

Rpt. 4.

## REPORT ON MACHINERY.

No. 32043

WED. NOV. 27 1912

Received at London Office

Date of writing Report

19

When handed in at Local Office

22. 11. 1912 Port of Glasgow

No. in Survey held at Dumbarton

Date, First Survey 10. 10. 11

Last Survey 1. 11. 1912

Reg. Book.

on the Twin S/s "Indarra"

(Number of Visits 49.)

Master M. M. Osborne Built at Dumbarton

By whom built Wm Denny &amp; Bros

Engines made at Dumbarton

By whom made Denny &amp; Co

when made 1912

Boilers made at do

By whom made do

when made 1912

Registered Horse Power

Owners Australasian United S S &amp; Nav Co

Port belonging to Fremantle

Nom. Horse Power as per Section 28 1378

Is Refrigerating Machinery fitted for cargo purposes no

Is Electric Light fitted yes

ENGINES, &amp;c.—Description of Engines Twin Screw Quadruple Expansion No. of Cylinders 8 No. of Cranks 4 each

Dia. of Cylinders 26½-38-54-76 Length of Stroke 48 Revs. per minute 90 Dia. of Screw shaft as per rule 14.65 Material of 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 length 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 Length of stern bush 6'-0"

Dia. of Tunnel shaft as per rule 13.74 Dia. of Crank shaft journals as per rule 14.42 Dia. of Crank pin 15½ Size of Crank webs 28½ x 10½ Dia. of thrust shaft under

collars 15½ Dia. of screw 16-6 Pitch of Screw 19-0 No. of Blades 3 State whether moveable yes Total surface 64 ft

No. of Feed pumps 3 Weirs Diameter of ditto 15½-11½ Stroke 26 Can one be overhauled while the other is at work yes

No. of Bilge pumps 2 duplex Diameter of ditto 7-7 Stroke 8 Can one be overhauled while the other is at work yes

No. of Donkey Engines 9 Sizes of Pumps 2 duplex 8-8 x 10-5 duplex 7-7 x 8 No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room 2 of 3½ Strokehold 2 of 3½ and 2 direct of 3½ In Holds, &amp;c. No 1 Hold 2 of 3½ No 2 Hold 2 of 3½ Forward

bunker 2 of 3½ aft Hold 2 of 3½ Tunnel well 1 of 3

No. of Bilge Injections 2 sizes 10 Connected to condenser, or to circulating pump direct Is a separate Donkey Suction fitted in Engine room &amp; size yes 2 of 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 above

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 Bilge ballast &amp; swimming bath How are they protected wood or iron casings

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 17-6-12 of Stern Tubes 10-6-12 Screw shaft and Propeller 17-6-12

Is the Screw Shaft Tunnel watertight yes Is it fitted with 2 watertight doors yes worked from upper ER platform

BOILERS, &amp;c.—(Letter for record 5) Manufacturers of Steel Lanarkshire Steel Co. &amp; Spencer &amp; Sons. Steel Co of Scotland

Total Heating Surface of Boilers 21420 ft Is Forced Draft fitted yes No. and Description of Boilers 7 single ended.

Working Pressure 210 lbs Test by hydraulic pressure to 420 lbs Date of test 17.5.12-10.6.12 No. of Certificate 11590-11634

Can each boiler be worked separately yes Area of fire grate in each boiler 80 ft No. and Description of Safety Valves to

each boiler 2 spring loaded Area of each valve 8.95 ft Pressure to which they are adjusted 210 lbs Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork 12 Mean dia. of boilers 16-3½ Length 11-10 Material of shell plates steel

Thickness 1½ Range of tensile strength 30/34 tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams DR lap

long. seams DBS TR Diameter of rivet holes in long. seams 1½ Pitch of rivets 10½ Lap of plates or width of butt straps 1-11½

Per centages of strength of longitudinal joint rivets 90 plate 84.5 Working pressure of shell by rules 243 Size of manhole in shell 17 x 13

Size of compensating ring 34 x 34 x 1½ No. and Description of Furnaces in each boiler 4 Morrison Material steel Outside diameter 44 ¾

Length of plain part top Thickness of plates crown 21 bottom 32 Description of longitudinal joint welded No. of strengthening rings

Working pressure of furnace by the rules 239 Combustion chamber plates: Material steel Thickness: Sides 5 Back 5 Top 5 Bottom 1

Pitch of stays to ditto: Sides 7 ¾ x 7 ¾ Back 7 ¾ x 7 ¾ Top 7 ¾ x 7 ¾ If stays are fitted with nuts or riveted heads nuts Working pressure by rules 221

Material of stays steel Area at smallest part 1.69 ft Area supported by each stay 61 ft Working pressure by rules 221 End plates in steam space:

