

Rpt. 4.

REPORT ON MACHINERY.

No. 33522

WED. NOV. 12 1913

Received at London Office

Date of writing Report 6-10-13 When handed in at Local Office 8/11/13 Port of GLASGOW
No. in Survey held at Glasgow Date, First Survey 23/11/13 Last Survey 4/11/1913
Reg. Book. 818 "Irrawadi" (Number of Visits 49)
on the
Master Built at Troon By whom built A. & S. Co. (281) Tons Gross 1243 Net 634
Engines made at Glasgow By whom made Dunsen & Jackson & Co. (H2) when made 1913
Boilers made at ditto By whom made ditto (H2) when made 1913
Registered Horse Power Owners Bombay Steam Navigation Co. Port belonging to
Nom. Horse Power as per Section 28 193 Is Refrigerating Machinery fitted for cargo purposes - Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders 3 No. of Cranks 3
Dia. of Cylinders 18 $\frac{1}{2}$ -31-52 Length of Stroke 36 Revs. per minute 100 Dia. of Screw shaft as per rule 10 $\frac{1}{2}$ Material of screw shaft S
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 48"
Dia. of Tunnel shaft as per rule 10 $\frac{1}{2}$ Dia. of Crank shaft journals as per rule 10 $\frac{1}{2}$ Dia. of Crank pin 10 $\frac{3}{4}$ Size of Crank webs 2 $\frac{1}{4}$ x 6 $\frac{1}{2}$ Dia. of thrust shaft under
collars 10 $\frac{3}{4}$ Dia. of screw 13-0 Pitch of Screw 15-0 No. of Blades 4 State whether moveable No Total surface 70"
No. of Feed pumps 2 Diameter of ditto 3 $\frac{1}{4}$ Stroke 18" Can one be overhauled while the other is at work Yes
No. of Bilge pumps 2 Diameter of ditto 3 $\frac{1}{4}$ Stroke 18" Can one be overhauled while the other is at work Yes
No. of Donkey Engines 2 Sizes of Pumps 4 $\frac{1}{2}$ and 1 $\frac{1}{2}$ Ball 7 $\frac{1}{2}$ No. and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room 3 at 2 $\frac{1}{2}$ and 2 at 2 $\frac{1}{4}$ In Holds, &c. 8' 0" 1-2 1/2 8' 0" 2-2 1/4 after hold 3-2 1/4

No. of Bilge Injections 5 sizes 4 $\frac{1}{2}$ Connected to condenser or to circulating pump pump Is a separate Donkey Suction fitted in Engine room & size Yes 2 $\frac{1}{2}$
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 -
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 None How are they protected -

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 10-9-13 of Stern Tube 10-9-13 Screw shaft and Propeller 10-9-13

Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from U.E.R. Platform

BOILERS, &c.—(Letter for record S) Manufacturers of Steel G. & S. Steel Co. Lancashire Steel Co. Spencer

Total Heating Surface of Boilers 3064 Is Forced Draft fitted No No. and Description of Boilers 2 Single Ended.
Working Pressure 200 Tested by hydraulic pressure to 400 Date of test 8-7-13 No. of Certificate 12199
Can each boiler be worked separately Yes Area of fire grate in each boiler 56 $\frac{1}{2}$ No. and Description of Safety Valves to
each boiler Double Spring Area of each valve 5-94 Pressure to which they are adjusted 205 Are they fitted with easing gear Yes
Smallest distance between boilers or uptakes and bunkers or woodwork 4-3 Mean dia. of boilers 13-4 Length 10-9 Material of shell plates S

Thickness 1 $\frac{1}{32}$ Range of tensile strength 28/32 Are the shell plates welded or flanged - Descrip. of riveting: cir. seams DR
long. seams TRIDBS Diameter of rivet holes in long. seams 13/8 Pitch of rivets 9/8 Lap of plates or width of butt straps 1-8 $\frac{1}{2}$
Per centages of strength of longitudinal joint rivets 85-24 plate 85-7 Working pressure of shell by rules 228 Size of manhole in shell 16 x 12

Size of compensating ring 20" No. and Description of Furnaces in each boiler 3 Duglons Material S Outside diameter 3-7
Length of plain part top Thickness of plates crown 237/64 Description of longitudinal joint weld No. of strengthening rings 29/32

Working pressure of furnace by the rules 219 Combustion chamber plates: Material S Thickness: Sides 11/16 Back 11/16 Top 11/16 Bottom 29/32
Pitch of stays to ditto: Sides 8 3/8 x 9 1/4 Back 8 3/8 x 9 1/4 Top 9 3/4 x 9 1/4 If stays are fitted with nuts or riveted heads Yes Working pressure by rules 209

