

REPORT ON MACHINERY.

No. 28871.

WED. 18 MAY 1910

Received at London Office

Writing Report

19

When handed in at Local Office

16/5/10 Port of Glasgow

Survey held at Clydebank

Date, First Survey 24th Aug 10

Last Survey 6th May 1910

(Number of Visits 4)

on the Twin Is Zealandia

Gross 6659.74 Tons

Net 3482.20 Tons

Y. Free Built at Clydebank By whom built J. Brown & Co. Ltd.

When built 1910

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when made 1910

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when made 1910

Indicated Horse Power Owners Huddart Parker & Co. Proprietary Limited Port belonging to Melbourne, Australia

Horse Power as per Section 28 1154 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

ENGINES, &c.—Description of Engines Twin screw Quadruple Expansion No. of Cylinders 8 No. of Cranks 8

Cylinders 24 1/2 - 35 - 49 1/2 - 70 Length of Stroke 48 Revs. per minute 90 Dia. of Screw shaft 14 1/4 as per rule 14 1/4 Material of screw shaft Iron as fitted 15

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

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

the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive If two

are fitted, is the shaft lapped or protected between the liners Length of stern bush 5'-8"

Tunnel shaft as per rule 13.12 Dia. of Crank shaft journals as per rule 13.7 Dia. of Crank pin 15 Size of Crank webs 23 1/4 x 10 Dia. of thrust shaft under

as fitted 13 3/4 Dia. of screw 16'-3" Pitch of Screw 19'-0" No. of Blades 4 State whether moveable yes Total surface 68.5 sq ft

Feed pumps 2 each Diameter of ditto 4" Stroke 24" Can one be overhauled while the other is at work yes

Bilge pumps 2 each Diameter of ditto 4 1/2" Stroke 24" Can one be overhauled while the other is at work yes

Donkey Engines 2 sizes Feed Sizes of Pumps 2 Duplex 10 1/2 - 7 x 10 No. and size of Suctions connected to both Bilge and Donkey pumps

Engine Room 6 of 3 1/2" 1 " 5. 3 1/2 x 6 In Holds, &c. No 1 hold 2 of 3 1/2" No 2 hold 2 of 3 1/2"

No 3 hold 2 of 3 1/2" No 4 hold 2 of 3 1/2" Tunnel well 2 of 3 1/2"

Bilge Injections 2 sizes 9 1/2" Connected to condenser, or to circulating pump circ pp Is a separate Donkey Suction fitted in Engine room & size yes 3 1/2"

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

connections with the sea direct on the skin of the ship yes Are they Valves or Cocks both

are 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

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

pipes are carried through the bunkers Bilge & Ballast How are they protected Wood casings

Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times yes

Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges yes

of examination of completion of fitting of Sea Connections 24-12-09 of Stern Tubes 24-12-09 Screw shaft and Propellers 27.4-10

Screw Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from upper deck

MANUFACTURERS, &c.—(Letter for record n) Manufacturers of Steel D Colville & Sons W Hingley & Sons (Iron stamps)

Heating Surface of Boilers 14445 sq ft Is Forced Draft fitted yes No. and Description of Boilers 7. Single ended

Working Pressure 215 lbs sq in Tested by hydraulic pressure to 430 lbs Date of test 9/11-09-3-12-09 No. of Certificate 10184-10195-10217

Can each boiler be worked separately yes Area of fire grate in each boiler 61.8 sq ft No. and Description of Safety Valves to

each boiler 2 Spring loaded Area of each valve 7.07 sq in Pressure to which they are adjusted 220 lbs sq in Are they fitted with easing gear yes

Least distance between boilers or uptakes and bunkers or woodwork 24" Mean dia. of boilers 15'-4" Length 12'-2" Material of shell plates steel

Test 1 1/2 Range of tensile strength 30/33 tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams DR lap

seams IBS. TR Diameter of rivet holes in long. seams 1 5/8" Pitch of rivets 10" Lap of plates or width of butt straps 1'-11"

Stages of strength of longitudinal joint rivets 96.6 Working pressure of shell by rules 235 Size of manhole in shell 16" x 12"

compensating ring 12 x 1 1/2 Flange No. and Description of Furnaces in each boiler 3 Morrison Material steel Outside diameter 48 3/4

of plain part top Thickness of plates crown 3" Description of longitudinal joint welded No. of strengthening rings

Working pressure of furnace by the rules 247 Combustion chamber plates: Material steel Thickness: Sides 21/32 Back 19/32 Top 21/32 Bottom 13/32

of stays to ditto: Sides 8 3/8 x 4 5/8 Back 8 x 6 1/8 Top 8 3/8 x 7 5/8 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 219

