

REPORT ON MACHINERY.

No. 8797

Received at London Office

THU. SEP. 21 1922

Date of writing Report

19

When handed in at Local Office

19

9

19

22

Port of

Belfast

No. in Survey held at
Reg. Book.

Belfast

Date, First Survey 1921 July 9 Last Survey Sept 13 1922

(Number of Visits 87

on the S/S "CITY OF NAGPUR"

Master Built at Belfast By whom built Workman Clark & Co. Ltd. When built 1922

Engines made at Belfast By whom made Workman Clark & Co. Ltd. when made 1922

Boilers made at Belfast By whom made Workman Clark & Co. Ltd. when made 1922

Registered Horse Power Owners City Lines Ltd. Port belonging to Glasgow

Nom. Horse Power as per Section 29 1038. Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted Yes.

ENGINES, &c.—Description of Engines Single-screw Quad: Exp. ✓ No. of Cylinders 4 ✓ No. of Cranks 4 ✓
 Dia. of Cylinders 29"-42"-60"-86" Length of Stroke 60" Revs. per minute 81 ✓ Dia. of Screw shaft 17.44" as per rule 17.1" Material of screw shaft S. 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 — 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 6'-6" ✓
 Dia. of Tunnel shaft as per rule 16.29" as fitted 17" Dia. of Crank shaft journals as per rule 17.1" as fitted 17.75" Dia. of Crank pin 17 3/4" Size of Crank webs 9 3/4" x 12" Dia. of thrust shaft under
 collars 17 3/4" Dia. of screw 19'-8" Pitch of Screw 19'-6" No. of Blades 4 State whether moveable Yes. Total surface 120 ft. ✓
 No. of Feed pumps 2 ✓ Diameter of ditto 5 1/2" Can one be overhauled while the other is at work Yes. ✓
 No. of Bilge pumps 2 ✓ Diameter of ditto 5 1/2" Stroke 27" Can one be overhauled while the other is at work Yes. ✓
 No. of Donkey Engines 1 ✓ Sizes of Pumps No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 5'-3 1/2" 2'-3" in Cofferdams ✓ In Holds, &c. 17'-3 1/2" ✓

No. of Bilge Injections 1 sizes 13" Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room & size 2'-5 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 —

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 Ford. Suctions ✓ How are they protected Steel casing ✓

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 Bridge ✓

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Beardmore's & the Newburn Steel Works. 7/10 ✓

Total Heating Surface of Boilers 15910 sq. ft. Is Forced Draft fitted Yes. ✓ No. and Description of Boilers 5- Single ended Marine ✓

Working Pressure 230 lbs. sq. in. Tested by hydraulic pressure to 395 lbs. sq. in. Date of test 6/12/21 ✓ No. of Certificate 807 ✓

Can each boiler be worked separately Yes. ✓ Area of fire grate in each boiler 75 1/8" sq. ft. No. and Description of Safety Valves to

each boiler 2-spring loaded Area of each valve 11.04" sq. in. Pressure to which they are adjusted 230 lbs. sq. in. Are they fitted with easing gear Yes. ✓

Smallest distance between boilers or uptakes and bunkers or woodwork 2'-0" ✓ Mean dia. of boilers 16'-6" Length 12'-6" Material of shell plates Steel ✓

Thickness 1 3/8" Range of tensile strength 30/34 tons. Are the shell plates welded or flanged No. Descrip. of riveting: cir. seams Lap D. ✓

long. seams D.B. Tube. Diameter of rivet holes in long. seams 1 5/8" Pitch of rivets 10 9/16" Lap of plates or width of butt straps 23 7/16" ✓

Per centages of strength of longitudinal joint rivets. 89.2. plate 84.4 Working pressure of shell by rules 231. Size of manhole in shell 12" x 16" ✓

Size of compensating ring Hawthorn-Cray No. and Description of Furnaces in each boiler 4-Dighton ✓ Material Steel. Outside diameter 41" ✓

Length of plain part top 4" bottom 8" Thickness of plates crown 1 1/16" bottom 1 1/16" Description of longitudinal joint Weld. ✓ No. of strengthening rings 27 ✓

Working pressure of furnace by the rules 245 ✓ Combustion chamber plates: Material Steel Thickness: Sides 1 1/16" Back 1 1/16" Top 1 1/16" Bottom 32 ✓

Pitch of stays to ditto: Sides 8 3/8" x 8 3/8" Back 7 1/2" x 8 3/4" Top 7 1/2" x 6" If stays are fitted with nuts or riveted heads Nuts ✓ Working pressure by rules 234 ✓

Material of stays Steel Area at smallest part 1 1/16"-239 sq. in. Area supported by each stay 68 sq. in. Working pressure by rules 254 End plates in steam space: ✓

Material Steel Thickness 1 1/4" Pitch of stays 21" x 5 3/4" How are stays secured D. nuts & washers. Working pressure by rules 234 Material of stays Steel ✓

Area at smallest part 6.09 sq. in. Area supported by each stay 330 3/4 sq. in. Working pressure by rules 242 Material of Front plates at bottom Steel ✓

Thickness 1" Material of Lower back plate Steel Thickness 1 5/16" Greatest pitch of stays 13 3/4" x 8" Working pressure of plate by rules 285 ✓

