	30 SQ FT	872-500	BULK INSULATION, BLANKET, 1-1/2" THK, 2400, 8#
4	1	32-A-898	GASKET, HEAD PLATE
5	2	32-B-899	GASKET, FRONT AND REAR HEAD
6	78	903-182	PIN, WELDING, #10 GA. X 4" LG.
7	78	828-39	CLIP, WELDING
8	180 oz	872-443	RIGIDIZER, COATING CEMENT, CERA-PREG (SEE NOTE 2)
9	30 SQ FT	930-135	SCREEN, ST. STL.
10	8 SQ FT	872-688	INSULATION, INSWOOL PAPER, 1/4" THK., AP GREEN

- NOTE:
- ITEM #6 PINS TO BE SPACED 8" APART CENTERS.
 - ITEM #8 RIGIDIZER MUST BE DILUTED W/ EQUAL AMOUNT OF WATER (180 oz) TO A 50:50 SOLUTION PRIOR TO APPLYING, APPLY AFTER SCREEN IS INSTALLED TO A DEPTH OF 1/4".
 - A ROW OF ITEMS 6 & 7 IS TYPICALLY AT 2" FROM THE RETAINER STRIP AND AT A SPACING OF 8" APPROX. CENTER TO CENTER DIMENSIONS, AS SHOWN.
 - THE LEFT SIDE LOCATIONS OF THE PINS ON THE PLATE ARE SYMMETRICAL TO THE RIGHT SIDE OF THE PLATE.
 - BEND PIN ON TOP OF CLIP SNUG TIGHT TO ASSURE STABILITY OF THE INSULATION.
 - SET THE PINS 4" APART AT THE SEAM, OVERLAY SEAMS 3/8"-1/2" WHEN CUTTING. INSTALL AT SEAMLINE SO THE 3/8"-1/2" OVERLAY SEAMS IS COMPRESSED AGAINST THE ADJOINING EDGE OF THE MATING PIECED BLANKET.

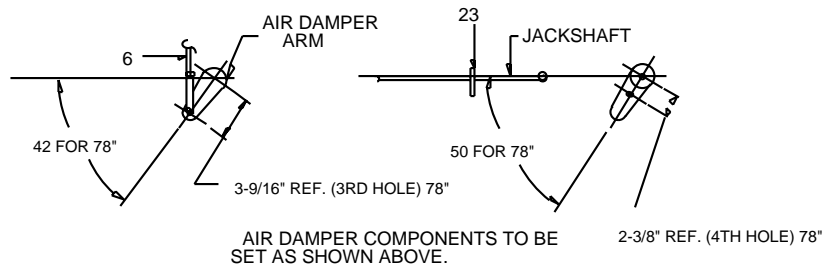
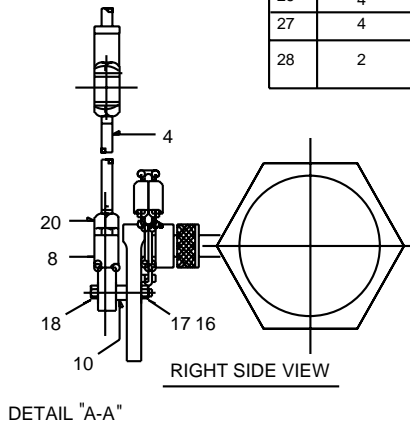
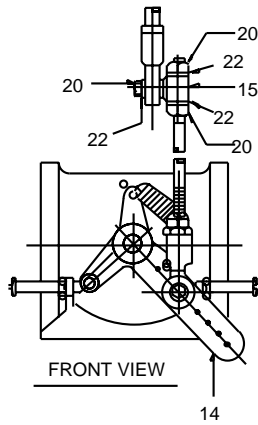


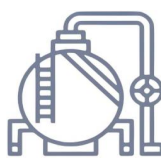


* = SEE NOTE 5 & 6

BASIC BILL OF MATERIAL FOR 78" DIA. BOILER

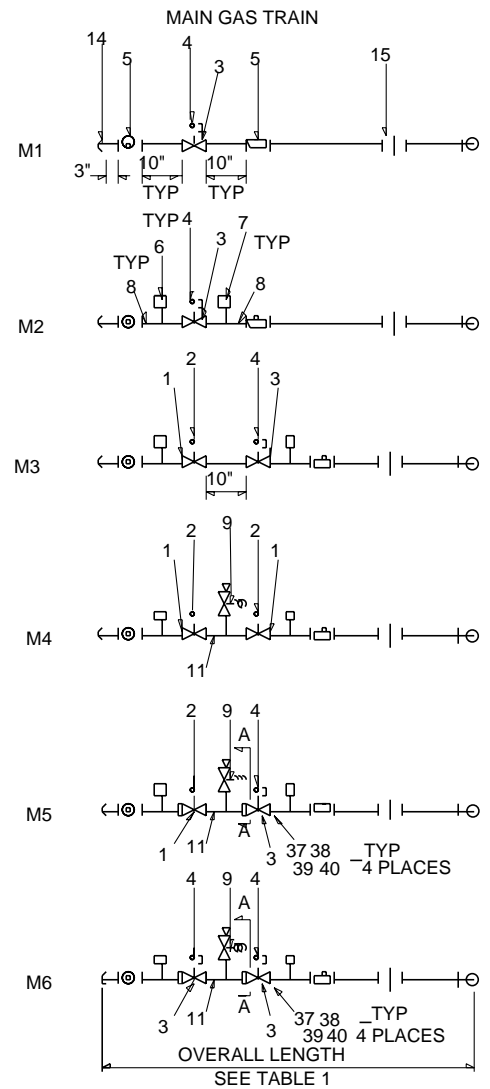
ITEM	QUANTITY			PART NO.	DESCRIPTION	WHERE USED
	GAS	OIL	CMB			
1	1	1	2	313-A-5	CAM ASSEMBLY	
2	1	-	1	295-C-98	GAS VALVE STEM ASSEMBLY	
3	1	1	-	85-A-1926	SUPPORT - JACKSHAFT	
4	1	-	1	67-A-124	ROD LINKAGE, GAS VALVE	STD. 78"
	1	-	1	67-A-800	ROD LINKAGE, GAS VALVE	78" "LE"
5	1	1	2	853-454	GASKET	
* 6	1	-	-	67-A-126	ROD DAMPER LINKAGE	STD. 78"
	1	-	-	67-A-801	ROD DAMPER LINKAGE	78" "LE"
* 7	1	-	-	67-500	ROD LINKAGE, MOD. MOTOR (67-B-442)	STD. 78"
	1	-	-	67-192	ROD LINKAGE, MOD. MOTOR (67-B-442)	78" "LE"
8	5	-	-	883-17	BALL JOINT	
9	2	-	-	824-21	COLLAR	
10	5	-	-	10-A-288	BUSHING - BALL JOINT	
11	-	1	1	74-204	JACKSHAFT	STD. 78"
	1	-	-	74-205	JACKSHAFT	STD. 78"
12	1	-	-	2-A-47	DRIVE ARM - MODUTROL MOTOR	
13	1	-	-	10-A-91	BUSHING	
14	1	-	-	287-A-24	GAS VALVE & ARM DAMPER	
15	1	-	-	68-A-32	END ROD LINKAGE	
16	5	-	-	869-21	NUT HEX. 1/4-20	
17	5	-	-	869-234	NUT & LOCKWASHER	
18	5	-	-	868-139	BOLT, HEX HD 1/4-20 X 1-1/2" LG.	
19	-	4	4	860-101	SET SCREW 1/4-20 x 1/2"	
	4	-	-	860-39	SET SCREW 1/4-20 x 1/2"	
20	8	-	-	869-22	NUT HEX. 3/8-24	
21	1	-	-	860-39	SET SCREW 1/4-20 x 3/8"	
22	3	-	-	952-93	LOCKWASHER 3/8"	
23	-	-	-	NOT USED	-	
24	1	-	-	894-3470	MOD. MOTOR	NON-UL
	1	-	-	894-3471	MOD. MOTOR	NON-HAWK
	1	-	-	894-3513	MOD. MOTOR	HAWK
25	2	-	-	2-A-47	DRIVE ARM	
26	4	-	-	868-137	BOLT, HEX HD 1/4-20 X 1" LG.	
27	4	-	-	952-92	LOCKWASHER 1/4"	
28	2	-	-	77-371	CAM SPACERS	FUEL 200, 400, 700





ITEM	QTY	P/N	DESCRIPTION	USED ON
1	TABLE 1	* 940-4541	VALVE (STD)	3" GTS 250-350 HP
2		945-139	ACTUATOR (STD)	2", 2-1/2", 3" GTS 50-350 HP
3		940-4546	VALVE (POC)	3" GTS 250-800 HP
4		945-143	ACTUATOR (POC)	2", 2-1/2", 3" GTS
5	2	941-130	LUBRICATED PLUG VALVE	3" GTS
7	1	507-6785	GAS PRESS. SENSOR	200-350 HP (HAWK)
	1	817-752	HIGH GAS PRESS. SWITCH	300-350 HP (STD)
8	-	**	HIGH GAS PRESS. SWITCH	ALL HP (HAWK)
	2	157-1039	S.O. NIPPLE 1/2"	3" GTS (STD)
9	TABLE 1	**	S.O. NIPPLE	ALL HP (HAWK)
		948-2	MAIN VENT VALVE	3/4" VVS
		948-54	MAIN VENT VALVE	1-1/4" VVS
11	TABLE 1	157-1040	S.O. NIPPLE	3" GTS, 3/4" VVS
		157-1041	S.O. NIPPLE	3" GTS, 1-1/4" VVS
12	2	8-1002	BRACKET	2", 2-1/2", 3" GTS
	2	8-1159	BRACKET	MAXON 2", 2-1/2", 3" GTS
13		NOT USED	NOT USED	
14	1	919-99	CAPLUG	3" GTS
15	1	858-171	UNION	3" GTS
16	TABLE 1	948-197	PILOT VALVE	-
17	TABLE 1	948-2	PILOT VENT VALVE	-
18	1	918-356	PILOT REGULATOR	-
19	1	507-1015	PILOT TUBING	250-350 HP
20	1	850-109	PILOT GAUGE	-
21	SCHEM.	825-30	PILOT GAS COCKS	-
22	1	845-194	ELBOW	125-800 HP
23	1	940-134	BUTERFLY VALVE 3"	150-350 HP

* THE ACTUATORS ARE INCLUDED W/ ITEMS #1 & 3 GAS VALVES.
 ** FOR ALL HAWK, ITEM #7 IS NOT USED AND REPLACE ITEM #8 WITH STANDARD PIPE NIPPLE.



ITEM	QTY	P/N	DESCRIPTION	USED ON	OPTION
24	1	157-81	ELBOW 3" W/ TEST CONN.	150-350 HP	B3
25	1	859-87	ELBOW 3"	250-350 HP	
26	1	858-336	FLANGED UNION 3"	250-350 HP	B3
27	1	847-562	ELBOW 4" X 3"	250-350 HP	
	2	7-77	U-BOLT	3" GTS	
29	4	952-114	LOCKWASHER	QTY 6 ON 4" GTS	
30	4	952-133	WASHER	QTY 6 ON 4" GTS	
31	4	869-36	HEX NUT	QTY 6 ON 4" GTS	
32	2	928-44	STRAP	QTY 3 ON 4" GTS	
33	2	952-92	LOCKWASHER	QTY 3 ON 4" GTS	
34	2	952-145	WASHER	QTY 3 ON 4" GTS	
35	2	869-21	HEX NUT	QTY 3 ON 4" GTS	
36	2	868-404	CAPSCREW	QTY 3 ON 4" GTS	
41	2	8A15	GAS PILOT BRACKET	FUEL 101, 600	B3
42	2	868-135	CAPSCREW	FUEL 101, 600	

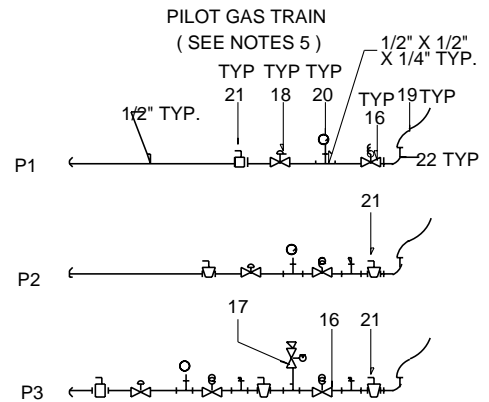
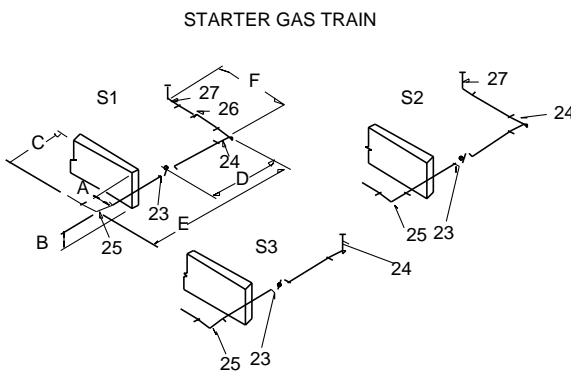
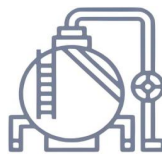


TABLE 1

BOILER HORSEPOWER SIZE	MAIN GAS TRAIN						STARTER TRAIN SCHEMATIC	PILOT TRAIN SCHEMATIC	OVERALL LENGTH MAIN GAS TRAIN			
	TRAIN	VENT VALVE SIZE		SCHEMATIC					STD & FM	IRI	M1,M2,	M3,M4,M5 M6
		STD & FM	IRI	STD	FM	IRI						
250	3"	-	1-1/4"	M3	M3	M5	S1	P1	P2	-	80"	
300-350	3"	3/4"	1-1/4"	M5	M6	M5	S1	P1	P2	-	80"	



250 HORSEPOWER

SHIPPED LOOSE NOT SHOWN

ITEM	QTY	PART NO.	ITEM	USED ON
18	1	506-508	PUMP	50 HZ
	1	905-1342	PUMP	60 HZ
19	1	833-494	STARTER	-
20	1	529-11	STRAINER	-

