A.F.O. 1415/43

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ADMIRALTY FLEET ORDER

BOILER TUBES, ETC.

ADMIRALTY, S.W.1,
1st April, 1943.

The following Order having been approved by My Lords Commissioners of the Admiralty is hereby promulgated for information and guidance and necessary action.

By Command of their Lordships,

H. V. Markham

Distribution Limited

To Commanders-in-Chief, Flag Officers, Senior Naval Officers, Captains and Commanding Officers of H.M. Ships mentioned herein, Superintendents or Officers in Charge of H.M. Dockyards and Repair Bases, and Admiralty Engineer Overseers.

NOTE :—The scale of distribution is shown in the Admiralty Fleet Order Volume, 1941, Instructions, paragraph 10.

1415.—Boiler Tubes, etc.

H.M. Ships "*Anson*", "*Barfoil*", "*Bern*", "*Barnard*", "*Brecon*", "*Bressay*", "*Brissenden*", "*Circe*", "*Eggesford*", "*Eriskay*", "*Espiegle*", "*Exe*", "*Fiaray*", "*Forester*", "*Fury*", "*Grayling*", "*Gweal*", "*Jamaica*", "*Konkan*", "*Lagan*", "*Loyal*", "*Mahratta*", "*Milne*", "*Mousa*", "*Neave*", "*Salventure*", "*Salvestor*", "*Scalpay*", "*Seaham*", "*Sheppey*", "*Test*", "*Teviot*", "*Whimbrel*"

H.M.I. Ships "*Carnatic*", "*Kathiawar*" *and* "*Kumaon*"

H.H.M.S. "*Miaoules*"

F.F.S. "*La Combattante*"

O.R.P. "*Orkan*"

(N.S.—1.4.1943.)

Particulars of the boilers and tubes fitted are as follows :—

H.M.S. "*Anson*" (P. 1162/43.)

Type and No. of boilers ... Admiralty Type Three Drum Small Tube with Superheaters. 8 No.

Total No. of tubes fitted ... Generator ... ... 23,136 No.
Superheater ... ... 1,664 No.

Main

Row	Ext. Diam.	Thickness	Fitted Length	Total No. of Tubes fitted	Remarks
	in.	W.D.G.	ft. in.		
A	$1\frac{3}{4}$	128	11 6	688	
Ab	$1\frac{3}{4}$	128	11 $5\frac{3}{8}$	112	
B	$1\frac{3}{4}$	128	11 $1\frac{3}{4}$	784	
C	$1\frac{1}{8}$	116	10 $11\frac{1}{4}$	1,232	
D	$1\frac{1}{8}$	116	10 $9\frac{3}{4}$	1,232	
E	1	104	10 $6\frac{1}{4}$	1,392	
F	1	104	10 $5\frac{1}{2}$	1,360	
G	1	104	10 5	1,360	
H	1	104	10 $4\frac{1}{2}$	1,328	
J	1	104	10 5	1,328	All tubes are bent.
K	1	104	10 $5\frac{1}{2}$	1,296	
L	1	104	10 $5\frac{1}{4}$	1,296	
M	1	104	10 $5\frac{3}{4}$	1,264	
N	1	104	10 $6\frac{1}{2}$	1,264	
O	1	104	10 $7\frac{3}{8}$	1,232	
P	1	104	10 $8\frac{1}{2}$	1,232	
Q	1	104	10 $9\frac{7}{8}$	1,200	
R	1	104	10 $11\frac{1}{8}$	1,200	
S	1	104	11 $0\frac{7}{8}$	1,168	
T	1	104	11 $2\frac{7}{8}$	1,168	
Superheater					
Outer ...	$1\frac{1}{8}$	116	23 11	816	All tubes are bent.
Inner ...	$1\frac{1}{8}$	116	23 $5\frac{1}{8}$	848	

H.M.S. "*Barfoil*" (P. 1159/43.)

Type and No. of boilers ..... Marine Return Tube Forced Draught. ... ... 2 No.

Total No. of tubes fitted ... Generator ... ... 598 No.
Air Heater Tubes ... ... 464 No.

Main

Row	Ext. Diam.	Thickness	Fitted Length	Total No. of Tubes fitted	Remarks
Plain ...	$2\frac{3}{4}$ in. Swelled to $2\frac{7}{8}$ in. at front end for 3 in. up.	8 W.G.	7 ft. 4 in.	414	
Stay ...	$2\frac{3}{4}$ in. Swelled to 3 in. at front end for 2 in. up and screwed continuous thread of 9 T.P.I. for 2 in. at front end and $1\frac{1}{2}$ in. at other. (Tube not nutted.)	$\frac{5}{16}$ in.	7 ft. 4 in.	100	
Stay ...	$2\frac{3}{4}$ in. Swelled to 3 in. at front end for 2 in. up and screwed continuous thread of 9 T.P.I. for 2 in. at front end and $1\frac{1}{2}$ in. at other. (Tube not nutted.)	$\frac{1}{4}$ in.	7 ft. 4 in.	64	
Stay ...	$2\frac{3}{4}$ in. Swelled to 3 in. at front end for 2 in. up and screwed continuous thread of 9 T.P.I. for 2 in. at front end and $1\frac{1}{2}$ in. at other. (Tubes nutted.)	$\frac{3}{8}$ in.	7 ft. $4\frac{3}{4}$ in.	16	
Stay ...	$2\frac{3}{4}$ in. Swelled to 3 in. at front end for 2 in. up and screwed continuous thread of 9 T.P.I. for 2 in. at front end and $1\frac{1}{2}$ in. at other. (Tubes nutted.)	$\frac{7}{16}$ in.	7 ft. $4\frac{3}{4}$ in.	4	
Air Heater Tubes					
Plain ...	$2\frac{3}{4}$ in. Swelled to 3 in. at one end for 3 in. up and screwed both ends for 3 in. up, continuous thread 9 T.P.I. (Nutted both ends.)	14 W.G.	3 ft. $1\frac{1}{8}$ in.	452	All tubes are bent.
Stay ...	$2\frac{3}{4}$ in. Swelled to 3 in. at one end for 3 in. up and screwed both ends for 3 in. up, continuous thread 9 T.P.I. (Nutted both ends.)	$\frac{1}{4}$ in.	3 ft. $2\frac{1}{8}$ in.	12	

H.M.S. "Barnard" (P. 1524/43.)

