

REPORT ON MACHINERY.

No. 7956

THU. 16 MAY. 1918

Date of writing Report May 14th 1918 When handed in at Local Office May 14th 1918 Port of Belfast
 No. in Survey held at Belfast Date, First Survey 28 Jan 1916 Last Survey 1st May 1918
 Reg. Book. J.S.S. Port Denison (Number of Visits 91) Gross 10334
 on the J.S.S. Port Denison

Master Belfast Built at Belfast By whom built Warkman Clark & Co Tons } Gross 10334
 Engines made at Belfast By whom made - when made - Net 1918
 Boilers made at - By whom made - when made -

Registered Horse Power Owner Commonwealth Dominion Dock belonging to London
 Nom. Horse Power as per Section 28 209 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Two Screw Triple Expansion Cylinders 6 No. of Cranks 6

Dia. of Cylinders 22½ - 38 - 63½ Length of Stroke 45 Revs. per minute 80 Dia. of Screw shaft as per rule 13.5 Material of J. Steel
as fitted 14.37 screw shaft

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 4-9½

Dia. of Tunnel shaft as per rule 12.07 Dia. of Crank shaft journals as per rule 12.67 Dia. of Crank pin 3½ Size of Crank webs 9½ x 9 Dia. of thrust shaft under

collars 13½ Dia. of screw 16-6 Pitch of Screw 17-9 No. of Blades 3 State whether moveable Yes Total surface 80 sq ft

No. of Feed pumps 1 Diameter of ditto 5½ Stroke 24 Can one be overhauled while the other is at work Yes

No. of Bilge pumps 1 Diameter of ditto 5½ Stroke 24 Can one be overhauled while the other is at work Yes

No. of Donkey Engines See separate sheet No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room 6-3½ In Holds, &c. 12-3½ + 1-2½

No. of Bilge Injections 2 sizes 8 Connected to condenser, or to circulating pump Pump Is a separate Donkey Suction fitted in Engine room & size Yes-3½

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 Fore 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

Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Top platform & Room

MANUFACTURERS, &c.—(Letter for record 3) Manufacturers of Steel Beardmore & Co

Total Heating Surface of Boilers 11960 sq ft Forced Draft fitted Yes No. and Description of Boilers 4 Single End Cylind.

Working Pressure 200 lbs Tested by hydraulic pressure to 400 lbs Date of test 16-11-17 No. of Certificate 513

Can each boiler be worked separately Yes Area of fire grate in each boiler 73½ sq ft No. and Description of Safety Valves to

each boiler 2 Direct Spring Area of each valve 11.04 sq ft Pressure to which they are adjusted 200 lbs Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 24 Mean dia. of boilers 15-10½ Length 12-6 Material of shell plates Steel

Thickness ½ Range of tensile strength 30-33½ tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams Top & S.

Long. seams Butt & Lap Diameter of rivet holes in long. seams 1/16 Pitch of rivets 10½ Lap of plates or width of butt straps 22½

Percentage of strength of longitudinal joint 90.6 Working pressure of shell by rules 231 lbs Size of manhole in shell 16" x 12"

Size of compensating ring 10" Heil No. and Description of Furnaces in each boiler 4 - Mousens Material Steel Outside diameter 44½

Length of plain part top 3" bottom 8" Thickness of plates crown 3/8 bottom 5/8 Description of longitudinal joint Weld No. of strengthening rings ✓

Working pressure of furnace by the rules 227 lbs Combustion chamber plates: Material Steel Thickness: Sides 2½ Back 1½ x 2½ Top 2½ Bottom 13/16

Pitch of stays to ditto: Sides 6½ x 8 Back Varies Top 9" x 8 If stays are fitted with nuts or riveted heads Nuts in shell Working pressure by rules 206 lbs

Material of stays Steel Area at smallest part 76 x 2.38 supported by each stay 72 sq Working pressure by rules 221 lbs End plates in steam space:

Material Steel Thickness 1/16 Pitch of stays 20 x 15½ How are stays secured Plates & Nuts Working pressure by rules 208 lbs Material of stays Steel

Area at smallest part 6.09 x 7.22 supported by each stay 310 sq Working pressure by rules 241 lbs Material of Front plates at bottom Steel

Thickness 1" Material of Lower back plate Steel Thickness 4/16 Greatest pitch of stays 13½ x 8½ Working pressure of plate by rules 231 lbs

Diameter of tubes 2½ Pitch of tubes 3½ x 3½ Material of tube plate Steel Thickness: Front 6/16 Back 13/16 Mean pitch of stays 7½ x 7½

