

REPORT ON MACHINERY.

No. 32433

Date of writing Report 0-1-1912 When handed in at Local Office 10-3-1913 Port of Glasgow
 No. in Survey held at Glasgow Date, First Survey 9-1-12 Last Survey 7-3-1913
 Reg. Book. T 5/5 Canberra (Number of Vials 66)

Master Built at Glasgow By whom built Alex Stephen & Sons Ltd (H&S) Tons Gross 7707 Net 4307
 Engines made at Glasgow By whom made Alex Stephen & Sons Ltd (H&S) When built 1913
 Boilers made at ditto By whom made ditto when made 1913
 Registered Horse Power Owners Howard Smith & Co Port belonging to Melbourne

Nom. Horse Power as per Section 28 1202 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c. Description of Engines Quadruple Expansion (2 Sls) No. of Cylinders 8 No. of Cranks 8

Dia. of Cylinders 24 1/2 - 35 - 50 - 40 Length of Stroke 48 Revs. per minute 100 Dia. of Screw shaft as per rule 14.02 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 5-8

Dia. of Tunnel shaft as per rule 13.16 Dia. of Crank shaft journals as per rule 13.81 Dia. of Crank pin 14 3/4 Size of Crank webs 26 9/8 Dia. of thrust shaft under collars 14 1/4 Dia. of screw 10 3/4 Pitch of Screw 19.6 No. of Blades 3 State whether moveable Yes Total surface 49.5

No. of Feed pumps 2 Diameter of ditto Stroke 10 1/2 x 12 1/2 Dupl. 8 x 9 x 8 Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto Stroke 10 1/2 x 12 1/2 Dupl. 8 x 9 x 8 Can one be overhauled while the other is at work Yes

No. of Donkey Engines 3 Sizes of Pumps 4 1/2 x 5 1/2 Bal 10 1/2 x 12 1/2 Dupl. 2 1/2 x 5 1/2 No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room 3 at 3 1/2 2 at 2 1/2 Stokehold 2 3/2 In Holds, &c. 5 @ 3 1/2 Gross Suction 2 3/2

No. of Bilge Injections 2 sizes 8 Connected to condenser, or to circulating pump Yes Is a separate Donkey Suction fitted in Engine room & size Yes 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

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 Both

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 Suction How are they protected Wood 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 8-10-12 of Stern Tube 8-10-12 Screw shaft and Propeller 8-10-12

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

BOILERS, &c. Letter for record Suppliers Manufacturers of Steel Colvill & Steel Co of Scotland

Total Heating Surface of Boilers 18808 Is Forced Draft fitted Yes No. and Description of Boilers 6 Single Ended

Working Pressure 215 Tested by hydraulic pressure to 430 Date of test 23-9-12 No. of Certificate 11757, 11758, 11759

Can each boiler be worked separately Yes Area of fire grate in each boiler 77 5/4 No. and Description of Safety Valves to each boiler Double Spring Area of each valve 96 1/4 Pressure to which they are adjusted 220 Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 18 Mean dia. of boilers 16 10 29/32 Length 12 3 13/32 Material of shell plates S

Thickness 129/32 Range of tensile strength 28/32 Are the shell plates welded or flanged Descrip. of riveting: cir. seams DR

long. seams TR & DBS Diameter of rivet holes in long. seams 129/32 Pitch of rivets 10 1/2 Top of plates or width of butt straps 26

Per centages of strength of longitudinal joint rivets 106-25 plate 81-84 Working pressure of shell by rules 249 Size of manhole in shell 16 x 12

Size of compensating ring M'Neil No. and Description of Furnaces in each boiler 4 Deighton Material S Outside diameter 3-10 1/2

Length of plain part top Thickness of plates crown 143/64 Description of longitudinal joint weld No. of strengthening rings

Working pressure of furnace by the rules 227 Combustion chamber plates: Material S Thickness: Sides 23/32 Back 11/16 Top 23/32 Bottom 11/16

Pitch of stays to ditto: Sides 8 3/4 x 9 Back 7 x 10 Top 8 x 9 If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 217

Material of stays S at smallest part 179.2127 Area supported by each stay 70 Working pressure by rules 216 End plates in steam space:

Material S Thickness 15/64 Pitch of stays 18 7/8 x 16 How are stays secured DN Working pressure by rules 216 Material of stays S

at smallest part 7.22 Area supported by each stay 302 Working pressure by rules 245 Material of Front plates at bottom S