Material of stays S Diameter at smallest part 1 9/8 Area supported by each stay 79 Working pressure by rules 223 End plates in steam space:
Material S Thickness 11/4 Pitch of stays 1 7/8 x 1 3/4 How are stays secured DN Working pressure by rules 208 Material of stays S

Diameter at smallest part 1 1/4 Area supported by each stay 336 Working pressure by rules 209 Material of Front plates at bottom S
Thickness 13/32 Material of Lower back plate S Thickness 6/16 Greatest pitch of stays 14 3/4 x 9 1/2 Working pressure of plate by rules 216

Diameter of tubes 3 Pitch of tubes 4 1/4 Material of tube plates S Thickness: Front 13/32 Back 21/32 Mean pitch of stays 10-6

Pitch across wide water spaces 14 Working pressures by rules 220 Girders to Chamber tops: Material Iron Depth and
thickness of girder at centre 10 x 7 1/8 Length as per rule 2 8 3/32 Distance apart 9 1/4 Number and pitch of stays in each 3 at 9 3/4

Working pressure by rules 209 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

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

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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
Working pressure of shell by rules	Thickness of shell crown plates	Radius of do.	No. of stays to do.	Dia. of stays	Plates
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 Connecting Rod bolts & nuts for top end & ditto for bottom end 2 Main Bolts & nuts
1 Set of Coupling bolts 1 Set of Feed & Bilge Pump Flaps 1 Set of Piston Rings
a Quantity of assorted bolts & nuts, none of various sizes

The following is a correct description,

James Thomas Manufacturer.

Dates of Survey while building
During progress of work in shops -- 1913. Jan 23. Feb. 10. 12. 17. 19. 24. 25. Mar. 3. 12. 17. 26. Apr. 2. 10. 15. 23. 28. May 1. 7. 16. 26. 28.
During erection on board vessel -- June 2. 8. 10. 16. 24. July 2. 8. 16. 31. Aug. 6. 11. 26. 27. Sept. 5. 8. 10. 18. 19. 22. 24. 28. Oct. 1. 6. 9. 13. 14. 17. 28.
Total No. of visits 49

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

" " " donkey " " " *None*

Dates of Examination of principal parts—Cylinders 16-5-13 Slides 16-6-13 Covers 16-6-13 Pistons 10-6-13 Rods 10-6-13
Connecting rods 7-5-13 Crank shaft 7-5-13 Thrust shaft 23-4-13 Tunnel shafts 23-4-13 Screw shaft 31-4-13 Propeller 31-7-13
Stern tube 31-7-13 Steam pipes tested 29-8-13 Engine and boiler seatings 11-8-13 Engines holding down bolts 13-10-13
Completion of pumping arrangements 28-10-13 Boilers fixed 13-10-13 Engines tried under steam 4-11-13
Main boiler safety valves adjusted 28-10-13 13-10-13 Thickness of adjusting washers 5/32 1/8 1/4 5/16
Material of Crank shaft S Identification Mark on Do. LLOYDS Material of Thrust shaft S Identification Mark on Do. LLOYDS
Material of Tunnel shafts S Identification Marks on Do. WGM Material of Screw shafts S Identification Marks on Do. WGM
Material of Steam Pipes Iron Test pressure 600 lb

General Remarks (State quality of workmanship, opinions as to class, &c. The Machinery of this vessel has been built under special survey in accordance with the approved plan & the workmanship & material are of good quality. The Machinery is eligible in my opinion for the Record of L.M.C. 11-13

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 11. 13

T.J.S.
12.11.13

W. Gordon

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

The amount of Entry Fee .. £ 2- 0 :
Special .. £ 28- 19 :
Donkey Boiler Fee .. £ :
Travelling Expenses (if any) £ :
When applied for, 10/11/13
When received, 11-11-13

Committee's Minute GLASGOW 11 NOV. 1913

Assigned + L.M.C. 11. 13

MAKING CERTIFICATE
WRITTEN 12.11.13



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Rpt. 13.

Port of

No. in Reg. Book 381

Owners Yard No.

DESCRIPTION

1 Co

Capacity of

Where is L

Position of

Positions of

and

If fuses are

circuits

If vessel is

Are the fuses

Are all fuses

are per

Are all switches

Total number

A

B

C

D

E

2 M

2

If are lights

Where are

DESCRIPTION

Main cable

Branch cable

Branch cable

Leads to land

Cargo light

DESCRIPTION

In a

room

places

Joints in ca

Are all the j

position

Are there a

How are the

in wa