

REPORT ON MACHINERY

No. 14821

Received at London Office

TUE. JAN. 20. 1914

7381

Date of writing Report 16 Aug 1914 When handed in at Local Office 17/11 1914 Port of West Hartlepool
No. in Survey held at West Hartlepool Date, First Survey 13th June 1913. Last Survey 6th January 1914
Reg. Book. on the S. S. San Francisco (Number of Visits 69) Tons { Gross Net
Master Built at Londonderry By whom built North of Ireland S.S. Co. Ltd. When built 1914
Engines made at Hartlepool By whom made Richardson, Westgarth & Co. Ltd. when made 1914
Boilers made at Hartlepool By whom made Richardson, Westgarth & Co. Ltd. when made 1914
Registered Horse Power Owners Ishman S. S. Co. Ltd. Port belonging to London
Nom. Horse Power as per Section 28 525 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes.

ENGINES, &c.—Description of Engines Triple Expansion (Inverted) No. of Cylinders Three No. of Cranks Three
Dia. of Cylinders 24, 45, 45 Length of Stroke 51 Revs. per minute 40 Dia. of Screw shaft as per rule 15.1 as fitted 15.2 Material of screw shaft 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 continuous 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 5-3 1/2
Dia. of Tunnel shaft as per rule 13.68 as fitted 13.7 Dia. of Crank shaft journals as per rule 14.36 as fitted 14.5 Dia. of Crank pin 15 Size of Crank webs 9 1/2 x 23 Dia. of thrust shaft under
collars 15 1/4 Dia. of screw 18-0 Pitch of Screw 14-8 No. of Blades four State whether moveable yes Total surface 98
No. of Feed pumps No Diameter of ditto 4 1/2 Stroke 24 Can one be overhauled while the other is at work Yes
No. of Bilge pumps No Diameter of ditto 4 1/2 Stroke 24 Can one be overhauled while the other is at work Yes
No. of Donkey Engines No Sizes of Pumps General service 1/2 x 5 x 6 inch No. and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room 2-3 1/2 & 1 special 3 1/2 Blk Room 2-3 1/2 In Holds, &c. Fore hold 2-3 1/2: Fore Main 2-3 1/2
Deep tank 2-3 1/2: after hold 2-3 1/2: Tunnel well 1-3
No. of Bilge Injections six sizes 9 1/2 Connected to condenser, or to circulating pump (Caterpillar) 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 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 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 22.12.13 of Stern Tube 23.2.14 Screw shaft and Propeller 5.3.14
Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from top platform
BOILERS, &c.—(Letter for record S) Manufacturers of Steel J. Spencer & Sons Ltd. Leeds for J. & C. Ltd.

Total Heating Surface of Boilers 4450 Is Forced Draft fitted Yes No. and Description of Boilers Three single Ended Cyl. & Mult.
Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 24/10/13 No. of Certificate 3344
Can each boiler be worked separately Yes Area of fire grate in each boiler 61.2 No. and Description of Safety Valves to
Boiler No. direct spring Area of each valve 12.50 Pressure to which they are adjusted 185 lbs Are they fitted with easing gear Yes
Greatest distance between boilers or uptakes and bunkers or woodwork 11 1/2 Mean dia. of boilers 15-0 9/16 Length 12-0 Material of shell plates steel
Thickness 1 1/2 Range of tensile strength 29 to 32.4 tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams 2 1/2 x 7 R
long. seams 5/8 x 7 R Diameter of rivet holes in long. seams 1 1/2 Pitch of rivets 8 1/8 Lap of plates or width of butt straps 1 1/2
Per centages of strength of longitudinal joint rivets 84.5-7.6 Working pressure of shell by rules 180 lbs Size of manhole in shell 13 x 16 1/2
Size of compensating ring 8 x 1 1/2 No. and Description of Furnaces in each boiler Three Suspension Material steel Outside diameter 48 3/4
Length of plain part top — bottom — Thickness of plates crown 3 1/2 bottom 3 1/2 Description of longitudinal joint Weld No. of strengthening rings —
Working pressure of furnace by the rules 194 lbs Combustion chamber plates: Material steel Thickness: Sides 19/32 Back 5/8 Top 19/32 Bottom 3/4
Pitch of stays to ditto: Sides 7/4 x 7/8 Back 8 1/4 x 7/8 Top 7/4 x 7/8 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 211.5
Material of stays steel Diameter at smallest part 1 3/8 Area supported by each stay 8 1/4 x 7/8 Working pressure by rules 185.3 End plates in steam space:
Material steel Thickness 1 1/8 Pitch of stays 16 1/4 x 20 1/2 How are stays secured DN + W Working pressure by rules 180 lbs Material of stays steel
Diameter at smallest part 3 3/4 Area supported by each stay 16 1/4 x 21 1/2 Working pressure by rules 216.5 Material of Front plates at bottom steel
Thickness 15/16 Material of Lower back plate steel Thickness 13/16 Greatest pitch of stays 13 x 8 1/2 Working pressure of plate by rules 181 lbs
Diameter of tubes 2 1/2 Pitch of tubes 3 3/4 x 3 3/4 Material of tube plates steel Thickness: Front 31/32 x 15/16 Back 3/4 Mean pitch of stays 9 3/8
Pitch across wide water spaces 13 1/2 Working pressures by rules 185 lbs Girders to Chamber tops: Material steel Depth and
thickness of girder at centre 8 x 1 3/4 Length as per rule 32 3/8 Distance apart 7 1/8 Number and pitch of stays in each three 7/4
Working pressure by rules 181 lbs 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
plates — Pitch of rivets — Working pressure of shell by rules — Diameter of flue — Material of flue plates — Thickness —
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 —

