

REPORT ON MACHINERY

No. 26453

TUES. 14 APR 1908

Date of writing Report 9th April 1908 When handed in at Local Office 9th April 1908 Port of Glasgow
 No. in Survey held at Troon Date, First Survey 17th May 1907 Last Survey 1st April 1908
 Reg. Book. 593 on the S.S. Drake (Number of Visits)
 Master Troon Built at Troon By whom built Ailsa S B C Co Tons { Gross Net }
 Engines made at Troon By whom made Ailsa S B C Co when made 1908
 Boilers made at Glasgow By whom made Dunsmuir & Jackson Ltd when made 1908
 Registered Horse Power _____ Owners General Steam Navigation Co Ltd Port belonging to London
 Nom. Horse Power as per Section 28 301 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders Three No. of Cranks 3
 Dia. of Cylinders 23, 27 1/2, 62 Length of Stroke 39 Revs. per minute 80 Dia. of Screw shaft 12 9/32 Material of screw shaft Persepolis
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube Yes Is the after end of the liner made water tight
 in the propeller boss Yes 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 68"
 Dia. of Tunnel shaft 10 9/16 Dia. of Crank shaft journals 11 5/8 Dia. of Crank pin 11 7/8 Size of Crank webs 20 1/2 x 7 1/2 Dia. of thrust shaft under
 collars 11 5/8 Dia. of screw 14-3 Pitch of Screw 15-9 No. of Blades 4 State whether moveable No Total surface 66 sq ft
 No. of Feed pumps 2 Diameter of ditto 4" Stroke 19 1/2 Can one be overhauled while the other is at work Yes
 No. of Bilge pumps 2 Diameter of ditto 4" Stroke 19 1/2 Can one be overhauled while the other is at work Yes
 No. of Donkey Engines Five Sizes of Pumps 2 1/2, 2, 1 1/2, 1, 1/2 and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room Four 2 3/4" In Holds, &c. Two 2 3/4" in each hold and one
2" in tunnel well.
 No. of Bilge Injections 2 sizes 6 3/4" Connected to condenser, or to circulating pump Pump Is a separate Donkey Suction fitted in Engine room & size one 3" one 6"
 Are all the bilge suction pipes fitted with roses Yes Are the roses in Engine room always accessible Yes Are the sluices on Engine room bulkheads always accessible ✓
 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 opening 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 Some bilge How are they protected Wood boxing
 Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes
 Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges Yes
 Dates of examination of completion of fitting of Sea Connections 13/12/07 of Stern Tube 6/3/08 Screw shaft and Propeller 10/3/08
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Engine room top platform.

BOILERS, &c.—(Letter for record) _____ Manufacturers of Steel _____
 Total Heating Surface of Boilers 5320 sq ft Forced Draft fitted No No. and Description of Boiler Two, Single Ended
 Working Pressure 170 lbs per sq in Tested by hydraulic pressure to _____ Date of test _____ No. of Certificate _____
 Can each boiler be worked separately _____ Area of fire grate in each boiler _____ No. and Description of Safety Valves to
 each boiler No direct spring Area of each valve 8-3 sq in Pressure to which they are adjusted 175 lbs per sq in Are they fitted with easing gear Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 4 feet Mean dia. of boilers _____ Length _____ Material of shell plates _____
 Thickness _____ Range of tensile strength _____ Are the shell plates welded or flanged _____ Descrip. of riveting: cir. seams _____
 long. seams _____ Diameter of rivet holes in long. seams _____ Pitch of rivets _____ Lap of plates or width of butt straps _____
 Per centages of strength of longitudinal joint _____ Working pressure of shell by rules _____ Size of manhole in shell _____
 Size of compensating ring _____ No. and Description of Furnaces in each boiler _____ Material _____ Outside diameter _____
 Length of plain part _____ Thickness of plates _____ Description of longitudinal joint _____ No. of strengthening rings _____
 Working pressure of furnace by the rules _____ Combustion chamber plates: Material _____ Thickness: Sides _____ Back _____ Top _____ Bottom _____
 Pitch of stays to ditto: Sides _____ Back _____ Top _____ If stays are fitted with nuts or riveted heads _____ Working pressure by rules _____ End plates in steam space: _____
 Material of stays _____ Diameter at smallest part _____ Area supported by each stay _____ Working pressure by rules _____ Material of stays _____
 Material _____ Thickness _____ Pitch of stays _____ How are stays secured _____ Working pressure by rules _____ Material of stays _____
 Diameter at smallest part _____ Area supported by each stay _____ Working pressure by rules _____ Material of Front plates at bottom _____
 Thickness _____ Material of Lower back plate _____ Thickness _____ Greatest pitch of stays _____ Working pressure of plate by rules _____
 Diameter of tubes _____ Pitch of tubes _____ Material of tube plates _____ Thickness: Front _____ Back _____ Mean pitch of stays _____
 Pitch across wide water spaces _____ Working pressures by rules _____ Girders to Chamber tops: Material _____ Depth and
 thickness of girder at centre _____ Length as per rule _____ Distance apart _____ Number and pitch of stays in each _____
 Working pressure by rules _____ 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 _____