Material steel Thickness 1 3/16 Pitch of stays 16 x 16 ¾ How are stays secured DN + W Working pressure by rules 213 Material of stays steel

Area at smallest part 6.49 ft Area supported by each stay 264 ft Working pressure by rules 252 Material of Front plates at bottom steel

Thickness 7/8 Material of Lower back plate steel Thickness 7/8 Greatest pitch of stays 13 ½ Working pressure of plate by rules 274

Diameter of tubes 2½ Pitch of tubes 3½ x 3½ Material of tube plates steel Thickness: Front 7/8 Back 31/32 Mean pitch of stays 7 ¾

Pitch across wide water spaces 13½ doubled Working pressures by rules 263 Girders to Chamber tops: Material steel Depth and

thickness of girder at centre 2 plates 8½ x ¾ Length as per rule 2-5 Distance apart 7 ¾ Number and pitch of stays in each 3 of 7 ¾

Working pressure by rules 238 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

W1474-0098

W1474-0099 72

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	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:— 2 top end, 4 bottom end, 4 main bearing and 3 sets of coupling bolts nuts. 2 valve spindles. 2 pairs top end brasses. 2 eccentric straps. 2 impeller shafts good crank shaft for circulating pump. Air pump bucket, rod, and head valve. Set of valves seats for each size feed, bilge auxiliary pumps. 2 main check valves. propeller shaft. 4 propeller blades. Assorted iron, bolts, nuts.

The foregoing is a correct description,

*Wm. Clark* Manufacturer.

Dates of Survey while building	During progress of work in shops --	1911. Oct. 10. 17. 23. Nov. 9. 17. Dec. 8. 14. 20.	1912. Jan. 11. 15. 18. 29. Feb. 8. 20. 21. 26.
	During erection on board vessel ---	March 7. 11. 14. 19. April 2. 10. 15. 24. 25. 30. May 14. 17. June 5. 10. 17. July 3. 20. Aug. 7. 9. 21. 23. 27. 28.	
	Total No. of visits	49.	

Is the approved plan of main boiler forwarded herewith *yes*

" " " donkey " " " "

Dates of Examination of principal parts—Cylinders 18. 1. 12. 7. 3. 12. Slides 10. 4. 12. Covers 7. 3. 12. Pistons 14. 5. 12. Rods 10. 4. 12.

Connecting rods 20. 2. 12. Crank shaft 7. 3. 12. 10. 4. 12. Thrust shaft 7. 3. 12. 10. 4. 12. Tunnel shafts 20. 2. 12. 10. 4. 12. Screw shaft 10. 4. 12. Propellers 10. 6. 12.

Stern tubes 14. 5. 12. Steam pipes tested 25. 4. 12. 10. 9. 12. Engine and boiler seatings 14. 6. 12. Engines holding down bolts 5. 9. 12.

Completion of pumping arrangements 24. 10. 12. Boilers fixed 18. 9. 12. Engines tried under steam 24. 10. 12.

Main boiler safety valves adjusted 24. 10. 12. Thickness of adjusting washers see below

Material of Crank shaft *steel* Identification Mark on Do. *Y42 HC* Material of Thrust shaft *steel* Identification Mark on Do. *Y42 HC*

Material of Tunnel shafts *steel* Identification Marks on Do. *Y42 HC* Material of Screw shafts *steel* Identification Marks on Do. *Y42 HC*

Material of Steam Pipes *Iron* Test pressure *630 lbs*

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

Safety valve washers. APB PV  $\frac{21}{64}$  SV  $\frac{23}{64}$  ACB FV  $\frac{29}{64}$  AV  $\frac{29}{64}$  ASB PV  $\frac{21}{64}$  SV  $\frac{25}{64}$  FPB PV  $\frac{21}{64}$  SV  $\frac{27}{64}$  FCB FV  $\frac{25}{64}$  AV  $\frac{25}{64}$

FSB PV  $\frac{3}{8}$  SV  $\frac{3}{8}$  FB FV  $\frac{3}{8}$  AV  $\frac{3}{8}$

The machinery of this vessel has been constructed under special survey in accordance with the rules and approved plans enclosed, and has been run working under steam satisfactorily. Materials and workmanship are good.

This machinery is eligible in my opinion to be classed +LMC. 11. 12.

It is submitted that this vessel is eligible for THE RECORD. +LMC 11. 12 F.D.

The amount of Entry Fee	£ 3 : 0 :	When applied for,	11. 11. 1912
Special	£ 49 : 8 :	When received,	14. 11. 1912
Donkey Boiler Fee	£ :		
Travelling Expenses (if any)	£ :		

Committee's Minute GLASGOW 26 NOV 1912

Assigned +LMC 11. 12

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

27. 11. 12

28. 11. 12

28. 11. 12