

REPORT ON MACHINERY.

No. 27140

Received at London Office

Date of writing Report 22nd Oct. 1908 When handed in at Local Office 24/10/1908 Port of Glasgow WED. 4 NOV 1908
 No. in Survey held at Glasgow Date, First Survey 13th Nov. 1907 Last Survey 23rd Oct. 1908
 Reg. Book. on the T. S. S. "Watatah" (Number of Visits 74)
 Master Built at Glasgow By whom built Barclay Curle & Co Ltd (1st 472) When built 1908
 Engines made at Glasgow By whom made Barclay Curle & Co Ltd (1st 472) when made 1908
 Boilers made at Do By whom made Do when made 1908
 Registered Horse Power Owners Blue Anchor Line Ltd Port belonging to London
 Nom. Horse Power as per Section 28 1,003 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Twin Quadruple Expansion No. of Cylinders 8 No. of Cranks 8
 Dia. of Cylinders 23" 32" 46" 67" Length of Stroke 48" Revs. per minute 90 Dia. of Screw shaft as per rule 13.86" / as fitted 14.58" Material of iron screw shaft
 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 Yes 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 Yes Length of stern bush 4' 10 1/2"
 Dia. of Tunnel shaft as per rule 12.58" / as fitted 13.316" Dia. of Crank shaft journals as per rule 13.21" / as fitted 13.78" Dia. of Crank pin 13 7/8" Size of Crank webs 20 1/2" x 9 1/4" Dia. of thrust shaft under collars 13 7/8" Dia. of screw 16' 6" Pitch of Screw 19' 0" No. of Blades 3 State whether moveable Yes Total surface 75 sq
 No. of Feed pumps 2 Diameter of ditto 10" Stroke 26" Can one be overhauled while the other is at work Yes
 No. of Bilge pumps each engine Diameter of ditto 4 5/8" Stroke 2' 0" Can one be overhauled while the other is at work Yes
 No. of Donkey Engines 3 Sizes of Pumps Ballast 10 dia x 10" at 100 lb / 6" dia x 10" at 100 lb No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 2 - 3 1/2" & 2 special 3 1/2" In Holds, &c. N^o 1 - 2 @ 3 1/2"; N^o 2 - 2 @ 3 1/2"; N^o 3 - 2 @ 3 1/2"; N^o 4 - 2 @ 3 1/2"; N^o 5 - 1 @ 3 1/2"
 Boilers Room 4 - 3 1/2"
 No. of Bilge Injections 2 sizes 7 1/2" Connected to condenser, or to circulating pump ump Is a separate Donkey Suction fitted in Engine room & size Yes 2.3 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
 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 none How are they protected Yes
 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 11.9.08 of Stern Tube 10.8.08 Screw shaft and Propeller 25.8.08
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from bridge deck

BOILERS, &c.—(Letter for record 8) Manufacturers of Steel Carnegie and Beardmore
 Total Heating Surface of Boilers 14,967 sq ft Forced Draft fitted Yes No. and Description of Boilers 5 Single Ended
 Working Pressure 215 lb Tested by hydraulic pressure to 430 lb Date of test 5.6.08 No. of Certificate 9513
 Can each boiler be worked separately Yes Area of fire grate in each boiler 75.16 sq No. and Description of Safety Valves to each boiler double spring loaded Area of each valve 9.62" Pressure to which they are adjusted 220 lb Are they fitted with easing gear Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 12" Mean dia. of boilers 16' 0" Length 12' 0" Material of shell plates steel
 Thickness 1 7/8" Range of tensile strength 31/35 tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams D & T. R. long. seams T. R. D. B. S. Diameter of rivet holes in long. seams 1 5/8" Pitch of rivets 10" Imp. of plates on width of butt straps 23"
 Per centages of strength of longitudinal joint 87.8 Working pressure of shell by rules 255 lb Size of manhole in shell 16" x 12"
 Size of compensating ring 3.5 x 2.6 x 1 1/8" No. and Description of Furnaces in each boiler 4 Dighton Material Steel Outside diameter 3' 8 1/4"
 Length of plain part top 3' 1/2" / bottom 3' 1/2" Thickness of plates crown 3 1/2" / bottom 3 1/2" Description of longitudinal joint Weld No. of strengthening rings 1
 Working pressure of furnace by the rules 241 Combustion chamber plates: Material Steel Thickness: Sides 3 1/2" Back 1 1/2" Top 3 1/2" Bottom 1"
 Pitch of stays to ditto: Sides 7 1/4" x 8 1/4" Back 7 1/4" x 9 1/2" Top 8 1/2" x 8" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 227
 Material of stays Steel Diameter at smallest part 2.03" Area supported by each stay 70.7" Working pressure by rules 258 End plates in steam space: Material Steel Thickness 1 1/4" Pitch of stays 19 1/2" x 16" How are stays secured D. nuts Working pressure by rules 220 Material of stays Steel
 Diameter at smallest part 7.34" Area supported by each stay 31.2" Working pressure by rules 241 Material of Front plates at bottom Steel
 Thickness 13/16" Material of Lower back plate Steel Thickness 29/32" Greatest pitch of stays 14" x 7 3/4" Working pressure of plate by rules 221
 Diameter of tubes 2 1/2" Pitch of tubes 3 1/4" x 3 7/8" Material of tube plates Steel Thickness: Front 1" Back 13/16" Mean pitch of stays 7 1/8"
 Pitch across wide water spaces 13 1/2" Working pressures by rules 224 lb Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 10" x 2 @ 3/4" Length as per rule 2' 8 1/2" Distance apart 8 3/8" Number and pitch of stays in each 3 @ 8"
 Working pressure by rules 240 Superheater or Steam chest; how connected to boiler 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
 Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness
 fitted 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