Type and No. of boilers ... Scotch ... ... 2 No.
Total No. of tubes fitted ... Generator ... ... 598 No.
Preheater ... ... 464 No.

Main

Row	Ext. Diam.	Thickness	Fitted Length	Total No. of Tubes fitted	Remarks
Generator	2¾ in. Swelled to 2⅞ in. at one end 3 in. up.	8 W.G.	7 ft. 4¼ in.	414	
Generator	2¾ in. Swelled to 3 in. at one end 3 in. up. Both ends screwed 9 T.P.I. and fitted with nut ¾ in. thick at 3 in. diameter end.	7/16 in.	7 ft. 4¾ in.	4	
Generator	2¾ in. Swelled to 3 in. at one end 3 in. up. Both ends screwed 9 T.P.I. and fitted with nut ¾ in. thick at 3 in. diameter end.	⅜ in.	7 ft. 4¾ in.	16	
Generator	2¾ in. Swelled to 3 in. at one end 3 in. up. Both ends screwed 9 T.P.I.	5/16 in.	7 ft. 4¼ in.	100	
Generator	2¾ in. Swelled to 3 in. at one end 3 in. up. Both ends screwed 9 T.P.I.	¼ in.	7 ft. 4¼ in.	64	
	Preheater Tubes				
—	2¾ in. Swelled to 2 13/16 in. at one end 2 in. up.	14 W.G.	3 ft. 1 in.	452	
—	2¾ in. Swelled to 3 in. at one end 2 in. up. Both ends screwed 9 T.P.I. and fitted with nuts ¾ in. thick at each end.	¼ in.	3 ft. 2½ in.	12	

H.M. Ships "Bern" (P. 19404/42); *"Bressay"* (P. 19404/42); *"Fiaray"* (P. 19404/42); *"Gweal"* (P. 22413/42); *"Mousa"* (P. 19404/42); *"Neave"* (P. 22413/42); *"Scalpay"* (P. 22413/42)

Type and No. of boilers ... Scotch ... ... 1 No.
Total No. of tubes fitted ... Generator ... ... 384 No.
Air Heater Tubes ... ... 266 No.

Main

Row	Ext. Diam.	Thickness	Fitted Length	Total No. of Tubes fitted	Remarks
Plain ...	2¾ in. Swelled to 2⅞ in. for 3 in. at front end.	8 W.G.	8 ft. 0¼ in.	270	
Stay ...	2¾ in. Swelled to 3 in. at front end for 3 in. up. Screwed with consecutive thread at both ends for 3 in. along, 9 T.P.I.	7/16 in.	8 ft. 0¼ in.	2	
Stay ...	2¾ in. Swelled to 3 in. at front end for 3 in. up. Screwed with consecutive thread at both ends for 3 in. along, 9 T.P.I.	⅜ in.	8 ft. 0¼ in.	8	
Stay ...	2¾ in. Swelled to 3 in. at front end for 3 in. up. Screwed with consecutive thread at both ends for 3 in. along, 9 T.P.I.	5/16 in.	8 ft. 0¼ in.	50	
Stay ...	2¾ in. Swelled to 3 in. at front end for 3 in. up. Screwed with consecutive thread at both ends for 3 in. along, 9 T.P.I.	¼ in.	8 ft. 0¼ in.	54	
	Air Heating Tubes				
—	2¾ in. Swelled to 2 13/16 in. at front end 3 in. up.	14 W.G.	3 ft. 5¾ in.	260	
Stay ...	2¾ in. Swelled at one end to 3 in. for 2¾ in. Screwed both ends for 2¾ in. up, continuous thread 9 T.P.I.	¼ in.	3 ft. 6½ in.	6	

H.M.S. "Brecon" (P. 1264/42.)
H.M.S. "Brissenden" (P. 2755/43.)

Type and No. of boilers ... *Main*— Three Drum Water Tube with Superheaters. 2 No.
Auxiliary— Spiralflo Thimble Tube No. 1

Total No. of tubes fitted ... Generator ... ... 4,312 No.
Superheater ... ... 732 No.
Thimble tubes ... ... 192 No.

Main

Row	Ext. Diam.	Thickness	Fitted Length	Total No. of Tubes fitted	Remarks
	in.	W.D.G.	ft. in.		
A	$1\frac{3}{4}$	128	9 $4\frac{3}{8}$	144	All tubes are bent.
B	$1\frac{3}{4}$	128	9 $0\frac{5}{16}$	140	
C	$1\frac{1}{8}$	116	8 $9\frac{7}{16}$	224	
D	$1\frac{1}{8}$	116	8 $7\frac{11}{16}$	220	
E	$1\frac{1}{8}$	116	8 $6\frac{3}{16}$	224	
F	1	104	8 $3\frac{3}{16}$	252	
G	1	104	8 $2\frac{11}{16}$	248	
H	1	104	8 $2\frac{7}{16}$	244	
J	1	104	8 $2\frac{3}{8}$	240	
K	1	104	8 $2\frac{1}{2}$	236	
L	1	104	8 $2\frac{7}{8}$	232	
M	1	104	8 $3\frac{7}{16}$	228	
N	1	104	8 $4\frac{5}{16}$	224	
O	1	104	8 $5\frac{5}{16}$	220	
P	1	104	8 $6\frac{1}{2}$	216	
Q	1	104	8 8	212	
R	1	104	8 $9\frac{11}{16}$	208	
S	1	104	8 $11\frac{5}{8}$	204	
T	1	104	9 $1\frac{3}{8}$	200	
U	1	104	9 $3\frac{15}{16}$	196	
			Super Heater Tubes		
S.A.	$1\frac{1}{8}$	116	9 $5\frac{3}{4}$	184	All tubes are bent.
S.B.	$1\frac{1}{8}$	116	9 $3\frac{1}{4}$	184	
S.C.	$1\frac{1}{8}$	116	9 $2\frac{3}{8}$	184	
S.D.	$1\frac{1}{8}$	116	9 $3\frac{3}{8}$	180	
			Auxiliary Tubes		
	2	10 S.W.G.	10	72	All tubes are straight.
	2	10 S.W.G.	9	120	

H.M.I.S. "Carnatic" (P. 21130/42.)

