

## REPORT ON MACHINERY.

No. 7892.

FRI. MAY. 2-1913

Date of writing Report *30th Apr 1913* When handed in at Local Office *1st May 1913* Port of *MIDDLESBROUGH-ON-TEES*  
 No. in Survey held at *Middlesbrough* Date, First Survey *1912. 25th Oct.* Last Survey *28th Apr 1913*  
 Reg. Book. *42* on the *S. S. "Wagama"* (Number of Visits *50*)  
 Master *Do* Built at *Middlesbrough* By whom built *Sir Raylton Dixon & Co. Ltd.* Tons { Gross Not  
 Engines made at *Middlesbrough* By whom made *Richardsons, Westgarth & Co. Ltd.* When built *1913*  
 Boilers made at *do* By whom made *do* when made *1913*  
 Registered Horse Power *390* Owners *AK Kiesel & Kabet Aker* Port belonging to *Christiania*  
 Nom. Horse Power as per Section 28 *390* Is Refrigerating Machinery fitted for cargo purposes *No* Is Electric Light fitted *Yes*

ENGINES, &c.—Description of Engines *Triple Expansion* No. of Cylinders *3* No. of Cranks *3*  
 Dia. of Cylinders *25½, 42, 70* Length of Stroke *48* Revs. per minute *14.54* Dia. of Screw shaft *14½* Material of screw shaft *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  
 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 *5-2"*  
 Dia. of Tunnel shaft *13* Dia. of Crank shaft journals *13¾* Dia. of Crank pin *14½* Size of Crank webs *21½ x 9* Dia. of thrust shaft under  
 collars *13¾* Dia. of screw *18-0* Pitch of Screw *17-0* No. of Blades *4* State whether moveable *Yes* Total surface *100 sq. ft.*  
 No. of Feed pumps *2* Diameter of ditto *4"* Stroke *27"* Can one be overhauled while the other is at work *yes*  
 No. of Bilge pumps *2* Diameter of ditto *4½"* Stroke *27"* Can one be overhauled while the other is at work *yes*  
 No. of Donkey Engines *Three* Sizes of Pumps *Two 9x11x12. One 7½x5x6* No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room *Four 3½"* In Holds, &c. *Two 3½" in each hold*

No. of Bilge Injections *1* sizes *6"* Connected to condenser, or to circulating pump *Pump* Is a separate Donkey Suction fitted in Engine room & size *Yes 3½"*  
 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*  
 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 *Below*  
 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 *Forward bilge suction* How are they protected *Wood 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*  
 Dates of examination of completion of fitting of Sea Connections *18. 2. 13* of Stern Tube *29. 3. 13* Screw shaft and Propeller *29. 3. 13*  
 Is the Screw Shaft Tunnel watertight *yes* Is it fitted with a watertight door *yes* worked from *Top grating.*

BOILERS, &c.—(Letter for record *(S)* Manufacturers of Steel *John Spencer & Sons Ltd.*  
 Total Heating Surface of Boilers *6303 sq. ft.* Is Forced Draft fitted *No* No. and Description of Boilers *Three S. E. Cyl. Multi.*  
 Working Pressure *180 lbs.* Tested by hydraulic pressure to *360 lbs.* Date of test *14. 2. 13* No. of Certificate *5024*  
 Can each boiler be worked separately *yes* Area of fire grate in each boiler *58¾ sq. ft.* No. and Description of Safety Valves to  
 each boiler *Two direct spring* Area of each valve *7"* 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 *2-6"* Mean dia. of boilers *15-0"* Length *10-6"* Material of shell plates *Steel*  
 Thickness *1¾"* Range of tensile strength *29-33 tons* Are the shell plates welded or flanged *No* Descrip. of riveting: cir. seams *BR. Lap*  
 long. seams *BR. S. 5 Rivets* Diameter of rivet holes in long. seams *1¼"* Pitch of rivets *8½"* Lap of plates or width of butt straps *1-6¾"*  
 Per centages of strength of longitudinal joint *90.5* Working pressure of shell by rules *184 lbs.* Size of manhole in shell *16x12"*  
 Size of compensating ring *34½x29x1¾* No. and Description of Furnaces in each boiler *Three Morrison* Material *Steel* Outside diameter *3-9"*  
 Length of plain part *top 9"* Thickness of plates *bottom 7/16"* Description of longitudinal joint *Welded* No. of strengthening rings *✓*  
 Working pressure of furnace by the rules *196 lbs.* Combustion chamber plates: Material *Steel* Thickness: Sides *21/32"* Back *11/16"* Top *11/16"* Bottom *13/16"*  
 Pitch of stays to ditto: Sides *9x8½"* Back *9x8½"* Top *12x8½"* If stays are fitted with nuts or riveted heads *Nuts* Working pressure by rules *184 lbs.*  
 Material of stays *Steel* Diameter at smallest part *2.1"* Area supported by each stay *99"* Working pressure by rules *190 lbs.* End plates in steam space:  
 Material *Steel* Thickness *1¾"* Pitch of stays *22x21½"* How are stays secured *BR. + W.* Working pressure by rules *182 lbs.* Material of stays *Steel*  
 Diameter at smallest part *8.25"* Area supported by each stay *470"* Working pressure by rules *182 lbs.* Material of Front plates at bottom *Steel*  
 Thickness *1"* Material of Lower back plate *Steel* Thickness *29/32"* Greatest pitch of stays *14¾x9¼"* Working pressure of plate by rules *187 lbs.*  
 Diameter of tubes *3¼"* Pitch of tubes *4½x4½"* Material of tube plates *Steel* Thickness: Front *1"* Back *13/16"* Mean pitch of stays *11¼"*  
 Pitch across wide water spaces *14½"* Working pressures by rules *189 lbs.* Girders to Chamber tops: Material *Steel* Depth and  
 thickness of girder at centre *8½x1½"* Length as per rule *2-2 29/32"* Distance apart *12"* Number and pitch of stays in each *2 @ 8½"*  
 Working pressure by rules *208 lbs.* 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 *✓*