Material of stays Iron Diameter at smallest part 1.63 Area supported by each stay 55 sq in Working pressure by rules 237 End plates in steam space:

Material steel Thickness 1 5/32 Pitch of stays 16 1/2 x 16 How are stays secured DN + W Working pressure by rules 274 Material of stays steel

Material of Front plates at bottom steel Area supported by each stay 264 sq in Working pressure by rules 274

Material of Lower back plate steel Thickness 3/4 Greatest pitch of stays 14" Working pressure of plate by rules 317

Material of tube plates steel Thickness: Front 31/32 Back 29/32 Mean pitch of stays 10"

Pitch of tubes 2 3/4 Pitch of stays 4 x 4 Material of tube plates steel Thickness: Front 31/32 Back 29/32 Mean pitch of stays 10"

across wide water spaces 13 3/4 Working pressures by rules 391 Girders to Chamber tops: Material steel Depth and

Material of stays steel Distance apart 7 5/8 Number and pitch of stays in each 3 of 8 3/8

Working pressure by rules 225 Superheater or Steam chest; how connected to boiler none Can the superheater be shut off and the boiler worked

by 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

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

VERTICAL DONKEY BOILER— Manufacturers of Steel

No. _____ 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 _____ 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 _____ Stayed by _____

Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water tubes _____ Dates of survey _____

SPARE GEAR. State the articles supplied: *Top end & bottom end. 6 main bearings, 24 coupling bolts nuts, 28 propeller studs nuts, 10 propeller blades, Air pump bucket, rod and head valve, 2 valve spindles, 2 piston rods, 1 pair top end and 1 pair bottom end brasses - Feed bilge pump valves, Propeller shaft.*

John Brown & Company, Limited.

The foregoing is a correct description,

Manufacturer.

J. Henderson
Assistant Secretary.

Dates of Survey while building: During progress of work in shops - *1909 Aug. 24.30. Sep 6.13.20. 24.30. Oct 1.4.11.13. 25.26. Nov 3.9.12.18. 25.30. Dec 4.8.*

During erection on board vessel - *14.17.24.29. 1910. Jan 10.19.24.28. 31. Feb 5.9.11.16. 18.22.28. Mar 4.7.16. 22.29. Apr 6.12.18.27.*

Total No. of visits *47* Is the approved plan of main boiler forwarded herewith *yes*

Dates of Examination of principal parts - Cylinders *18.11.09* Slides *24.12.09* Covers *24.12.09* Pistons *25.11.09* Rods *24.12.09*

Connecting rods *24.12.09* Crank shaft *25.11.09* Thrust shaft *3.2.10* Tunnel shafts *29.12.09* Screw shaft *8.12.09* Propeller *27.4.10*

Stern tube *24.12.09* Steam pipes tested *10/1 to 4/3/10* Engine and boiler seatings *24.1.10* Engines holding down bolts *7.3.10*

Completion of pumping arrangements *6.4.10* Boilers fixed *6.4.10* Engines tried under steam *6.5.10*

Main boiler safety valves adjusted *15.4.10* Thickness of adjusting washers *FB. PV 7/32. SV 17/32. PBF 5/16. PV 5/16. SV 5/16. CB PV 1/32. SV 1/32. SB PV 1/32. SV 1/32. PB 1/16. PV 1/16. SV 1/16. CB PV 1/16. SV 1/16. SB PV 1/16. SV 1/16.*

Material of Crank shaft *steel* Identification Mark on Do. *392 J.C.* Material of Thrust shaft *steel* Identification Mark on Do. *3246*

Material of Tunnel shafts *steel* Identification Marks on Do. *3246* Material of Screw shafts *Iron* Identification Marks on Do. *136 D.F.C.*

Material of Steam Pipes *Iron* Test pressure *645 lbs.*

General Remarks (State quality of workmanship, opinions as to class, &c. *The machinery of this vessel has been constructed under special survey in accordance with the rules and approved plans enclosed - Materials and workmanship are good. This machinery is eligible in my opinion to be classed + LMC 5.10.*

It is submitted that
this vessel is eligible for
THE RECORD. + LMC 5.10.

J.W.D. J.P.R.
19/5/10

The amount of Entry Fee .. £	73 : 0 :	When applied for,
Special	£ 73 . 18 . 0	12/5/10 1910.
Donkey Boiler Fee .. .	£ - : - :	When received,
Travelling Expenses (if any) £	- : - :	1.6 1910

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

Committee's Minute **GLASGOW 17 MAY. 1910**

Assigned **+ LMC 5.10.**

Glasgow.

Certificate (if required) to be sent to
(The Surveyors are requested not to write on or below the space for Committee's Minutes.)



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