

Rpt. 4.

REPORT ON MACHINERY

No. 40673

Received at Office

Date of writing Report 11. 12. 1920 When handed in at Local Office 11. 12. 1920 Port of Glasgow

No. in Survey held at Glasgow Date, First Survey 18th June 1915 Last Survey 6th Dec 1920
Reg. Book. T. S. S. "NATIA" (Number of Visits 82)Master J. L. P. Mathews Built at Glasgow By whom built A. Stephen & Sons. Ltd. No 469 Tons Gross 8723
Engines made at Glasgow By whom made A. Stephen & Sons. Ltd. No 469 Net 5427
Boilers made at Glasgow By whom made A. Stephen & Sons. Ltd. No 469 When built 1920
Registered Horse Power Owners Royal Mail Port belonging to Southampton

Nom. Horse Power as per Section 28 1095 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Twin Screw Quadruple Expansion No. of Cylinders 4 No. of Cranks 4

Dia. of Cylinders 23" x 33" x 47" x 67" Length of Stroke 51" Revs. per minute 93 Dia. of Screw shaft as per rule 14" 3/8" Material of screw shaft as fitted 14" 7/8"

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 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 66"

Dia. of Tunnel shaft as per rule 13" 1/4" Dia. of Crank shaft journals as per rule 14" 0/7" Dia. of Crank pin 14" Size of Crank webs 19" x 8" 1/4" Dia. of thrust shaft under collars 14" Dia. of screw 16" 6" Pitch of Screw 18" 0" No. of Blades 3 State whether moveable Yes Total surface 80 sq ft

No. of Feed pumps 6 Diameters of ditto 10 1/2" Stroke 26" Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameters of ditto 5" Stroke 24" Can one be overhauled while the other is at work Yes

No. of Donkey Engines 3 Sizes of Pumps 10" x 10" x 10" No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room 2 @ 3 1/2" Strokehold 2 @ 3 1/2" Tunnel 2 @ 3 1/2" In Holds, &c. No 1 - 2 @ 3 1/2" No 2 - 2 @ 3 1/2" No 3 - 2 @ 3 1/2" No 4 - 2 @ 3 1/2" No 5 - 2 @ 3 1/2"

No. of Bilge Injections 2 sizes 8" Connected to condenser, or to circulating pump C.P. Is a separate Donkey Suction fitted in Engine room & size 2 @ 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 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 None How are they protected Yes

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

Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Above Deep Load Line

BOILERS, &c.—(Letter for record 5) Manufacturers of Steel D. Colville & Sons: Glasgow S. & J. Co. S. Co. of Scotland

Total Heating Surface of Boilers 16812.5 Is Forced Draft fitted Yes No. and Description of Boilers 5 Single ended multitubular

Working Pressure 215 lbs Tested by hydraulic pressure to 430 lbs Date of test 17-29-12-19 No. of Certificate 15133: 2 @ 15114 6

Can each boiler be worked separately Yes Area of fire grate in each boiler 82.5 sq ft No. and Description of Safety Valves to each boiler Two spring loaded Area of each valve 9.62 sq in Pressure to which they are adjusted 215 lbs Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers on woodwork 24" dia. of boilers 17" 6" Length 12" 0" Material of shell plates S

Thickness 1 1/2" Range of tensile strength 30/34 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams L.D.R.

long. seams T.R. D.W. Sams Diameter of rivet holes in long. seams 1 1/2" Pitch of rivets 10 1/2" Lap of plates or width of butt straps 25 3/8"

Per centages of strength of longitudinal joint rivets 102.5 Working pressure of shell by rules 254 lbs Size of manhole in shell 16" x 12"

Size of compensating ring No. and Description of Furnaces in each boiler 4 Corrugated Material S Outside diameter 49 1/4"

Length of plain part top 1 Thickness of plates crown 3 3/4" Description of longitudinal joint Weld No. of strengthening rings None

Working pressure of furnace by the rules 254 Combustion chamber plates: Material S Thickness: Sides 1/16" Back 5/16" W. 1/16" Top 1/16" Bottom 29/32"

Pitch of stays to ditto: Sides 9" x 8" Back W 9" x 8" Top W 8 1/2" x 8" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 225

Material of stays S Area at smallest part W-2.1 Area supported by each stay 72 sq in Working pressure by rules 262 End plates in steam space:

Material S Thickness 1 9/32" Pitch of stays 18 1/4" x 18" How are stays secured S. nuts Working pressure by rules 224 Material of stays S

Area at smallest part 784.64 Area supported by each stay 328.5 Working pressure by rules 248 Material of Front plates at bottom S

Thickness 7/8" Material of Lower back plate S Thickness 7/8" Greatest pitch of stays 13 1/2" x 8" Working pressure of plate by rules 215

Diameter of tubes 2 1/2" Pitch of tubes 3 3/4" x 3 3/8" Material of tube plates S Thickness: Front 7/8" Back 13/16" Mean pitch of stays 7 3/8"

