

REPORT ON MACHINERY.

RECEIVED 29 JUNE 1886

No. 9159

No. in Survey held at Port Glasgow Date, first Survey 8th March 1886 Last Survey 25th June 1886
 Reg. Book. Port Glasgow (Number of Visits 33) Tons 93.2
 on the S.S. "Danube" Master C. Smith Built at Port Glasgow By whom built D. J. Dunlop & Co. When built 1886
 Engines made at Port Glasgow By whom made D. J. Dunlop & Co. when made 1886
 Boilers made at do By whom made do when made 1886
 Registered Horse Power 70 Owners London & Tilbury Lighterage Co., Ltd. Port belonging to London

ENGINES, &c.—

Description of Engines Compound Inverted Direct Acting, Triple Expansion, 3 Cylinders.
 Diameter of Cylinders 15", 23", & 38" Length of Stroke 24" No. of Rev. per minute 100 Point of Cut off, High Pressure 1/4 Low Pressure 1/4
 Diameter of Screw shaft 7 1/2" Diam. of Tunnel shaft 7 1/4" Diam. of Crank shaft journals 7 1/4" Diam. of Crank pin 7 1/4" size of Crank webs 7 3/4" x 5 1/2"
 Diameter of screw 8" x 2" Pitch of screw 12.6" No. of blades Four state whether moveable no total surface 30 sq feet
 No. of Feed pumps Two diameter of ditto 2 3/4" Stroke 12" Can one be overhauled while the other is at work yes
 No. of Bilge pumps Two diameter of ditto 3" Stroke 12" Can one be overhauled while the other is at work yes
 Where do they pump from Engine room, under after end of main boiler, & fore & aft compartments.
 No. of Donkey Engines one Size of Pumps 3 1/4" x 4" stroke Where do they pump from Sea, bilges, fresh water tank & Hot well.
 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 3" Are they connected to condenser, or to circulating pump Circulating pump.
 How are the pumps worked By levers.
 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 yes
 Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges yes
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock on slip before vessel was launched.
 Is the screw shaft tunnel watertight no tunnel and fitted with a sluice door yes worked from Deck.

BOILERS, &c.—

Number of Boilers one Description Round Horizontal Multitubular Whether Steel or Iron Steel
 Working Pressure 150 lbs Tested by hydraulic pressure to 300 lbs per sq in. Date of test 12th June 1886.
 Description of superheating apparatus or steam chest none
 Can each boiler be worked separately — Can the superheater be shut off and the boiler worked separately —
 No. of square feet of fire grate surface in each boiler 40 Description of safety valves Direct Spring No. to each boiler Two
 Area of each valve 10.0 sq 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 or woodwork 8" Diameter of boiler 11" 8"
 Length of boiler 9.9" description of riveting of shell long. seams Double butt strap circum. seams Double Thickness of shell plates 1 3/32"
 Diameter of rivet holes 1 3/16" whether punched or drilled Drilled pitch of rivets 5 1/2" Lap of plating 17 straps.
 Percentage of strength of longitudinal joint 78.4 working pressure of shell by rules 159 lbs size of manholes in shell 19 1/2" x 16"
 Size of compensating rings 3 7/2" x 3 2" x 1 7/16" No. of Furnaces in each boiler Three (Corrugated)
 Outside diameter 35" length, top 6.6" bottom 9.2" thickness of plates 15 1/32" description of joint Welded. if rings are fitted no
 Greatest length between rings — working pressure of furnace by the rules 157 lbs combustion chamber plating, thickness, sides 1 1/2" back 1 1/2" top 1 1/2"
 Pitch of stays to ditto, sides 7 1/2" x 7 1/2" back 7 1/2" x 7 1/2" top 7 1/4" x 7 1/4" If stays are fitted with nuts or riveted heads nuts. working pressure of plating by rules 156 & 164 Diameter of stays at smallest part 1 1/4" & 1 3/8" working pressure of ditto by rules 173 lbs end plates in steam space, thickness 29 1/32"
 Pitch of stays to ditto 14" x 13 1/2" how stays are secured Double nuts working pressure by rules 150 lbs diameter of stays at smallest part 2 1/2" working pressure by rules — Front plates at bottom, thickness 1 3/16" Back plates, thickness 7/8"
 Greatest pitch of stays 12 1/2" working pressure by rules 150 lbs Diameter of tubes 3 1/4" pitch of tubes 4 1/2" x 4 1/2" thickness of tube plates, front 1 3/16" & 5/8" doubling plate back 1 3/16" how stayed Stay tubes. pitch of stays 9" x 9" width of water spaces 6"
 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 *None fitted*

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 _____ if fitted with easing gear _____ if steam from main boilers can
 enter the donkey boiler _____ diameter of donkey boiler _____ length _____ description of riveting _____
 Thickness of shell plates _____ diameter of rivet holes _____ whether punched or drilled _____ pitch of rivets _____ lap of plating _____
 per centage of strength of joint _____ thickness of crown plates _____ stayed by _____
 Diameter of furnace, top _____ bottom _____ length of furnace _____ thickness of 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 plates _____ thickness of water tubes _____

SPARE GEAR. State the articles supplied:— *2 top & 2 bottom end bolts & nuts for connecting rods, 2 main bearing bolts & nuts, a set of coupling bolts, a set of bilge & feed pump valves, a spare spring for safety valves, a set of valves for circulating pump, a quantity of bolts, nuts & iron assorted.*

The foregoing is a correct description,
David S. Murray Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c.) *The Engines & main boiler have been specially surveyed during construction, quality of workmanship good. Shafts examined when being rough turned, and found satisfactory. Engines and main boiler satisfactorily tested under full steam, and are now in good order and safe working condition and eligible in my opinion to be noted in the Register Book. L.M.C. 6.86.*

*This submitted that this
 is eligible to have
 L.M.C. recorded
 DM 1/7/86*

The amount of Entry Fee .. £ 1 : 0 : 0 received by me,
 Special £ 10 : 10 : 0
 Donkey Boiler Fee £ .. : .. : ..
 Certificate (if required) .. £ *gratis 28/6/1886*
To be sent as per margin.
 (Travelling Expenses, if any, £ *nil*)

A. S. Heron
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.
 Greenock District.

Committee's Minute **FRIDAY 2 JULY 1886**
+ L.M.C.