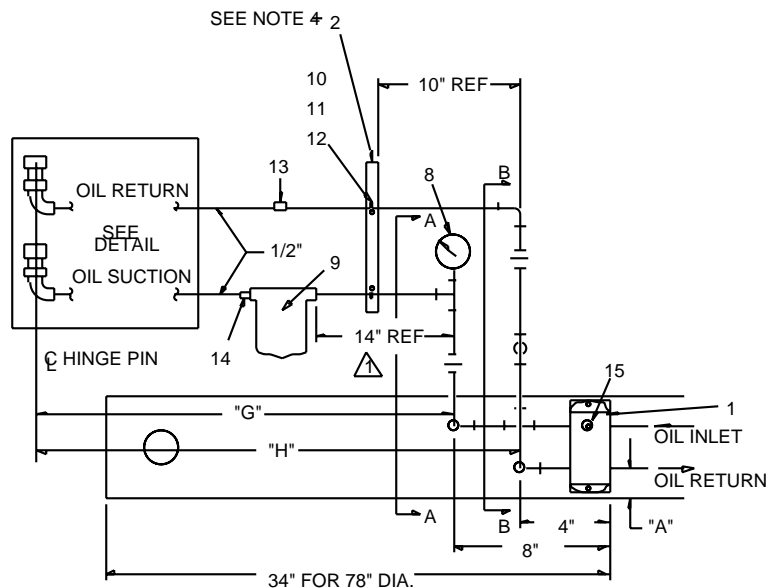
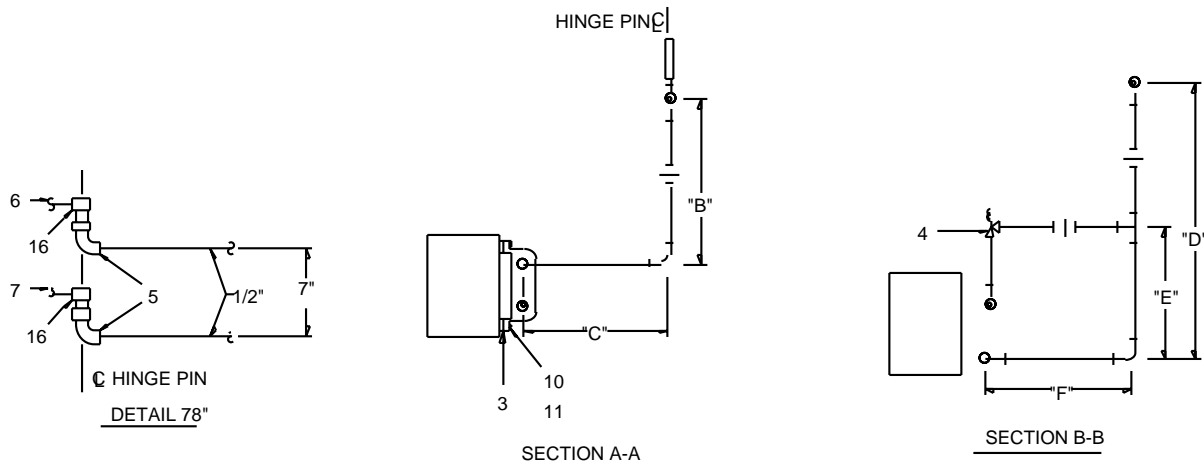
300 - 350 HORSEPOWER

SHIPPED LOOSE NOT SHOWN

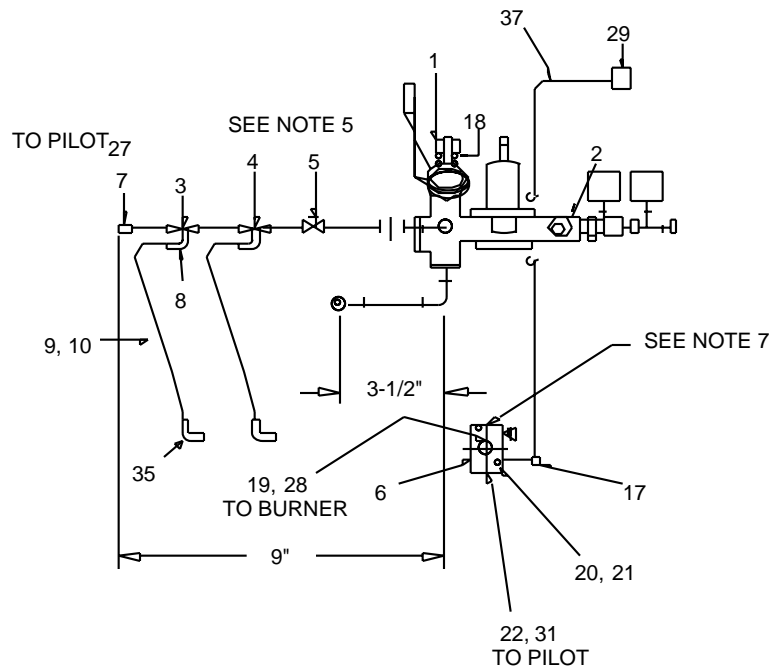
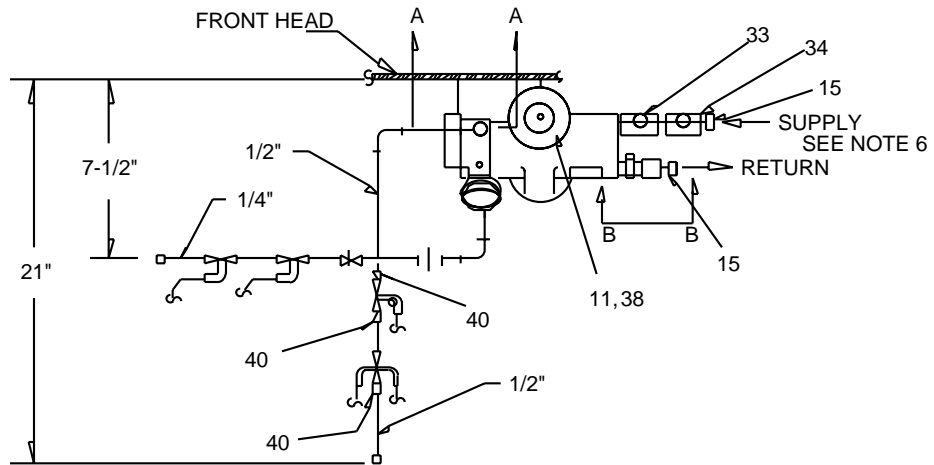
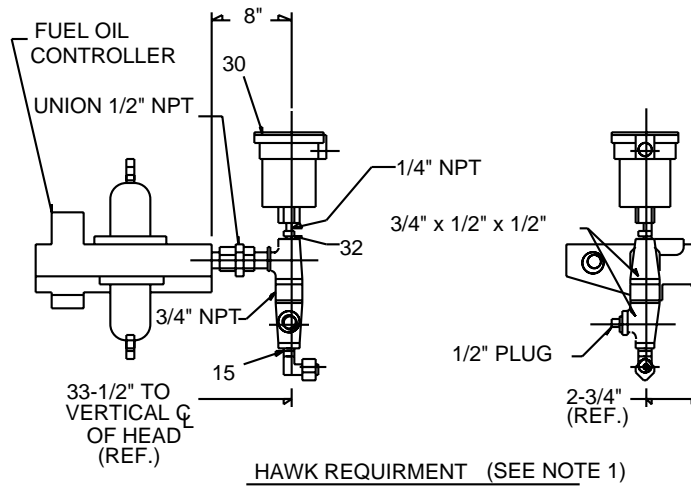
ITEM	QTY	PART NO.	ITEM	USED ON
18	1	506-509	PUMP	50 HZ
	1	905-1340	PUMP	60 HZ
19	1	833-494	STARTER	-
20	1	843-252	STRAINER	-

DIMENSIONS	78"	78" LE
A	4	4
B	16	14-1/4
C	12	12
D	25-1/2	24-3/4
E	11-1/2	11-1/2
F	12	12
G	27	27
H	31	31

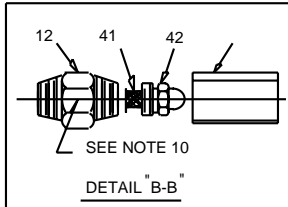
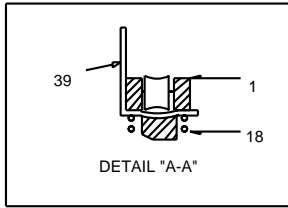
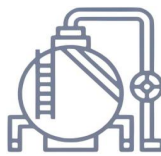
ITEM	QTY	PART No.	DESCRIPTION	USED ON
1	1	106-B-12	OIL TERMINAL BLOCK	-
2	1	8-A-811	BRACKET	78"
3	2	70-A-55	SHIM	-
4	1	940-2296	FULFLO VALVE	-
5	2	847-1715	JOINT, SWIVEL	-
6	1	507-7506	TUBING, RETURN (SEE NOTE 6 & 7)	78" & 78" LE
7	1	507-7503	TUBING, SUPPLY (SEE NOTE 6)	78"
	1	507-7506	TUBING, SUPPLY (SEE NOTE 7)	78" LE
8	1	850-61	GAUGE, PRESSURE	-
9	1	843-252	STRAINER	-
10	2	868-99	CAPSCREW 5/16"	78"
11	2	869-235	NUT & LW COMB. 5/16"	78"
12	2	928-45	PIPE STRAP	78"
13	1	847-530	COUPLING 3/4" x 1/2"	-
14	1	847-152	BUSHING	-
15	1	858-1	1/4" PLUG SQ. HEAD	-
16	2	845-313	ELBOW 1/2" NPT X 1/2" ODC	-



LIGHT OIL/AIR PIPING-FRONT HEAD

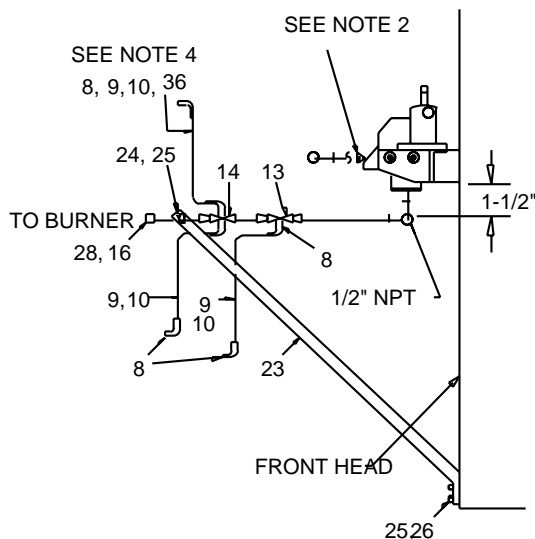


LIGHT OIL/AIR PIPING-FRONT HEAD



NOTES:

1. WHEN HAWK IS REQUIRED CHANGE OIL SUPPLY PIPING BY ADDING HAWK COMPONENTS (ITEMS 30 AND 32), AND PIPE PER HAWK REQUIREMENT. RETURN LINE PIPING DOES NOT CHANGE.
2. IF MODEL 100, REMOVE PLUG AND PROVIDE OIL PILOT PIPING AS SHOWN.
3. ALL DIMENSIONS ARE APPROX.
4. USED ONLY ON FM INSURANCE.
5. USED ONLY ON IRI INSURANCE.
6. FOR SUPPLY & RETURN PIPING, REFER TO PREVIOUS PAGES
7. FOR AIR COMPRESSOR PIPING TO AIR MANIFOLD BLOCK REFER TO AIR COMPRESSOR PIPING
8. ITEMS #33 & 34 ARE NOT USED WITH HAWK.
9. UNLESS OTHERWISE NOTED, ALL OIL PIPE TO BE SCH. 40 ASTM A120 WELDED BLACK STL. AND ALL FITTINGS TO BE 150# M.I..
10. STAMP NOZZLE SIZE ON FLAT SIDE OF ITEM 12. ITEMS 12, 41, 42, & 43 STOCKED AS: 277-121

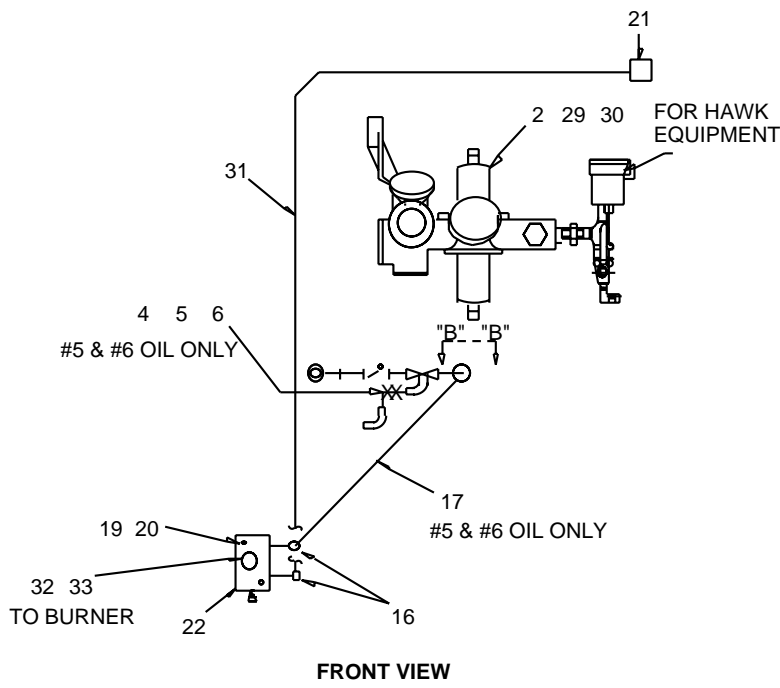
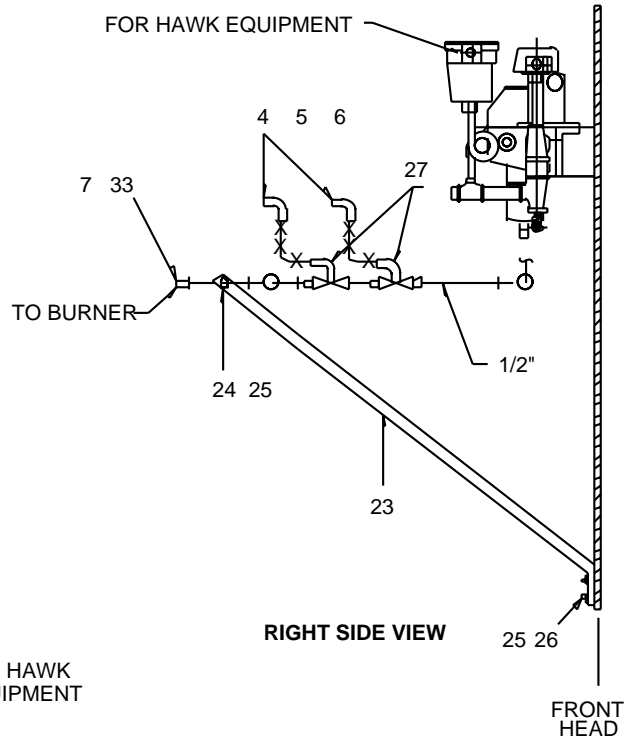
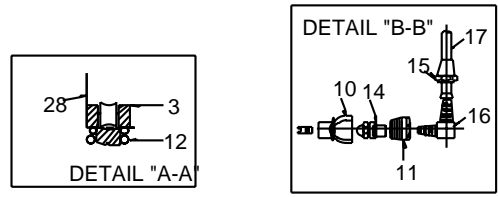
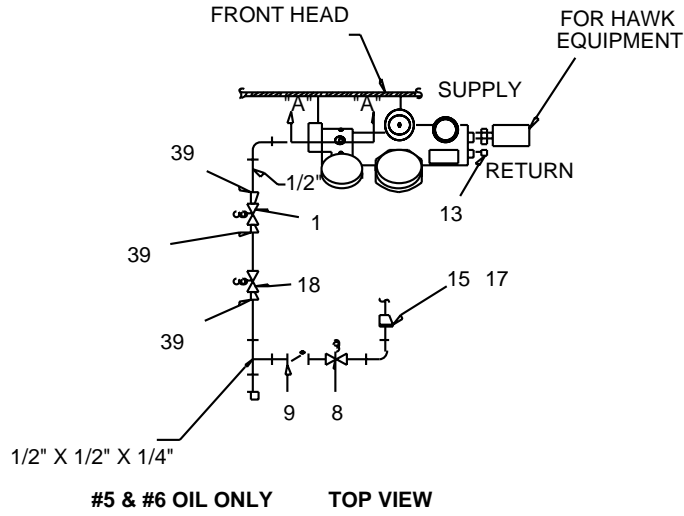