Type and No. of boilers ... Three Drum Small Tube type, Water Tube. 2 No.
Total No. of tubes fitted ... Generator ... ... 2,216 No.

Row	Ext. Diam.	Thickness	Fitted Length	Total No. of Tubes fitted	Remarks
	in.	W.D.G.	ft. in.		
A	$1\frac{1}{2}$	116	6 6	112	All tubes are bent.
B	$1\frac{1}{2}$	116	6 $3\frac{3}{4}$	112	
C	1	104	6 $0\frac{7}{8}$	172	All tubes are straight.
D	1	104	5 $11\frac{3}{4}$	168	
E	1	104	5 $10\frac{7}{8}$	172	
F	1	104	5 $10\frac{1}{8}$	168	
G	1	104	5 $9\frac{3}{4}$	172	
H	1	104	5 $9\frac{5}{8}$	168	
J	1	104	5 $9\frac{7}{8}$	172	
K	1	104	5 $10\frac{3}{8}$	168	
L	1	104	5 $11\frac{1}{8}$	164	
M	1	104	6 $0\frac{1}{4}$	160	
N	1	104	6 $1\frac{1}{4}$	156	
O	1	104	6 3	152	

H.M.S. "Circe" (P. 21264/42.)

Type and No. of boilers ... Water Tube, 3 Drum ... 2 No.
Total No. of tubes fitted ... Generator ... ... 2,908 No.

Main

Row	Ext. Diam.	Thickness	Fitted Length	Total No. of Tubes fitted	Remarks
	in.	W.D.G.	ft. in.		
A	$1\frac{1}{2}$	116	7 $9\frac{7}{32}$	128	All tubes are bent.
B	$1\frac{1}{2}$	116	7 $7\frac{29}{32}$	128	
C	$1\frac{1}{8}$	116	7 $6\frac{21}{32}$	172	
D	$1\frac{1}{8}$	116	7 $6\frac{5}{16}$	172	
E	$1\frac{1}{8}$	116	7 $6\frac{3}{8}$	172	
F	1	104	7 $8\frac{15}{16}$	196	
G	1	104	7 $9\frac{9}{16}$	192	
H	1	104	7 $10\frac{5}{16}$	196	
J	1	104	7 $11\frac{1}{2}$	192	
K	1	104	8 1	196	
L	1	104	8 $2\frac{21}{32}$	192	
M	1	104	8 $4\frac{11}{16}$	196	
N	1	104	8 $6\frac{13}{16}$	192	
O	1	104	8 $9\frac{3}{16}$	196	
P	1	104	8 $11\frac{3}{4}$	192	
Q	1	104	9 $3\frac{1}{16}$	196	

H.M.S. "*Eggesford*" (P. 1655/43)

Type and No. of boilers ... Three Drum Small Tube with Melesco Superheaters. 2 No.

Total No. of tubes fitted ... Generator ... ... 4,312 No.

Main

Row	Ext. Diam.	Thickness	Fitted Length	Total No. of Tubes fitted	Remarks
	in.	W.D.G.	ft. in.		
A	$1\frac{3}{4}$	128	9 $4\frac{1}{4}$	144	All tubes are bent.
B	$1\frac{3}{4}$	128	9 0	140	
C	$1\frac{1}{8}$	116	8 $9\frac{1}{8}$	224	
D	$1\frac{1}{8}$	116	8 $7\frac{5}{16}$	220	
E	$1\frac{1}{8}$	116	8 $5\frac{7}{8}$	224	
F	1	104	8 $2\frac{7}{8}$	252	
G	1	104	8 $2\frac{5}{16}$	248	
H	1	104	8 $2\frac{1}{16}$	244	
J	1	104	8 $2\frac{1}{8}$	240	
K	1	104	8 $2\frac{1}{16}$	236	
L	1	104	8 $2\frac{9}{16}$	232	
M	1	104	8 $3\frac{1}{16}$	228	
N	1	104	8 $3\frac{7}{8}$	224	
O	1	104	8 $4\frac{13}{16}$	220	
P	1	104	8 $6\frac{1}{16}$	216	
Q	1	104	8 $7\frac{7}{16}$	212	
R	1	104	8 $9\frac{3}{16}$	208	
S	1	104	8 $11\frac{5}{16}$	204	
T	1	104	9 $0\frac{15}{16}$	200	
U	1	104	9 $3\frac{3}{8}$	196	

H.M.S. "*Eriskay*" (P. 21867/42.)

Type and No. of boiler ... ... Single ended Multitubular ... 1 No.

Total No. of tubes ... ... Generator ... ... 406 No.
Air Heater ... ... 274 No.

Row	Ext. Diam.	Thickness	Fitted Length	Total No. of Tubes fitted	Remarks
Plain ...	$2\frac{3}{4}$ in.	8 W.G.	7 ft. 8 in.	300	Swelled to $2\frac{13}{16}$ in. by $2\frac{3}{4}$ in. long at one end.
Stay ...	$2\frac{3}{4}$ in.	$\frac{7}{16}$ in.	7 ft. $8\frac{3}{4}$ in.	8	Swelled to 3 in. by 2 in. long at front end. Both ends screwed with continuous thread 9 T.P.I. and nut fitted at front end.
Stay ...	$2\frac{3}{4}$ in.	$\frac{3}{8}$ in.	7 ft. $8\frac{3}{4}$ in.	26	Swelled to 3 in. by 2 in. long at front end. Both ends screwed with continuous thread 9 T.P.I. and nut fitted at front end.
Stay ...	$2\frac{3}{4}$ in.	$\frac{3}{8}$ in.	7 ft. 8 in.	28	Swelled to 3 in. by 2 in. long at front end. Both ends screwed with continuous thread 9 T.P.I.
Stay ...	$2\frac{3}{4}$ in.	$\frac{5}{16}$ in.	7 ft. 8 in.	44	Swelled to 3 in. by 2 in. long at front end. Both ends screwed with continuous thread 9 T.P.I.
			Air Heater Tubes		
Plain ...	$2\frac{3}{4}$ in.	14 W.G.	3 ft. $5\frac{1}{2}$ in.	268	Swelled to $2\frac{13}{16}$ in. at one end.
Stay ...	$2\frac{3}{4}$ in.	$\frac{1}{4}$ in.	3 ft. $6\frac{1}{2}$ in.	6	Swelled to $2\frac{13}{16}$ in. at one end.

