

REPORT ON MACHINERY.

Mdb No. 4153
Hull 17345

Port of MIDDLESBROUGH-ON-TEES.

Received at London Office 12 DEC 1905

No. in Survey held at Stockton Date, first Survey April 18th 1905 Last Survey June 2nd 1905
 Reg. Book. 24 on the 1/2 "Thames" (Number of Visits 8) Not 4th 310
 Master Gool Built at Gool By whom built Gool & R. Co. Tons ^{Gross} 310 _{Net} 99 When built 1905
 Engines made at Gr Yarmouth By whom made Grabbie & Co. when made 1905
 Boilers made at Stockton By whom made Tolain & Co. when made 1905
 Registered Horse Power _____ Owners E. P. Hutchinson Port belonging to Hull
 Nom. Horse Power as per Section 28 67 Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted

ENGINES, &c.—Description of Engines

No. of Cylinders _____ No. of Cranks _____
 Dia. of Cylinders _____ Length of Stroke _____ Revs. per minute _____ Dia. of Screw shaft _____ Material of screw shaft _____
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube _____ Is the after end of the liner made water tight in the propeller boss _____ If the liner is in more than one length are the joints burned _____ If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive _____ If two liners are fitted, is the shaft lapped or protected between the liners _____ Length of stern bush _____
 Dia. of Tunnel shaft _____ Dia. of Crank shaft journals _____ Dia. of Crank pin _____ Size of Crank webs _____ Dia. of thrust shaft under collars _____ Dia. of screw _____ Pitch of screw _____ No. of blades _____ State whether moveable _____ Total surface _____
 No. of Feed pumps _____ Diameter of ditto _____ Stroke _____ Can one be overhauled while the other is at work _____
 No. of Bilge pumps _____ Diameter of ditto _____ Stroke _____ Can one be overhauled while the other is at work _____
 No. of Donkey Engines _____ Sizes of Pumps _____ No. and size of Suctions connected to both Bilge and Donkey pumps _____
 In Engine Room _____ In Holds, &c. _____
 No. of bilge injections _____ sizes _____ Connected to condenser, or to circulating pump _____ Is a separate donkey suction fitted in Engine room & size _____
 Are all the bilge suction pipes fitted with roses _____ Are the roses in Engine room always accessible _____ Are the sluices on Engine room bulkheads always accessible _____
 Are all connections with the sea direct on the skin of the ship _____ Are they Valves or Cocks _____
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates _____ Are the discharge pipes above or below the deep water line _____
 Are they each fitted with a discharge valve always accessible on the plating of the vessel _____ Are the blow off cocks fitted with a spigot and brass covering plate _____
 What pipes are carried through the bunkers _____ How are they protected _____
 Are all pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times _____
 Are the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges _____
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock _____ Is the screw shaft tunnel watertight _____
 Is it fitted with a watertight door _____ worked from _____

BOILERS, &c.—

(Letter for record S) Total Heating Surface of Boilers 1279 ^{sq ft} Is forced draft fitted No

