

27-10-39

THE NORTH EASTERN MARINE ENGINEERING CO. 1938 LTD. SUNDERLAND.

BOILER PIPE ARRANGEMENT

SCALE:- $\frac{3}{8}$ INCH TO A FOOT.

MESSRS. BARTRAM & SONS, LTD: S.S.No. 282-3

WORKING PRESSURE 220 LBS/IN²



LIST OF FITTINGS				
MARK	BORE	HOLE IN BOILER	DESCRIPTION	MATERIAL
F.H.F.2.	5"	5"	MAIN BOILER STOP VALVE. PORT & STARBOARD (S.L.)	BODY CAST STEEL COVER GUNMETAL
F.3	4" 4"	5"	AUX " " (COMBINED) (S.L.)	FITTINGS GUNMETAL
F.4	4" 4"	-	BEND PIPE, SATURATED STEAM MAIN BLOWERS TO MAIN ENGINES	CAST STEEL
F.5	4" 2 1/2"	-	TEE " " CIRCULATING STEAM TO PORT & STARBOARD BLOWERS	" "
F.6	5"	-	GLUE VALVE, AUXILIARY BOILER MASTER SHUT OFF. (S.L.)	BODY & COVER CAST STEEL
F.H.F.9	5"	-	ANGLE VALVES, MAIN SUPERHEATED STEAM SHUT OFF. (S.L.)	CAST STEEL
F.H.F.10	3"	-	" " MOUNTING STEAM DE-SUPERHEATER BOW P.T.S. (S.L.)	FITTINGS
F.H.F.12	2 1/2"	-	" " S.H. " " " P.T.S. (S.L.)	MANUEL METAL.
F.13	7" 5"	-	BRANCH PIECE, S.H. STEAM TO RE-HEATER	CAST STEEL.
F.14	2 1/2" 3"	-	Y. PIECE, MIXING STEAM TO DE-SUPERHEAT AUXILIARIES.	" "
F.15	5" 5" 3 1/2"	-	BRANCH " " S.H. STEAM TO MAIN ENGINES DE-SUPERHEAT AUXILIARIES	" "
F.16	5" 5" 3 1/2"	-	" " " " " " " " " " " STARD "	" "
F.17	5" 5" 3 1/2"	-	TEE PIECE " " " " " " " " " " " 4 SUP SAFETY VALVE PORT	" "
F.18	5" 5" 3 1/2"	-	" " " " " " " " " " " " " " " STARD "	" "
F.19	-	-	SEPARATOR, DE-SUPERHEATER STEAM LINE.	" "
F.20	7" 1" 5"	-	BRANCH PIECE, STEAM FROM RE-HEATER TO MAIN ENGINES	" "
F.21	5"	-	ANGLE VALVE, S.H. STEAM TO AUXILIARIES (S.L.)	BODY COVER & C.C. FITTINGS MANUEL METAL
E.22	2 1/4"	-	BEND FOR M.P. CASING STEAM.	CAST STEEL.
F.23	2 1/4" 2 1/2"	-	TEE PIECE, SATURATED STEAM TO DECK.	" "
F.24	2 1/4" 2 1/2"	-	GLUE VALVES, ELEMENT CIRCULATING STEAM BALANCE, P.T.S. (S.L.)	BODY COVER & C.C. FITTINGS MANUEL METAL
F.25	2 1/2"	2 1/2"	WATER GAUGE COLUMN FOR MAIN BLOWERS. P.T.S.	CAST STEEL
F.26	4"	-	ANGLE VALVE, DE-SUPERHEATER MASTER SHUT OFF (S.L.)	BODY COVER & C.C. FITTINGS MANUEL METAL
F.H.F.29	5"	-	BENDS FOR STEAM TO FROM HEADERS. PORT BOILER	CAST STEEL
F.H.F.30	5"	-	" " " " " " " " " " " STARD "	" "
F.H.F.31	2 1/2"	3 1/2"	2 1/2" BOILER STOP VALVE, DE-SUPERHEATER INLET P.T.S. (S.L.)	BODY COVER & C.C. FITTINGS MANUEL METAL