S. E. End
DONKEY BOILER Manufacturers of Steel ✓
 No. Description **S.E. Multitubular**
 Made at **Coventry** By whom made **James Jackson & Co** When made **1908** Where fixed **Stokehold**
 Working pressure **170 lbs** tested by hydraulic pressure to _____ Date of test _____ No. of Certificate _____ Fire grate area _____ Description of Safety Valves **Direct spring** No. of Safety Valves **2** Area of each **3.140** Pressure to which they are adjusted **175 lbs** Date of adjustment **23/3/08**
 If fitted with easing gear **Yes** If steam from main boilers can enter the donkey boiler **No** 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 _____ Plates _____
 Working pressure of shell by rules _____ Thickness of shell crown plates _____ Radius 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 _____
 Working pressure of furnace by rules _____ Thickness of furnace crown plates _____ Stayed by _____
 Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water tubes _____ Dates of survey _____

SPARE GEAR. State the articles supplied: **As required by the rules, also, one propeller shaft, one propeller, one set crank pin brasses, one valve spindle, one set of piston rings & springs for each cylinder, set of rings for HP piston valve, one guide shoe, one eccentric strap, one air pump rod & bucket, boiler & condenser tubes etc. etc.**
 The foregoing is a correct description,
FOR AILSA SHIPBUILDING CO., LIMITED
 Manufacturers **Wm. S. Watson.**

Dates of Survey while building
 During progress of work in shops - 1907. May 17. 24. June 10. 18. 20. 22. 25. 28. 29. July 5. 10. Aug. 8. 15. 16. 24. Sep. 4. 10. 16. 18. 24. Oct. 3. 9. 16.
 During erection on board vessel - 18. 21. 26. 29. 31. Nov. 1. 7. 16. 20. 26. Dec. 2. 6. 10. 15. 17. 18. 19. 21. 23. 26. 28. 1908. Jan. 4. 10. 13. 16. 20. 23. 24. 28. 30.
 Total No. of visits **74.** Is the approved plan of main boiler forwarded herewith ✓

Dates of Examination of principal parts - Cylinders **20/1/07, 3/1/07, 21/1/07** Slides **12/5, 2/10/07** Overs **2/5, 10/9/07** Pistons **10/7/07, 24/9/07** Rods **10/7, 16/5, 21/9/07**
 Connecting rods **6/5, 24/9/07** Crank shaft **9/10/07** Thrust shaft **16/9, 19/10/07** Tunnel shafts **6/9, 23/1/08** Screw shaft **23/1/08** Propellers **24/9/07, 23/1/08**
 Stern tube **3/10, 16/11/07, 3/2/08** Steam pipes tested **27/2/08** Engine and boiler seatings **16/1, 2/2/08** Engines holding down bolts **30/1, 2/2/08**
 Completion of pumping arrangements **27/3/08** Boilers fixed **16/3/08** Engines tried under steam **1/4/08**
 Main boiler safety valves adjusted **23/3/08** Thickness of adjusting washers **at 3/8 15/10, 17/10 11/32 17/12, 17/12**
 Material of Crank shaft **SM steel** Identification Mark on Do. **1875** Material of Thrust shaft **SM steel** Identification Mark on Do. **6/12/07 6/1**
 Material of Tunnel shaft **SM steel** Identification Marks on Do. **2228, 3556/7/8/9** Material of Screw shafts **Iron** Identification Marks on Do. **2092**
 Material of Steam Pipes **Copper** Test pressure **340 lbs per square inch.**

General Remarks (State quality of workmanship, opinions as to class, &c.) **On launching this vessel the stern frame and rudder collided with quay wall, breaking the rudder, stern frame and the thrust block. The propeller shaft, all intermediate & thrust shafts were removed put in lathe & found to be undamaged. The stern tube was removed and examined & found undamaged. All the shafting has been refitted with new propeller & thrust block.**

The engines and boilers of this vessel have been built under special survey, the materials and workmanship are of good quality, they have been securely fitted on board and a satisfactory full speed trial run.

In my opinion the machinery of this vessel is now eligible for record of **L.M.C. 4-08** (in red) in register book.
 five forging reports now attached.

It is submitted that this vessel is eligible for THE RECORD. **L.M.C. 4.08. ELEC. LIGHT.**
15.4.08.

The amount of Entry Fee £ **3 : 0** :
 Special £ **35 : 1** :
 Donkey Boiler Fee £ _____ :
 Travelling Expenses (if any) £ **6 : 5 : 3**
 Committee's Minute **Glasgow 13 APR 1908**
 Assigned **+ LMC 4.08.**

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

FRI 11 SEP 1908
 FRI 30 OCT 1908

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Certificate (if required) to be sent to the Surveyors at requested not to write on or below the space for Committee's Minute.

No. in Reg. Book. _____
 Master _____
 Engines made _____
 Boilers made _____
 Registered H _____
MULTITUBULAR
 (Letter for r _____)
Boilers on _____
 No. of Certificate _____
 safety valves _____
 Are they fitted _____
 Smallest diameter _____
 Material of _____
 Descrip. of _____
 Lap of plating _____
 rules **173**
boiler 2 _____
 Description _____
 plates: Ma _____
 Top **8 1/2** _____
 smallest pa _____
 Pitch of st _____
 Area suppo _____
 Lower back _____
 Pitch of tu _____
 water spac _____
 girder at c _____
 Working p _____
 separately _____
 holes _____
 If stiffened _____
 Working _____
VERTICAL
 Made at _____
 tested by h _____
 No. of safe _____
 enter the d _____
 strength _____
 Lap of pl _____
 Radius of _____
 Thickness _____
 plates _____
 Thickness _____
 Dates of Survey while building _____