

REPORT ON MACHINERY.

No. 33089

Date of writing Report 1-9-1913 When handed in at Local Office 2-9-1913 Port of Glasgow
No. in Survey held at Glasgow Date, First Survey 23-6-11 Last Survey 27-8-1913
Reg. Book. 28 on the H.M.S. "ANT."
Master Built at Glasgow By whom built Murdoch & Murray
Engines made at Glasgow By whom made Muir & Houston
Boilers made at Glasgow By whom made Muir & Houston
Registered Horse Power Owners British Admiralty Port belonging to Portsmouth.
Nom. Horse Power as per Section 28 100 Is Refrigerating Machinery fitted for cargo purposes 90 Is Electric Light fitted yes

ENGINES, &c.—Description of Engines Triple expansion No. of Cylinders 3 No. of Cranks 3
Dia. of Cylinders 15-25-40 Length of Stroke 24 Revs. per minute 126 Dia. of Screw shaft as per rule 7.68 as fitted 7.75 Material of screw shaft Iron
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 — 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 2'-4"
Dia. of Tunnel shaft as per rule 7.18 as fitted 7.25 Dia. of Crank shaft journals as per rule 7.54 as fitted 7.625 Dia. of Crank pin 7.625 Size of Crank webs 8"x11 1/2 Dia. of thrust shaft under collars 4 5/8 Dia. of screw 8'-0" Pitch of Screw 11'-6" No. of Blades 4 State whether moveable yes Total surface 30 sq. ft.
No. of Feed pumps 2 Diameter of ditto 2 1/2" Stroke 12" Can one be overhauled while the other is at work yes
No. of Bilge pumps 2 Diameter of ditto 2 3/4" Stroke 12" Can one be overhauled while the other is at work yes
No. of Donkey Engines 2 Sizes of Pumps 5" x 3 1/2" x 6" Duplex & 3" x 3" x 4" Simplex & 2" x 2" x 2" No. and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room After Port 2" after Starboard 2" In Holds, &c. Fore hold port 2" Starboard 2"
Main Port 2" Starboard 2" Main Bilge line 2 1/2"
No. of Bilge Injections 1 sizes 3 1/2" Connected to condenser, or to circulating pump C. P. Is a separate Donkey Suction fitted in Engine room & size yes 2 1/4"
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 yes
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 4 Fore hold & 1 tank suction How are they protected Built trunks.
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 See Greenock Report Screw shaft and Propeller —
Is the Screw Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from Engine Room

BOILERS, &c.—(Letter for record 8) Manufacturers of Steel Steel Coy of Scotland, D Colville & Sons and The Lanarkshire Steel Coy.
Total Heating Surface of Boilers 1747 sq. ft. Is Forced Draft fitted 90 No. and Description of Boilers One single ended marine
Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 30-5-13 No. of Certificate 12139
Can each boiler be worked separately 2'-7" x 2'-3" x 1 1/2" Area of fire grate in each boiler 54 1/2 sq. ft. No. and Description of Safety Valves to each boiler two spring loaded Area of each valve 5 1/4 sq. in Pressure to which they are adjusted 185 lbs Are they fitted with easing gear yes
Smallest distance between boilers or uptakes and bunkers or woodwork 9" Mean dia. of boilers 14'-0" Length 10'-6" Material of shell plates steel
Thickness 1 9/16 Range of tensile strength 28532 lbs Are the shell plates welded or flanged 90 Descrip. of riveting: cir. seams D.R.
long. seams D.B.S.T.R. Diameter of rivet holes in long. seams 1 1/8" Pitch of rivets 4 1/2" Lap of plates or width of butt straps 1'-5"
Per centages of strength of longitudinal joint rivets 86% plate 85% Working pressure of shell by rules 180 lbs Size of manhole in shell 16 x 12"
Size of compensating ring No. and Description of Furnaces in each boiler 3 corrugated Material steel Outside diameter 3'-7"
Length of plain part top 3' 1/2" Thickness of plates crown 3 1/2" Description of longitudinal joint welded No. of strengthening rings —
Working pressure of furnace by the rules 190 Combustion chamber plates: Material steel Thickness: Sides 4/16" Back 4/16" Top 4/16" Bottom 1 3/16"
Pitch of stays to ditto: Sides 8 1/2 x 9" Back 9 1/2 x 8" Top 9 x 8 1/2" If stays are fitted with nuts or riveted heads 9 nuts Working pressure by rules 185
Material of stays steel Area at smallest part 2.031 sq. ft. Area supported by each stay 76.5 sq. in Working pressure by rules 239 lbs End plates in steam space: 181 lbs
Material steel Thickness 1 3/16 Pitch of stays 1'-6" x 1'-7" How are stays secured D.N. wash Working pressure by rules 195 lbs Material of stays steel
Area at smallest part 6.10 Area supported by each stay 342 sq. in Working pressure by rules 185 lbs Material of Front plates at bottom steel
Thickness 3/4" Material of Lower back plate steel Thickness 2 7/32 Greatest pitch of stays 12 1/2 x 8" Working pressure of plate by rules 223 lbs
Diameter of tubes 3 1/4" Pitch of tubes 4 1/2 x 4 3/8 Material of tube plates steel Thickness: Front 3/4" Back 3/4" Mean pitch of stays 8 15/16
Pitch across wide water spaces 14 1/2 x 5 1/8 Working pressures by rules 192 lbs Girders to Chamber tops: Material steel Depth and thickness of girder at centre 2 @ 8 1/2 x 1" Length as per rule 2'-10" Distance apart 9" Number and pitch of stays in each 3 @ 8 1/2"
Working pressure by rules 196 lbs Superheater or Steam chest; how connected to boiler — 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 —