F.H.F.32	2 1/2"	3 1/2"	" " OUTLET. P.T.S. (S.L.)	" "
F.33	2 1/2" 1 1/2"	-	Y. PIECE, S.H. STEAM TO DE-SUPERHEATER P.T.S.	CAST STEEL
F.35	2 1/2" 1 1/2"	-	BRANCH " " " " " " " " " " " P.T.S.	" "
F.36	5" 5" 4"	-	" " " " DE-SUPERHEATER & SATURATED STEAM TO RANGE	" "
F.H.F.38	1 1/2" 1 1/2"	-	" " DIAMOND LANCE BLOWER STEAM. P.T.S.	" "
F.39	3" 3 1/2"	-	ANGLE VALVE, S.H. STEAM TO PORT AUXILIARIES (S.L.)	BODY AND COVER CAST STEEL
F.40	1 3/4"	-	" " " " " " WHISTLE (S.L.)	COVER
F.41	1"	-	" " " " " " ASH HOIST. (S.L.)	CAST STEEL
F.42	1 1/2"	-	" " " " " " DIAMOND BLOWERS (S.L.)	FITTINGS
F.43	2"	-	" " " " " " AIR HEATER TUBES & BOWELS (S.L.)	MANUEL METAL
F.44	5" 3 1/2" 3 1/2"	-	BRANCH PIECE " " " " STEERING GEAR, WHISTLE, BLOWER. (S.L.)	CAST STEEL
F.45	5" 5" 3 1/2"	-	" " " " " " " " " " " " " " " PORT AUXILIARIES.	" "
F.46	5"	-	ANGLE VALVE REGULATING DE-SUPERHEATER STEAM TO RANGE (S.L.)	BODY COVER & C.C. FITTINGS MANUEL METAL
F.47	5" 5" 3 1/2"	-	BRANCH PIECE, S.H. STEAM TO AUXILIARIES	CAST STEEL
F.48	2" 2" 1 1/2"	-	" " " " " " " " " " " BLOWERS PORT	" "
F.49	5" 5" 3 1/2" 1 1/2"	-	" " " " DE-SUPERHEATER & SATURATED STEAM TO AUXILIARIES	" "
F.50	5" 5" 3 1/2" 3 1/2" 1 1/2"	-	" " S.H. STEAM TO DECK, FAN DYNAMO, OR FILLING BLINDS.	" "
F.51	5" 5" 5"	-	" " " " " " " " " " " STARBORD AUXILIARIES	" "
F.52	1 1/2" 1 1/2"	-	" " " " " " " " " " " DIAMOND BLOWERS, CENTRE BOILER	" "
F.53	1 1/2" 1 1/2"	-	" " " " " " " " " " " " " " " STARD "	" "
F.54	2 1/2"	-	ANGLE VALVE " " " " DYNAMO & FAN.	BODY COVER & C.C. FITTINGS MANUEL METAL
F.55	2"	-	BENDS FOR " " " " AIR HEATER TUBE BLOWERS, P.C. STARD	CAST STEEL
F.57	2 1/4"	2 3/4"	MAIN FEED CHECK VALVES FOR MAIN BLOWERS POSITION	GUNMETAL.
F.58	2 1/4"	2 3/4"	AUX " " " " " " " " " " " P.T.S. (S.D.N.R.)	" "
F.59	1 3/4"	2 1/4"	MAIN " " " " " " " " " " " AUY BOILER (S.L.S. S.D.N.R.)	" "
F.60	1 3/4"	2 1/4"	AUX " " " " " " " " " " " (S.D.N.R.)	" "
F.61	1 1/2"	1 3/4"	SURFACE BLOW DOWN VALVE FOR PORT BOILER (S.D.N.R.)	" "
F.62	1 1/4"	1 3/4"	" " " " " " " " " " " STARD " (S.D.N.R.)	" "
F.63	1 1/4"	1 3/4"	" " " " " " " " " " " AUX " (S.D.N.R.)	" "
F.64	2"	2 1/4"	CIRCULATING VALVE FOR PORT BOILER (S.D.N.R.)	" "