Pitch across wide water spaces 13½ Working pressures by rules 203 lbs Girders to Chamber tops: Material Steel Depth and

Thickness of girder at centre 10½ x (½ x 2) Length as per rule 34½ Distance apart 9" Number and pitch of stays in each 3-8

Working pressure by rules 234 lbs 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

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

SUPERHEATER. Type Date of Approval of Plan Tested by Hydraulic Pressure to

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

Number of Safety Valves Pressure to which each is adjusted Is Easing Gear fitted

Lloyd's Register
Foundation
W73-0114(112)

IS A DONKEY BOILER FITTED? *No*

If so, is a report now forwarded? *✓*

SPARE GEAR. State the articles supplied: *See separate sheet*

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

Manufacturer.

Dates of Survey while building: During progress of work in shops -- 1916, Jan 28, Feb 28, March 18, 1917, up till *May 1st 1918*
During erection on board vessel ---
Total No. of visits 9/

Is the approved plan of main boiler forwarded herewith? *Yes*

Dates of Examination of principal parts: Cylinders 29, Slides 11, Covers 1, Pistons 1, Rods 1
Connecting rods 20, Crank shaft 2, Thrust shaft 1, Tunnel shafts 5, Screw shaft 29, Propeller 21
Stern tube 21, Steam pipes tested 8, Engine and boiler seatings 16, Engines holding down bolts 5
Completion of pumping arrangements 30, Boilers fixed 6, Engines tried under steam 30
Completion of fitting sea connections 6, Stern tube 12, Screw shaft and propeller 12
Main boiler safety valves adjusted 30, Thickness of adjusting washers 7
Material of Crank shaft *Steel* Identification Mark on Do. *LLOYD'S* Material of Thrust shaft *Do* Identification Mark on Do. *Do*
Material of Tunnel shafts *Do* Identification Marks on Do. *Do* Material of Screw shafts *Do* Identification Marks on Do. *LLOYD'S*
Material of Steam Pipes *W. Iron* Test pressure 600 lbs sq. in. *29-8-17*
Is an installation fitted for burning oil fuel? *No* Is the flash point of the oil to be used over 150°F. *✓*

Have the requirements of Section 49 of the Rules been complied with? *✓*

Is this machinery duplicate of a previous case? *Yes* If so, state name of vessel *"Port Darwin"*

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

The machinery of this vessel has been constructed under Special Survey, and in accordance with the Rules. The materials and the workmanship are of good description, and on trials under steam at Belfast Lough the machinery worked satisfactorily.

In my opinion, it is eligible for record + L.M.C. 5-18, with notes "Forced Draft Electric Light + Refrigerating Machinery"

It is submitted that
this vessel is eligible for
THE RECORD. + L.M.C. 5. 18 F.D.

The amount of Entry Fee ... 3 - - : When applied for,
Special ... £ 60. 9 : 14-5 1918
Donkey Boiler Fee ... £ 1 : :
Travelling Expenses (if any) £ : :
FRI. 31 MAY 1918

Committee's Minute

Assigned

+ R.M.C. 5. 18 J.D.

MACHINERY CERTIFICATE
WRITTEN

Rpt. 9a.

Port of *Belfast*

Continuation of Report No. 7956

dated 11th May 1918 on the

L.S. Port Darwin

- 1 Propeller Shaft
- 2 - blades
- 10 Condenser tubes
- 2 main crank pin bushes
- 2 - cross head
- 1 live pump head valve
- 2 - rods + valves etc
- 4 Slide valve spindles
- 2 Eccentric straps
- 2 sets H.P. piston rings
- 2 - - - valves rings
- 2 cylr escape valves
- 3 - - - springs
- 2 Safety valve springs
- 30 Boiler tubes
- 1 Centrifugal pump impeller spindle
- 4 Boiler check valves
- Luxury pump spare gear etc, and all gear to Lloyd's Rules extra.

Donkey Pumps

- 2 Main Centrifugal Circulating 13" pipe
- 1 Ballast 8" x 10" x 18"
- 2 Main Feed 13 1/2" x 10" x 21"
- 1 General Service 9" x 6" x 10"
- 1 Sanitary 6" x 7" x 8"
- 1 Fresh Water 5" x 5" x 8"
- 1 Lux - Air 8" x 12" x 12"

R.F. Beveridge

R.F. Beveridge
Engineer Surveyor to Lloyd's Register of Shipping.



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W33-0114 (2/2)