

REPORT ON MACHINERY.

No. 7892. FRI. MAY. 2-1913

Received at London Office

Date of writing Report 30th April 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 April 1913

Reg. Book. 42 on the S. S. "Wagama" (Number of Visits 50)

Master do Built at Middlesbro' By whom built Sir Raylton Dixon & Co. L^{td} When built 1913

Engines made at Middlesbrough By whom made Richardsons, Westgarth & Co. L^{td} when made 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 25 1/2, 42, 70 Length of Stroke 48 Revs. per minute as per rule 14.54 Dia. of Screw shaft as fitted 14 3/4 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 as per rule 19.9 Dia. of Crank shaft journals as per rule 13.49 Dia. of Crank pin 14 1/4 Size of Crank webs 21 1/4 x 9 Dia. of thrust shaft under collars 13 3/4 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 4 1/2" Stroke 27" Can one be overhauled while the other is at work yes

No. of Donkey Engines Three Sizes of Pumps Two 9x11x12. One 7 1/2 x 5 x 6 No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room Four 3 1/2" In Holds, &c. Two 3 1/2" 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 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 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 (5) Manufacturers of Steel John Spencer & Sons L^{td}

Total Heating Surface of Boilers 6303 sq. ft. Is Forced Draft fitted No No. and Description of Boilers Three S. E. Cyl. Mult.

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 58 3/4 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 1 3/16" 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. Rivets Diameter of rivet holes in long. seams 1 1/4" Pitch of rivets 8 1/2" Lap of plates or width of butt straps 1'-6 3/4"

Per centages of strength of longitudinal joint: rivet. 90.5 Working pressure of shell by rules 184 lbs Size of manhole in shell 16x12"

Size of compensating rings 34 1/2 x 29 x 1 3/16 No. and Description of Furnaces in each boiler Three Morrison Material Steel Outside diameter 3'-9"

Length of plain part: top 9" bottom 7 1/16" Thickness of plates: crown 9" 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 3/4" Bottom 13/16"

Pitch of stays to ditto: Sides 9x8 1/2" Back 9 3/8 x 9 1/4" Top 12x8 1/4" 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 1 1/32" Pitch of stays 22x2 1/8" How are stays secured BR. + W. Working pressure by rules 182 lbs Material of stays Steel

Area 8.25" Diameter at smallest part 8.25" Area supported by each stay 470" Working pressure by rules 182 Material of Front plates at bottom Steel

Thickness 1" Material of Lower back plate Steel Thickness 29/32" Greatest pitch of stays 14 3/4 x 9 1/4" Working pressure of plate by rules 187 lbs

Diameter of tubes 3 1/4" Pitch of tubes 4 1/2 x 4 1/2" Material of tube plates Steel Thickness: Front 1" Back 13/16" Mean pitch of stays 11 1/4"

Pitch across wide water spaces 14 1/4" Working pressures by rules 189 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 8 1/2 x 1 5/8" Length as per rule 2'-2 29/32" Distance apart 12" Number and pitch of stays in each 2 @ 8 1/4"

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 ✓

Lloyd's Register Foundation

W 730-0100

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 _____ Plates _____

Dia. of rivet holes _____ Whether punched or drilled _____ Pitch of rivets _____ Lap of plating _____ Per centage of strength of joint _____

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.
E. Hall-Brown,
Manufacturer.

MANAGER. 1912. 1913.

Dates of Survey while building: 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. 2. 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 5/16 SV 13/32 CR PV 11/32 SV 13/32 SB PV 3/8 SV 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, Spare 2213MB*

Material of Steam Pipes *Solid drawn copper* Test pressure *360 lbs*

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.**

ms.
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) £ : :

Committee's Minute *FRI MAY 2 1913*

Assigned *Home 4/13*

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

Middle Bronze

Certificate (if required) to be sent to the Surveyors as specified not to write on or below the space for Committee's Minute.