F.65	2"	2 1/2"	" " " " " " " " " " " STARD " (S.D.N.R.)	" "
F.66	1 1/2"	2"	BOTTOM BLOW DOWN VALVE, PORT " (S.D.N.R.)	" "
F.67	1 1/2"	2"	" " " " " " " " " " " STARD " (S.D.N.R.)	" "
F.68	1 1/2"	2"	" " " " " " " " " " " AUX " (S.D.N.R.)	" "
F.69	3/4"	1"	SALINOMETER COCKS (DEWRANCE) P.C.YS. BLOWERS	" (DRAINAGE)
F.70	3/4"	1 1/2"	WATER GAUGE COCKS (DEWRANCE) SHUTS DOWN P.T.S. BLOWERS	" (DRAINAGE)
F.71	3/4"	1 1/2"	" " " " " " " " " " " LONG " " AUY BOILER	" (" ")
F.72	2 1/2"	3"	"HOTCHKISS" CIRCULATING VALVES, P.C.YS. BLOWERS	" (" ")
F.73	2 1/2"	-	"ROSS HOTCHKISS" BOILER CIRCULATORS	" C.IRON (" ")
F.74	2 1/4"	3 1/4"	COCKBURN-DIACONELL "HIGH LIFT SAFETY VALVE, PORT BOILER	CAST IRON (" ")
F.75	2 1/4"	3 1/4"	" " " " " " " " " " " STARD "	" (" ")
F.76	1 3/4"	2 3/4"	" " " " " " " " " " " AUX " " " (" ")	" (" ")
F.H.F.79	2"	-	SUPERHEATER SAFETY VALVES, P.T.S.	CAST STEEL G. "
F.79	5" 2 1/2" 2 1/2"	-	Y. PIECE MAIN FEED TO BLOWERS	GUNMETAL
F.80	5" 2 1/2" 2 1/2"	-	" " AUX " " " " " "	" "
F.81	5" 2 1/2" 2 1/2"	-	" " MAIN " " " " " "	" "
F.82	2 1/2" 2 1/2" 1 1/2"	-	" " AUX " " " " " "	" "
F.83	2 1/2" 2 1/2"	-	BRANCH PIECE, BOILER CIRCULATING	" "
F.84	1 1/2" 1 1/2"	-	" " " " " " " " " " " BLOW DOWN	" "
F.85	1 1/2" 1 1/2" 1 1/2"	-	" " " " " " " " " " " " " " "	" "
F.86	-	-	COMBUSTION CHAMBER TOP INDICATORS, AUX BOILER	BRASS.
F.87	5"	-	INTERNAL STEAM SEPARATORS WITH BENDS, MAIN BLOWERS.	C.I. (DRAINAGE)
F.88	-	-	SAFETY VALVE EASING GEAR	" "
F.89	-	-	BRAKET FOR 3" TRIPLE TONE " WHISTLE	CAST IRON
F.90	1/2"	-	PRESSURE GAUGE COCK FOR ENGINE STOP WHISTLE VALVE	SPECIAL BRASS
F.91	1/2"	-	" " COCKS (DEWRANCE) FOR MAIN BLOWERS	" " (DRAINAGE)
F.92	1/2"	-	" " " " " " " " " " " " " " " (DRAINAGE)	" " (DRAINAGE)
F.93	1/2"	-	" " COCKS " " BOILER STOP VALVES P.T.S.	GUNMETAL
F.94	5/8"	-	DIAMOND SOOT BLOWERS, MAIN BLOWERS (BACKSIDE SPECIAL TYPE)	ORDERED OUTSIDE
F.95	1/2"	-	" " " " " " AUX BOILER " " ORDINARY " "	" "
F.96	5" 3 1/2" 3 1/2" 2 1/2"	-	BRANCH PIECE FOR WASTE STEAM UP FUNNEL	CAST IRON.
F.97	1"	-	SATURATED HEADER DRAIN VALVES	STEEL
F.98	3/4"	-	SUPERHEATED " " " " " "	" "
F.99	3/4"	-	" " " " " " STEAM LANCE BLOWER VALVES P.T.S.	" "

