

REPORT ON MACHINERY.

No. 39259.

Received at London Office

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Date of writing Report 21st Oct 1919 When handed in at Local Office 27/10/19 Port of Glasgow
 To, in Survey held at Glasgow Date, First Survey 14/10/18 Last Survey 16th Oct 1919
 Reg. Book. on the SS "Harmodius" (Number of Visits 48)
 Master Irvine Built at Irvine By whom built Ayrshire Dockyard No 476 Tons Gross 5229
 Engines made at Glasgow By whom made Dunsmuir & Jackson No 496 when made 1919
 Boilers made at Glasgow By whom made Dunsmuir & Jackson No 495 when made 1919
 Registered Horse Power 517 Owners R. J. Houston & Co Port belonging to Liverpool
 Com. Horse Power as per Section 28 517 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders 3 No. of Cranks 3
 Dia. of Cylinders 27" x 44" x 73" Length of Stroke 48" Revs. per minute 75 Dia. of Screw shaft 14.7" 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
 the propeller boss Yes If the liner is in more than one length are the joints burned Yes 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 Yes Length of stern bush 60 1/2"
 Dia. of Tunnel shaft 13.3" Dia. of Crank shaft journals 13.9" Dia. of Crank pin 14 1/2" Size of Crank webs 28" x 9" Dia. of thrust shaft under
 pillars 14 3/4" Dia. of screw 17-6" Pitch of Screw 18-6" No. of Blades 4 State whether moveable No Total surface 102 ft²
 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 5 Sizes of Pumps 3 1/2" x 7" x 18" 1" condenser No. and size of Suctions connected to both Bilge and Donkey pumps
 Engine Room 2 @ 3 1/2" Stokehold 2 @ 3 1/2" In Holds, &c. No 1-2 @ 3 1/2" No 2-2 @ 3 1/2" Cross Bunker
@ 3 1/2" No 4 hold 2 @ 3 1/2" No 5 hold 1 @ 3 1/2" Tunnel well 1 @ 3 1/2"
 No. of Bilge Injections 1 sizes 12" Connected to condenser, or to circulating pump C.P. Is a separate Donkey Suction fitted in Engine room & size Yes 1 @ 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 Below
 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
 That pipes are carried through the bunkers Forward hold 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 10-6-19 of Stern Tube 26-6-19 Screw shaft and Propeller 12-9-19
 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 W. Beardmore & Co.
 Total Heating Surface of Boilers 7668 Is Forced Draft fitted Yes No. and Description of Boilers Three Cyl. S. S. Multitubular
 Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 29-1-19 No. of Certificate 15600
 Can each boiler be worked separately Yes Area of fire grate in each boiler 68.3 ft² No. and Description of Safety Valves to
 each boiler Two spring loaded Area of each valve 9.62 ft² 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 18" dia. of boilers 15-6" Length 11-6" Material of shell plates S
 Thickness 1 1/4" Range of tensile strength 28/32 Are the shell plates welded or flanged No Descrip. of riveting; cir. seams L.D.R.
 Long. seams T.R. & all other Diameter of rivet holes in long. seams 1 5/16" Pitch of rivets 9 1/2" Width of butt straps 19 1/2"
 Percentages of strength of longitudinal joint 88.3 Working pressure of shell by rules 182 Size of manhole in END PLATE 16" x 12"
 Size of compensating ring Flanged No. and Description of Furnaces in each boiler 3 Corrugated Material S Outside diameter 50 3/16"
 Length of plain part top 19 1/2" Thickness of plates bottom 19 1/2" Description of longitudinal joint weld No. of strengthening rings None
 Working pressure of furnace by the rules 187 Combustion chamber plates: Material S Thickness: Sides 23/32" Back 1 1/8" Top 23/32" Bottom 23/32"
 Pitch of stays to ditto: Sides 10 5/8" x 9 1/4" Back 10 1/4" x 8 3/4" Top 10 5/8" x 9 1/4" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 180
 Material of stays S at smallest part 2309 Area supported by each stay 99 Working pressure by rules 210 End plates in steam space:
 Material S Thickness 1 1/32" Pitch of stays 21 3/4" x 20 1/2" How are stays secured D. nuts Working pressure by rules 181 Material of stays S
area at smallest part 829 Area supported by each stay 470 Working pressure by rules 183 Material of Front plates at bottom S
 Thickness 7/8" Material of Lower back plate S Thickness 2 1/32" Greatest pitch of stays 13 3/4" Working pressure of plate by rules 205
 Diameter of tubes 2 3/4" Pitch of tubes 4" x 3 7/8" Material of tube plates S Thickness: Front 2 1/32" Back 3/4" Mean pitch of stays 9 7/8"
 Pitch across wide water spaces 13 5/8" Working pressures by rules 182 Girders to Chamber tops: Material S Depth and
 thickness of girder at centre 10" x 1 3/4" Length as per rule 35 9/16" Distance apart 10 5/8" Number and pitch of stays in each 3 @ 9 1/4"
 Working pressure by rules 183 Superheater or Steam chest; how connected to boiler Yes Can the superheater be shut off and the boiler worked
 separately Yes Diameter Yes Length Yes Thickness of shell plates Yes Material Yes Description of longitudinal joint Yes Diam. of rivet
 holes Yes Pitch of rivets Yes Working pressure of shell by rules Yes Diameter of flue Yes Material of flue plates Yes Thickness Yes
 If stiffened with rings Yes Distance between rings Yes Working pressure by rules Yes End plates: Thickness Yes How stayed Yes
 Working pressure of end plates Yes Area of safety valves to superheater Yes Are they fitted with easing gear Yes