ITEM	QTY		PART NO.	BASIC BILL OF MATERIAL		USED ON
	OIL	COM		DESCRIPTION		
1	1		24-86	VALVE STEM (24-B-81)		250-350 H.P.
2	1		739-D-73	VALVE ASSEMBLY (FOC)		250-350 H.P.
3	1		948-153	VALVE - SOLENOID 1/4" (OIL PILOT)		MODEL 100
4	1		948-153	VALVE - SOLENOID 1/4" (OIL PILOT)		MODEL 100; IRI ONLY
5	1		941-914	VALVE - GATE 1/4"		MODEL 100; IRI ONLY
6	1		106-B-42	AIR MANIFOLD BLOCK		-
7	1		845-7	CONNECTOR MALE - 1/4" NPT x 1/4"		MODEL 100
8	5	4	848-3	CONNECTOR - SCREW TYPE 3/8"		ADD QTY. 1 IF FM INS.
9	6	4	848-100	BUSHING 3/8"		ADD QTY. 2 IF FM INS.
10	3	2	827-6	GREENFIELD - 3/8" (CUT TO FIT)		ADD QTY. 1 IF FM INS.
11	4		952-93	LOCKWASHER 3/8"		-
12	1		106-A-49	ORIFICE BLOCK		-
13	1		SEE TABLE	VALVE, OIL SHUT-OFF		SEE TABLE
14	1		SEE TABLE	VALVE, OIL SHUT-OFF		SEE TABLE
15	2		845-312	CONNECTOR - MALE 1/2" NPT x 1/2"		-
16	1		858-360	COUPLING - FULL 1/2"		-
17	1		845-137	ELBOW - 1/8" NPT X 1/4" ODC		-
18	1		82-B-83	SPRING - COMPRESSION		-
19	1		57-5103	SIZED PIPE - 1/2" X 16" LG. TBE.		-
20	2		868-387	CAPSCREW, HEX HD. 1/4"-20 X 2-3/4"		-
21	2		952-92	LOCKWASHER 1/4"		-
22	1		845-9	ELBOW - 1/4" NPT X 1/4" ODC		MODEL 100
23	1		8-B-2204	BRACKET		-
24	1		841-1119	U-BOLT WITH NUTS		-
25	4		952-92	WASHER		-
26	2		868-136	CAPSCREW		-
27	1		507-B-1581	TUBING - OIL TO PILOT		MODEL 100
28	2		861-439	FLEXIBLE HOSE		-
29	1		507-A-2072	ATOMIZING AIR SWITCH		-
30	1		817-2098	SENSOR - PRESSURE		HAWK ONLY
31	1		507-A-1582	TUBING - AIR TO PILOT		MODEL 100
32	1		847-419	BUSHING - 1/2" x 1/4"		HAWK ONLY
33	1		817-1264	LOPS (SEE NOTE 8)		-
34	1		817-922	HOPS (SEE NOTE 8)		KEM. ONLY
35	1		848-2	CONNECTOR, SQUEEZE TYPE 3/8" X 45		MODEL 100
36	1		848-16	CONNECTOR, SQUEEZE TYPE 3/8" X 90		FM ONLY
37	1		507-B-1529	TUBING, AIR SWITCH TO MANIFOLD		-
38	4		868-157	CAPSCREW, HEX HD. 3/8"-16 X 1-1/4"		-
39	1		36-A-26	CAM BODY GUIDE		-
40	* 3		847-420	BUSHING - 1/2" X 3/8"		-
41	1		899-14	STRAINER, MONARCH #F-80		-
42	1		899-51	NOZZLE, 30, H.V.MON. #F-80, 24 GPH.		-
43	1		157-A-201	COUPLING, STEEL, 1/2" NPT		-

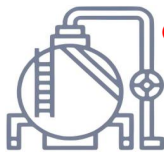
* MAXIMUM QUANTITY SHOWN BASED ON REQUIREMENTS.

ITEM	HP	NO INS.	FM	KEM	IRI	IRM	F & I
13	250	948-154	948-154	948-154	948-154	948-154	948-154
	300	948-154	949-183	948-154	948-154	948-154	949-183
	350	948-154	949-183	948-154	948-154	948-154	949-183
14	250	948-154	948-154	949-183	949-154	948-154	949-154
	300	948-154	949-183	949-183	949-183	948-154	949-183
	350	948-154	949-183	949-183	949-183	948-154	949-183

LIGHT OIL/AIR PIPING-FRONT HEAD



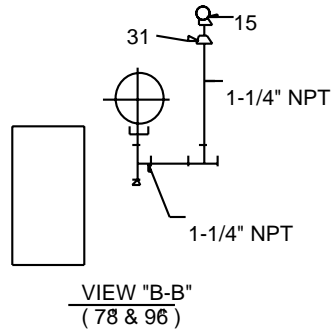
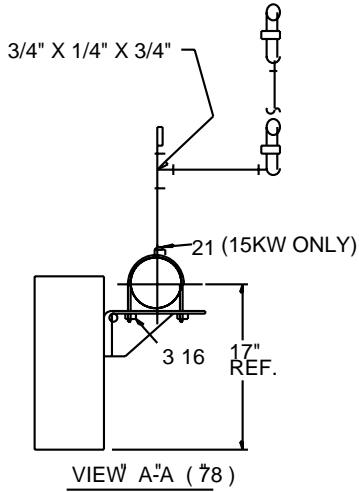
**HEAVY OIL
OIL/AIR PIPING-FRONT HEAD
CB,CBLE**



ITEM	QUANTITY	PART No.	DESCRIPTION	USED ON	OPTION	
1	1	948-154	VALVE , SOLENOID	250 HP ALL	A4	
	1	948-183	VALVE , SOLENOID	300-350 HP FM/F & I		
2	1	739-D-75	VALVE ASSEMBLY	250-350 H.P.	A4	
3	1	24-86	VALVE STEM (24-B-81)	250-350 H.P.	A4	
4	3	827-6	GREENFIELD - 3/8" (CUT TO FIT)	-		
5	3	848-16	CONNECTOR - 3/8" x 9027	-		
6	4	848-100	BUSHING - 3/8"	-		
7	1	858-271	COUPLING - 1/2"	-		
8	1	948-153	SOLENOID VALVE - 1/4"	#5 & #6 OIL ONLY		A4
9	1	940-710	CHECK VALVE - 1/4"	#5 & #6 OIL ONLY	A4	
10	1	157-75	REDUCER - 1/2" x 1/4"	#5 & #6 OIL ONLY		
11	1	106-A-10	ORIFICE BLOCK	#5 & #6 OIL ONLY	A4	
12	1	82-B-83	COMPRESSION SPRING	-	A4	
13	2	845-312	CONNECTOR - 1/2" ODC x 1/2" NPT	-		
14	1	899-80	BURNER NOZZLE	#5 & #6 OIL ONLY	A4	
15	1	845-8	NUT, SHORT - 4527 FLARED x 1/4" ODC	#5 & #6 OIL ONLY		
16	3	845-42	ELBOW - 1/4" ODC x 1/8" NPT	-		
17	1	507-A-2648	PURGE LINE TUBING ASSEMBLY	#5 & #6 OIL ONLY	A4	
18	1	948-154	VALVE , SOLENOID	250 HP NO INSUR./FM/IRI/F&I	A4	
	1	948-183	VALVE , SOLENOID	300-350 HP NO INSUR. 250 HP KEM 300-350 HP FM/F & I/KEM/IRI		
19	2	868-387	CAPSCREW 1/4"	-		
20	2	952-92	LOCKWASHER 1/4"	-		
21	1	507-A-2072	ATOMIZING AIR SWITCH	-		A4
22	1	106-B-42	AIR MANIFOLD BLOCK	-		A4
23	1	8-B-2204	BRACKET	-		A4
24	1	841-1119	U-BOLT	-		
25	2	952-92	WASHER	-		
26	4	868-136	CAPSCREW	-		
27	4	5	848-3	CONNECTOR - 3/8"		-
28	1	36-A-26	CAM BODY GUIDE	-	A4	
29	4	952-93	LOCKWASHER - 3/8"	-		
30	4	868-157	CAPSCREW,HEX HD.3/8"-16 X 1-1/4" LG.	-		
31	1	507-B-1529	TUBING MANIFOLD TO AAPS	-		A4
32	1	57-5103	SIZED PIPE - 1/2" X 16" LG. TBE.	-	A4	
33	2	861-439	FLEXIBLE HOSE, METAL	-	A4	
34	* 3	847-420	BUSHING, 1/2" X 3/8"	250-350 H.P.		

* MAXIMUM QUANTITY SHOWN BASED ON REQUIREMENTS.

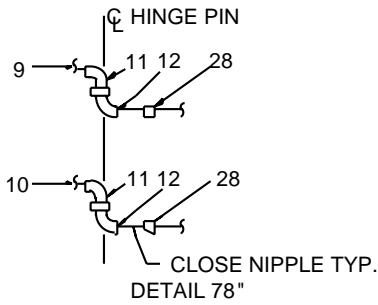
**HEAVY OIL
OIL/AIR PIPING-FRONT HEAD
CB,CBLE**



OIL HEATER RATINGS (KW)				
HP	#4 OIL	#5 & #6 OIL		
		ALL PRESSURE	STEAM	HOT WATER
		15	16-300	ALL
250	5	7-1/2	7-1/2	7-1/2
300-350	7-1/2	7-1/2	7-1/2	7-1/2

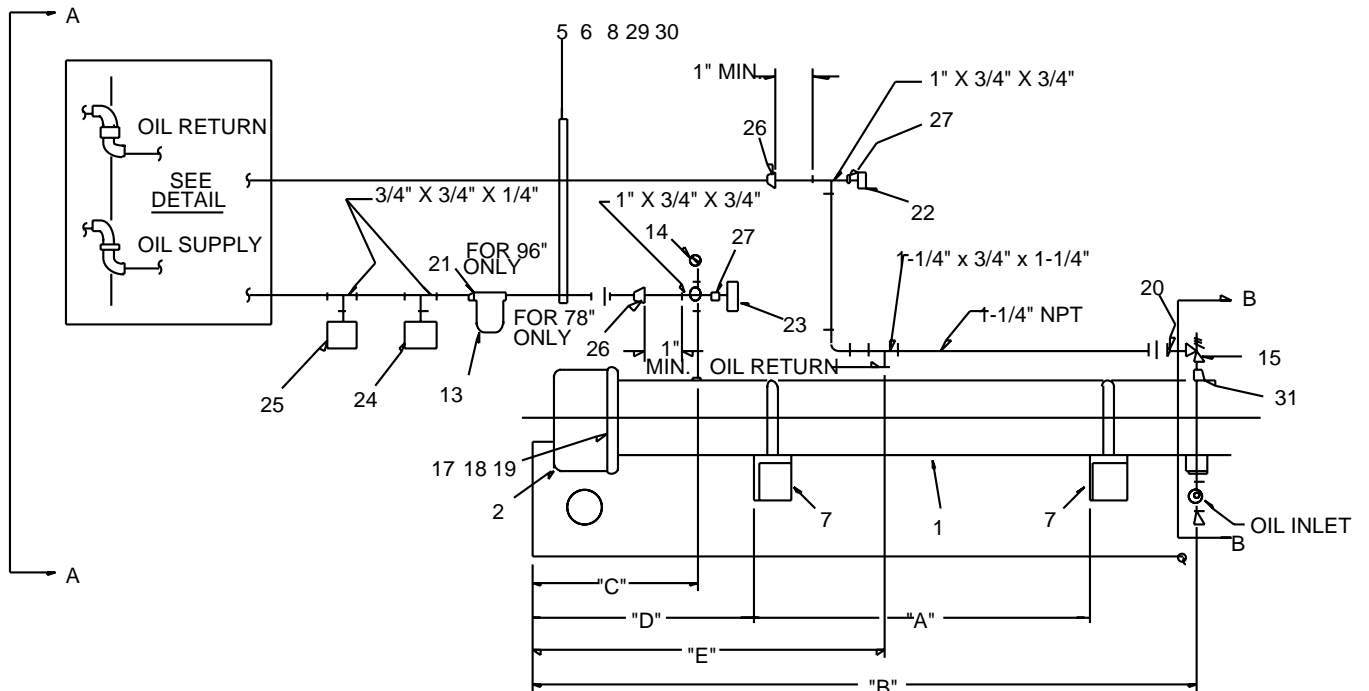
NOTE: #4 OIL AND HOT WATER #5 & #6 OIL USE STRAIGHT ELECTRIC OIL HEATER

STRAIGHT ELECTRIC OIL HEATER					
RATING	200 VOLT	230 VOLT	380 VOLT	460 VOLT	600 VOLT
5 KW	832-948	832-929	832-932	832-933	832-934
7-1/2 KW	832-936	832-937	832-949	832-938	832-939



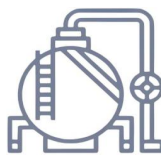
OIL PUMP (SHIP LOOSE)							
MODEL	VOLTAGE						
	200		230		380	460	600
	50 HZ.	60 HZ.	50 HZ.	60 HZ.	50 HZ.	60 HZ.	60 HZ.
250-300	905-1072	905-1058	905-1072	905-1051	905-1072	905-1051	905-1065
350	-	905-1174	905-1180	905-1171	905-1180	905-1171	905-1177

H.P.	RATING	DIM. "A"	DIM. "B"	DIM. "C"	DIM. "D"	DIM. "E"
250	5 kw U.S.	9-1/2"	52-3/4"	35-1/4"	37-1/2"	47-3/4"
	5 kw CAN	9-1/2"	50-1/2"	35-1/4"	37-1/2"	45-1/2"
300, 350	7-1/2 kw	23"	63"	35-1/4"	37-1/2"	55-3/4"

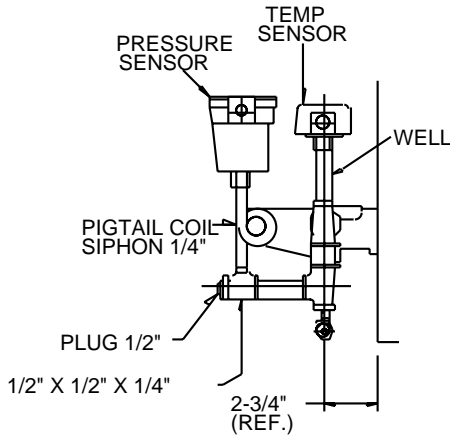
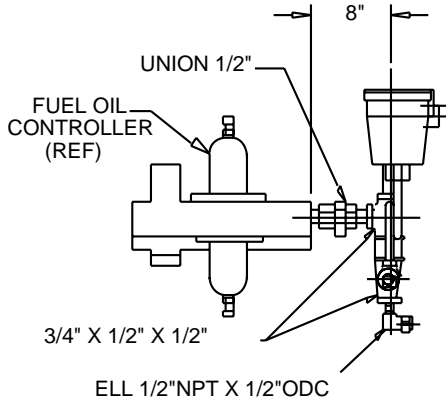