H.M.S. "*Espiegle*" (P. 21263/42.)

Type and No. of boilers ... Water Tube, 3-Drum ... 2 No.

Total No. of tubes fitted ... Generator ... ... 2,908 No.

Main

Row	Ext. Diam.	Thickness	Fitted Length	Total No. of Tubes fitted	Remarks
	in.	W.D.G.	ft. in.		
A	$1\frac{1}{2}$	116	7 $9\frac{11}{32}$	128	All tubes are bent.
B	$1\frac{1}{2}$	116	7 $8\frac{1}{32}$	128	
C	$1\frac{1}{8}$	116	7 $6\frac{23}{32}$	172	
D	$1\frac{1}{8}$	116	7 $6\frac{7}{16}$	172	
E	$1\frac{1}{8}$	116	7 $6\frac{3}{8}$	172	
F	1	104	7 $8\frac{15}{16}$	196	
G	1	104	7 $9\frac{9}{16}$	192	
H	1	104	7 $10\frac{3}{8}$	196	
J	1	104	7 $11\frac{3}{8}$	192	
K	1	104	8 $0\frac{13}{16}$	196	
L	1	104	8 $2\frac{15}{32}$	192	
M	1	104	8 $4\frac{9}{16}$	196	
N	1	104	8 $6\frac{11}{16}$	192	
O	1	104	8 $9\frac{1}{8}$	196	
P	1	104	8 $11\frac{3}{4}$	192	
Q	1	104	9 $3\frac{1}{8}$	196	

H.M.S. "Exe" (P. 21764/42.)

Type and No. of boilers ... 3 Drum, Small Tube ... ... 2 No.
Total No. of tubes fitted ... Generator ... ... 4,892 No.

Main

Row	Ext. Diam.	Thickness	Fitted Length	Total No. of Tubes fitted	Remarks
	in.	W.D.G.	ft. in.		
A	1½	116	9 3⅝	216	All tubes are bent.
B	1½	116	9 2½	216	
C	1⅜	116	9 1 1/16	292	
D	1⅜	116	9 0⅝	288	
E	1⅜	116	9 0 7/16	292	
F	1	104	9 2⅜	328	
G	1	104	9 3⅛	324	
H	1	104	9 3⅞	328	
J	1	104	9 4⅝	324	
K	1	104	9 6	328	
L	1	104	9 7 9/16	324	
M	1	104	9 9 3/16	328	
N	1	104	9 11⅜	324	
O	1	104	10 1⅝	328	
P	1	104	10 3⅞	324	
Q	1	104	10 6 13/16	328	

H.M. Ships "Forester" and "Fury" (D.O. 27939/42.)

With reference to A.F.O. 46/1936, the particulars of tubes fitted in rows "D" and "P" should be amended to read as follows:—

Row	Ext. Diam.	Thickness	Fitted Length	Total No. of Tubes fitted	Remarks
	in.	W.D.G.	ft. in.		
D	1⅜	116	9 7⅜	456	All tubes are bent.
P	1⅜	104	9 6⅜	456	

(A.F.O. 46/1936.)

H.M.S. "Grayling" (P. 22414/42.)

Type and No. of boilers ... Scotch ... ... 1 No.
Total No. of tubes fitted ... Generator ... ... 265 No.

Main

Row	Ext. Diam.	Thickness	Fitted Length	Total No. of Tubes fitted	Remarks
Plain ...	3¼ in. Swelled to 3 5/16 in. at front end for 3 in.	8 W.G.	6 ft. 10¾ in.	187	
Stay ...	3¼ in. Swelled to 3½ in. at front end for 3 in.	5/16 in.	6 ft. 10¾ in.	54	
Stay ...	3¼ in. Swelled to 3½ in. at front end for 3 in.	⅜ in.	6 ft. 10¾ in.	20	
Stay ...	3¼ in. Swelled to 3½ in. at front end for 3 in.	7/16 in.	6 ft. 10¾ in.	4	

H.M.S. "Jamaica" (P. 18809/42.)

Type and No. of boilers ...
- *Main*—
  - Three Drum Small Tube Type fitted with Superheaters. 4 No.
- *Auxiliary*—
  - Three Drum Small Tube Type fitted with Superheaters. 1 No.

Total No. of tubes fitted ...
- *Main*—
  - Generator ... ... 12,520 No.
  - Superheater ... ... 1,152 No.
- *Auxiliary*—
  - Generator ... ... 1,622 No.
  - Superheater ... ... 84 No.

Main

Row	Ext. Diam.	Thickness	Fitted Length	Total No. of Tubes fitted	Remarks
	in.	W.D.G.	ft. in.		
A	1¾	128	11 5¼	408	All tubes are bent.
B	1¾	128	11 2 1/16	400	
C	1⅛	116	10 11⅛	624	
D	1⅛	116	10 9 7/16	624	
E	1⅛	116	10 8 1/16	624	
F	1	104	10 5 5/16	712	
G	1	104	10 5⅛	704	
H	1	104	10 5⅜	696	
J	1	104	10 5⅝	688	
K	1	104	10 5⅝	680	
L	1	104	10 6⅛	672	
M	1	104	10 6⅞	664	
N	1	104	10 7⅞	656	
O	1	104	10 8¾	648	
P	1	104	10 10 1/16	640	
Q	1	104	10 11½	632	
R	1	104	11 1 5/16	624	
S	1	104	11 3⅜	616	
T	1	104	11 5½	608	
U	1	104	11 7 15/16	600	
		Superheater Tubes			
Inner ...	1⅛	116	23 8 13/16	424	All tubes are bent.
Outer ...	1⅛	116	24 9¼	344	
Middle ...	1⅛	116	24 2 15/16	384	
		Auxiliary			
A	1½	128	5 8⅜	82	All tubes are bent.
B	1½	128	5 5 7/16	80	
C	1	104	5 3	126	
D	1	104	5 1 9/16	124	
E	1	104	4 10¼	126	
F	1	104	4 10	124	
G	1	104	4 10 3/16	124	
H	1	104	4 10 5/16	122	
J	1	104	4 10⅝	122	
K	1	104	4 11 5/16	120	
L	1	104	5 0¼	120	
M	1	104	5 1⅜	118	
N	1	104	5 2⅜	118	
O	1	104	5 4 5/16	116	
		Superheaters			
Inner ...	1	104	17 1⅝	44	All tubes are bent.
Outer ...	1	104	17 7½	40	