WS2-0042

VERTICAL DONKEY BOILER— Manufacturers of Steel

No.	Description	When made	Where fixed
Made at	By whom made	No. of Certificate	Fire grate area
Working pressure	tested by hydraulic pressure to	Date of test	Description of Safety
Valves	No. of Safety Valves	Area of each	Pressure to which they are adjusted
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
Working pressure of shell by rules	Thickness of shell crown plates	Radius of do.	No. of stays to do.
Diameter of furnace Top	Bottom	Length of furnace	Thickness of furnace plates
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:— *No Top end, two bottom end & two main bearing bolts & nuts, one set of coupling bolts, one set of feed & bilge pump valves, one propeller shaft, two propeller blades, one crank pin bearing, one eccentric strap, one set of air pump valves, 12 condenser tubes, 5 boiler tubes, 3 main check valves, 3 auxiliary check valves & mounted bolt & nut.*

The foregoing is a correct description,

FOR RICHARDSONS, WESTGARTH & CO. LIMITED

Manufacturer.

Assistant General Manager
 Dates of Survey while building
 During progress of work in shops -- 1913. June 13. 26. 30. July 7. 8. 11. 14. 15. 16. 17. 21. 24. 25. 28. Aug. 1. 12. 13. 15. 21. 25. Sep. 2. 4. 5. 6. 8. 9. 12. 16. 17. 19. 22. 23. 24. 25. 26. Oct. 1. 2. 3. 6. 7. 9. 10. 13. 14. 15. 16. 17. 21. 23. 24. 27. 28. 29. 31. Nov. 3. 5. 7. 10. Dec. 1. 11. 13. 17. 22. 23. 24. 31. 1914. Jan. 5. 6. Dec. 22. to 20th May 1914
 During erection on board vessel --
 Total No. of visits 81

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

Dates of Examination of principal parts—Cylinders 9/10/13 Slides 23/10/13 Covers 24/9/13 Pistons 10/10/13 Rods 19/8/13
 Connecting rods 25/9/13 Crank shaft 12/9/13 Thrust shaft 12/8/13 Tunnel shafts 2/10/13 Screw shaft 5/1/14 Propeller 5/6/14
 Stern tube 16/10/13 Steam pipes tested 24/12/13 Engine and boiler seatings 5-3-14 Engines holding down bolts 2-4-14
 Completion of pumping arrangements 18-5-14 Boilers fixed 2-4-14 Engines tried under steam 19-5-14
 Main boiler safety valves adjusted 18-5-14 Thickness of adjusting washers 18-5-14
 Material of Crank shaft *steel* Identification Mark on Do. 5376 Material of Thrust shaft *steel* Identification Mark on Do. 5376
 Material of Tunnel shafts *steel* Identification Marks on Do. 5376 Material of Screw shafts *steel* Identification Marks on Do. 5376
 Material of Steam Pipes *brought from Lapwelded* Test pressure 540 lbs per sq in cert 12/1/14

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

Evaporator body & links tested to 50 lbs & 400 lbs resp. 17 March 18/8/13 — *Contract full water tested 50 lbs March 18/8/13*

The Engines & Boilers of this vessel have been constructed under Special Survey, the material & workmanship sound & good. The Boilers & steam pipes have been tested by hydraulic pressure in accordance with the Rules.

The machinery was tried under steam & found satisfactory. The engines & boilers were securely fixed aboard, and found sound when under trial.

This vessel is eligible in Our Opinion to have the Notation *(LMC)* in the Register Book.

It is submitted that this vessel is eligible for THE RECORD. + LMC 5. 14. F.D.

The amount of Entry Fee .. £ 3 : : :
 Special .. £ 30-16-8
 Donkey Boiler Fee .. £ 15-8-4
 Travelling Expenses (if any) £ 12-2-0

When applied for, 19/1/14

When received, 19/5/14

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

Committee's Minute

Assigned

+ LMC 5. 14. F.D.

TRI. DEC 25. 1914



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