

# REPORT ON MACHINERY.

No. 41464

Received at London Office WED. 26 OCT. 1921

Date of writing Report 24 10 1921 When handed in at Local Office 24 10 1921 Port of Glasgow.  
 No. in Survey held at Coatbridge. Date, First Survey 22. 9. 1920 Last Survey 19 10 1921.  
 Reg. Book. on the Machinery for S.S. "Broughty" (Number of Visits 30)  
 Master Larne Built at Larne By whom built Larne Shipbuilding Co. Tons } Gross  
 } Net  
 When built 1921  
 Engines made at Coatbridge. By whom made Wm. Beardmore & Co. No 566. when made 1921.  
 Boilers made at Glasgow. By whom made A. W. Dalgligh (No 468) when made 1921.  
 Registered Horse Power \_\_\_\_\_ Owners \_\_\_\_\_ Port belonging to \_\_\_\_\_  
 Nom. Horse Power as per Section 28 84 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted No

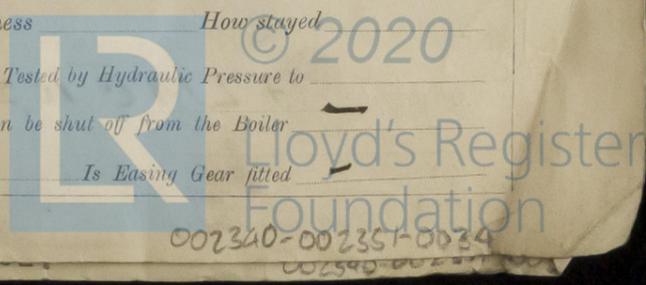
ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders 3 No. of Cranks 3  
 Dia. of Cylinders 13" 21" 135" Length of Stroke 24" Revs. per minute 95 Dia. of Screw shaft 7.32" Material of screw shaft M.S.  
 as per rule 7.12" as fitted  
 Is the screw shaft fitted with a continuous liner 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 Yes. If two liners are fitted, is the shaft lapped or protected between the liners ✓ Length of stern bush 32"  
 Dia. of Tunnel shaft 6.49 as per rule None Dia. of Crank shaft journals 6.804 as per rule 7. Dia. of Crank pin 7. Size of Crank webs 13 1/2 x 4 1/2 Dia. of thrust shaft under collars 4" Dia. of screw 9.0" Pitch of Screw 11.6" No. of Blades 4 State whether moveable No Total surface 34 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 1/2" Stroke 12" Can one be overhauled while the other is at work Yes.  
 No. of Donkey Engines 2. Sizes of Pumps 6x4x6" + 7x7x10" No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room 3 @ 2" In Holds, &c. 2 @ 2" bilge.

No. of Bilge Injections 1 sizes 3" Connected to condenser, or to circulating pump Cir Pump's a separate Donkey Suction fitted in Engine room & size 1 @ 2 1/2"  
 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 None  
 Are all connections with the sea direct on the skin of the ship Yes. Are they Valves or Cocks Both cock + valves.  
 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 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.  
 Is the Screw Shaft Tunnel watertight None. Is it fitted with a watertight door ✓ worked from \_\_\_\_\_

BOILERS, &c.—(Letter for record S) Manufacturers of Steel \_\_\_\_\_  
 Total Heating Surface of Boilers 1566 sq ft Is Forced Draft fitted No No. and Description of Boilers one single ended  
 Working Pressure 180 Tested by hydraulic pressure to 320 Date of test 23/8/21 No. of Certificate 15888  
 Can each boiler be worked separately ✓ Area of fire grate in each boiler 51 sq ft No. and Description of Safety Valves to each boiler 1. 2 1/2" Double. Area of each valve 5.939 sq in Pressure to which they are adjusted 180 Are they fitted with easing gear Yes.  
 Smallest distance between boilers or uptakes and bunkers or woodwork 24" 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 \_\_\_\_\_ rivets \_\_\_\_\_ Working pressure of shell by rules \_\_\_\_\_ Size of manhole in shell \_\_\_\_\_ plate \_\_\_\_\_  
 Size of compensating ring \_\_\_\_\_ No. and Description of Furnaces in each boiler \_\_\_\_\_ Material \_\_\_\_\_ Outside diameter \_\_\_\_\_  
 Length of plain part \_\_\_\_\_ top \_\_\_\_\_ Thickness of plates \_\_\_\_\_ crown \_\_\_\_\_ Description of longitudinal joint \_\_\_\_\_ No. of strengthening rings \_\_\_\_\_ bottom \_\_\_\_\_  
 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 \_\_\_\_\_  
 Material of stays \_\_\_\_\_ Area at smallest part \_\_\_\_\_ If supported by each stay \_\_\_\_\_ Working pressure by rules \_\_\_\_\_ End plates in steam space: \_\_\_\_\_  
 Material \_\_\_\_\_ Thickness \_\_\_\_\_ Pitch of stays \_\_\_\_\_ How are stays secured \_\_\_\_\_ Working pressure by rules \_\_\_\_\_ Material of stays \_\_\_\_\_  
 Area 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 space \_\_\_\_\_ 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 \_\_\_\_\_ Steam dome: description of joint to shell \_\_\_\_\_ % of strength of joint \_\_\_\_\_  
 Diameter \_\_\_\_\_ Thickness of shell plates \_\_\_\_\_ Material \_\_\_\_\_ Description of longitudinal joint \_\_\_\_\_ Diam. of rivet holes \_\_\_\_\_  
 Pitch of rivets \_\_\_\_\_ Working pressure of shell by rules \_\_\_\_\_ Crown plates \_\_\_\_\_ Thickness \_\_\_\_\_ How stayed \_\_\_\_\_