HEAVY OIL

OIL/AIR PIPING-FRONT HEAD CB,CBLE



STEAM-ELECTRIC OIL HEATER				
RATING	200/230 VOLT	380 VOLT	460 VOLT	600 VOLT
5 KW	832-288	832-1576	832-289	832-290
7-1/2 KW	832-509	832-1577	832-510	832-520

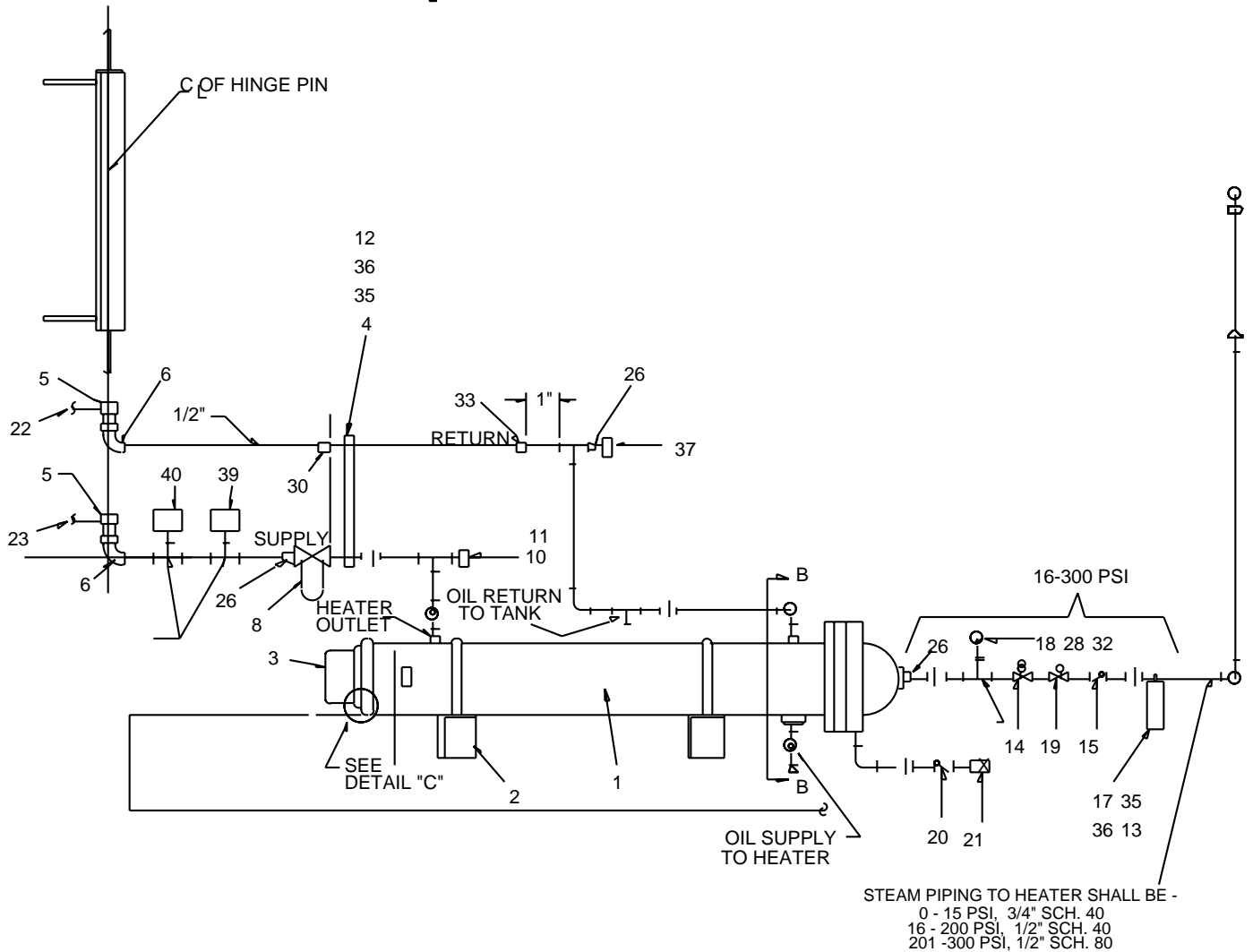
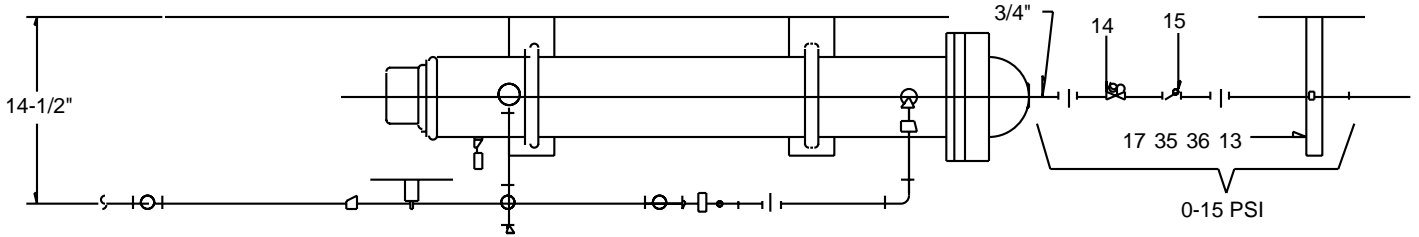
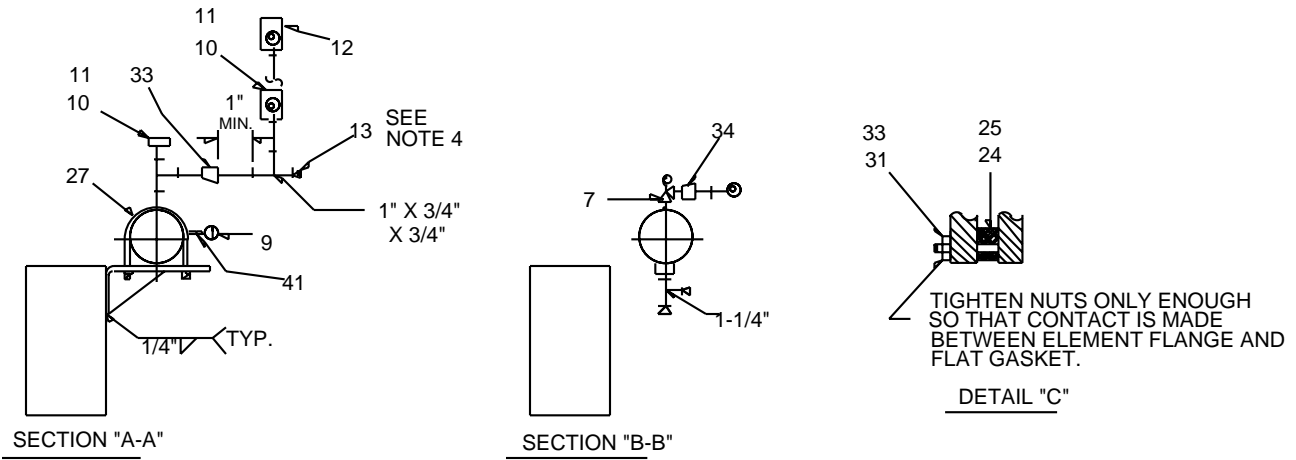


HAWK ONLY

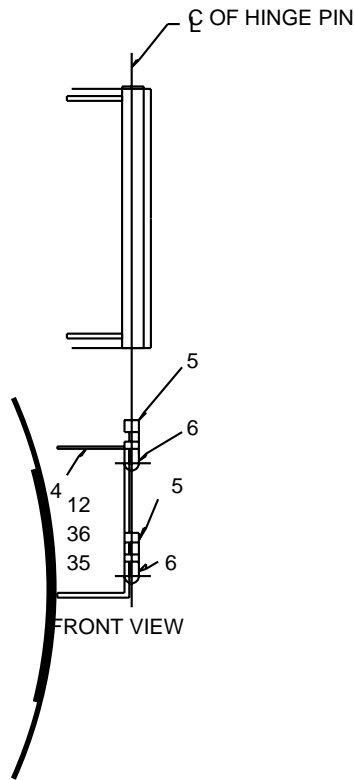
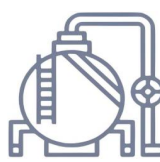
ITEM	QTY	PART NO.	DESCRIPTION	USED ON	OPTION
	1	838-C-81	TANK - HEATER	5 kw U.S.	
	1	838-C-35	TANK - HEATER	5 kw CAN	QQ
1	1	195-B-238	TANK - HEATER	7-1/2 kw	QU
2	1	*	ELEMENT - HEATER	-	QQ/QU
3	2	841-1139	U-BOLT	5/7-1/2 kw	QQ
	2	841-1140	U-BOLT	10-15 kw	
4					
5	2	928-45	STRAP - PIPE 3/4"	78"	
6	2	868-14	CAPSCREW - HEX. HD.	78"	
7	2	8-A-656	HEATER BRACKET	5/7-1/2 kw	QQ
8	2	869-36	NUT HEX. 5/16-18	78"	QU
9	1	507-B-1000	TUBING - OIL RETURN	78"	QQ/QU
10	1	507-B-999	TUBING - OIL SUPPLY	78"	D3
11	2	845-313	ELBOW FLARED - 9027	-	
12	2	847-1715	SWIVEL JOINT - 9027	-	QQ/QU
13	1	843-252	STRAINER - 3/4" N.P.T.	78"	QQ/QU
14	1	850-61	PRESSURE GAUGE	-	QQ/QU
15	1	940-2296	RELIEF VALVE - 3/4" N.P.T.	78"	QQ
16	4	952-94	LOCKWASHER - 1/2"	-	QU
17	1	853-227	GASKET - HEATER	-	
18	8	952-92	LOCKWASHER - 1/4"	-	
19	10	868-138	CAPSCREW HEX. HD.	-	
20	1	847-431	BUSHING - 1-1/4" x 3/4"	78"	
21	2	847-426	BUSHING - 1" x 3/4"	-	
22	1	*	LOTS	ALL	D3
23	1	*	HOTS		D3
24	1	*	LOPS		D3
25	1	*	HOPS		D3
26	2	847-533	COUPLING 1" X 3/4"	-	
27	2	847-152	BUSHING 3/4" X 1/2"	-	
28	2	847-530	COUPLING - RED. - 3/4" X 1/2"	78"	
29	2	952-114	LOCKWASHER - 5/16"	78"	
30	1	8-A-811	BRACKET, PIPE	78"	QQ/QU
31	1	847-641	COUPLING - RED. 1-1/4" X 3/4"	78"	

OIL CONTROLS		LOTS		HOTS	LOPS	HOPS
		#4 OIL	#5,#6 OIL	ALL	ALL	ALL
NON-HAWK	NO INS.	817-926	836-65	836-72	817-1264	-
	IRI/FM/F & I	817-1958	817-1425	817-1425	817-1264	-
	KEMPER	817-926	836-65	836-72	817-1264	817-922
HAWK	ALL	817-2100 817-399	(TEMP SENSOR) (WELL)	817-2098 (PRESS SENSOR) 854-11 (SIPHON COIL)		

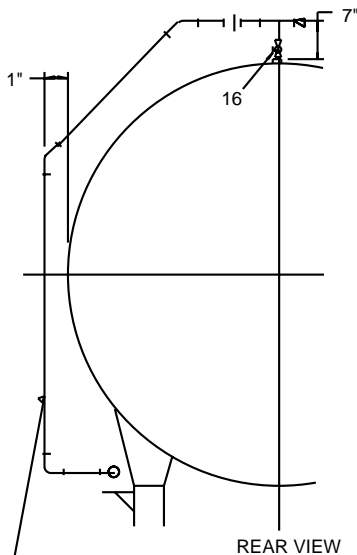
**HEAVY OIL
 OIL/AIR PIPING-FRONT HEAD CB,CBLE**



HEAVY OIL PIPING STEAM CB,CB-LE



FRONT VIEW



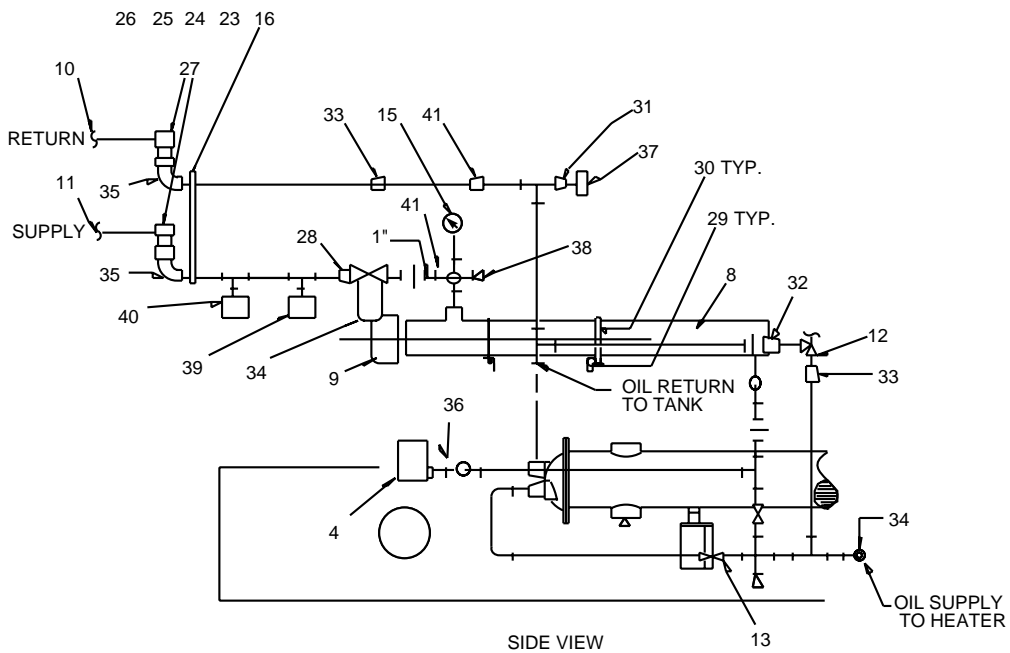
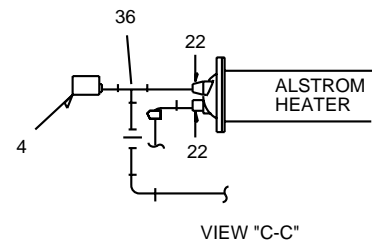
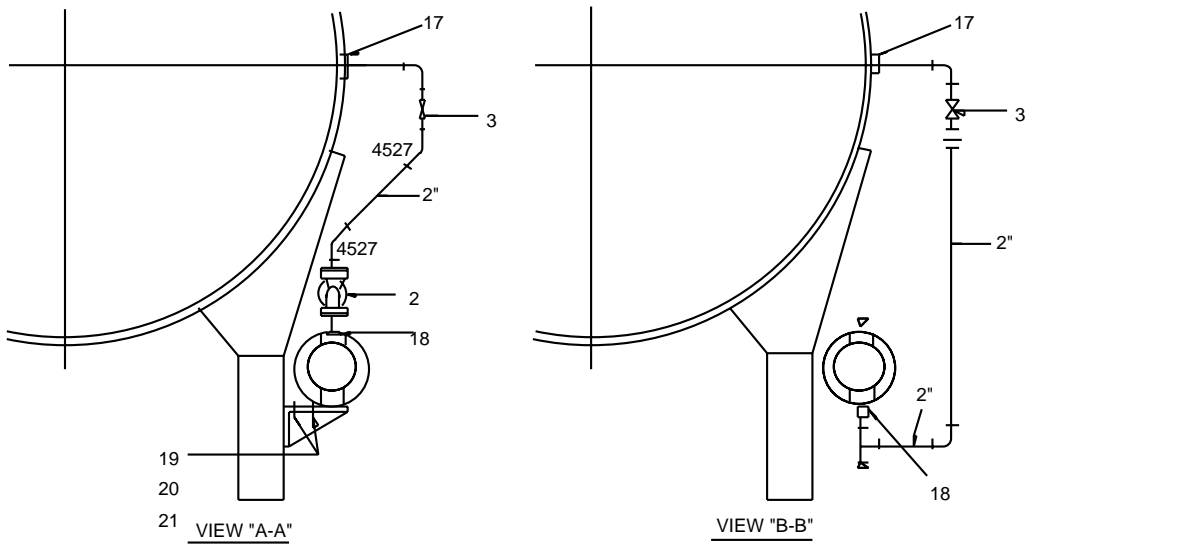
REAR VIEW

STEAM PIPING TO HEATER SHALL BE -
 0 - 15 PSI, 3/4" SCH. 40
 16 - 200 PSI, 1/2" SCH. 40
 201 - 300 PSI, 1/2" SCH. 80
 MAT'L.: ASME SA106
 GR. B SMLS.