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 |
| Valves | No. of Safety Valves | Area of each | Pressure to which they are adjusted | Date of adjustment |
| If fitted with casing 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 |
| 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 each of top & bottom end, main bearing & coupling bolts & nuts: 1 set each of feed, bilge & air pump valves: 2 rings for each piston rod packing: 1 C.I. Propeller: 3 main & 3 donkey feed check valves, 6 cylinder cover studs & nuts: 12 boiler tubes, 12 condenser tubes, 6 steam chest cover studs, 2 rings for each valve spindle packing, assorted iron bars, bolts & nuts.

The foregoing is a correct description,

James H. H. H. Manufacturer.

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|--------------------------------|-------------------------------------|---------------------|---|
| Dates of Survey while building | During progress of work in shops -- | Boilers H95 | 1918 Oct 14, 24, Nov 14, 19, 22, 27, Dec 5, 11, 16, 26, 1919 Jan 29. |
| | | Engines H96 | 1919 Apr 29, May 5, 6, 13, 16, 20, 22, 26, 30, June 4, 5, 9, 10, 12, 17, 23, 24, 26, 27, July 3, 4, 14, 20, 26, 28, Sept 2, 8, 12, 14, 20, 23, Oct 2, 10, 14, 16. |
| | | Total No. of visits | H8 |

Is the approved plan of main boiler forwarded herewith ☒

Dates of Examination of principal parts—Cylinders 12-6-19 Slides 23-6-19 Covers 23-6-19 Pistons 30-5-19 Rods 17-6-19
 Connecting rods 23-6-19 Crank shaft 30-5-19 Thrust shaft 30-5-19 Tunnel shafts 9-6-19 Screw shaft 17-6-19 Propeller 9-6-19
 Stern tube 12-6-19 Steam pipes tested 3-7-19 Engine and boiler seatings 10-6-19 Engines holding down bolts 26-8-19
 Completion of pumping arrangements 16-10-19 Boilers fixed 18-9-19 Engines tried under steam 16-10-19
 Main boiler safety valves adjusted 18-9-19 Thickness of adjusting washers S. P 3/8" S 3/8" C P 3/8" S 25/32" P. P 3/8" 1/2 S.
 Material of Crank shaft S Identification Mark on Do. 30-5-19, J.E.S. Material of Thrust shaft S Identification Mark on Do. 30-5-19, J.E.S.
 Material of Tunnel shafts S Identification Marks on Do. 9-6-19, J.E.S. Material of Screw shafts S Identification Marks on Do. 17-6-19, J.E.S.
 Material of Steam Pipes Seamless Steel. Test pressure 540 lbs.

General Remarks (State quality of workmanship, opinions as to class, &c. *Supplement of Lane Builders Regs No 501 = S.S. Benloch. Glasgow Report No 39089.*)
 These Engines and Boilers have been built under Special Survey and in accordance with the Rules: the materials and workmanship are sound and good. They have been fitted on board in an efficient manner, tried under working conditions and found satisfactory, and are eligible in my opinion to be classed with record of L.M.C. 10-19.

It is submitted that this vessel is eligible for THE RECORD + LMC 10.19. F.D.

The amount of Entry Fee .. £ 3 : 0 :
 Special Charge for this .. £ 45 : 17 :
 Donkey Boiler Fee .. £ 17 :
 Travelling Expenses (if any) £ : :
 When applied for, 4/11/19.
 When received, 12/11/19.

Committee's Minute GLASGOW 4 NOV 1919
 Assigned + LMC 10.19

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



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