

REPORT ON MACHINERY.

No. 7824

Received at London Office JUL 17 1917

Date of writing Report 5-7-17 When handed in at Local Office 10 Port of Belfast
 Date, First Survey 29 Feb 1916 Last Survey 4 July 1917
 No. in Survey held at Belfast 140 on the S.S. Mahana
 (Number of Visits 121) Gross 71790 Net 7458
 Master F. Greene Built at Belfast By whom built Workman Clark & Bayly When built 1917
 Engines made at Newcastle By whom made Parsons Marine Steam Turbine Engines 1916-17
 Boilers made at Belfast By whom made Workman Clark & Bayly when made 1917
 Registered Horse Power 1119 Owners Shaw Savill & Albion Co. Ltd Port belonging to Southampton
 m. Horse Power as per Section 28 1119 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes
 ENGINES, &c.—Description of Engines See other sheet No. of Cylinders No. of Cranks
 No. of Cylinders Length of Stroke Revs. per minute Dia. of Screw shaft as per rule 13.6" Material of I. Steel
 as fitted 12.25" screw shaft
 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
 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
 are fitted, is the shaft lapped or protected between the liners ✓ Length of stern bush 4'-10"
 No. of Tunnel shaft as per rule 13.2" Dia. of Crank shaft journals as per rule Dia. of Crank pin Size of Crank webs Dia. of thrust shaft under
 as fitted 12.62" as fitted
 are 13.5" Dia. of screw 16'-6" Pitch of Screw 15'-0" No. of Blades 3 State whether moveable Yes Total surface 80 sq ft
 of Feed pumps } Diameter of ditto Stroke Can one be overhauled while the other is at work
 of Bilge pumps } See separate sheet Diameter of ditto Stroke Can one be overhauled while the other is at work
 of Donkey Engines 20 Sizes of Pumps 20 No. and size of Suctions connected to both Bilge and Donkey pumps
 Engine Room 5'-3 1/2" In Holds, &c. 10'-3 1/2" & 5'-2 1/2"
 of Bilge Injections 2 sizes 10" Connected to condenser, or to circulating pump Pump Is a separate Donkey Suction fitted in Engine room & size Yes 3 1/2"
 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 ✓
 all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Both ✓
 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 Both ✓
 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 ✓
 pipes are carried through the bunker Fore hold suction How are they protected Wood casings ✓
 all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes ✓
 the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges Yes ✓
 of examination of completion of fitting of Sea Connections 22-11-16 of Stern Tube 24-11-16 Screw shaft and Propeller 24-11-16
 Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Upper deck level ✓
 ERS, &c.—(Letter for record S) Manufacturers of Steel Beardmore & Co. Ltd 2 S.B.—5316 2 D.B.—102183 15534 Total
 Heating Surface of Boilers 10382 sq ft Forced Draft fitted Yes No. and Description of Boilers 2-D. End. Cylinders
 Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 16-11-16 No. of Certificate 497 ✓
 each boiler be worked separately Yes Area of fire grate in each boiler 133 sq ft No. and Description of Safety Valves to
 boiler 3 Direct Spring Area of each valve 14.19 sq Pressure to which they are adjusted 180 lbs Are they fitted with easing gear Yes ✓
 distance between boilers or uptakes and bunkers on woodwork 10" Mean dia. of boilers 15'-4 1/2" Length 20'-6" Material of shell plates Steel
 1 3/4" Range of tensile strength 28-32 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seam Lap Joints ✓
 is 1/2" Butt Lap Distance of rivet holes in long. seams 1 1/2" Pitch of rivets 9 1/2" Top of plates or width of butt straps 20 1/2"
 test of strength of longitudinal joint rivets 8.5-7 plate 8.4-1 Working pressure of shell by rules 203 lbs Size of manhole in shell 18" Neils 16x12 ✓
 compensating ring Mc Neils No. and Description of Furnaces in each boiler 8-Morris Material Steel Outside diameter 42 1/2"
 plain part top 9" Thickness of plates crown 1 1/2" bottom 3 1/2" Description of longitudinal joint Weld No. of strengthening rings 27 in ✓
 pressure of furnace by the rules 193 lbs Combustion chamber plates: Material Steel Thickness: Sides 4 1/4" Back ✓ Top 4 1/4" Bottom 1 3/4"
 stays to ditto: Sides 8 1/2 x 8 1/2" Back ✓ Top 8 1/2 x 8 1/2" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 191 lbs ✓
 of stays Steel Diameter at smallest part 1 1/2 x 1 5/8 Area supported by each stay 73 1/2 sq Working pressure by rules 205 lbs and plates in steam space ✓
 Steel Thickness 1 1/4" Pitch of stays 21 1/2 x 15 1/2 How are stays secured Nuts Working pressure by rules 183 lbs Material of stays Steel ✓
 at smallest part 3 3/8 Area supported by each stay 408 sq Working pressure by rules 216 lbs Material of Front plates at bottom Steel ✓
 1" Material of Lower back plate ✓ Thickness ✓ Greatest pitch of stays ✓ Working pressure of plate by rules ✓
 tubes 2 1/2" Pitch of tubes 3 1/2 x 3 5/8 Material of tube plates Steel Thickness: Front 4 1/2" Back 4 1/2" Mean pitch of stays 1 1/4 x 7 1/4 ✓
 188 wide water spaces 13 1/2" Working pressures by rules 184 lbs Girders to Chamber tops: Material Steel Depth and
 girder, as centre 7 1/2 x (1 1/2 x 2) Length as per rule 52 3/8 Distance apart 8 1/2" Number and pitch of stays in each 6-7 x 8 ✓
 pressure by rules 201 lbs Superheater or Steam chest: how connected to boiler by Steam pipe Superheater to shut off and the boiler worked
 Yes Diameter Length 10' Thickness of shell plates Material Description of longitudinal joint Diam. of rivets
 Pitch of rivets Working pressure of shell by rules as per approved plans enclosed Diameter of flue Material of flue plates Thickness
 1st rings Distance between rings Working pressure by rules 80 lbs End plates: Thickness How stayed
 working pressure of end plates Area of safety valves to superheater 7' 07 sq Are they fitted with easing gear Yes ✓