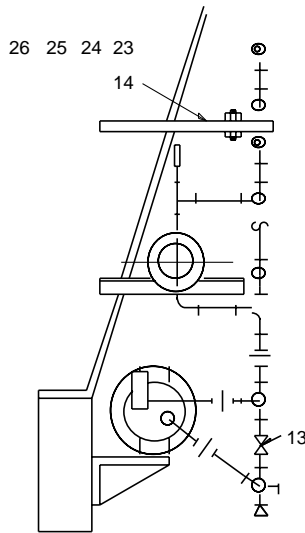
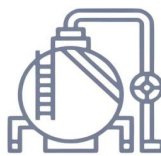
ITEM	QTY	PART NO.	DESCRIPTION	USED ON	OPTION
1	1	652-B-24	HEATER TANK	-	B2
2	2	8-A-650	BRACKETS	-	B2
3	1	SEE TABLE	OIL HEATER (PAGE 30)	-	B2
4	1	8-A-811	BRACKET-OIL LINE	-	B2
5	2	845-313	ELBOW 1/2" ODC. X 1/2" NPT.	-	
6	2	847-1715	BARCO JOINTS	-	B2
7	1	940-2296	RELIEF VALVE	-	B2
8	1	843-252	STRAINER 3/4"	-	B2
9	1	850-61	OIL PRESSURE GAUGE	-	B2
10	2	836-A-320	THERMOSTAT (OHT & SHT)	-	B2
11	2	832-311	CONDENSER	-	B2
12	2	928-45	STRAP 3/4"	-	
13	1	928-45	STRAP 3/4"	0-15#	
	1	928-44	STRAP 1/2"	16-300#	
14	1	948-227	SOLENOID VALVE 3/4"	0-15#	B2
	1	948-273	SOLENOID VALVE 1/2"	16-300#	
15	1	940-142	CHECK VALVE 3/4"	0-15#	
	1	940-135	CHECK VALVE 1/2"	16-200#	B2
	1	940-458	CHECK VALVE 1/2"	201-300#	
16	1	941-142	GLOBE VALVE 3/4"	0-15#	
	1	941-40	GLOBE VALVE 1/2"	16-200#	B2
	1	941-322	GLOBE VALVE 1/2"	201-300#	
17	1	8-A-661	BRACKET	-	B2
18	1	850-3	STEAM GAUGE	16-300#	B2
19	1	817-260	REGULATOR, STEAM 1/2"	16-150#	
	1	817-330	REGULATOR, STEAM 1/2"	151-250#	B2
	1	918-12	REGULATOR, STEAM 1/2"	251-300#	
20	1	940-142	CHECK VALVE 3/4"	-	B2
21	1	934-256	STEAM TRAP	-	B2
22	1	507-B-1000	TUBING OIL RETURN (SEE NOTE 5)	-	B2
23	1	507-B-999	TUBING OIL SUPPLY (SEE NOTE 5)	-	B2
24	1	32-A-2394	GASKET	-	B2
25	1	853-692	GASKET O-RING	-	B2
26	3	847-152	BUSHING, HEX 3/4" X 1/2"	-	
27	2	841-1142	U-BOLT	-	
28	1	854-11	SIPHON	16-300#	B2
29	8	869-21	NUT HEX 1/4"-20	-	
30	1	847-530	REDUCING COUPLING 3/4" X 1/2"	-	
31	8	841-1458	STUD	-	
32	1	858-311	FULL COUPLING 1/4" NPT.	-	
33	2	847-533	COUPLING 1" X 3/4"	-	
34	1	847-641	REDUCING COUPLING 1-1/4" X 3/4"	-	
35	3	868-405	CAPSCREW HEX HD. 1/4"-20 X 7/8" LG.	-	
36	3	869-234	NUT & LOCKWASHER COMBINATION 1/4"	-	
37	1	*	LOTS	ALL	D3
38	1	*	HOTS		D3
39	1	*	LOPS		D3
40	1	*	HOPS		D3
41	1	847-424	BUSHING, HEX 1" X 1/4"	-	

* SEE PAGE 31

HEAVY OIL PIPING STEAM CB,CB-LE

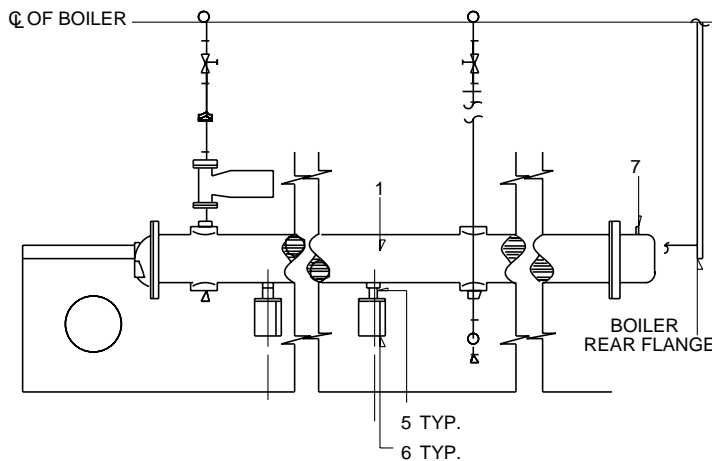


**HEAVY OIL ALSTROM HEATER
HOT WATER CB,CB-LE**



FRONT VIEW

ITEM	QTY	PART NO.	DESCRIPTION	USED ON	OPT
1	1	863-269	ALSTROM HEATER	250 H.P.	
	1	863-270	ALSTROM HEATER	300 H.P.	B2
	1	863-260	ALSTROM HEATER	350 H.P.	
2	1	901-292	CIRCULATING PUMP	-	B2
3	2	941-157	VALVE, GATE 2"	-	B2
4	1	836-72	THERMOSTAT	-	B2
5	2	8-A-1301	BRACKET	-	B2
6	2	8-A-144	BRACKET	-	B2
7	1	851-155	SIGHT GLASS	-	B2
8	1	195-B-238	TANK	-	B2
9	1	SEE TABLE	OIL HEATER (PAGE 30)	-	B2
10	1	507-B-1000	TUBING, OIL RETURN (SEE NOTE 5)	-	B2
11	1	507-B-999	TUBING, OIL SUPPLY (SEE NOTE 5)	-	B2
12	1	940-2116	VALVE, RELIEF 1/2"	-	B2
13	1	941-143	VALVE, GLOBE 1-1/4"	-	B2
14	4	869-30	NUT, HEX. 3/8"	-	B2
15	1	850-61	GAUGE	-	B2
16	1	8-A-811	BRACKET	-	B2
17	1	847-430	BUSHING, RED. 1-1/4" X 1/2"	-	
18	2	847-453	BUSHING, RED. 3" X 2"	-	
19	4	868-102	CAPSCREW, HEX. HD. 1/2"-13 X 1/2"	-	
20	4	869-15	NUT, HEX. 1/4"-20	-	
21	4	952-94	LOCKWASHER 3/8"	-	
22	2	847-442	BUSHING, RED. 2" X 1-1/4"	-	
23	2	928-45	PIPE STRAP 3/4"	-	
24	2	868-14	CAPSCREW, HEX HD. 5/16"-18 X 3/4"	-	
25	2	952-114	LOCKWASHER 5/16"	-	
26	2	869-36	NUT, HEX. 5/16"-18	-	
27	2	845-313	ELBOW, 1/2" ODC X 1/2" NPT X 90	-	
28	3	847-152	BUSHING, RED. 3/4" X 1/2"	-	
29	2	7-A-52	U-BOLT	-	
30	4	952-93	LOCKWASHER 3/8"	-	
31	2	847-453	BUSHING, RED. 3" X 2"	-	
32	2	8-A-656	BRACKET, OIL HEATER	-	B2
33	1	847-530	COUPLING, RED. 3/4" X 1/2"	-	
34	1	843-252	STRAINER	-	B2
35	2	847-1715	SWIVEL JOINT, 1/2" NPT	-	B2
36	2	847-62	TEE, 1-1/4" X 1/2" X 1-1/4"	-	B2
37	1	*	LOTS	-	D3
38	1	*	HOTS	-	D3
39	1	*	LOPS	-	D3
40	1	*	HOPS	-	D3
41	2	847-533	COUPLING, RED. 1" X 3/4"	-	



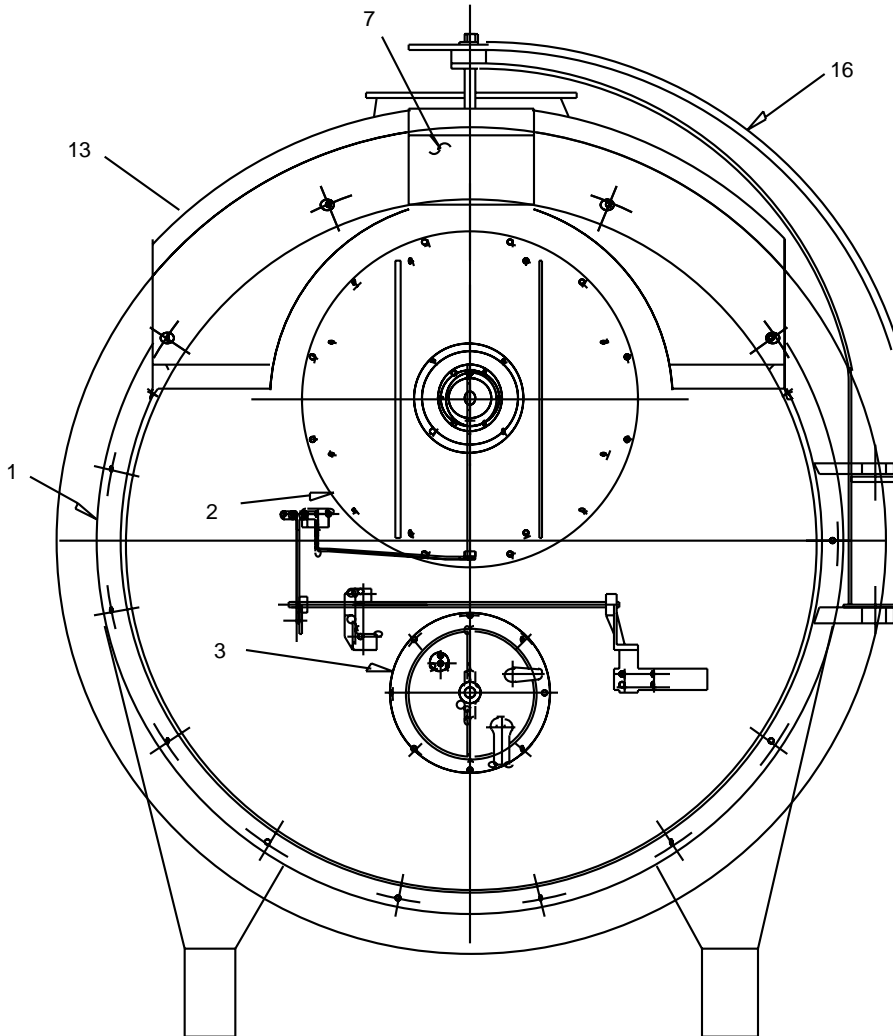
RIGHT HAND SIDE VIEW

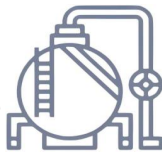
* SEE TABLE PAGE 31

**HEAVY OIL ALSTROM HEATER
 HOT WATER CB,CB-LE**

ITEM #1 P/N		
PPM	STD.	HOI
60 PPM	132D1688(RH)	132D2093(RH)
	132-1720(LH)	132-2094(LH)
30,25 PPM	132-1721(RH)	132-2095(RH)
	132-1722(LH)	132-2096(LH)
20 PPM	132-1723(RH)	132-2097(RH)
	132-1724(LH)	132-2098(LH)

ITEM #4 P/N			
BOILER PRESS.	BOILER H.P.	SHELL AND BASEFRAME WELDMENT & ASSEMBLY	
		PRESS. ASSY	SKID DETAIL
30# H.W.	250	270 02244 (270D02241)	146 333
	300	270 02245	
	350	270 02246	
125# H.W.	250	270 02250 (270D02247)	
	300	270 02251	
	350	270 02252	
150# HTHW.	250	270 02256 (270D02253)	
	300	270 02257	
	350	270 02258	
15# ST.	250	270 02220 (270D02217)	
	300	270 02221	
	350	270 02222	
150# ST.	250	270 02226 (270D02223)	
	300	270 02227	
	350	270 02228	
200# ST.	250	270 02232 (270D02229)	
	300	270 02233	
	350	270 02234	
250# ST.	250	--	
	300	--	
	350	--	
300# ST.	250	--	
	300	--	
	350	--	





ITEM	QTY	PART NO.	DESCRIPTION	OPTION CODE
1	1	SEE TABLE	FRONT HEAD ASSEMBLY (STD.132-D-1688) (HOI.132-D-2093)	A2
2	1	146-D-13	BLOWER ASSEMBLY	
3	1	146-D-120	BURNER HSG SUPP., FRT HD PLATE, & BURNER DRAWER	
4	1	SEE TABLE	PRESSURE VESSEL ASSEMBLY (SEE NOTE #1)	A1
5	1	465-D-625	REAR HEAD ASSEMBLY (NOT SHOWN)	43
6	1	146-D-102	FURNACE LINER AND BRICKING (SEE PAGE 9-45 & 9-46)	
7	1	461-C-576	AIR HOOD, CENTER	A2
8	1	32-C-2532	GASKET, BLOWER ASSEMBLY	A2
9	33	841-507	SPRING CLIPS, GASKET (656-B-7882)	A2
10	1	32-C-2543	GASKET-BLOWER CARTRIDGE (146-C-28)	
11	1	476-C-237	LINKAGE ASSEMBLY,IFGR (GAS ONLY)	A4
	1	476-262	LINKAGE ASSEMBLY,IFGR (LIGHT OIL ONLY)	A4
	1	476-C-238	LINKAGE ASSEMBLY,IFGR 20-30 PPM (COMB. L.O. & GAS)	A4
	1	476-C-299	LINKAGE ASSEMBLY,IFGR 60 PPM (COMB. L.O. & GAS)	A4
	1	146-D-208	INSTALLATION HEAVY OIL ISOLATION SYSTEM	
12	1	146-C-136	AIR COMPRESSOR ASSEMBLY (NOT SHOWN)	
13	1	656-C-7726	AIR HOOD ASSEMBLY	A2
14	2	32-B-899	GASKET, FRONT AND REAR HEAD 78" (656-B-7882)	
15	1	465-C-1634	FRONT HEAD INSULATION	A2
16	1	146-C-38	DAVIT ASSEMBLY, FRONT HEAD 78"	
17	1	146-C-261	INSULATION & LAGGING (THOMASVILLE)	
18	1	146-D-15	SAFETY VALVES	