H.M.I.S. "Kathiawar" (P.22160/42.)

Type and No. of boilers ... Three Drum Small Tube Type Water Tube. 2 No.

Total No. of tubes fitted ... Generator ... ... 2,216 No.

Main

Row	Ext. Diam.	Thickness	Fitted Length	Total No. of Tubes fitted	Remarks
	in.	W.D.G.	ft. in.		
A	$1\frac{1}{2}$	116	6 $6\frac{1}{16}$	112	Bent.
B	$1\frac{1}{2}$	116	6 $3\frac{5}{8}$	112	
C	1	104	6 $0\frac{3}{4}$	172	
D	1	104	5 $11\frac{5}{8}$	168	
E	1	104	5 $10\frac{11}{16}$	172	
F	1	104	5 $10\frac{1}{16}$	168	
G	1	104	5 $9\frac{5}{8}$	172	
H	1	104	5 $9\frac{9}{16}$	168	Straight.
J	1	104	5 $9\frac{13}{16}$	172	
K	1	104	5 $10\frac{5}{16}$	168	
L	1	104	5 $11\frac{1}{8}$	164	
M	1	104	6 $0\frac{3}{16}$	160	
N	1	104	6 $1\frac{3}{8}$	156	
O	1	104	6 $3\frac{1}{4}$	152	

H.M.S. "Konkan" (P. 87/43)

Type and No. of boilers ... Admiralty Three Drum Small Tube. 2 No.

Total No. of tubes fitted ... Generator ... ... 2,908 No.

Main

Row	Ext. Diam.	Thickness	Fitted Length	Total No. of Tubes fitted	Remarks
	in.	W.D.G.	ft. in.		
A	$1\frac{1}{2}$	116	7 $9\frac{1}{4}$	128	All tubes are bent.
B	$1\frac{1}{2}$	116	7 $7\frac{15}{16}$	128	
C	$1\frac{1}{8}$	116	7 $6\frac{11}{16}$	172	
D	$1\frac{1}{8}$	116	7 $6\frac{3}{8}$	172	
E	$1\frac{1}{8}$	116	7 $6\frac{5}{8}$	172	
F	1	104	7 9	196	
G	1	104	7 $9\frac{5}{8}$	192	
H	1	104	7 $10\frac{7}{16}$	196	
J	1	104	7 $11\frac{9}{16}$	192	
K	1	104	8 $0\frac{7}{8}$	196	
L	1	104	8 $2\frac{5}{8}$	192	
M	1	104	8 $4\frac{9}{16}$	196	
N	1	104	8 $6\frac{11}{16}$	192	
O	1	104	8 $9\frac{1}{8}$	196	
P	1	104	8 $11\frac{9}{16}$	192	
Q	1	104	9 $2\frac{13}{16}$	196	

H.M.I.S. "Kumaon" (P. 21138/42.)

Type and No. of boilers ... Three Drum Small Tube Type Water Tube. 2 No.

Total No. of Tubes fitted ... Generator ... ... 2,216 No.

Row	Ext. Diam.	Thickness	Fitted Length	Total No. of Tubes fitted	Remarks
	in.	W.D.G.	ft. in.		
A	$1\frac{1}{2}$	116	6 6	112	are bent.
B	$1\frac{1}{2}$	116	6 $3\frac{3}{4}$	112	
C	1	104	6 $0\frac{7}{8}$	172	
D	1	104	5 $11\frac{3}{4}$	168	
E	1	104	5 $10\frac{7}{8}$	172	
F	1	104	5 $10\frac{1}{8}$	168	
G	1	104	5 $9\frac{3}{4}$	172	All tubes are straight.
H	1	104	5 $9\frac{5}{8}$	168	
J	1	104	5 $9\frac{7}{8}$	172	
K	1	104	5 $10\frac{3}{8}$	168	
L	1	104	5 $11\frac{1}{8}$	164	
M	1	104	6 $0\frac{1}{4}$	160	
N	1	104	6 $1\frac{1}{4}$	156	
O	1	104	6 3	152	

F.F.S. "La Combattante" (P. 55/43.)

Particulars of the boilers and tubes fitted in F.F.S. "La Combattante" are identical with those published in A.F.O. 5301/42 for H.M. Ships "Bleasdale", "Kanares" and "Haydon".

(*A.F.O. 5301/42.*)

H.M.S. "Lagan" (P. 22161/42.)

Particulars of the boilers and tubes fitted in H.M.S. "Lagan" are identical with those published in A.F.O. 5301/42 for H.M. Ships "Swale", "Spey" and "Tay."

(*A.F.O. 5301/42.*)

H.M.S. "Loyal" (P. 818/43.)

Type and No. of boilers ... *Main*— Three Drum Small Tube Type with Superheaters. 2 No.; *Auxiliary*— Clarkson Thimble Tube ... 1 No.

Total No. of tubes fitted ... Generator ... ... 9,028 No.; Superheater ... ... 486 No.; Thimble type ... ... 333 No.

