

REPORT ON MACHINERY.

No. 8751 (Wharfedale) Port of East Ham Ind
 No. in Survey held at West Ham Date, first Survey 10th Sept 1891 Last Survey 29th Jan 1892
 Reg. Book. (Number of Visits 33)
 on the Screw Steamer Afrikander
 Master Hubbuck Built at Middlesbrough By whom built Sir Raylton Dixon & Co.
 Engines made at Hartholme By whom made Messrs. J. Richardson & Sons when made 1892
 Boilers made at Hartholme By whom made Messrs. J. Richardson & Sons when made 1892
 Registered Horse Power 500 Owners British & Colonial Steam Navigation Co. Port belonging to London
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ENGINES, &c.—

Description of Engines Triple Expansion, Inverted, 3 Crank No. of Cylinders 3
 Diam. of Cylinders 24" 38" 64" Length of Stroke 42" Rev. per minute 60 Point of Cut off, High Pressure 5 stroke Low Pressure 6 stroke
 Diameter of Screw shaft 11 3/4" Diam. of Tunnel shaft 11 1/4" Diam. of Crank shaft journals 11 3/4" Diam. of Crank pin 12" size of Crank webs 17 1/4" x 7 1/2"
 Diameter of screw 16.0" Pitch of screw 16.0" No. of blades 4 state whether moveable no total surface 72.4 sq. ft.
 No. of Feed pumps 2 diameter of ditto 2 3/4" Stroke 27" Can one be overhauled while the other is at work yes
 No. of Bilge pumps 2 diameter of ditto 3 3/4" Stroke 27" Can one be overhauled while the other is at work yes
 Where do they pump from For main & after holds, Engine room, after well, & sea.
 No. of Donkey Engines 2 Size of Pumps (18" x 4 3/4") (3 1/2" x 7") Where do they pump from (Ballast tanks, sea, & engine room bilge) (Sea, hotwell, main boilers, ballast tanks & all bilges)
 Are all the bilge suction pipes fitted with roses yes Are the roses always accessible yes Are the sluices on Engine room bulkheads always accessible yes
 No. of bilge injections One and sizes 4 1/2" Are they connected to condenser, or to circulating pump Circulating pump.
 How are the pumps worked By levers from the after piston rod crosshead.
 Are all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks both
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates yes Are the discharge pipes above or below the deep water line Above
 Are they each fitted with a discharge valve always accessible on the plating of the vessel yes Are the blow off cocks fitted with a spigot and brass covering plate yes
 What pipes are carried through the bunkers None How are they protected
 Are all pipes, cocks, valves, and pumps in connection with the machinery accessible at all times
 Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock 15th March 1892.
 Is the screw shaft tunnel watertight yes and fitted with a sluice door yes worked from Top platform in engine room.

BOILERS, &c.—

No. of Boilers Two Description Cyl. built. Single ended Material Steel Letter (for record) (S)
 Working Pressure 160 lb. Tested by hydraulic pressure to 320 lb. Date of test 23rd December 1891
 Description of superheating apparatus or steam chest None. Heating surface 4495 sq. ft.
 Can each boiler be worked separately yes Can the superheater be shut off and the boiler worked separately no Superheater
 No. of square feet of fire grate surface in each boiler 69 Description of safety valves Spring No. to each boiler 2
 Area of each valve 8.29 sq. in. Are they fitted with easing gear yes No. of safety valves to superheater — area of each valve —
 Are they fitted with easing gear — Smallest distance between boilers and bunkers on woodwork 10" Diameter of boilers 15.6"
 Length of boilers 11.0" description of riveting of shell long. seams double butt strap circum. seams double rivet lap Thickness of shell plates 1 3/8"
 Diameter of rivet holes 1 1/32" whether punched or drilled drilled pitch of rivets 1 1/2" or 8 3/4", 2 1/2" or 11" Lap of plating 11"
 Per centage of strength of longitudinal joint 84.6 working pressure of shell by rules 162 lb. size of manholes in shell None
 Size of compensating rings — No. of Furnaces in each boiler 3 Description of Furnaces Morrison's patent
 Outside diameter 4.0" length top 6.0" bottom 6.5" thickness of plates 5/8" description of joint welded if rings are fitted no
 Greatest length between rings — working pressure of furnace by the rules 166 lb. combustion chamber plating, thickness, sides 19/32" back 19/32" top 19/32"
 Pitch of stays to ditto, sides 8 5/8" x 8 1/2" back 8 5/8" x 8 1/4" top 8 1/2" x 8 1/4" stays are fitted with nuts or riveted heads nuts working pressure of plating by rules 163 lb.
 Diameter of stays at smallest part 1 3/8" working pressure of ditto by rules 162 lb. end plates in steam space, thickness 1 1/16"
 Pitch of stays to ditto 18 1/4" x 16 1/2" how stays are secured Double nuts & washers working pressure by rules 160 lb. diameter of stays at smallest part 2 5/8" working pressure by rules 161 lb. Front plates at bottom, thickness 13/16" Back plates, thickness 27/32"
 Greatest pitch of stays 12" working pressure by rules 170 lb. Diameter of tubes 3 1/2" pitch of tubes 4 3/4" x 4 5/8" thickness of tube plate, front 15/16" back 11/16" how stayed stay tube pitch of stays 9 1/2" x 9 1/4" width of water spaces 1 1/4"
 Diameter of Superheater or Steam chest — length — thickness of plates — description of longitudinal joint — diam. of rivet holes —
 Pitch of rivets — working pressure of shell by rules — diameter of flue — thickness of plates — If stiffened with rings —
 Distance between rings — working pressure by rules — end plates of superheater, or steam chest; thickness — how stayed —
 Superheater or steam chest; how connected to boiler —