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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 _____
 Dia. of rivet holes _____ Whether punched or drilled _____ Pitch of rivets _____ Lap of plating _____ Per centage of strength of joint _____ Rivets _____
 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 plate _____ Stayed by _____
 Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water tubes _____ Dates of survey _____

SPARE GEAR. State the articles supplied:—*2 connecting rod top end bolts & nuts: 2 connecting rod bottom end bolts & nuts: 2 main bearing bolts: 1 set of coupling bolts: 1 set of bilge pump valves: 2 set of valves & seats for all auxiliary pumps: a quantity of assorted bolts & nuts: iron of various sizes: one propeller shaft etc.*

FOR BARRELL & CO. Ltd. description,

James Gilchrist Manufacturer.

During progress of work in shops—*1907. Nov. 15. 14. 19. 21. Dec. 3. 5. 9. 18. 1908. Jan. 13. 17. 24. Feb. 3. 13. 17. 19. 26. Mar. 2. 6. 13. 18.*
 Dates of Survey while building—*27. 30. Apr. 3. 15. 17. 24. May. 1. 5. 6. 7. 18. 25 June 2. 5. 9. 10. 12. 13. 16. 22. 23. 26. July. 7. 8. 9. 10.*
 During erection on board vessel—*15. 27. Aug. 10. 12. 13. 17. 18. 19. 22. 25. 26. 28. 30. Sept. 1. 4. 8. 11. 16. 18. 29. Oct. 1. 7. 9. 15. 19. 20. 21. 23.*
 Total No. of visits *74* Is the approved plan of main boiler forwarded herewith *No*

Dates of Examination of principal parts—Cylinders *1.5.08* Slides *18.5.08* Covers *1.5.08* Pistons *18.5.08* Rods *2.6.08*
 Connecting rods *6.3.08* Crank shaft *5.5.08* Thrust shaft *27.3.08* Tunnel shafts *17.4.08* Screw shaft *10.6.08* Propeller *16.6.08*
 Stern tube *10.6.08* Steam pipes tested *23.6.8.10.08* Engine and boiler seatings *11.9.08* Engines holding down bolts *7.10.08*
 Completion of pumping arrangements *15.10.08* Boilers fixed *7.10.08* Engines tried under steam *23.10.08*
 Main boiler safety valves adjusted *9.10.08* Thickness of adjusting washers *see below*
 Material of Crank shaft *Steel* Identification Mark on Do. *as forging* Material of Thrust shaft *Steel* Identification Mark on Do. *719*
 Material of Tunnel shafts *Steel* Identification Marks on Do. *as below* Material of Screw shafts *iron* Identification Marks on Do. *472*
 Material of Steam Pipes *W404 iron* Test pressure *645 lbs per sq*

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

Tunnel shafts marked 740. 746. 754. 834. 763. 782. 805. 829. 833. 830
825. 808. { P. 13/32 } { P. 13/32 }

Safety Valve Washers: Port 30t & 80t { S. 13/32 } Port 44 Blt { S. 3/8 } Centre 44 Blt { P. 9/16 }
Stat. " " { S. 5/16 } Stat. " " { S. 13/32 }

The machinery has been built under special survey: the material and workmanship being good, and satisfactorily tested under steam.

It is submitted that above vessel will be eligible for a record of + L.M.C. 10.08 in the Register Book

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 10.08

Ref. Michy. Elec. Reght. P.D

J. J. J.

The amount of Entry Fee £ *3.0.0* When applied for. *29/10/1908*
 Special .. £ *70.3.0*
 Donkey Boiler Fee .. £ : : When received. *25.11.08*
 Travelling Expenses (if any) £ : : *26.11*

Committee's Minute

GLASGOW 3- NOV. 1908

Assigned + L.M.C. 10.08

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