

REPORT ON MACHINERY

No. 25665

Received at London Office MON. APR. 23. 1913

Date of writing Report 19 When handed in at Local Office 26. 4. 1913 Port of Sunderland

No. in Survey held at Sunderland Date, First Survey 25 Oct 1912 Last Survey 23 April 1913
Reg. Book. on the M/S "Harewood" (Number of Visits 29)

Master Courtney Built at S. land. By whom built J. L. Thompson & Sons Ltd. Tons Gross 4150 Net 2370
Engines made at S. land. By whom made J. Dickenson & Sons Ltd. when made 1913

Boilers made at " By whom made " when made 1913

Registered Horse Power Owners Harris & Dixon Ltd. Port belonging to London

Nom. Horse Power as per Section 28 350 Is Refrigerating Machinery fitted for cargo purposes 70 Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines *Twin CPD* No. of Cylinders 3 No. of Cranks 3
 Dia. of Cylinders 25 42 68 Length of Stroke 28 Revs. per minute 70 Dia. of Screw shaft as per rule 14.37 Material of screw shaft 2.8
 as fitted 14.2 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 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 ft
 Dia. of Tunnel shaft as per rule 12.43 Dia. of Crank shaft journals as per rule 13.34 Dia. of Crank pin 13.39 Size of Crank webs *patent* Dia. of thrust shaft under
 collars 13.38 Dia. of screw 17.6 Pitch of Screw 16 No. of Blades 4 State whether moveable No Total surface 68 1/2
 No. of Feed pumps 2 Diameter of ditto 4 Stroke 24 Can one be overhauled while the other is at work Yes
 No. of Bilge pumps 2 Diameter of ditto 4 Stroke 24 Can one be overhauled while the other is at work Yes
 No. of Donkey Engines 2 Sizes of Pumps 10, 10, 5, 6 dupli No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 4 of 3 1/2 In Holds, &c. 2 of 3 1/2 in each
 Tunnel 2 1/2
 No. of Bilge Injections 4 sizes 4 Connected to condenser, or to circulating pump CP Is a separate Donkey Suction fitted in Engine room & size Yes 4
 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 12. 2. 13. of Stern Tube 14. 2. 13. Screw shaft and Propeller 10. 3. 13. 27. 3. 13.
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from top platform.

BOILERS, &c.—(Letter for record D.) Manufacturers of Steel *J. & S. Spencer & Sons Ltd*
 Total Heating Surface of Boilers 5415 1/2 Is Forced Draft fitted No. No. and Description of Boilers *two marine type S.E.*
 Working Pressure 180 lbs. Tested by hydraulic pressure to 360 lbs. Date of test 26. 2. 13. No. of Certificate 3089.
 Can each boiler be worked separately Yes Area of fire grate in each boiler 68 1/2 No. and Description of Safety Valves to
 each boiler 2 Spring Area of each valve 8.3 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 1.6 Mean dia. of boilers 16.6 Length 11.6 Material of shell plates S
 Thickness 19/32 Range of tensile strength 28 1/2 - 32 Are the shell plates welded or flanged No Descrip. of riveting: cir. seams 2. F. Lap
 long. seams R. D. butt Diameter of rivet holes in long. seams 1.78 Pitch of rivets 9 5/16 Lap of plates or width of butt straps 1.8 1/8
 Per centages of strength of longitudinal joint rivets 92.63 Working pressure of shell by rules 181 lbs Size of manhole in shell 16 x 12
 plate 85.23
 Size of compensating ring 8 3/4 19/32 No. and Description of Furnaces in each boiler 3 corrugated Material S Outside diameter 4.4
 Length of plain part top 7.9 Thickness of plates crown 7.19/32 Description of longitudinal joint weld No. of strengthening rings
 bottom 7.9 Working pressure of furnace by the rules 181. Combustion chamber plates: Material S Thickness: Sides 1/16 Back 1/16 Top 1/16 Bottom 1/8
 Pitch of stays to ditto: Sides 9, 10 Back 4 x 9 1/2 Top 9, 10 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 181
 Material of stays S Diameter at smallest part 1.6 Area supported by each stay 90 Working pressure by rules 204 End plates in steam space:
 Material S Thickness 15/16 Pitch of stays 19 1/8 x 22 1/2 How are stays secured 8 tub. 4 W. Working pressure by rules 181 1/2 Material of stays S
 Diameter at smallest part 3.16 Area supported by each stay 44.7 Working pressure by rules 182 Material of Front plates at bottom S
 Thickness 7/8 Material of Lower back plate S Thickness 29/32 Greatest pitch of stays 14 3/4 x 9 3/4 Working pressure of plate by rules 182
 Diameter of tubes 3 1/4 Pitch of tubes 4 1/2, 4 3/8 Material of tube plates S Thickness: Front 1/8 Back 1/8 Mean pitch of stays 9
 Pitch across wide water spaces 1.14 Working pressures by rules 287 1/2 Girders to Chamber tops: Material S Depth and
 thickness of girder at centre 8 1/2 x 1 1/8 1/2 Length as per rule 2. 10 3/2 Distance apart 10 Number and pitch of stays in each 3 @ 9
 Working pressure by rules 187 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 181 1/2 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