DONKEY BOILER— Description *Vertical, Cylindrical, 3 Cross tubes (Steel)*
Made at *Stockton* by whom made *J. Hudson & Co.* when made *4.12.91* where fixed *In Stockton hold*
Working pressure *90 lbs.* tested by hydraulic pressure to *180 lbs.* No. of Certificate *365* fire grate area *20 sq. ft.* description of safety
valves *Spring* No. of safety valves *2* area of each *4.9"* if fitted with easing gear *Yes* if steam from main boilers can
enter the donkey boiler *No* diameter of donkey boiler *6.0"* length *12.0"* description of riveting *Double riv. lap*
Thickness of shell plates *7/16"* diameter of rivet holes *1 3/16"* whether punched or drilled *punched* pitch of rivets *2 3/4"* lap of plating *4 1/4"*
per centage of strength of joint *70.4* thickness of crown plates *1 1/2"* stayed by *7 stays 1 3/4" dia.*
Diameter of furnace, top *4.9"* bottom *5.4 1/2"* length of furnace *4.10 1/2"* thickness of plates *5/8"* description of joint *Single riv. lap*
Thickness of furnace crown plates *9/16"* stayed by *7 stays 1 3/4" dia.* working pressure of shell by rules *91 lbs.*
Working pressure of furnace by rules *90 lbs.* diameter of uptake *13"* thickness of plates *3/8"* thickness of water tubes *3/8"*

SPARE GEAR. State the articles supplied:— *One propeller, One screw shaft, One crank shaft,
2 crosshead bolts & nuts, 2 Crank pin bolts & nuts, 2 main bearing bolts & nuts,
1 set Coupling Bolt, 1 set each air, circulating, feed & bilge pump valves,
2 check valves, 1 set piston pump for each cylinder, 1 eccentric strap, Bolts & nuts
of various sizes.*
The foregoing is a correct description,
P. PRO T. RICHARDSON & SONS, Manufacturer. of Engines & main boilers.

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

*Main steam pipes tested by hydraulic pressure to 320 lbs per
square inch and found tight.
The engines and boilers of this vessel have been constructed
under Special Survey and of a good quality of workman-
ship. The engines and main boilers have been examined
under steam, the safety valves adjusted, and found
to work well and will, in my opinion, be eligible to
have **L.M.C. 1.92** recorded in the Register Book when
the following work has been executed to the satisfaction
of a Surveyor of this Society. Bilge suction pipes
to be fitted in the holds and screw tunnel in accordance with the
approved plan. Screw tunnel to be fitted with a sluice door
and made water-tight. Donkey boiler to be made secure, fitted
with mountings, and tested under steam. Sluice valves to be
made accessible. Spare gear to be supplied in accordance
with the Rules. The vessel has proceeded to Middlesbrough
for completion.*

The work above mentioned has now been completed.

Wm. R. Austin

Middlesbrough 15th March

The amount of Entry Fee .. £ 2 : 0 : 0 received by me,

Special £ 34 : 2 : 0

Donkey Boiler Fee £

Certificate (if required) .. £ 24.3.1892

To be sent as per margin.

(Travelling Expenses, if any, £)

TUES. 29 MAR 1892

Committee's Minute

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



Lloyd's Register
Foundation