004418-004427-0285

VERTICAL DONKEY BOILER—Manufacturers of Steel

No. Description
 Made at By whom made When made Where fixed
 Working pressure tested by hydraulic pressure to Date of test No. of Certificate Fire grate area Description of Safety
 Valves No. of Safety Valves Area of each Pressure to which they are adjusted Date of adjustment
 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
 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 Radius of do. Stayed by
 Diameter of uptake Thickness of uptake plates Thickness of water tubes Dates of survey

SPARE GEAR. State the articles supplied:— 2 connecting rod top end and 2 bottom end bolts and nuts. 2 main bearing bolts. 6 coupling bolts. 1 set of air pump, 1 set of circulating pump, 2 feed pump and 2 bilge pump valves 1 set of H.P. & I.P. piston rings. A quantity of assorted bolts and nuts of various sizes. The foregoing is a correct description, 1 spare eccentric rod.

MUIR & HOUSTON, LIMITED.

Manufacturer.

Dates of Survey while building
 During progress of work in shops -- 1911. June 23. July 3. Nov. 13. 1913. Jan. 16. 20. 27. 30. Feb. 6. Mar. 10. 17. Apr. 4. 14. 28.
 During erection on board vessel --- May 2. 5. 16. 28. 30. June 5. Aug. 1. 5. 6. 7. 15. 23. 26. 27.
 Total No. of visits 27.

Is the approved plan of main boiler forwarded herewith Yes

Dates of Examination of principal parts—Cylinders 4-4-13 Slides 14-4-13 Covers 14-4-13 Pistons 14-4-13 Rods 4-4-13
 Connecting rods 4-4-13 Crank shaft 10-3-13 Thrust shaft 5-5-13 Tunnel shafts 14-4-13 Screw shaft 28-4-13 Propeller 28-4-13
 Stern tube 14-4-13 Steam pipes tested 6-8-13 Engine and boiler seatings See Greenock Report
 Completion of pumping arrangements 4-8-13 Boilers fixed 4-8-13 Engines tried under steam 28-8-13.
 Main boiler safety valves adjusted 10-8-13 Thickness of adjusting washers Port 3/8" Starboard 3/8"
 Material of Crank shaft Steel Identification Mark on Do. 4836.P.T.B. Material of Thrust shaft Steel Identification Mark on Do. 92643.T.N.
 Material of Tunnel shafts Steel Identification Marks on Do. 4836.P.T.B. Material of Screw shafts Gun Identification Marks on Do. 92643.T.N.
 Material of Steam Pipes Copper Test pressure 400 lbs ✓

General Remarks (State quality of workmanship, opinions as to class, &c. The Materials and Workmanship are good. The engines and boilers have been built under special survey, fitted on board and tried with satisfactory results under steam.

The Machinery of this vessel is eligible in my opinion for the record + L.M.C. 8-13. in the Register Book.

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 8.13.

APR 9/13

J.W.D. 4/9/13

The amount of Entry Fee .. £ 2 : 0 : 0 When applied for, Special .. £ 15 : 0 : 0 2.9.13.
 Donkey Boiler Fee .. £ : : : When received, 8/9/13
 Travelling Expenses (if any) £ : : :

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

Committee's Minute GLASGOW 2 SEP. 1913

Assigned + L.M.C. 8.13



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