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 boiler 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: — Propeller & shaft, set of top & bottom end bolts & nuts, two main bearing bolts & nuts, set of coupling bolts & nuts, set of feed and bilge pump valves, two main & donkey feed valves, air & br pump valves, set of valves for Ballast & Head donkey, iron bolts & nuts assorted.

The foregoing is a correct description,
 John Dickinson & Sons, Limited.
 Manufacturer.

Dates of Survey while building	During progress of work in shops	1912 Oct 25 Nov 21 Dec 31 Jan 30 29 30 Feb 5 6 7 12 14 26 27 28
	During erection on board vessel	Mar 4 5 10 11 13 14 24 27 31 Apr 1 4 12 15 22
	Total No. of visits	(29)

(29) Is the approved plan of main boiler forwarded herewith Yes

" " " donkey " " " Yes

Dates of Examination of principal parts— Cylinders 23.1.13 Slides 5.2.13 Covers 5.2.13 Pistons 7.2.13 Rods 7.2.13

Connecting rods 7.2.13 Crank shaft 5.2.13 Thrust shaft 12.2.13 Tunnel shafts 31.1.13 Screw shaft 12.2.13 Propeller 12.2.13

Stern tube 12.2.13 Steam pipes tested 11.3.13 Engine and boiler seatings 4.3.13 Engines holding down bolts 27.3.13

Completion of pumping arrangements 27.3.13 Boilers fixed 27.3.13 Engines tried under steam 4.4.13

Main boiler safety valves adjusted 4.4.13 Thickness of adjusting washers P. 1 3/8 x 3/8 S 1 7/8 x 3/8

Material of Crank shaft S Identification Mark on Do. 2708 AFD Material of Thrust shaft S Identification Mark on Do. 2721 AFD

Material of Tunnel shafts S Identification Marks on Do. 2727 & 2728 AFD Material of Screw shafts S Identification Marks on Do. 2722 & 2723 HS

Material of Steam Pipes C Test pressure 400.

General Remarks (State quality of workmanship, opinions as to class, &c.) Machinery and boilers built under special survey. Materials and workmanship good. Engines & boilers examined under steam & found satisfactory. It is submitted that this vessel should be recorded L.M.C. 4-1913 in the Register Book.

It is submitted that this vessel is eligible for THE RECORD + LMC 4.13.

JWD
 28/4/13

Certificate (if required) to be sent to Committee's Minute.

The amount of Entry Fee .. £ 3

Special .. £ 37 10

Donkey Boiler Fee .. £

Travelling Expenses (if any) £

When applied for. 26.4.13

When received. 29.4.13

TUE. APR. 29 1913

Home 4.13

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



Rpt. 5

Date of survey

No. in Reg. Book

Master

Engines

Boilers

Registered

MULTI

(Letter for)

Boilers

No. of Cert

safety valve

Are they fit

Smallest di

Material of

Descrip. of

rules 92

boiler

Description of

plates: Mate

Top 1/2 x 12

smallest part

Pitch of stay

Area support

Lower back p

Pitch of tubes

water spaces

girder at cent

Working press

separately

holes

If stiffened with

Working press

Dates of Survey while building

GENERAL Survey Exam

Survey Fee

Travelling B

Committee's

Assigned