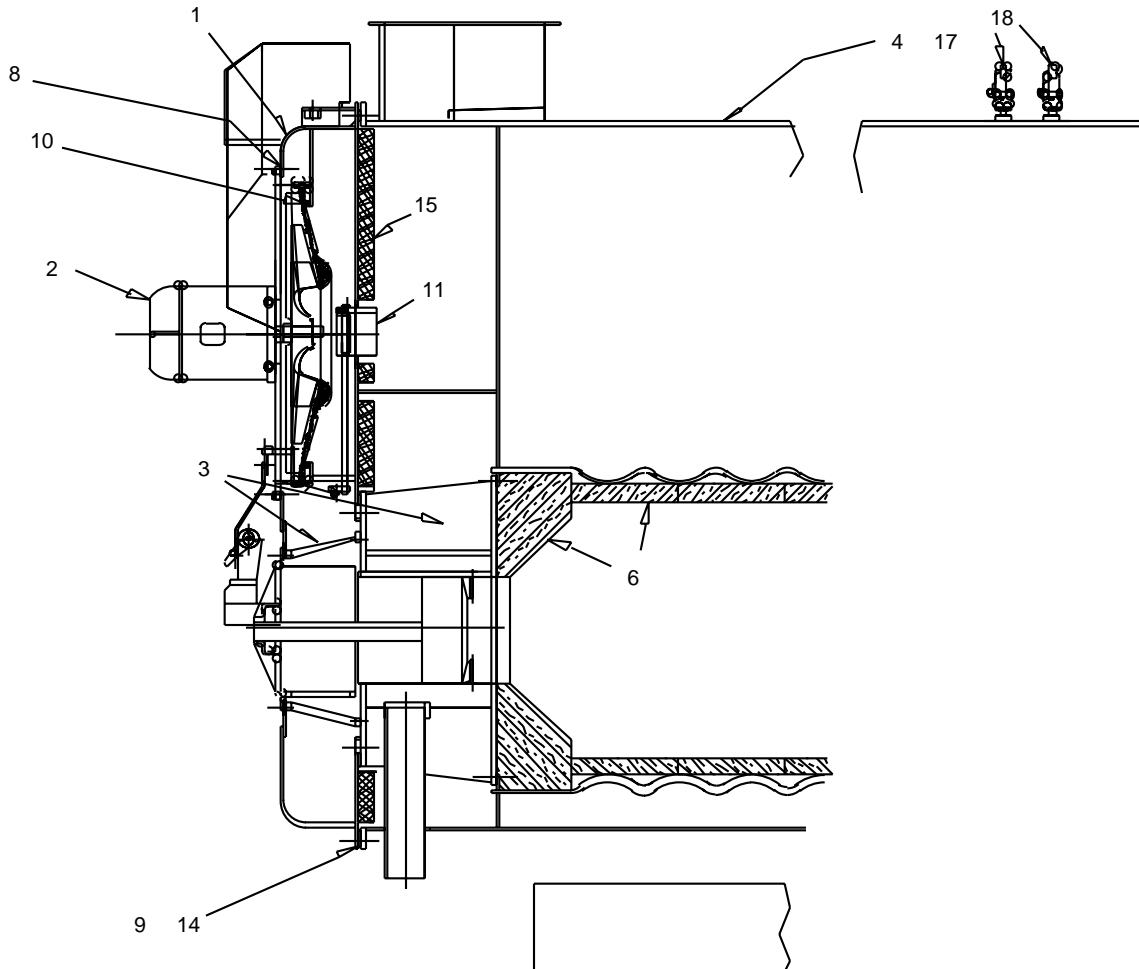


TABLE ITEM 1				
BOILER H.P.	MOTOR H.P.	HZ.	FUEL	PART NO.
250	7.5	50	GAS	192-C-80
	10		OIL/COMB.	192-C-77
	7.5	60	GAS	192-C-76
	7.5		OIL/COMB.	192-C-76
300	10	50	GAS	192-C-78
	15		OIL/COMB.	192-C-78
	7.5	60	GAS	192-C-80
	10		OIL/COMB.	192-C-77
350	15	50	GAS	192-C-79
	20		OIL/COMB.	192-C-79
	15	60	GAS	192-C-78
	15		OIL/COMB.	192-C-78

ITEM	QTY	PART NO.	DESCRIPTION
1	1	SEE TABLE	IMPELLER
2	1	SEE TABLE	SPACER, IMPELLER
3	1	SEE TABLE	WASHER
4	1	SEE TABLE	NUT, SELF LOCKING, JAM
5	-	SEE TABLE	WASHER, SPACER
6	1	85-D-263	SUPPORT, MOTOR
7	1	22-B-237	PLATE, DIFFUSER
8	1	19-A-375	COVER, SHAFT
9	2	860-201	SCREW, MACH., RD. HD. #10-24 X 3/8" LG.
10	2	952-117	LOCKWASHER, #10
11	1	32-A-919	GASKET, AIR HOOD
12	8	868-175	CAPSCREW, HEX. HD. 12"-12 X 1-3/4" LG.
13	10	952-94	LOCKWASHER, 1/2"
14	9	869-15	NUT, HEX. 1/2"-13
15	8	77-A-103	SPACER
16	15	952-93	LOCKWASHER, 3/8"
17	11	869-30	NUT, HEX. 3/8"-16
18	-	SEE TABLE	WASHER, SPACER .005
19	-	SEE TABLE	WASHER, SPACER 1/16"

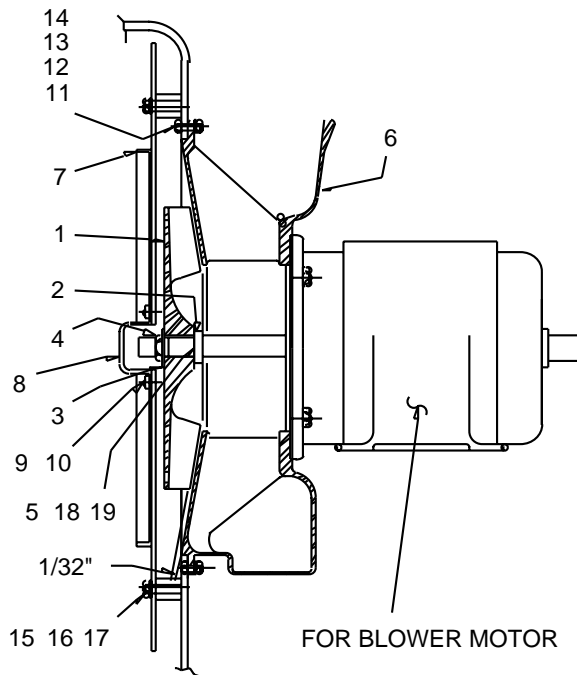


TABLE ITEMS 2 3 4 & 5			
50-60 HZ.			
CB 250	CB 300		CB 350
	GAS	OIL/COMB.	
77-A-101	77-A-101	77-A-102	77-A-102
952-289	952-289	952-225	952-225
869-119	869-119	869-177	869-177
91-60	91-60	91-79	91-79

TABLE ITEMS 18 & 19			
50-60 HZ.			
CB 250	CB 300		CB 350
	GAS	OIL/COMB.	
91-59	91-59	91-78	91-78
91-61	91-61	91-80	91-80



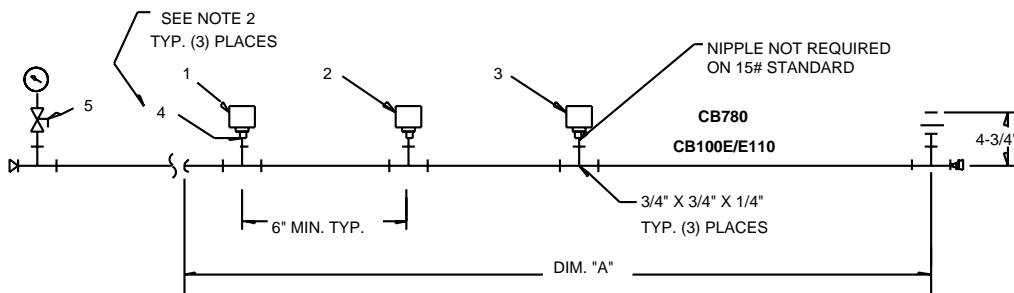
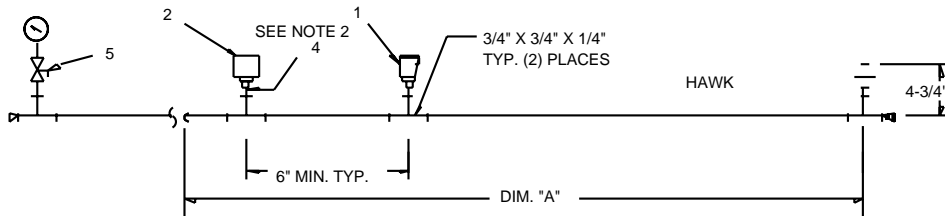
300 #				151 # 250 #				16 # 150 #				15 #				78" PRESSURE CONTROLS BILL OF MATERIAL		
PART NO.	PART NO.	PART NO.	PART NO.	ITEM	QTY	PART NO.	DESCRIPTION	USED ON										
817-111	817-111	817-110	817-16	1	1	SEE TABLE	CONTROL PRESSURE (OLC)	CB780/CB100E/E110										
817-2096	817-2096	817-2095	817-2094	1	1	SEE TABLE	SENSOR - PRESSURE	HAWK										
817-900	817-900	817-109	817-415	2	1	SEE TABLE	CONTROL PRESSURE (HLC)	-										
817-234	817-234	817-204	817-251	3	1	SEE TABLE	CONTROL PRESSURE (MC)	CB780/CB100E/E110										
857-726	857-448	857-448	857-448	4	* 3	SEE TABLE	NIPPLE - 1/4" x 1-1/2"	-										

BOILER H.P.	DIM. "A"
250 H.P.	39"
300-350 H.P.	42"

* ITEM #4 QTY OF 2 FOR HAWK OR FOR 15 & 20 H.P. CB780/E110.

NOTES:

1. UNLESS OTHERWISE NOTED, PIPE MAT'L TO BE ASME SA 106 GR B SMLS. INSTALLATIONS UP TO 150 PSI CAN USE 3/4" SCHEDULE 40 (MIN) AND 150 PSI M.I. FITTINGS. GREATER THAN 150 PSI MUST BE 3/4" SCH. 80 AND 300# M.I. FITTINGS.
2. ITEM 4 TO BE BRASS FOR PSI'S THRU 250 PSI. 300 PSI REQUIRES SCHEDULE. 80 NIPPLE.
3. ALL DIMENSIONS ARE APPROX.



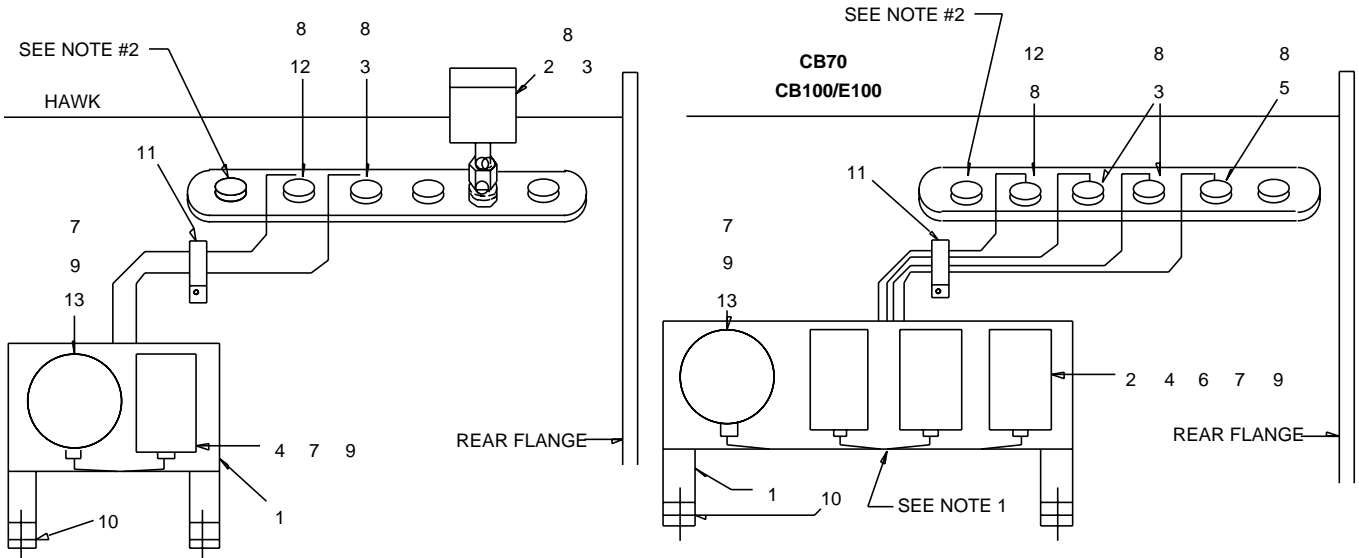
PRESSURE CONTROLS

CB70/CB100/E100 30-125 HW		HAWK HTHW		HAWK 30-125 HW	
QTY	P/N	QTY	P/N	QTY	P/N
-	8-967	-	8-937	-	8-937
-	8-995	-	8-2933	-	8-2933
-	817-1244	-	817-2099	-	817-2100
-	817-399	-	817-699	-	817-399
-	817-1050	-	817-1275	-	817-1050
1	817-378	-	-	-	-
1	817-400	-	-	-	-
9	-	6	-	6	-
4	-	3	-	3	-
9	-	6	-	6	-

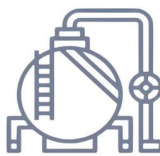
BILL OF MATERIAL				
ITEM	QTY	PART NO.	DESCRIPTION	WHERE USED
1	1	-	BRACKET (8B937)	78"
2	1	-	TEMPERATURE CONTROL (MC)	-
3	2	-	WELL SEPARABLE	-
4	1	-	TEMPERATURE CONTROL (HLC)	-
5	-	-	WELL SEPARABLE	-
6	-	-	TEMPERATURE CONTROL (OLC)	-
7	-	860-4	MACH. SCR. #10-32 x 3/4"	-
8	-	847-152	BUSHING RED 3/4" x 1/2"	-
9	-	869-9	NUT MACH. SCR. #10-32	-
10	4	841-571	SHT. MTL. SCR. #10-32 x 5/8"	-
11	1	928-39	STRAP - PIPE	-
12	1	817-641	SOCKET SEPARABLE	-
13	1	937-27	THERMOMETER	78"