PARTICULARS OF SHIPBUILDERS BRANCHES					
DESCRIPTION	BORE	FLANGE		BOLTING	
		DIA	Nº	DIA	P.C.
SUPERHEATED STEAM TO DECK	4"	9 1/4"	8	3 1/2"	7 1/2"
" " "STEAM HEAR	2 1/2"	7 3/4"	6	3 1/2"	5 1/2"
" " " DYNAMO	1 1/2"	7 1/4"	6	5/8"	4 1/2"
SATURATED " " DECK	2 1/2"	7 3/4"	6	3"	5 1/2"
STEAM TO ADMIRALTY HEATING COILS	2"	6 3/4"	6	5/8"	4 1/2"

LIST OF PIPES				
PIPE NO	BORE	THICKNESS	DESCRIPTION	MATERIAL
122	5"	2 1/8"	SATURATED STEAM TO HEADER, PORT BOILER	SOLID DRAWN STEEL
384	5"	"	" " " " " STARS"	" " "
5	5"	"	SUPERHEATED " FROM PORT BOILER "	" " "
7	5"	"	" " " " STARS"	" " "
849	4"	5/16"	" " " " TO RE-HEATER	" " "
10	4"	2 1/8"	" " " " " TO ENGINE SUP VALVE	" " "
11, 12, 13	5"	"	" " " " " TO S.H. AUXILIARIES	" " "
14	5"	"	" " " " " DOGS, FAN DYMO, BLOWERS ETC.	" " "
15	5"	"	SATURATED STEAM TO RANGE FROM AUXILIARY BOILER	" " "
16	5"	"	DE-SUPERHEATED & SATURATED STEAM COMBINED TO RANGE	" " "
17	4 1/2"	"	SUPERHEATED STEAM MIXING & DE-SUPERHEATED BY-PASS P45	" " "
18	4	2 1/2"	SATURATED STEAM TO MAIN ENGINE (EMERGENCY)	" " "
19	4	2 1/2"	COMBINED DE-SUPERHEATED STEAM TO RANGE	" " "
20	3 1/2"	3/8"	SUPERHEATED STEAM TO PORT AUXILIARIES	" " "
21, 22, 23	3"	3/8"	" " MIXING & DE-SUPERHEATED BY-PASS P45	" " "
23, 24, 25	2 1/2"	1/4"	SATURATED STEAM TO SUPERHEATERS, CIRCULATING STEAM BALANCE	" " "
26, 27	2 1/2"	1/4"	SUPERHEATED STEAM TO DE-SUPERHEATER, P45 BOILER	" " "
28, 29	2 1/2"	1/4"	DE-SUPERHEATED STEAM FROM P45 BOILER TO RANGE	" " "
30, 31, 32	2"	3/16"	SUPERHEATED STEAM TO AIR HEATER TUBE BLOWERS, PORT AUXILIARIES	" " "
33	2"	"	" " " " WHISTLE	" " "
34, 35, 36	1 1/2"	3/16"	" " " " DIAMOND BLOWERS, PORT BOILER	" " "
37, 38, 39	1 1/2"	"	" " " " " AUX "	" " "
40, 41, 42	1 1/2"	"	" " " " " STARS"	" " "
43	1"	3/32"	" " " " ASH HOIST	" " "
44, 45	3/4"	5/64"	" " " " LANCE BLOWERS P45	" " "
46	3/4"	"	" " " " HEADER DRAINS TO FUNNELS P45 BOILERS	" " "
47, 48	2 1/2"	5/16"	MAIN & AUX FEED TO BOILERS	SOLID DRAWN COPPER
49, 50	2 1/2"	8"	NOTCHWISS CIRCULATING PIPES PORT BOILER	" " "
51, 52, 53	2 1/2"	8"	" " " " " STARS"	" " "
54, 55, 56	2 1/2"	8"	" " " " " AUX "	" " "
57, 58, 59	2 1/2"	8"	" " " " " AUX "	" " "
60, 61, 62	2 1/2"	8"	MAIN & AUX FEED TO MAIN BOILERS	" " "
63, 65	1 1/2"	10"	" " " " " AUX BOILER	" " "
66, 67, 68	2"	9"	BOILER CIRCULATING - MAIN BOILERS	" " "
69, 70, 71	1 1/2"	12"	BOTTOM BLOW DOWN	" " "
72, 73, 74	1 1/2"	12"	SURFACE "	" " "
75, 76, 77	3 3/4"	14"	WASTE STEAM BRANCH PIPES P45 BOILERS	" " "
78	2 3/4"	14"	" " " " " PIPE AUXILIARY BOILER	" " "
81	2"	14"	MAIN WASTE STEAM PIPE UP FUNNEL & BELOW CASING TO	" " "
82, 83	1 1/2"	12"	INTERNAL SCUM PIPES WITH PAN	" " "
84, 85	2 1/2"	"	MAIN AUXILIARY FEED INTERNAL PIPES FOR MAIN BOILERS P45	GALV & IRON
86, 87	1 1/2"	"	" " " " " " AUX BOILER	" " "
88	2"	"	BOILER CIRCULATING INTERNAL PIPES P45 BOILERS	" " "
89	1 1/2"	"	BOTTOM BLOW DOWN " " ALL "	" " "
90, 91	2"	"	WASTE STEAM PIPES FROM SUPERHEATER SAFETY VALVES	" " "