Row	Ext. Diam.	Thickness	Fitted Length	Total No. of Tubes fitted	Remarks
	in.	W.D.G.	ft. in.		
*A	$1\frac{3}{4}$	128	11 $10\frac{3}{8}$	8	
A	$1\frac{3}{4}$	128	11 $10\frac{1}{4}$	268	
B	$1\frac{3}{4}$	128	11 $7\frac{1}{4}$	272	
C	$1\frac{1}{8}$	116	11 $4\frac{5}{16}$	428	
D	$1\frac{1}{8}$	116	11 $2\frac{1}{2}$	424	
E	$1\frac{1}{8}$	116	11 $0\frac{7}{8}$	428	
F	1	104	10 $9\frac{3}{8}$	480	
G	1	104	10 $9\frac{1}{4}$	476	
H	1	104	10 $9\frac{1}{4}$	472	
J	1	104	10 $9\frac{1}{4}$	468	
K	1	104	10 $9\frac{7}{16}$	464	All tubes are bent.
L	1	104	10 $9\frac{13}{16}$	460	
M	1	104	10 $10\frac{7}{16}$	456	
N	1	104	10 $11\frac{3}{16}$	452	
O	1	104	11 $0\frac{3}{16}$	448	
P	1	104	11 $1\frac{3}{8}$	444	
Q	1	104	11 $2\frac{3}{4}$	440	
R	1	104	11 $4\frac{1}{16}$	436	
S	1	104	11 $5\frac{7}{8}$	432	
T	1	104	11 $7\frac{15}{16}$	428	
U	1	104	11 $10\frac{5}{16}$	424	
V	1	104	12 $1\frac{1}{16}$	420	
			Superheater Tubes		
Inner	$1\frac{1}{8}$	116	20 $10\frac{1}{8}$	No. 2 boiler, 2	
Inner	$1\frac{1}{8}$	116	31 $8\frac{1}{8}$	No. 1 boiler, 124	"U" bent.
Inner	$1\frac{1}{8}$	116	31 $8\frac{1}{8}$	No. 2 boiler, 120	
Outer	$1\frac{1}{8}$	116	32 $1\frac{5}{8}$	No. 1 boiler, 122	"U" bent.
Outer	$1\frac{1}{8}$	116	32 $1\frac{5}{8}$	No. 2 boiler, 118	

Auxiliary Tubes (Domestic)

Ext. Diam. at closed end	Ext. Diam. at open end	Thickness	Overall length	Parallel portion	Total No. of Tubes fitted	Remarks
in.	in.	G.	in.	in.		
$1\frac{3}{8}$	$1\frac{3}{4}$	10	$8\frac{1}{4}$	1	285	Bent.
$1\frac{3}{8}$	$1\frac{3}{4}$	12	$6\frac{1}{2}$	$\frac{5}{8}$	24	
$1\frac{3}{8}$	$1\frac{5}{8}$	12	$5\frac{1}{2}$	$\frac{5}{8}$	24	

* Short tube for drainage, one tube at each end of Row A.

H.M.S. "Mahratta" (P. 1314/43.)

Type and No. of boilers ... *Main*— Admiralty Three Drum Tube 2 No.; *Auxiliary*— Clarkson Thimble Tube 1 No.

Total No. of tubes fitted ... Generator ... ... 9,044 No.; Auxiliary ... ... 333 No.

Main

Row	Ext. Diam.	Thickness	Fitted Length	Total No. of Tubes fitted	Remarks
	in.	W.D.G.	ft. in.		
*A	$1\frac{3}{4}$	128	11 $10\frac{3}{8}$	8	
A	$1\frac{3}{4}$	128	11 $10\frac{15}{16}$	268	
B	$1\frac{3}{4}$	128	11 7	272	
C	$1\frac{1}{8}$	116	11 $4\frac{5}{16}$	428	
D	$1\frac{1}{8}$	116	11 $2\frac{1}{2}$	424	
E	$1\frac{1}{8}$	116	11 1	428	
E.1	$1\frac{1}{8}$	116	10 $11\frac{1}{2}$	16	
F	1	104	10 $9\frac{9}{16}$	480	
G	1	104	10 $9\frac{3}{4}$	476	
H	1	104	10 $9\frac{7}{16}$	472	
J	1	104	10 $9\frac{3}{8}$	468	All tubes are bent.
K	1	104	10 $9\frac{5}{8}$	464	
L	1	104	10 10	460	
M	1	104	10 $10\frac{9}{16}$	456	
N	1	104	10 $11\frac{1}{4}$	452	
O	1	104	11 $0\frac{5}{16}$	448	
P	1	104	11 $1\frac{1}{2}$	444	
Q	1	104	11 $2\frac{7}{8}$	440	
R	1	104	11 $4\frac{1}{4}$	436	
S	1	104	11 6	432	
T	1	104	11 $8\frac{1}{16}$	428	
U	1	104	11 $10\frac{3}{8}$	424	
V	1	104	12 $1\frac{1}{4}$	420	

* Short tube for drainage.

Auxiliary

Ext. Diam. at open end	Ext. Diam. at closed end	Length of parallel at open end	Thickness	Overall length	Total No. of tubes fitted	Remarks
in.	in.	in.	G.	in.		
$1\frac{3}{4}$	$1\frac{3}{8}$	1	10	$8\frac{1}{4}$	285	Thimble tubes tapered ends.
$1\frac{3}{4}$	$1\frac{3}{8}$	$\frac{5}{8}$	12	$6\frac{1}{2}$	24	
$1\frac{5}{8}$	$1\frac{3}{8}$	$\frac{5}{8}$	12	$5\frac{1}{2}$	24	

H.H.M.S. "*Miaoules*" (P. 754/43.)

Type and No. of boilers ... Three Drum Water Tube fitted with Melesco Superheaters. 2 No.

Total No. of tubes fitted ... Generator ... ... 4,312 No.