NOTES:

1. INSTALL PER ELECTRICAL SCHEMATIC.
2. ALL UNUSED FITTINGS MUST BE CAPPED.



TEMPERATURE CONTROLS

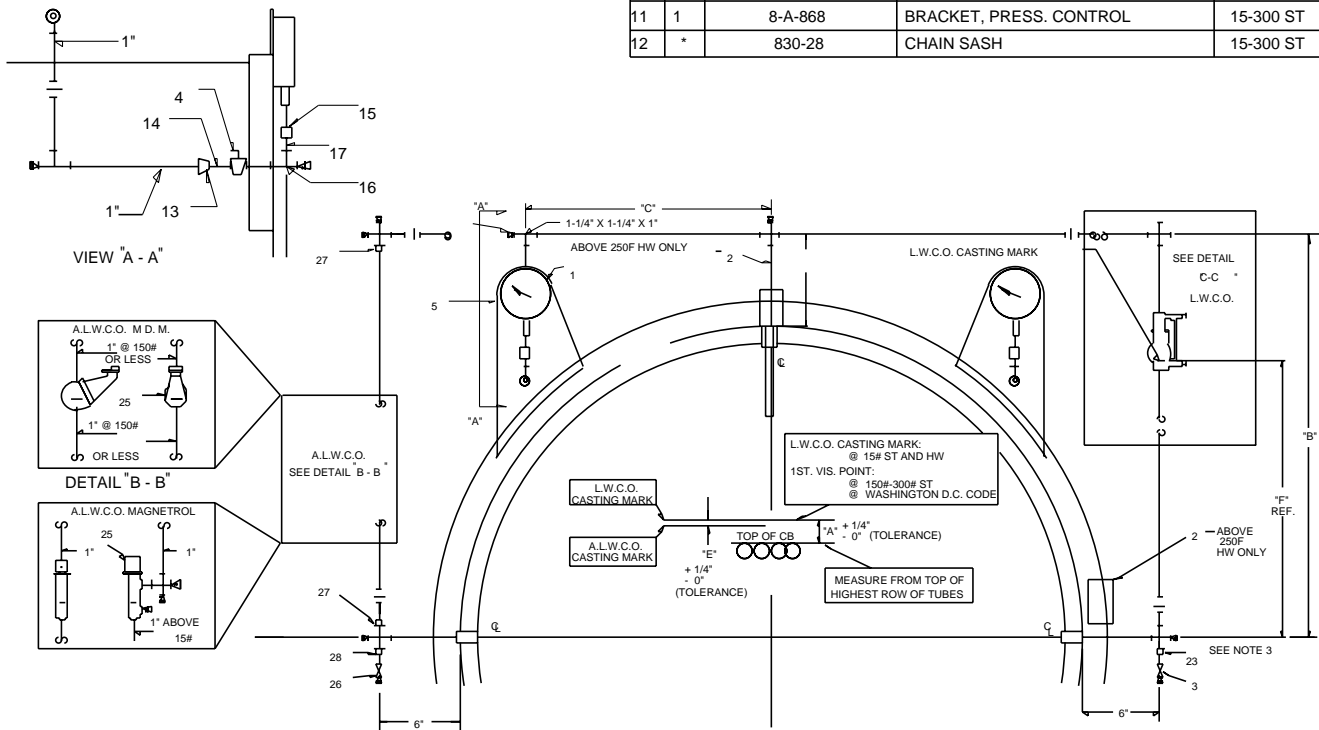


	PRESSURE	CB 78"
"A"	15# ST	0"
	150-300# ST	3"
	ALL HW	3-1/2"
"B"	ALL	45"
"C"	ALL	26-1/2"
"D"	ALL	21-1/2"
"E"	15# ST	1/2"
	150-250# ST	1"
	ALL HW	1"
"F" REF.	15# ST	18-1/4"
	150# ST	22-5/8"
	200-300# ST	21-7/8"
	ALL HW	21"

** FOR LE USE DIM "C" TABLE BELOW.

	PRESSURE	CBLE 78"
"C"	ALL	45-3/8"

ITEM	QTY	PART NO.		DESCRIPTION	USED ON
		M D. M.	MAGNETROL		
1	1	850-264		PRESSURE GAUGE	15 ST
	1	850-104		PRESSURE GAUGE	150-200 ST/150 HTHW
	1	850-150		PRESSURE GAUGE	250 ST
	1		850-172	PRESSURE GAUGE	300 ST
	1	850-101		TEMPERATURE GAUGE	30 HW
	1	850-103		TEMPERATURE GAUGE	125 HW
2	1	817-95	817-163	LOW WATER CUT-OFF	15 ST
	1	817-94	817-163	LOW WATER CUT-OFF	150 ST
	1	817-304	817-163	LOW WATER CUT-OFF	200-250 ST
	1		817-1962	LOW WATER CUT-OFF	300 ST
	1	817-2348		LOW WATER CUT-OFF (850-M PROBE)	0-160 PSI. (UP TO 250F) HW
	1	817-2305		CONTROL, WATER LEVEL PROBE TYPE, MDL. 750	ABOVE 250F HW ONLY
1	817-2306		REMOTE SENSOR, PROBE HOLDER, MDL. 750		
1	817-2307		PROBE EXT., 24" LG, FOR REMOTE SENSOR, MDL. 750		
3	1	941-1790		VALVE, BALL 3/4"	15-200 ST
	1	941-401		VALVE, GLOBE 3/4"	250 ST
	2	941-401		VALVE, GLOBE 3/4"	300 ST
4	2	825-31		COCK, UNION, BRASS (1 @ FINAL ASSY.)	15-250 ST
	2		941-318	VALVE, GLOBE 1/4", BRASS	300 ST
5	1	825-31		COCK, UNION, BRASS	ALL HW
	1	8-A-1728		BRACKET, STEAM GAUGE	78" CB
6	1	8-A-3172		BRACKET, STEAM GAUGE LH MOUNTING	78" LE
	1	8-3181		BRACKET, STEAM GAUGE RH MOUNTING	78" LE
7	1	851-44	851-38	GAUGE, GLASS	15-150 ST
	1	851-199	851-38	GAUGE, GLASS	200-250 ST
	1		851-321	GAUGE, GLASS	300 ST
8	4	912-34	912-34	ROD, GAUGE GLASS	15-150 ST ONLY
	4	912-85	912-34	ROD, GAUGE GLASS	200-250 ST ONLY
9	1	825-352		SET, GAUGE GLASS	15-250 ST
	1		825-357	SET, GAUGE GLASS	300 ST
10	1	941-55		VALVE, BALL 1/4"	15-200 ST
	1	941-318		VALVE, GLOBE, 1/4"	250-300 ST
11	1	8-A-868		BRACKET, PRESS. CONTROL	15-300 ST
12	*	830-28		CHAIN SASH	15-300 ST



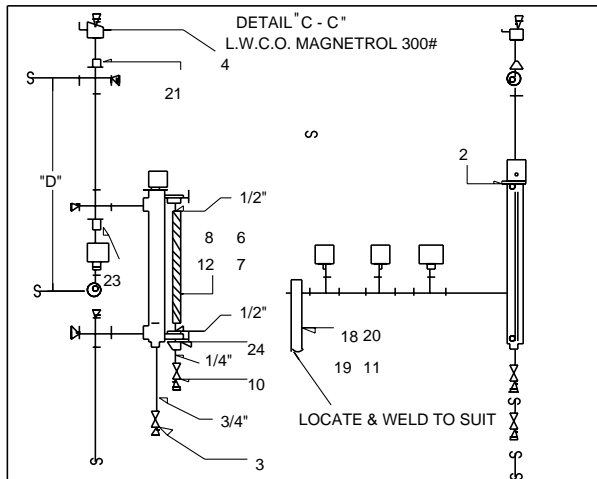
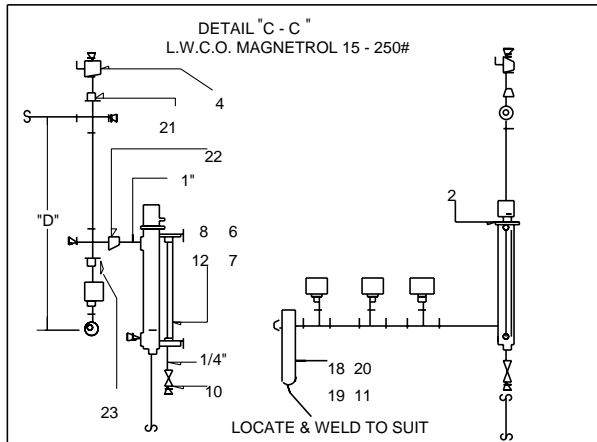
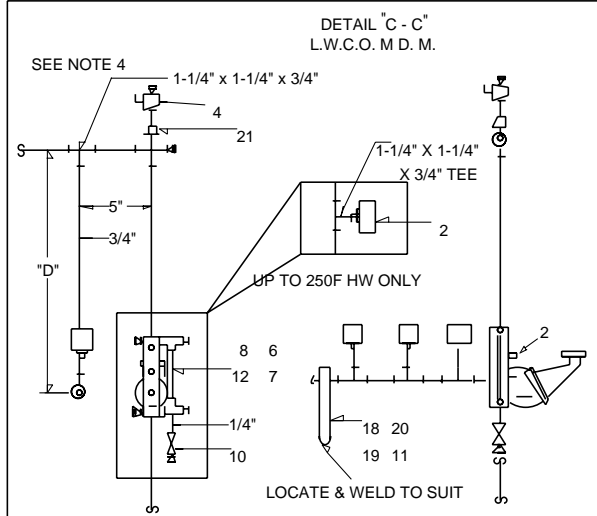
OPTIONAL REPLACEMENT FOR ITEM 2
LWCO W/ MODULATING SWITCH 193-7 & 194-7

15-150# ST	817-1307
200-250# ST	817-1211

LWCO W/ SWITCH FOR MOTORIZED FEED VALVE
158, 193, & 194

15# ST	817-1161
150# ST	817-1155
200-250# ST	817-304

ITEM	QTY	PART NO.			DESCRIPTION	USED ON
		15-150#	200-250#	300#		
13	1	847-1687	858-1009	858-1009	COUPLING 1" X 1/4"	-
14	1	857-448	857-726		BRASS NIPPLE, 1/4" x 1-1/2"	-
15	1	858-856	858-768		COUPLING 1/4" R.H. THREAD	-
16	1	859-54	859-32		BRASS TEE 1/4"	-
17	1	857-452	857-676		BRASS NPL. (X-HEAVY) 1/4" x 1-1/2"	-
18	1	869-234			NUT & LOCKWASHER 1/4"	-
19	1	928-44			ONE-HOLE CLAMP	-
20	1	868-136			CAPSCREW HEX. HD. 1/4-20 x 3/4"	-
21	1	847-428	847-470		BUSHING 1-1/4" x 1/4"	ALL ST
22	1	847-432	847-472		BUSHING 1-1/4" x 1"	MAGNETROL
23	1	847-431	847-471		BUSHING 1-1/4" x 3/4"	ALL ST
	2	847-431	847-471		BUSHING 1-1/4" x 3/4"	MAGNETROL
24	1		847-612		BUSHING 1/2" X 1/4"	MAGNETROL

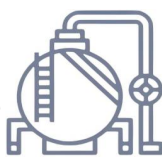


A.L.W.C.O. M.C.D.M.

25	1	817-98	CONTROL, AUX. L.W.C.O. (AUTO RESET)	15#
	1	817-97	CONTROL, AUX. L.W.C.O. (MANUAL RESET)	150#
	1	817-306	CONTROL, AUX. L.W.C.O. (MANUAL RESET)	200-250#
26	1	941-1790	VALVE, BALL 3/4"	15-200#
	1	941-401	VALVE, BALL 3/4"	250#
27	2	847-432	BUSHING 1-1/4" x 1"	15-150# ONLY
28	1	847-431	BUSHING 1-1/4" x 3/4"	15-150#
	1	847-471	BUSHING 1-1/4" x 3/4"	200-250#

A.L.W.C.O. MAGNETROL

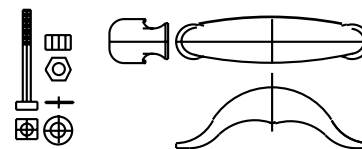
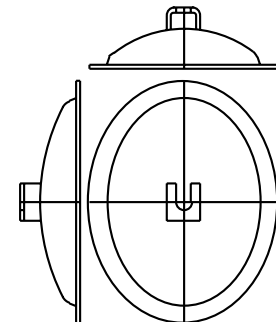
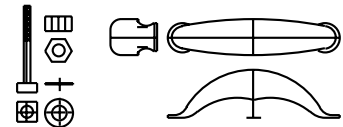
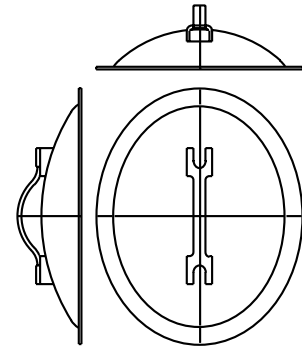
25	1	817-301	CONTROL, AUX. L.W.C.O.	15-250#
	1	817-1251	CONTROL, AUX. L.W.C.O.	300#
26	1	941-1790	VALVE, BALL 3/4"	15-200#
	1	941-401	VALVE, BALL 3/4"	250-300#
27	2	847-432	BUSHING 1-1/4" x 1"	15-150#
	2	847-472	BUSHING 1-1/4" x 1"	200-300#
28	1	847-431	BUSHING 1-1/4" x 3/4"	15-150#
	1	847-471	BUSHING 1-1/4" x 3/4"	200-300#



PRESSURE VESSEL, 78" DIA. 15# ST, HW,30# ,125# HW. Std. & LE			
ITM	REQ	PART-NO.	DESCRIPTION
1	2	953-00050	YOKE, MANHOLE, PRESSED STEEL
2	2	869-00065	NUT, HEX,HEAVY 3/4-10 UNC-2B ASTM-A3
3	2	952-00124	WASHER, FLAT, PLAIN, #10GA, SAE TYPE
4	1	853-00939	GASKET, MANHOLE, 12" X 16"
5	1	821-00207	COVER, MANHOLE, SA-285 GR.C PVQ
6	6	104-00449	YOKE, HANDHOLE, CAST IRON
7	6	869-00017	NUT, HEX, FINISHED, PLAIN, 5/8-11 UNC-2
8	6	952-00101	WASHER,FLAT,PLAIN,#13GA,SAE TYPE
9	6	853-00935	GASKET, HANDHOLE, 3-1/4" X 4-1/2"
10	6	317-60	COVER, HANDHOLE,