Diameter of tubes 2 3/4" Pitch of tubes 4" x 3 7/8" Material of tube plates Steel Thickness: Front 1 1/16" Back 7/8" Mean pitch of stays 7 3/4" x 12" ✓

Pitch across wide water spaces 13 3/4" Working pressures by rules 235 Girders to Chamber tops: Material Steel Depth and

thickness of girder at centre 2 1/2" x 10" x 3/4" x 2 Length as per rule 41 1/2" Distance apart 8 3/4" x 6" Number and pitch of stays in each 3-7 1/2" ✓

Working pressure by rules 234 Steam dome: description of joint to shell — % of strength of joint —

Diameter — Thickness of shell plates — Material — Description of longitudinal joint — Diam. of rivet holes —

Pitch of rivets — Working pressure of shell by rules — Crown plates — Thickness — How stayed —

SUPERHEATER. Type Schmidt Date of Approval of Plan — Tested by Hydraulic Pressure to 460 lbs. sq. in. ✓

Date of Test 22-5-22. Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler Yes. ✓

Diameter of Safety Valves 3" Pressure to which each is adjusted 230 lbs. sq. in. Is Easing Gear used Yes. ✓

W17-0017

IS A DONKEY BOILER FITTED?

No.

If so, is a report now forwarded?

SPARE GEAR.

State the articles supplied:—

2 top end Balb rmb, 2 bottom end Balb rmb, 2 main Bearing balb rmb, a set of Coupling bolts, Feed & bilge pumps, 1 set of rings & springs for each piston, assorted bolts rmb, iron of various sizes, valves for all auxiliary pumps, 2 propeller blades etc.

The foregoing is a correct description,
FOR WORKMAN, CLARK & CO., LIMITED,

J. Cunningham

Manufacturer.

Dates of Survey while building { During progress of work in shops - - 1921 Feb. 9, 15, Mar. 8, 15, 17, 23, 25, May 3, 6, 17, 28, June 3, July 19, 26, Aug. 15, 24, 25, Sep. 9, 14, 23, Oct. 14, 18, 21, 27, Nov. 7, 11, 21, 22, 23, Dec. 1, 9, 14, 17, 22, 1922 Jan. 3, 11, 17, Feb. 7, 10, 17, 22, Mar. 3, 13, 20, 23, 27, Apr. 21, 26, May 3, 8, 9, 17, 18, 19, 22, 23, 27, 29, 30, June 1, 8, 12, 15, 17, 19, 21, July 31, Aug. 7, 8, 10, 11, 14, 15, 18, 21, 22, 23, 24, 25, 29, 30, Sep. 1, 2, 4, 7, 11, 12, During erection on board vessel - - - - -
Total No. of visits 87

Is the approved plan of main boiler forwarded herewith Yes.

" " " donkey " " "

Dates of Examination of principal parts—Cylinders 9-2-21 Slides 9-2-21 Covers 9-2-21 Pistons 21-11-21 Rods 21-11-21

Connecting rods 17-5-22 Crank shaft 11-11-21 Thrust shaft 11-11-21 Tunnel shafts 11-11-21 Screw shaft 11-11-21 Propeller 18-10-21

Stern tube 21-10-21 Steam pipes tested 28-2-22 Engine and boiler seatings 23-11-21 Engines holding down bolts 23-8-22

Completion of pumping arrangements 12-9-22 Boilers fixed 17-6-22 Engines tried under steam 12-9-22

Completion of fitting sea connections 8-5-22 Stern tube 8-5-22 Screw shaft and propeller 8-5-22

Main boiler safety valves adjusted 2-9-22 Thickness of adjusting washers 7/8

Material of Crank shaft S. Steel Identification Mark on Do. H.P.S. 11-11-21 Material of Thrust shaft S. Steel Identification Mark on Do. H.P.S. 11-11-21

Material of Tunnel shafts S. Steel Identification Marks on Do. H.P.S. 11-11-21 Material of Screw shafts S. Steel Identification Marks on Do. H.P.S. 11-11-21

Material of Steam Pipes wrought Iron Test pressure 690 lbs per square inch.

Is an installation fitted for burning oil/fuel Yes. 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 No. If so, state name of vessel.

General Remarks (State quality of workmanship, opinions as to class, &c.) This machinery has been built

under Special Survey in accordance with the Rules & the approved plans. It has been satisfactorily fitted on board & tried under steam & the case is eligible in our opinion for the notation + LMC 9.22 (lined) & record of "Fitted for Oil fuel. F.P. above 150°F." The materials & workmanship are good.

It is submitted that
this vessel is eligible for
THE RECORD. + LMC 9.22. FD. CL.

Fitted for oil fuel 9.22. F.P. above 150°F.

The amount of Entry Fee ... £ 6 : = : When applied for,
Special ... £ 126 : = : Sep. 20, 1922
Donkey Boiler Fee ... £ : : When received,
Travelling Expenses (if any) £ : : 7.10.22

Committee's Minute

Assigned

10E OCT. 3 1922

+ LMC 9.22

F.D. C.L.

Fitted for oil fuel 9.22 F.P. above 150°F.

H.F. Southwell

Engineer Surveyor to Lloyd's Register of Shipping.

26/9/22

J.D. C.L.



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Foundation