2 MAIN BOILERS 15'-6" DIA X 44'-6" LENGTH, HOWDEN'S FORCED DRAUGHT, N.E.M. SUPERHEATER & ONE AUXILIARY BOILER 13'-0" DIA X 16'-6" LENGTH, FORCED DRAUGHT SATURATED STEAM ALL BOILERS ARRANGED FOR A WORKING PRESSURE OF 220 LBS/IN².
A "KODS HOTCH KISS" CIRCULATOR TO BE FITTED TO EACH BOILER, AND N.E.M. INTERNAL SEPARATOR IN EACH MAIN AUX. BOILER
FOUR ZINC PLATES ON STUFS FITTED TO EACH FURNACE. SPIRAL RETARDERS FITTED IN ALL BOILER SMOKE TUBES.
SAFETY VALVES FITTED WITH SERVES, EASING GRATEWORKED FROM E.R. STARTING PLATFORM. DRAIN PIPES OF LARGE SIZE LEAD TO TANK IN STOWAGE.
WHISTLE PIPE TO HAVE VERTICAL LEADS AS NEAR AS PRACTICABLE. WASTE STEAM PIPE UPFURNEL TO BE FITTED BETWEEN INNER & OUTER FURNEL ALL PIPES TO BE EFFICIENTLY STAYED AND ALL PIPES PASSING THROUGH SCREEN BULKHEAD TO HAVE DUST PROOF COLLARS.
DE-SUPERHEATER FITTED IN EACH MAIN BOILER & DE-NOTION MAIN FEEDBACK LINES OF DOUBLE SHUT OFF TYPE OPERATED FROM E.R. FLOOR.
DRAINS FROM DIAMOND BLOWERS TO BE CLOSED TYPE CONNECTED DIRECT TO FILTER TANK BY COPPER PIPES.
SUPERHEATER HEADER DRAINS TO BE DIRECTED INTO CAST IRON FUNNELS, THEN CONNECTED TO A COMMON COPPER PIPES TO FILTER TANK.

DRAWING N°10732

CONTRACTS 2952 & 2953

W43-0022

W. & Maine Eng. Co.

c. 2052-3

Boiler Pipe Arrangement

Bartram's 282-3.

"Harpagus"
SUNDERLAND RPT. NO. 32905



"Harpagus"
Std. 32855.

W43-0022



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