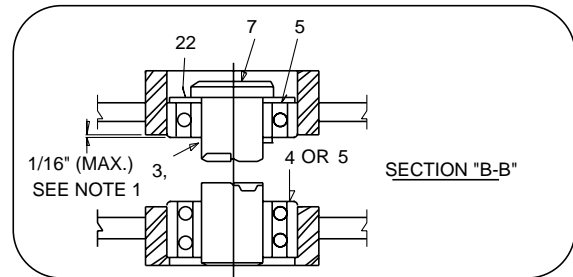
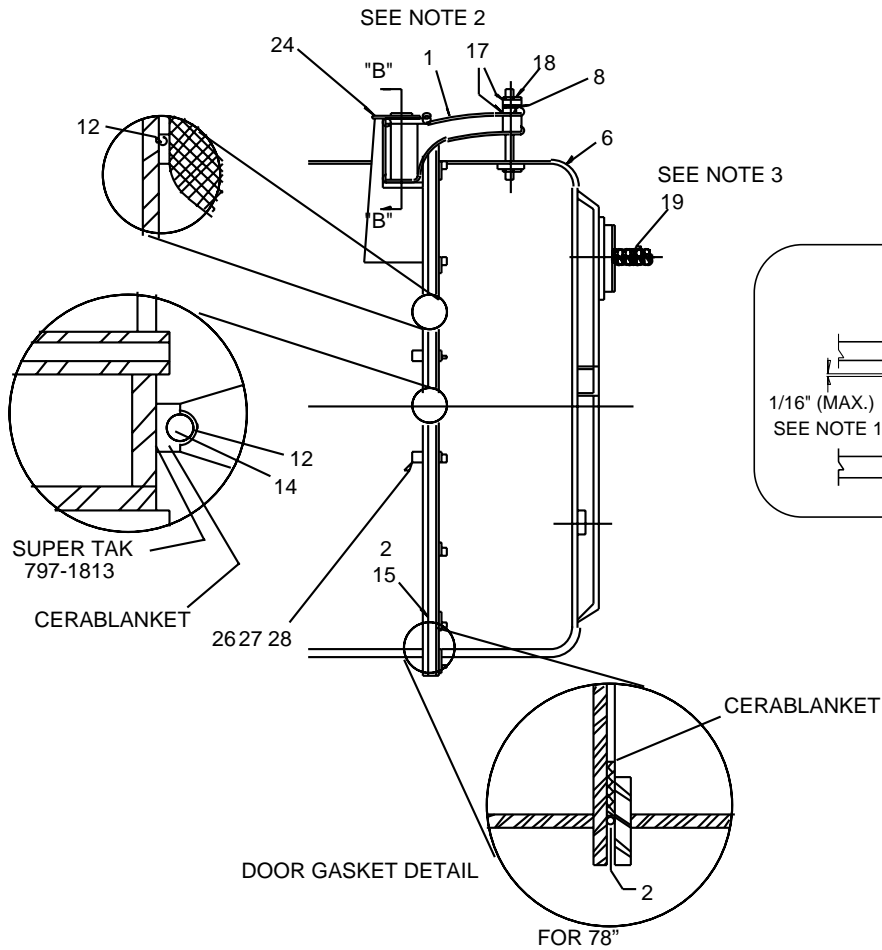
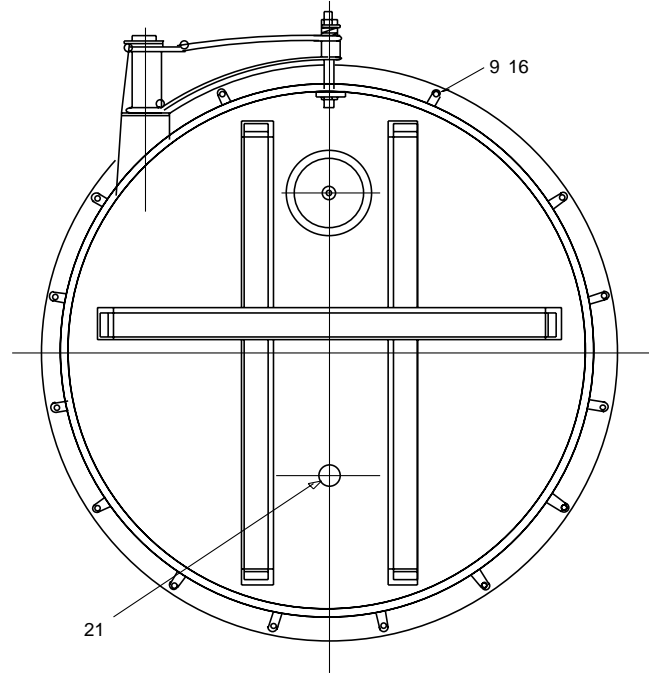
PRESSURE VESSEL, 78" DIA. 150# ST,150#HTHW. Std & LE.			
ITM	REQ	PART-NO.	DESCRIPTION
1	2	953-00050	YOKE, MANHOLE, PRESSED STEEL,
2	2	869-00065	NUT,HEX,HEAVY,3/4-10 UNC-2B,ASTM-A3
3	2	952-00124	WASHER,FLAT,PLAIN,#10GA,SAE TYPE
4	1	853-00939	GASKET, MANHOLE, 12" X 16"
5	1	821-00207	COVER,MANHOLE,SA-285 GR.C PVQ
6	6	953-00048	YOKE, HANDHOLE, 2 PRONG FORGED
7	6	869-00017	NUT,HEX,FINISHED,PLAIN,5/8-11 UNC-2
8	6	952-00101	WASHER,FLAT,PLAIN,#13GA,SAE TYPE
9	6	853-00935	GASKET,HANDHOLE, 3-1/4" X 4-1/2"
10	6	317-60	HANDHOLE COVER ASSY., 78 & 96"

PRESSURE VESSEL LE 78" 200#,250# ST. Std & LE			
ITM	REQ	PART-NO.	DESCRIPTION
1	2	953-00050	YOKE, MANHOLE, PRESSED STEEL,
2	2	869-00065	NUT,HEX,HEAVY,3/4-10 UNC-2B,ASTM-A3
3	2	952-00124	WASHER,FLAT,PLAIN,#10GA,SAE TYPE
4	1	853-01044	GASKET, MANHOLE, 12" X 16"
5	1	821-00207	COVER,MANHOLE,SA-285 GR.C PVQ
6	6	953-00048	YOKE, HANDHOLE, 2 PRONG FORGED
7	6	869-00017	NUT,HEX,FINISHED,PLAIN,5/8-11 UNC-2
8	6	952-00101	WASHER,FLAT,PLAIN,#13GA,SAE TYPE
9	6	853-01042	GASKET, HANDHOLE, 3-1/4" X 4-1/2"
10	6	317-60	HANDHOLE COVER ASSY., 78 & 96"

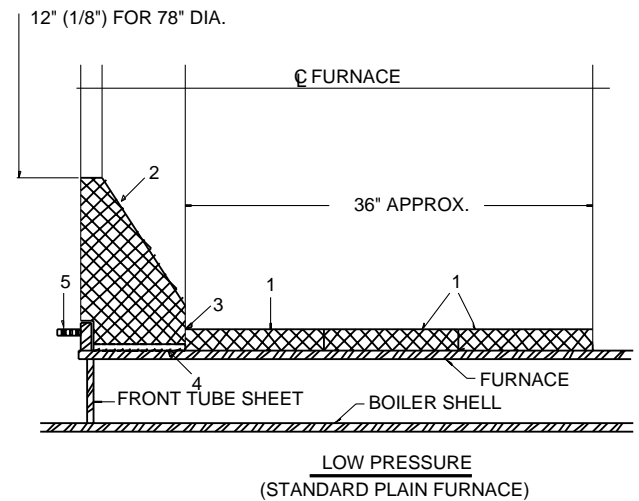
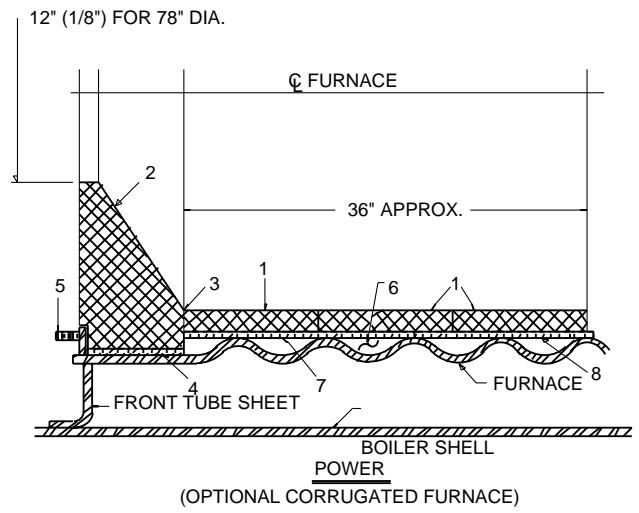
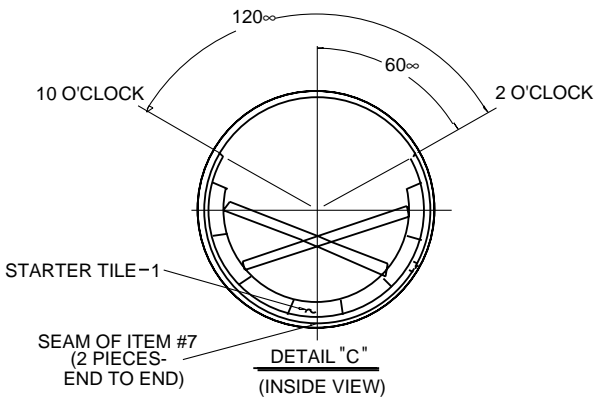
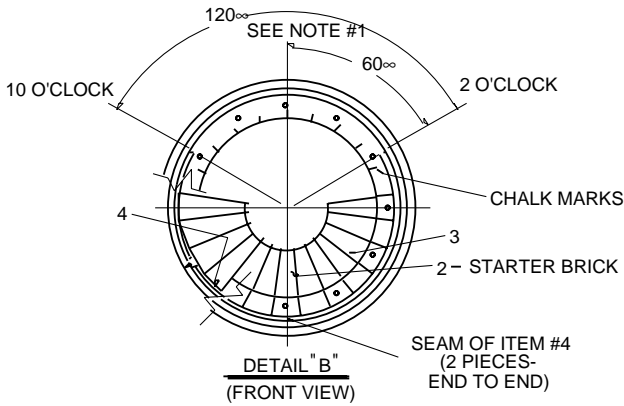
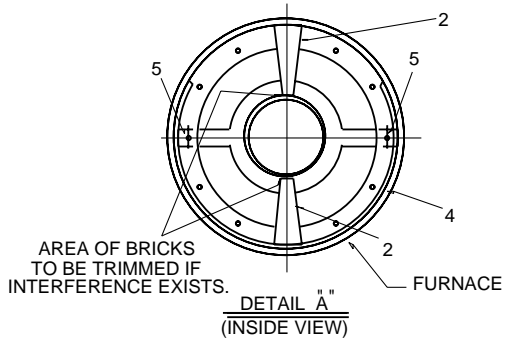
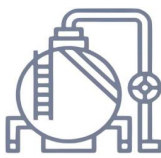


VESSEL HAND HOLES AND MANWAYS

BILL OF MATERIAL FOR 78" DIA. BOILER					
ITEM	QTY.	PART #	DESCRIPTION	USED ON	OPTION
1	1	287-B-41	DAVIT ARM ASSEMBLY, REAR R.H.		A2
2	1	32-899	GASKET		A2
3	1	77-A-385	SPACER FOR 78" REAR DAVIT ASSY.		A2
4	1	807-31	BEARING - DOUBLE ROW		A2
5	1	807-319	BEARING, BALL - SINGLE ROW		A2
6	1	SEE TABLE	HEAD, REAR INSULATED		43, 46, 47
7	1	56-A-25	PIN, HINGE, DAVIT - REAR		A2
8	-	-	NOT USED FOR 78" DIA. BOILER		
9	14	868-594	CAPSCREW, HEX. HD. 7/8" - 9 X 5-1/2" LG.		
10	-	-	NOT USED		
11	31 FT	853-348	ROPE GASKET, 1/4"		
12	25 LBS	872-26	CEMENT		
13	-	-	NOT USED		
14	6.5 FT	853-1036	ROPE - 1-1/2" DIA.		
15	36	841-507	FASTENER		
16	14	952-103	WASHER, FLAT, NO. 10		
17	1	952-193	WASHER, FLAT, 1-3/8"		
18	1	869-399	NUT, ELASTIC LOCKNUT, 1-1/4" - 7		
19	1	428-A-37	COMBUSTION RELIEF DOOR, 12"	OPTIONAL	46, 47
20	-	-	NOT USED		
21	1	550-A-42	CAP, SIGHT HOLE ASSEMBLY		A2
22	1	914-158	RING, RETAINER		A2



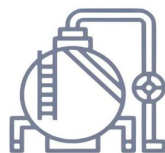
- NOTES:
1. ADD #3 TO SATISFY.
 2. RIGHT HAND AS SHOWN, LEFT HAND IS MIRROR IMAGE.
 3. ITEM 19 IS OPTIONAL. USED ONLY WHEN REQUIRED BY CUSTOMER.



THROAT TILE AND FURNACE LINER

BASIC BILL OF MATERIAL FURNACE LINER & BRICKING - 78"				
ITEM	QTY	PART No.	DESCRIPTION	USED ON
1	36	94-A-204	TILE - 34" O.D. FURNACE (CORRUGATED)	250-350 H.P. (POWER ONLY)
	39	94-A-204	TILE - 34" O.D. FURNACE (PLAIN)	250-350 H.P. (L.P. ONLY)
2	24	94-B-343	REFRACTORY - ARCH BRICK	250-350 H.P. (ALL)
3	10 LBS.	872-390	CEMENT - JOINT MORTAR	250-350 H.P. (ALL)
4	2	872-655	SIZED INSUL. 1/4" X 6-3/4" X 48" LG.	250-800 H.P. (ALL)
5	12	841-665	STUD, 1/2"-13 UNC X 2" LG.	250-350 H.P. (ALL)
6	15 LBS.	872-162	REFRACTORY - VEE BLOCK MIX	250-350 H.P. (POWER ONLY)
7	2	872-657	SIZED INSUL. 1/4" X 21" X 48" LG.	250-350 H.P. (POWER ONLY)
8	2	872-656	SIZED INSUL. 1/4" X 16" X 48" LG.	250-350 H.P. (POWER ONLY)

BASIC BILL OF MATERIAL OPTIONAL CORRUGATED FURNACE LINER & BRICKING - CB & LE 78"					
ITEM	QTY	PART No.	DESCRIPTION	USED ON	
				H.P.	PRESSURE
1	36	094-A-00204	TILE - 34" O.D. FURNACE (CORRUGATED)	CB & LE 250-350	125#-250#
2	24	094-B-00343	REFRACTORY - ARCH BRICK	CB & LE 250-350	125#-250#
3	10 LBS.	872-00390	CEMENT - JOINT MORTAR	CB & LE 250-350	125#-250#
4	2	872-00655	SIZED INSUL. 1/4" X 6-3/4" X 48" LG.	CB & LE 250-350	125#-250#
5	12	841-00665	STUD, 1/2"-13 UNC X 2" LG.	CB & LE 250-350	125#-250#
6	15 LBS.	872-00162	REFRACTORY - VEE BLOCK MIX	CB & LE 250-350	125#-250#
7	2	872-00657	SIZED INSUL. 1/4" X 21" X 48" LG.	CB & LE 250-350	125#-250#
8	2	872-00656	SIZED INSUL. 1/4" X 16" X 48" LG.	CB & LE 250-350	125#-250#



Courtesy of: **C3 Surplus LLC**
Surplus Industrial Superstore
305-428-2777
<https://www.c3surplus.com>