

# REPORT ON MACHINERY.

No. 10352

Received at London Office

MON 14 APR 1919

Writing Report 9-11-19 When handed in at Local Office 10/11/19 Port of MIDDLESBRO  
 in Survey held at Middlesbrough Date, First Survey 20<sup>th</sup> July 19 Last Survey 2<sup>nd</sup> April 1919  
 Book. on the S.S. "Bisfield" (Number of Visits 59)  
 Master S. Gregging Built at Middlesbrough By whom built Pir. R. Dixon & Co Ltd Tons Gross 5180.47 Net 3159.62  
 Engines made at Middlesbrough By whom made Messrs Richardson, Westgirth & Co Ltd When built 1919  
 Boilers made at Middlesbrough By whom made Messrs Richardson, Westgirth & Co Ltd When built 1919  
 Registered Horse Power Owners British India Steam Navigation Co Ltd Port belonging to Glasgow  
 Nom. Horse Power as per Section 28 514 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

**ENGINES, &c.**—Description of Engines Triple Expansion Vertical No. of Cylinders 3 No. of Cranks 3  
 Dia. of Cylinders 24 44 & 43 Length of Stroke 48 Revs. per minute 78 Dia. of Screw shaft as per rule 14.4 Material of screw shaft 1 steel  
 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  
 Is the propeller boss Yes If the liner is in more than one length are the joints burned No 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 No If two  
 liners are fitted, is the shaft lapped or protected between the liners No Length of stern bush 5'-0 1/2  
 Dia. of Tunnel shaft as per rule 13.33 Dia. of Crank shaft journals as per rule 14.0 Dia. of Crank pin 14 1/2 Size of Crank webs 28x9 Dia. of thrust shaft under  
 rollers 14 3/4 Dia. of screw 14.6 Pitch of Screw 16.6 No. of Blades 4 State whether moveable No Total surface 98.3 sq  
 No. of Feed pumps 2 Diameter of ditto 4 Stroke 24 Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps 2 Diameter of ditto 4 Stroke 24 Can one be overhauled while the other is at work Yes  
 No. of Donkey Engines 3 Sizes of Pumps 10 1/2 x 14 x 24, 20 x 9 x 18 No. and size of Suctions connected to both Bilge and Donkey pumps  
 in Engine Room 4 @ 3 1/2 In Holds, &c. 4 @ 3 1/2 in fore holds, 2 @ 3 1/2 in rear holds  
 4 @ 3 1/2 in after holds, 1 @ 3 in after well  
 No. of Bilge Injections 2 sizes 10x8 Connected to condenser, or to circulating pump Yes Is a separate Donkey Suction fitted in Engine room & size 1 @ 3 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 Yes  
 Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Both Main discharge below, all upwards above  
 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  
 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 Suctions to fore holds How are they protected below ceiling  
 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 See Hull Report Is it fitted with a watertight door Yes worked from line of upper deck

**BOILERS, &c.**—(Letter for record 3) Manufacturers of Steel John Spence & Sons Ltd  
 Total Heating Surface of Boilers 7668 sq Is Forced Draft fitted Yes No. and Description of Boilers 3 Single ended  
 Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 3.10.18 No. of Certificate 5934  
 Can each boiler be worked separately Yes Area of fire grate in each boiler 63.3 sq No. and Description of Safety Valves to  
 each boiler 2 direct spring Area of each valve 9.62 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 7.0 Mean dia. of boilers 15.6 Length 11.6 Material of shell plates S  
 Thickness 1 1/4 Range of tensile strength 28/32 Are the shell plates welded or flanged No Descrip. of riveting: cir. seams 2 A lap.  
 long. seams 2 B 3 lines Diameter of rivet holes in long. seams 15/16 Pitch of rivets 9/8 Lap of plates or width of butt straps 19 1/2  
 Per centages of strength of longitudinal joint rivets 88.0 Working pressure of shell by rules 180 Size of manhole in shell None  
 plate 85.6  
 Size of compensating ring No. and Description of Furnaces in each boiler 3 Dighton Material S Outside diameter 4-2 3/16  
 Length of plain part top Thickness of plates crown 19/32 Description of longitudinal joint Weld No. of strengthening rings 1  
 bottom Thickness of plates bottom 19/32 Working pressure of furnace by the rules 188 Combustion chamber plates: Material S Thickness: Sides 23/32 Back 1/16 Top 23/32 Bottom 23/32  
 Pitch of stays to ditto: Sides 10 5/8 x 9 1/4 Back 10 1/4 x 8 3/4 Top 10 5/8 x 9 1/4 stays are fitted with nuts or riveted heads Yes Working pressure by rules 180  
 Material of stays S Area at smallest part 2.36 Area supported by each stay 98.25 Working pressure by rules 216.2 End plates in steam space:  
 Material S Thickness 1 1/32 Pitch of stays 20 1/2 x 2 3/4 How are stays secured Dnut washers Working pressure by rules 191.2 Material of stays S  
 Area at smallest part 8.24 Area supported by each stay 476 Working pressure by rules 180 Material of Front plates at bottom S  
 Thickness 3 1/32 Material of Lower back plate S Thickness 27/32 Greatest pitch of stays 15 5/8 x 8 3/4 Working pressure of plate by rules 187  
 Diameter of tubes 2 3/4 Pitch of tubes 4 x 3 1/8 Material of tube plates S Thickness: Front 3 1/32 Back 3/4 Mean pitch of stays 9.8  
 Pitch across wide water spaces 13 5/8 Working pressures by rules 181 Girders to Chamber tops: Material S Depth and  
 thickness of girder at centre 10 x 1 3/4 Length as per rule 35.5 Distance apart 10 5/8 Number and pitch of stays in each 3 @ 9 1/4  
 Working pressure by rules 188 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 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