IS A DONKEY BOILER FITTED? *No*

If so, is a report now forwarded? *✓*

SPARE GEAR.

State the articles supplied: *See separate sheet*

The foregoing is a correct description,
FOR WORKMAN, CLARK & CO., LIMITED.

M. H. Bell

Manufacturer.

Dates of Survey while building { During progress of work in shops - - - 1916: Feb 29, March 1-10-15-23 April 13-21, May 4-8-9-10-12-19-23
During erection on board vessel - - - up till June 4th 1917
Total No. of visits 121

Is the approved plan of main boiler forwarded herewith? *✓*

Dates of Examination of principal parts—Cylinders *✓* Slides *✓* Covers *✓* Pistons *✓* Rods *✓*

Connecting rods *✓* Crank shaft *✓* Thrust shaft 1-12-16 Tunnel shafts 6-11-16 Screw shaft 1-12-16 Propeller 15

Stern tube 15-11-16 Steam pipes tested 20-4-17 Engine and boiler seatings 25-1-17 Engines holding down bolts 27-1-17

Completion of pumping arrangements 1-6-17 Boilers fixed 25-1-17 Engines tried under steam 12-6-17

Main boiler safety valves adjusted 1-6-17 Thickness of adjusting washers 2-11-17

Material of Crank shaft *✓* Identification Mark on Do. *✓* Material of Thrust shaft *✓* Identification Mark on Do. *✓*

Material of Tunnel shafts *✓* Identification Marks on Do. *✓* Material of Screw shafts *✓* Identification Marks on Do. *✓*

Material of Steam Pipes *✓* Test pressure 600 lbs sq. in.

Is an installation fitted for burning oil fuel? *No* Is the flash point of the oil to be used over 150°F. *✓*

Have the requirements of Section 49 of the Rules been complied with? *✓*

Is this machinery duplicate of a previous case? *No* If so, state name of vessel *✓*

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

The machinery of this vessel has been constructed under Special Survey, and in accordance with the Rules, it has been securely fitted on board, and on trial under steam Belfast Lough it worked satisfactorily.

In my opinion, it is eligible for record + L.M.C. 7-17 with notation "Forced Draft Electric Light, Regenerative Machinery"

The Newcastle Report No 69111 on the Turbines; and a letter 23 from W. Hantleport Lunnegore advising the Survey of the Crown Superheater, along with Forging Reports etc, are enclosed

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 7. 17. F.D.

4 Steam Turbines geared to 2 screw shafts.

The amount of Entry Fee ... £ 8 : - : When applied for, 27-6-1917
Special ... £ 72 : 19-6 :
Donkey Boiler Fee ... £ 24 : 19-6 :
Travelling Expenses (if any) £ 45 : 19-6 :
When received, 27-7-1917

R. F. Bennett
Engineer-Surveyor to Lloyd's Register of British & Foreign Ships

Committee's Minute

Assigned

+ L.M.C. 7. 17

MACHINERY CERTIFICATE
WRITTEN



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Foundation