Row	Ext. Diam.	Thickness	Fitted Length	Total No. of Tubes fitted	Remarks
	in.	W.D.G.	ft. in.		
A	$1\frac{3}{4}$	128	9 $4\frac{5}{16}$	144	
B	$1\frac{3}{4}$	128	9 $0\frac{3}{16}$	140	
C	$1\frac{1}{8}$	116	8 $9\frac{3}{8}$	224	
D	$1\frac{1}{8}$	116	8 $7\frac{5}{8}$	220	
E	$1\frac{1}{8}$	116	8 $6\frac{1}{16}$	224	
F	1	104	8 $3\frac{7}{16}$	252	
G	1	104	8 $2\frac{15}{16}$	248	
H	1	104	8 $2\frac{5}{8}$	244	
J	1	104	8 $2\frac{1}{2}$	240	
K	1	104	8 $2\frac{5}{8}$	236	All tubes are bent.
L	1	104	8 3	232	
M	1	104	8 $3\frac{9}{16}$	228	
N	1	104	8 $4\frac{3}{8}$	224	
O	1	104	8 $5\frac{5}{16}$	220	
P	1	104	8 $6\frac{1}{2}$	216	
Q	1	104	8 $7\frac{7}{8}$	212	
R	1	104	8 $9\frac{1}{2}$	208	
S	1	104	8 $11\frac{3}{8}$	204	
T	1	104	9 $1\frac{1}{4}$	200	
U	1	104	9 $3\frac{11}{16}$	196	

H.M.S. "*Milne*" (P. 3558/43.)

Type and No. of boilers ... *Main*— Admiralty 3 Drum Type with Melesco Superheaters. 2 No.

Auxiliary— Clarkson Thimble Tube ... 1 No.

Total No. of tubes fitted ... Generator ... ... 9,044 No.

Auxiliary Thimble Tubes ... 333 No.

Main

Row	Ext. Diam.	Thickness	Fitted Length	Total No. of Tubes fitted	Remarks
	in.	W.D.G.	ft. in.		
A.1	$1\frac{3}{4}$	128	11 $10\frac{3}{8}$	8	
A	$1\frac{3}{4}$	128	11 $10\frac{15}{16}$	268	
B	$1\frac{3}{4}$	128	11 7	272	
C	$1\frac{1}{8}$	116	11 $4\frac{5}{16}$	428	
D	$1\frac{1}{8}$	116	11 $2\frac{1}{2}$	424	
E	$1\frac{1}{8}$	116	11 1	428	
E.1	$1\frac{1}{8}$	116	10 $11\frac{1}{2}$	16	
F	1	104	10 $9\frac{9}{16}$	480	
G	1	104	10 $9\frac{3}{4}$	476	
H	1	104	10 $9\frac{7}{16}$	472	
J	1	104	10 $9\frac{3}{8}$	468	All tubes are bent.
K	1	104	10 $9\frac{5}{8}$	464	
L	1	104	10 10	460	
M	1	104	10 $10\frac{9}{16}$	456	
N	1	104	10 $11\frac{1}{4}$	452	
O	1	104	11 $0\frac{5}{16}$	448	
P	1	104	11 $1\frac{1}{2}$	444	
Q	1	104	11 $2\frac{7}{8}$	440	
R	1	104	11 $4\frac{1}{4}$	436	
S	1	104	11 6	432	
T	1	104	11 $8\frac{1}{16}$	428	
U	1	104	11 $10\frac{3}{8}$	424	
V	1	104	12 $1\frac{1}{4}$	420	

Auxiliary

Ext. Diam. at open end	Ext. Diam. at closed end	Length of parallel at open end	Thickness	Overall length	Total No. of Tubes fitted	Remarks
in.	in.	in.	G.	in.		
$1\frac{3}{4}$	$1\frac{3}{8}$	1	10	$8\frac{1}{4}$	285	Thimble tubes mild steel.
$1\frac{3}{4}$	$1\frac{3}{8}$	$\frac{5}{8}$	12	$6\frac{1}{2}$	24	
$1\frac{5}{8}$	$1\frac{3}{8}$	$\frac{5}{8}$	12	$5\frac{1}{2}$	24	

O.R.P. "*Orkan*" (P. 737/43.)

Type and No. of boilers ... *Main*— Admiralty Three Drum Small Tube with Melesco Superheaters. 2 No.
Auxiliary— Thimble Tube Type ... ... 1 No.

Total No. of tubes fitted ... Generator ... ... 9,044 No.
Thimble Type ... ... 192 No.

Main

Row	Ext. Diam.	Thickness	Fitted Length	Total No. of Tubes fitted	Remarks
	in.	W.D.G.	ft. in.		
A	1¾	128	11 10⅜	8	
A.1	1¾	128	11 11 1/16	268	
B	1¾	128	11 7 9/16	272	
C	1⅛	116	11 4⅝	428	
D	1⅛	116	11 2 11/16	424	
E	1⅛	116	11 1⅛	428	
E.1	1⅛	116	10 11¾	16	
F	1	104	10 9⅝	480	
G	1	104	10 9½	476	
H	1	104	10 9 7/16	472	
J	1	104	10 9½	468	All tubes are bent.
K	1	104	10 9 11/16	464	
L	1	104	10 10¼	460	
M	1	104	10 10¾	456	
N	1	104	10 11 9/16	452	
O	1	104	11 0⅝	448	
P	1	104	11 1⅞	444	
Q	1	104	11 3¼	440	
R	1	104	11 4⅝	436	
S	1	104	11 6¼	432	
T	1	104	11 8½	428	
U	1	104	11 10¾	424	
V	1	104	12 1⅝	420	
Auxiliary Tubes					
—	2	10 W.G.	10	72	Thimble ends.
—	2	10 W.G.	9	120	

H.M. Ships "*Salventure*" (P. 1525/42); "*Salvestor*" (P. 229/42).

Type and No. of boilers ... Single Ended Multitubular Marine. 2 No.

Total No. of tubes fitted ... Generator ... ... 620 No.
Air Preheater ... ... 428 No.