VERTICAL DONKEY BOILER—

Manufacturers of Steel

No. *None* 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 \_\_\_\_\_ Rivets \_\_\_\_\_  
 Dia. of rivet holes \_\_\_\_\_ Whether punched or drilled \_\_\_\_\_ Pitch of rivets \_\_\_\_\_ Lap of plating \_\_\_\_\_ Per centage of strength of joint \_\_\_\_\_ 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 \_\_\_\_\_ 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:— *Two top & two bottom-end connecting rod bolts & nuts. Two main bearing bolts & nuts. One set of coupling bolts & nuts. One set of feed & bilge pump valves. One tail shaft. Assorted bolts & nuts etc.*

The foregoing is a correct description,

For and on behalf of

RICHARDSON, WESTGARTH & Co., Ltd.

Manufacturer.

*E. Hall-Brown.*

Dates of Survey while building \_\_\_\_\_ 1912. \_\_\_\_\_ 1913. \_\_\_\_\_  
 During progress of work in shops — Oct 25. Nov. 1. 5. 7. 14. 19. 21. 26. 27. Dec. 2. 5. 13. 19. 20. 27. 30. Jan. 6. 7. 13. 14. 20. 23. 24. 28. 29. 30. 31. Feb. 3. 4. 7. 11. 12. 13. 14. 18. 19. 24.  
 During erection on board vessel — Mar. 3. 6. 13. 17. 20. 29. Apr. 3. 4. 10. 14. 16. 22. 28.  
 Total No. of visits *50* Is the approved plan of main boiler forwarded herewith *Yes*

Dates of Examination of principal parts—Cylinders *24. 1. 13* Slides *3. 3. 13* Covers *3. 3. 13* Pistons *30. 1. 13* Rods *30. 1. 13*  
 Connecting rods *30. 1. 13* Crank shaft *23. 10. 12* Thrust shaft *19. 2. 13* Tunnel shafts *24. 2. 13* Screw shaft *27. 3. 13* Propeller *27. 3. 13*  
 Stern tube *13. 3. 13* Steam pipes tested *10. 4. 13* Engine and boiler seatings *7. 3. 13* Engines holding down bolts *14. 4. 13*  
 Completion of pumping arrangements *16. 4. 13* Boilers fixed *14. 4. 13* Engines tried under steam *16. 4. 13*  
 Main boiler safety valves adjusted *16. 4. 13* Thickness of adjusting washers *PB PV  $\frac{5}{16}$  SV  $\frac{13}{32}$  CB PV  $\frac{11}{32}$  SV  $\frac{13}{32}$  SB PV  $\frac{3}{8}$  SV  $\frac{3}{8}$*   
 Material of Crank shaft *Steel* Identification Mark on Do. *5345AB* Material of Thrust shaft *Steel* Identification Mark on Do. *8049KH*  
 Material of Tunnel shafts *Steel* Identification Marks on Do. *2214MB, 2339MB, 2455MB, 2485MB, 2432MB, 2431MB* Material of Screw shafts *Steel* Identification Marks on Do. *2430MB*  
 Material of Steam Pipes *Solid drawn copper* Test pressure *360 lbs* Spare *2213MB*

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

*The Engines and Boilers of this vessel have been constructed under Special Survey, are of good material and workmanship, and have been fitted and secured on board in accordance with the Rules. They are now in good working condition and in my opinion eligible to have the notation of +LMC 4.13 in the Register Book.*

It is submitted that this vessel is eligible for THE RECORD.

*ILM.C. 4.13. ELEC. LIGHT.*

*RmS.*  
*2. 5. 13.*

The amount of Entry Fee .. £ *3 : 0 :* When applied for, *1. 5. 1913*  
 Special .. £ *39. 10 :*  
 Donkey Boiler Fee .. £ : : When received, *5/5/13*  
 Travelling Expenses (if any) £ : : *6*

Committee's Minute

*FRI MAY 2 1913*

Assigned

*+LMC 4.13*

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



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