

REPORT ON MACHINERY.

5201

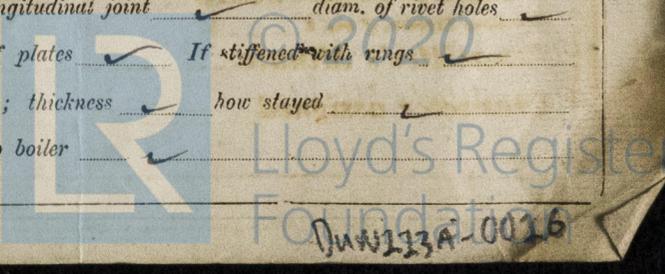
No. 5201 Port of Dundee Received at London Office 4 FEB 1889
 No. in Survey held at Dundee Date, first Survey 17 September Last Survey 26 January 1889
 Reg. Book. on the Steel Twin Screw Tug "Arroo" (Number of Visits 11) Tons 122.33
 Master Not appointed Built at Dundee By whom built W. B. Thompson & Co. Ltd When built 1889
 Engines made at Dundee By whom made W. B. Thompson & Co. Ltd when made 1889
 Boilers made at Dundee By whom made W. B. Thompson & Co. Ltd when made 1889
 Registered Horse Power 55 Owners Shropshire Union Railways & Canals Port belonging to Chester.

ENGINES, &c.

Description of Engines Three cylinders, compound, surface condensing, twin.
 Diameter of Cylinders 9" x 13" x 24" Length of Stroke 14 No. of Rev. per minute 140 Point of Cut off, High Pressure .6 Low Pressure .6
 Diameter of Screw shaft 4 1/4 Diam. of Tunnel shaft 4 Diam. of Crank shaft journals 4 1/4 Diam. of Crank pin 4 1/4 size of Crank webs 5" x 3"
 Diameter of screw 5' 0" Pitch of screw 8' 6" No. of blades 4 state whether moveable No total surface 10 3/4 sq ft.
 No. of Feed pumps One diameter of ditto 1 1/2" Stroke 14 Can one be overhauled while the other is at work Yes
 No. of Bilge pumps One diameter of ditto 2 1/2" Stroke 14 Can one be overhauled while the other is at work Yes
 Where do they pump from from Engine Room and hold.
 No. of Donkey Engines One Size of Pumps 4' x 3' x 4' Where do they pump from Eng. Room, hold, Sea
Natwell, to boiler and overboard.
 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.
 How are the pumps worked from intermediate engine.
 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 25th January 1889
 Is the screw shaft tunnel watertight No tunnel and fitted with a sluice door ✓ worked from ✓

BOILERS, &c.

Number of Boilers One Description Circular tubular Whether Steel or Iron Steel, letter of material S
 Working Pressure 150 Tested by pressure to 300 Date of test 24/12/88
 Description of superheating apparatus or steam chest None
 Can each boiler be worked separately ✓ Can one be shut off and the boiler worked separately ✓
 No. of square feet of fire grate surface in each boiler 30 sq ft Description of safety valves Springs No. to each boiler Two
 Area of each valve 4.91 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 12 ins Diameter of boilers 10' 6"
 Length of boilers 9' 6" description of riveting of shell long. seams Double strap circum. seams Laps Thickness of shell plates 29/32
 Diameter of rivet holes 1 1/16 whether punched or drilled Drilled pitch of rivets 8" Lap of plating 10 1/2" straps
 Per centage of strength of longitudinal joint 80 + 90 working pressure of shell by rules 157 size of manholes in shell 16 x 12
 Size of compensating rings 5" x 7/8" No. of Furnaces in each boiler 2
 Outside diameter 2' 11" length, top 6' 3" bottom 6' 3" thickness of plates 1/2 description of joint butt strapped if rings are fitted Yes
 Greatest length between rings 3' working pressure of furnace by the rules 206 combustion chamber plating, thickness, sides 9/16 back 9/16 top 9/16
 Pitch of stays to ditto, sides 8" x 8" back 8" x 7 1/4" top 7 1/2" If stays are fitted with nuts or riveted heads Nuts working pressure of plating by rules 157 Diameter of stays at smallest part 1 3/8 working pressure of ditto by rules 220 end plates in steam space, thickness 25/32 Doubled
 Pitch of stays to ditto 15 x 15 how stays are secured Double nuts working pressure by rules 211 diameter of stays at smallest part 2 3/8 working pressure by rules 165 Front plates at bottom, thickness 3/4 Back plates, thickness 3/4
 Greatest pitch of stays 12" working pressure by rules ✓ Diameter of tubes 3" pitch of tubes 4 1/4" x 4" thickness of tube plates, front 1 1/16 back 5/8 how stayed Stay tube pitch of stays 8 1/2" x 8" width of water spaces 7
 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 ✓



DUN133A-0026

DONKEY BOILER— 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 _____ 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 connecting rod top end bolts & nuts, 4 main bearing bolts
 1 set of coupling bolts, 2 " " bottom " " " "
 1 set of feed & bilge pump valves, Bolts & nuts and Town of various sizes.

The foregoing is a correct description,
 Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c. The machinery of this vessel has been built under special survey and in accordance with the approved plan. The boiler is constructed of steel which has been tested at the steelworks by one of the Society's Surveyors, and the certificates of tests are annexed.

The letter of material is **S**.
 The safety valves of the boiler are set at the working pressure of 150 lb p. sq. inch.
 The material and workmanship are good.
 In my opinion this vessel is eligible to be classed and to have the Notification **L.M.C. 1.89** recorded in the Registerbook.

Large blue handwritten signature

It is submitted that this vessel is eligible to have
 *L.M.C. 1.89 recorded
 M.A.
 4. 2. 89.

The amount of Entry Fee .. £ 1 : 0 : received by me,
 Special .. £ 8 : 5 :
 Donkey Boiler Fee .. £ : :
 Certificate (if required) .. £ : :
 To be sent as per margin.
 (Travelling Expenses of any, £)
 Committee's Minute
 2nd Febr. 1889

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

FEB 5 1889

+ L.M.C. 1.89