Pitch across wide water spaces 13 1/2" Working pressures by rules 218 Girders to Chamber tops: Material S Depth and

thickness of girder at centre C-9 1/2" W-8 1/2" Length as per rule 31 1/2" distance apart W-8 1/4" Number and pitch of stays in each W-3 @ 8"

Working pressure by rules 222 Steam dome: description of joint to Yes % of strength of joint Yes

Diameter 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 plates Yes Thickness Yes How stayed Yes

UPERHEATER. Type Yes Date of Approval of Yes Tested by Hydraulic Pressure to Yes

Date of Test Yes Is a Safety Valve fitted Yes Superheater which can be shut off from the Boiler Yes

Diameter of Safety Valve Yes Pressure to which Yes Is Easing Gear fitted Yes

IS A DONKEY BOILER FITTED?

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:—/each of top & bottom end, main bearing & coupling bolts & nuts, 1 pair of top end & 1 pair of bottom end braces, 1 pair of main bearing braces, 1 set of rings for each size piston & piston valves, 1 impeller & shaft, 2 bronze propeller blades, spare parts for auxiliary feed & donkey pumps, 1 air pump head valve, bucket & rod, 1 eccentric rod, chains & strap, 4 safety valve springs, 12 junk ring bolts & nuts, 1 set of feed check valves, 1 set of boiler tubes (plain) & 4 stay tubes, 50 condenser tubes & 100 ferrules, 1 set of bilge pump valves, 1 set of valves for waste feed pumps, assorted bolts, nuts & washers.

The foregoing is a correct description,

ALEXANDER STEPHEN & SONS, LIMITED.

Thos. W. Delmoil

Manufacturer.

Secretary.

Dates of Survey while building
During progress of work in shops - - 1915: Jun 18 July 7 Oct 8 (1917) Sep 7 (1918) July 9 Aug 12-13-22 Sep 11 Oct 2-22-31 Nov 26 Dec 11-18 (1919) Jan 9-15 Feb 11-18-27-28
During erection on board vessel - - Jan 14-18 May 8-9-14-19-22-28 Jun 2-12-19-25 July 2 Aug 8-11 Sep 3-16-24 Oct 1-3-8-26-28 Nov 5-17-24 Dec 4-11-17-22-27-29 (1920) Jan 9-13-15-24-30
Total No. of visits 82
Is the approved plan of main boiler forwarded herewith Yes

Dates of Examination of principal parts—Cylinders 17-12-19 Slides 17-12-19 Covers 17-12-19 Pistons 17-12-19 Rods 17-12-19

Connecting rods 17-12-19 Crank shaft 24-9-19 Thrust shaft 24-9-19 Tunnel shafts 24-9-19 Screw shaft 24-9-19 Propeller 24-9-19

Stern tube 4-12-19 Steam pipes tested 15-3-20 Engine and boiler seatings 24-2-20 Engines holding down bolts 25-6-20

Completion of pumping arrangements 6-12-20 Boilers fixed 25-6-20 Engines tried under steam 6-12-20

Completion of fitting sea connections 24-2-20 Stern tube 24-2-20 Screw shaft and propeller 24-2-20

Main boiler safety valves adjusted 25-6-20 Thickness of adjusting washers See below

Material of Crank shaft S Identification Mark on Do. 24-9-19 JES Material of Thrust shaft S Identification Mark on Do. 24-9-19 JES

Material of Tunnel shafts S Identification Marks on Do. ——— Material of Screw shafts S Identification Marks on Do. ———

Material of Steam Pipes Lap welded iron Test pressure 645 lbs

Is an installation fitted for burning oil fuel No Is the flash point of the oil to be used over 150° F. Yes

Have the requirements of Section 49 of the Rules been complied with Yes

Is this machinery duplicate of a previous case Yes If so, state name of vessel T.S.S. "hariva" Rpt No 39962

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

Thickness of Safety Valve adjusting washers.

For'd Port Boiler.

F.V. 7/16" A.V. 13/32"

For'd Starboard Boiler.

F.V. 5/16" A.V. 15/32"

Aft's Port Boiler

F.V. 13/32" A.V. 13/32"

Centre Boiler.

F.V. 3/8" A.V. 3/8"

Aft's Starboard Boiler.

F.V. 11/32" A.V. 5/16"

These engines & 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. 12-20.

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 12-20 FD.

MACHINERY CERTIFICATE
23/2/21 dated 15/12/20

Roll 24/12/20 J.M.

The amount of Entry Fee ... £ 3 : 0 : When applied for,

Special ... £ 72 : 7 : 6 13/12/19-20

Donkey Boiler Fee ... £ : : When received,

Travelling Expenses (if any) £ : : 19-2-19-20

Committee's Minute Glasgow 14 DEC

Assigned + L.M.C. 12-20

J.D. Mayor's Signa

Engineer Surveyor to Lloyd's Register of Shipping.



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