SUPERHEATER. Type None Date of Approval of Plan \_\_\_\_\_ Tested by Hydraulic Pressure to \_\_\_\_\_  
 Date of Test \_\_\_\_\_ Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler \_\_\_\_\_  
 Diameter of Safety Valve \_\_\_\_\_ Pressure to which each is adjusted \_\_\_\_\_ Is Easing Gear fitted \_\_\_\_\_

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.



IS A DONKEY BOILER FITTED? **NO** If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:— **2 Connecting Rod bolts for top end also nuts, bolts for bottom end, 2 Main Bearing bolts, 1 Set of Coupling bolts, 1 Set of Fuel Bridge Pump Bolts, a quantity of assorted bolts, nuts & Iron of various sizes.**

The foregoing is a correct description,

For WILLIAM BEARDMORE & CO., LIMITED

Manufacturer: **R. Sneddon**

Dates of Survey while building: During progress of work in shops -- 1920 Sep 22-29 Oct 6-13 18-28 Nov 3-15 16-22-30 Dec 3-7-14 1921 Jan 11 Feb 1-17 Mar 10 Jun 10 July 8  
During erection on board vessel --- Aug 9-17-19 Sept 21-23-30 Oct 13-19  
Total No. of visits **30** Is the approved plan of main boiler forwarded herewith **Yes**

Dates of Examination of principal parts—Cylinders **30-11-20** Slides **7-12-20** Covers **30-11-20** Pistons **30-11-20** Rods **30-11-20**  
Connecting rods **3-12-20** Crank shaft **28-10-20** Thrust shaft **12-7-21** Tunnel shafts **None** Screw shaft **9-8-21** Propeller **9-8-21**  
Stern tube **9-8-21** Steam pipes tested **23-9-21** Engine and boiler seatings **19-8-21** Engines holding down bolts **30-9-21**  
Completion of pumping arrangements **19-10-21** Boilers fixed **13-9-21** Engines tried under steam **19-10-21**  
Completion of fitting sea connections **19-8-21** Stern tube **19-8-21** Screw shaft and propeller **19-8-21**  
Main boiler safety valves adjusted **20-9-21** Thickness of adjusting washers **P 3/8 S 3/8**  
Material of Crank shaft **M.S.** Identification Mark on Do. **5687** Material of Thrust shaft **M.S.** Identification Mark on Do. **5686**  
Material of Tunnel shafts **None** Identification Marks on Do. Material of Screw shafts **M.S.** Identification Marks on Do. **5686**  
Material of Steam Pipes **Copper** Test pressure **360**  
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 **Yes**  
Is this machinery duplicate of a previous case **Yes** If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, &c. **The machinery has been built under Special Survey in accordance with the Rules of the Society. The materials & workmanship are good. The engine has been dispatched to Glasgow to be fitted on board the vessel.**

**The engine & boiler have now been securely fitted on board & satisfactorily tried under steam. The machinery is shippable in our opinion to be cleared with record of L.M.C. 10.21.**

It is submitted that this vessel is eligible for **THE RECORD. + L.M.C. - 10.21. C.L.**

GLASGOW

MACHINERY CERT. WRITTEN 10/12/21

**L.M.C.**  
31/10/21

The amount of Entry Fee ... £ **2 : 0**  
Special ... £ **12 : 0**  
Donkey Boiler Fee ... £ **12/-**  
Travelling Expenses (if any) **See correspondence attached**

**John Barr**, Wm. Gordon, Mitchell  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **GLASGOW 25 OCT 1921** FRI. 2 DEC. 1921

Assigned **+ L.M.C. 10.21**