Main

Row	Ext. Diam.	Thickness	Fitted Length	Total No. of Tubes fitted	Remarks
Plain ...	2¾ in. Swelled to 2 13/16 in. for 2 in. at one end.	8 W.G.	7 ft. 7¼ in.	460	All tubes are straight.
Stay ...	2¾ in. Swelled to 3 in. for 2½ in. at one end and screwed with a continuous thread 9 T.P.I.	5/16 in.	7 ft. 7¼ in.	76	
Stay ...	2¾ in. Swelled to 3 in. for 2½ in. at one end and screwed with a continuous thread 9 T.P.I.	⅜ in.	7 ft. 7¼ in.	80	
Stay ...	2¾ in. Swelled to 3 in. for 3¾ in. at one end and screwed with a continuous thread 9 T.P.I. nutted at one end.	⅜ in.	7 ft. 8 in.	4	
Air Preheater Tubes					
Plain ...	2¾ in.	14 W.G.	6 ft. 8¼ in.	428	Plain ends.

H.M.S. "*Seaham*" (P. 22695/42.)

Particulars of the boilers and tubes fitted in H.M.S. "Seaham" are identical with those published in A.F.O. 2401/42 for H.M.S. "Boston."

(*A.F.O. 2401/42.*)

H.M.S. "*Sheppey*" (P. 1952/43.)

Particulars of the boilers and tubes fitted in H.M.S. "Sheppey" are identical with those published in A.F.O. 1156/43 for H.M. Ships "Egilsay", "Ensay" "Filla" and "Whalsay".

(*A.F.O. 1156/43.*)

H.M.S. "Test" (P. 88/43.)

Type and No. of boilers ... Admiralty Three Drum Small Tube Type. 2 No.

Total No. of tubes fitted ... Generator ... ... 4,864 No.

Main

Row	Ext. Diam.	Thickness	Fitted Length	Total No. of Tubes fitted	Remarks
	in.	W.D.G.	ft. in.		
A	$1\frac{1}{2}$	116	9 $3\frac{3}{8}$	220	
B	$1\frac{1}{2}$	116	9 $2\frac{1}{16}$	216	
C	$1\frac{1}{8}$	116	9 $0\frac{11}{16}$	288	
D	$1\frac{1}{8}$	116	9 $0\frac{5}{16}$	288	
E	$1\frac{1}{8}$	116	9 $0\frac{1}{4}$	288	
F	1	104	9 $2\frac{9}{16}$	324	
G	1	104	9 $3\frac{1}{8}$	324	
H	1	104	9 $3\frac{13}{16}$	324	
J	1	104	9 $4\frac{3}{4}$	324	
K	1	104	9 $5\frac{15}{16}$	324	
L	1	104	9 $7\frac{7}{16}$	324	
M	1	104	9 $9\frac{3}{16}$	324	
N	1	104	9 $11\frac{1}{16}$	324	
O	1	104	10 $1\frac{5}{16}$	324	
P	1	104	10 $3\frac{9}{16}$	324	
Q	1	104	10 $6\frac{5}{8}$	324	

H.M.S. "Teviot" (P. 4294/43.)

Type and No. of boilers ... Admiralty Three Drum Small Tube Type. 2 No.

Total No. of tubes fitted ... Generator ... ... 4,864 No.

Main

Row	Ext. Diam.	Thickness	Fitted Length	Total No. of Tubes fitted	Remarks
	in.	W.D.G.	ft. in.		
A	$1\frac{1}{2}$	116	9 $3\frac{3}{8}$	220	
B	$1\frac{1}{2}$	116	9 $2\frac{1}{16}$	216	
C	$1\frac{1}{8}$	116	9 $0\frac{11}{16}$	288	
D	$1\frac{1}{8}$	116	9 $0\frac{5}{16}$	288	
E	$1\frac{1}{8}$	116	9 $0\frac{1}{4}$	288	
F	1	104	9 $2\frac{9}{16}$	324	
G	1	104	9 $3\frac{1}{8}$	324	
H	1	104	9 $3\frac{13}{16}$	324	All tubes are bent.
J	1	104	9 $4\frac{3}{4}$	324	
K	1	104	9 $5\frac{15}{16}$	324	
L	1	104	9 $7\frac{7}{16}$	324	
M	1	104	9 $9\frac{3}{16}$	324	
N	1	104	9 $11\frac{1}{16}$	324	
O	1	104	10 $1\frac{5}{16}$	324	
P	1	104	10 $3\frac{9}{16}$	324	
Q	1	104	10 $6\frac{5}{8}$	324	

H.M.S. "Whimbrel" (P. 3256/43.)

Type and No. of boilers ... Water Tube ... ... 2 No.

Total No. of tubes fitted ... Generator ... ... 4,640 No.

Main

Row	Ext. Diam.	Thickness	Fitted Length	Total No. of Tubes fitted	Remarks
	in.	W.D.G.	ft. in.		
A.1	$1\frac{1}{2}$	116	7 $10\frac{1}{8}$	172	All tubes are bent.
A.2	$1\frac{1}{2}$	116	7 $9\frac{3}{4}$	8	
B	$1\frac{1}{2}$	116	7 $7\frac{3}{8}$	188	
C	1	104	7 5	288	
D	1	104	7 $3\frac{5}{8}$	284	
E	1	104	7 $2\frac{11}{16}$	288	
F	1	104	7 $2\frac{1}{4}$	284	
G	1	104	7 $0\frac{9}{16}$	288	All tubes are straight.
H	1	104	7 $0\frac{1}{8}$	284	
J	1	104	7 $0\frac{3}{16}$	288	
K	1	104	7 $0\frac{11}{16}$	284	
L	1	104	7 $1\frac{5}{8}$	288	
M	1	104	7 $2\frac{13}{16}$	284	
N	1	104	7 $3\frac{3}{4}$	288	All tubes are bent.
P	1	104	7 $4\frac{3}{4}$	284	
Q	1	104	7 $6\frac{5}{16}$	288	
R	1	104	7 $7\frac{1}{8}$	284	
S	1	104	7 $9\frac{13}{16}$	288	

Records affected, D.354 and D.682 (Standard copy).

(*This Order will not be reprinted.*)

62812) Wt. 8008/2273 9,000 4/43 Hw. G. 338/10.

Row	Ext. Diam.	Thickness	Plated Length	Total No. of Tubes Fitted	Remarks
A.1					
A.2					
B					
C					
D					All tubes are bent.
E					
F					
G					
H					
J					
K					All tubes are straight.
L					
M					
N					
P					
Q					
R					All tubes are bent.
S					