IS A DONKEY BOILER FITTED? *No.*

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:— *Two each of main bearing and connecting rod top bottom end bolts, one set of coupling bolts & nuts, one set each of feed & bilge pump valves, best rim propeller, assorted bolts nuts & iron of various sizes also main gear as per specification.*

The foregoing is a correct description,

RICHARDSONS WESTGARTH & CO., LTD

*Hall-Brown,*

Manufacturer.

Dates of Survey while building: During progress of work in shops - - *1917. July 20. 31. Aug 8. Oct 31. 1918. Jan 7. 30. Feb 13. Mar 6. Apr 19. May 2. 7. 9. 13. 24. 29. June 24. 27. July 3. 8. 12. 15. 17. 22. 29. Aug 2. 6. 12. 27. 30. Sep 2. 4. 11. 16. 23. 25. 27. Oct 3. 4. 10. 17. 25. 28. Nov 8. 22. 25. 27. 29. Dec 4. 6. 10. 11. 18. 23. 24. 1919. Jan 8. Feb 10. March 28. Apr 2.*  
Total No. of visits *59*

Is the approved plan of main boiler forwarded herewith

“ “ “ donkey “ “ “

Dates of Examination of principal parts—Cylinders *12. 7. 18* Slides *24. 6. 18* Covers *3. 7. 18* Pistons *24. 6. 18* Rods *24. 8. 18*  
Connecting rods *3. 7. 18* Crank shaft *9. 4. 18* Thrust shaft *10. 10. 18* Tunnel shafts *10. 10. 18* Screw shaft *30. 10. 18* Propeller *8. 11. 18*  
Stern tube *28. 10. 18* Steam pipes tested *24. 8. 17* Engine and boiler seatings *22. 11. 18* Engines holding down bolts *16. 12. 18*  
Completion of pumping arrangements *28. 3. 19* Boilers fixed *25. 11. 18* Engines tried under steam *23/24. 12. 18*  
Completion of fitting sea connections *17. 10. 18* Stern tube *25. 11. 18* Screw shaft and propeller *24. 11. 18*  
Main boiler safety valves adjusted *23. 12. 18* Thickness of adjusting washers *SB: P<sup>3</sup>/<sub>16</sub> S<sup>7</sup>/<sub>16</sub> CB: P<sup>5</sup>/<sub>16</sub> S<sup>11</sup>/<sub>16</sub> P.M. P<sup>5</sup>/<sub>16</sub> S<sup>3</sup>/<sub>16</sub>*

Material of Crank shaft *S* Identification Mark on Do. *6018-AB* Material of Thrust shaft *S* Identification Mark on Do. *4556-A.C*  
Material of Tunnel shafts *S* Identification Marks on Do. *7156-C.A.B.* Material of Screw shafts *S* Identification Marks on Do. *6031-AB*  
Material of Steam Pipes *Lap welded steel* Test pressure *540*

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 *Yes.* If so, state name of vessel *Standard A.*

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

*The machinery of this vessel has been built under special Survey in accordance with the Rules and specification. The materials and workmanship are good. On completion the engines, boiler, and auxiliary machinery were examined under working conditions and found satisfactory.*

*The machinery of this vessel is in a good and efficient condition, and eligible, in my opinion for notation of +LMC 4-19 in the Register Book.*

It is submitted that this vessel is eligible for THE RECORD. + LMC 4. 19. F.D.

*Handwritten signatures and dates: 15/4/19.*

The amount of Entry Fee ... £ : :  
Special *115 : 2.* ... £ 115 : 2. :  
Donkey Boiler Fee ... £ : :  
Travelling Expenses (if any) £ : :  
When applied for, *10/4/19.*  
When received, *23. 4. 19.*

*Godfrimon*

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

THU. 17. APR. 1919

Assigned

*+ LMC 4:19 F.D.*

MACHINERY CERTIFICATE WRITTEN



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