No. and Description of Boilers One cyl Multitubular Working Pressure 130 ^{lbs} Tested by hydraulic pressure to 260 ^{lbs}
 Date of test 2-6-05 Can each boiler be worked separately Area of fire grate in each boiler 35 3/4 ^{sq ft} No. and Description of safety valves to each boiler Two direct spring Area of each valve 8.29 ^{sq in} Pressure to which they are adjusted 135 ^{lbs} Are they fitted with easing gear yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 7'-0" Dia. of boilers 12'-0" Length 10'-3 7/8" Material of shell plates Steel
 Thickness 3 1/4 ⁱⁿ Range of tensile strength 27/32 Are they welded or flanged No Descrip. of riveting: cir. seams 2 D 7 in long long. seams Butt sharp
 Diameter of rivet holes in long. seams 15/16 Pitch of rivets One row 7/4 Two 3/8 Lap of plates or width of butt straps 1'-3"
 Per centages of strength of longitudinal joint _____ rivets 90.6 Working pressure of shell by rules 133.2 ^{lbs} Size of manhole in shell 17 x 13
 Size of compensating ring 2'-7 x 2'-9 x 3/4 No. and Description of Furnaces in each boiler Two plain Material Steel Outside diameter 3'-4 1/4
 Length of plain part _____ top 6'-1 1/2 Thickness of plates _____ crown 5/8 Description of longitudinal joint Butt sharp No. of strengthening rings _____ bottom 3/4
 Working pressure of furnace by the rules 144 ^{lbs} Combustion chamber plates: Material Steel Thickness: Sides 5/8 Back 5/8 Top 5/8 Bottom 3/4
 Pitch of stays to ditto: Sides 9 1/2 x 9 3/4 Back 9 1/2 x 9 1/4 Top 9 1/2 x 9 If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 142 ^{lbs}
 Material of stays Steel Diameter at smallest part 1 7/16 Area supported by each stay 95 ^{sq in} Working pressure by rules 136 ^{lbs} End plates in steam space: Material Steel Thickness 15/16 Pitch of stays 10 3/4 x 16 1/2 How are stays secured W + W Working pressure by rules 133.4 ^{lbs} Material of stays Steel
 Diameter at smallest part 2 3/8 Area supported by each stay 509.3 ^{sq in} Working pressure by rules 143 ^{lbs} Material of Front plates at bottom Steel
 Thickness 7/8 Material of Lower back plate Steel Thickness 7/8 Greatest pitch of stays 14 Working pressure of plate by rules 141 ^{lbs}
 Diameter of tubes 3 1/4 Pitch of tubes 4 7/8 x 4 7/8 Material of tube plates Steel Thickness: Front 7/8 Back 13/16 Mean pitch of stays 11 9/16
 Pitch across wide water spaces 14 1/4 Working pressures by rules 144 ^{lbs} Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 7 3/4 x 13 1/4 Length as per rule 2'-9 1/2 Distance apart 9 1/2 Number and pitch of Stays in each Three 9"
 Working pressure by rules 133.4 ^{lbs} Superheater or Steam chest; how connected to boiler None Can the superheater be shut off and the boiler worked separately Diameter _____ Length _____ Thickness of shell plates _____ Material _____ Description of longitudinal joint _____ Diam. of rivet holes _____ Pitch of rivets _____ Working pressure of shell by rules _____ Diameter of flue _____ Material of flue plates _____ Thickness _____
 If stiffened with rings _____ Distance between rings _____ Working pressure by rules _____ End plates: Thickness _____ How stayed _____
 Working pressure of end plates _____ Area of safety valves to superheater _____ Are they fitted with easing gear _____

DONKEY BOILER— No. _____ Description _____
 Made at _____ By whom made _____ When made _____ Where fixed _____
 Working pressure tested by hydraulic pressure to _____ No. of Certificate _____ Fire grate area _____ Description of safety valves _____
 No. of safety valves _____ Area of each _____ Pressure to which they are adjusted _____ If fitted with easing gear _____ If steam from main boilers can enter the donkey boiler _____
 Dia. of donkey boiler _____ Length _____ Material of shell plates _____ Thickness _____ Range of tensile strength _____ Descrip. of riveting long. seams _____ Dia. of rivet holes _____ Whether punched or drilled _____ Pitch of rivets _____
 Lap of plating _____ Per centage of strength of joint _____ Rivets _____ Thickness of shell crown plates _____ Radii of do. _____ No. of Stays to do. _____
 Dia. of stays _____ Diameter of furnace Top _____ Bottom _____ Length of furnace _____ Thickness of furnace plates _____ Description of joint _____ Thickness of furnace crown plates _____ Stayed by _____ Working pressure of shell by rules _____
 Working pressure of furnace by rules _____ Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water tubes _____

SPARE GEAR. State the articles supplied:—

The foregoing is a correct description,
FOR BLAIR & Co., LIMITED,

C. W. Blair Manufacturer of main boiler.

MANAGING DIRECTOR.
 Dates of Survey while building
 During progress of work in shops - - 1905 April 18.28. May 2.4.15.22.29. June 2
 During erection on board vessel - -
 Total No. of visits *Eight*

Is the approved plan of main boiler forwarded herewith *No. Blair*
 " " " donkey " " "

General Remarks (State quality of workmanship, opinions as to class, &c.)

The main boiler for this vessel has been constructed under special order, the materials and workmanship are good and efficient & when tested with hydraulic pressure was found tight and satisfactory. It is to be sent away to be fitted on board the vessel building at Gooler.
 The boiler has been stamped as below.

Geo. A. Milner

No. 3459
 LLOYD'S TEST.
 260 lbs.
 G.A.M.
 2-6-05.

This Boiler has now been fitted and secured on board in accordance with the Rules.

The amount of Entry Fee. . . £ : :
 Special £ : :
 Donkey Boiler Fee £ 3 : 2 : 0
 Travelling Expenses (if any) £ : :
 When applied for, 16. 6. 1905
 When received, 30. 6. 1905

Geo. A. Milner
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

FRI. 15 DEC 1905

Assigned



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