Thickness 7/8 Material of Lower back plate S Thickness 15/16 Greatest pitch of stays 13 1/2 x 7 Working pressure of plate by rules 297

Diameter of tubes 2 3/4 Pitch of tubes 3 7/8 x 4 1/8 Material of tube plates S Thickness: Front 7/8 DP Back 7/8 Mean pitch of stays 8

Pitch across wide water spaces 13 1/2 Working pressures by rules 220 Girders to Chamber tops: Material S Depth and thickness of girder at centre 10 7/8 9 3/4 (2) Length as per rule 3-0 Distance apart 9 x 10 1/2 Number and pitch of stays in each 3 at 8

Working pressure by rules 221 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

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 Connecting Rod Isth. Nuti for bottom, ditto for top 2 main
bearing Isth. 1 Set of coupling Isth. 1 Set of End. Bilge Pump Valves 1 Set of Piston Rings.
a quantity of assorted Isth. Nuti. Iron of various sizes. 2 Propeller Blades. 2 Propeller Bolts
2 Propeller Shafts. Air Pump Rod. Bucket 2 Pair of Beach Pulley Blocks.

The foregoing is a correct description,

Alex. Stephen Son Ld

Manufacturer.

Dates of Survey while building	During progress of work in shops --	1912. Jan'y. 9. 15. 29. Feb'y. 5. 7. 14. 26. March 12. 21. 26. April 2. 3. 9. 16. 25. 29. May 2. 7. 10. 17. 27.
	During erection on board vessel --	June 12. 17. 20. 27. July 1. 8. 30. Aug. 2. 16. 20. 22. 28. 29. Sept. 3. 5. 13. 23. Oct. 1. 8. 14. 17. 22. 23. 24. 28.
	Total No. of visits	Nov. 4. 7. 12. 18. 25. 27. Dec. 3. 11. 17. 26. 1913. Jan'y. 8. 14. 23. 28. Feb'y. 5. 4. 14. 20. 28. March 7.
		66.
		Is the approved plan of main boiler forwarded herewith

Is the approved plan of main boiler forwarded herewith

“ “ “ *donkey* “ “

Dates of Examination of principal parts—Cylinders 22-8-12 Slides 8-10-12 Covers 23-9-12 Pistons 2-8-12 Rods 2-8-12

Connecting rods 20-6-12 Crank shaft 30-7-12 Thrust shaft 30-7-12 Tunnel shafts 1-10-12 Screw shaft 23-9-12 Propeller 14-10-12

Stern tube 23-9-12 Steam pipes tested 11/12 24/10/12 3/12 Engine and boiler seatings 8-10-12 Engines holding down bolts 3-12-12

Completion of pumping arrangements 3-12-12 Boilers fixed 27-11-12 Engines tried under steam 4-3-13

Main boiler safety valves adjusted 26-12-12 Thickness of adjusting washers $\frac{15}{32}$ $\frac{7}{16}$ $\frac{13}{32}$ $\frac{7}{16}$ $\frac{15}{32}$ $\frac{1}{2}$ $\frac{3}{8}$ $\frac{3}{8}$ $\frac{13}{32}$ $\frac{13}{32}$ $\frac{7}{16}$ $\frac{7}{16}$

Material of Crank shaft	§	Identification Mark on Do	452 WGM	Material of Thrust shaft	§	Identification Mark on Do	452 WGM
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Material of Tunnel shafts	\$	Identification Marks on Do.	ditto	Material of Screw shafts	\$	Identification Marks on Do.	ditto
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Material of Steam Pipes Steel. Iron Test pressure 645

General Remarks (State quality of workmanship, opinions as to class, &c. These Engraving Boilers have been built

under Special Service in accordance with the authorized plan

of the material and quality

The first of these is the fact that the
 [illegible]

✠ L M C 3 - 13

It is submitted that
this vessel is eligible for
THE RECORD. + LMC 3.13

F. D.

F.D.
Jy 11
FWD
13/3/13
Wm Gordon Muirhead

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

The amount of Entry Fee .. £ 3	:	-	:	When applied for,
Special £ 75	:	1	:	6-5-19
Donkey Boiler Fee £	:		:	When received,
Travelling Expenses (if any) £	:		:	7-3-19

Committee's Minute GLASGOW 11 MAR. 1913

Assigned + L.M.C. 313

MACHINERY CERTIFICATE
WRITTEN.

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Foundation