

REPORT ON MACHINERY.

No. 8070

Received at London Office

FRI. JAN. 31. 1919

Date of writing Report 28th Jan 1919 When handed in at Local Office 10 Port of Belfast
No. in Survey held at Belfast Date, First Survey 24th Jan Last Survey 25th Jan 1919
Reg. Book. on the T.S.S. "Royal Star" (ex "War Charon") (Number of Visits 2)
Master Built at Belfast By whom built Workman & Carter Ltd Tons Gross 6
Engines made at Belfast By whom made when made
Boilers made at By whom made when made
Registered Horse Power Owners The Blue Star Line Ltd Port belonging to
Nom. Horse Power as per Section 28 1138 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes

GINES, &c.—Description of Engines Twin Screw Triple Expansion No. of Cylinders 6 No. of Cranks 6
of Cylinders 26 1/2 - 44 - 73 Length of Stroke 48 Revs. per minute 82 Dia. of Screw shaft as per rule 14 1/8 as fitted 15 7/8 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
Is the propeller boss Yes If the liner is in more than one length are the joints burned V 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 V If two
are fitted, is the shaft lapped or protected between the liners V Length of stern bush 6 3/4
of Tunnel shaft as per rule 13 7/8 Dia. of Crank shaft journals as per rule 14 3/8 as fitted 14 7/8 Dia. of Crank pin 14 3/4 Size of Crank webs 23 x 9 Dia. of thrust shaft under
crs 15 Dia. of screw 17 3/4 Pitch of Screw 18 0 No. of Blades 4 State whether moveable Yes Total surface 90 sq ft
of Feed pumps 2 Diameter of ditto 4 1/2 Stroke 24 Can one be overhauled while the other is at work Yes
of Bilge pumps 2 Diameter of ditto 4 1/2 Stroke 24 Can one be overhauled while the other is at work Yes
of Donkey Engines See Sizes of Pumps Sheet No. and size of Suctions connected to both Bilge and Donkey pumps
Engine Room 5 3/4 In Holds, &c. 12 - 3 1/2 + 1 - 2 1/2
of Bilge Injections 2 sizes 13 Connected to condenser, or to circulating pump Pump Is a separate Donkey Suction fitted in Engine room & size 1 - 3 1/2
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 V
all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Both
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
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
pipes are carried through the bunkers Fore hold suction How are they protected Wood casing
all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes
the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges Yes
Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Top of E. Room

ERS, &c.—(Letter for record S.) Manufacturers of Steel
Heating Surface of Boilers 17079 sq ft Forced Draft fitted Yes No. and Description of Boilers 3 - Double End by line
Working Pressure 200 lbs Tested by hydraulic pressure to Date of test No. of Certificate
each boiler be worked separately Yes Area of fire grate in each boiler 146 1/2 sq ft No. and Description of Safety Valves to
boiler 3 - Direct Spring Area of each valve 14 1/2 sq Pressure to which they are adjusted 205 lbs Are they fitted with easing gear Yes
least distance between boilers or uptakes and bunkers or woodwork about 14 Mean dia. of boilers 16 3/8 Length 20 6 Material of shell plates Steel
thickness 1 1/2 Range of tensile strength 28-32 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams Lap & S.
seams Skirted Lap Diameter of rivet holes in long. seams 1 1/2 Pitch of rivets 10 1/2 Lap of plates or width of butt straps 22 1/2
percentages of strength of longitudinal joint rivets 85 1/2 plate 85 7 Working pressure of shell by rules 207 lbs Size of manhole in shell 16 x 12
of compensating ring No. No. and Description of Furnaces in each boiler 8 - Brighton Material Steel Outside diameter 44 1/2
th of plain part top 4 bottom 12 Thickness of plates crown 3 1/2 Description of longitudinal joint Weld No. of strengthening rings V
Working pressure of furnace by the rules 213 lbs Combustion chamber plates: Material Steel Thickness: Sides 4 1/2 Back V Top 1 1/2 Bottom 1 1/2
of stays to ditto: Sides 9 1/2 x 8 1/2 Back V Top 8 1/2 x 6 3/4 If stays are fitted with nuts or riveted heads Nuts & washers Working pressure by rules 211 lbs
material of stays Steel Area at smallest part 206 52 1/2 Area supported by each stay 778 52 Working pressure by rules 241 lbs End plates in steam space:
material Steel Thickness 1 3/32 Pitch of stays 21 1/2 x 16 How are stays secured Nuts & washers Working pressure by rules 201 lbs Material of stays Steel
at smallest part 706 26 Area supported by each stay 336 26 Working pressure by rules 218 lbs Material of Front plates at bottom Steel
thickness 1 Material of Lower back plate V Thickness V Greatest pitch of stays V Working pressure of plate by rules V
diameter of tubes 2 1/2 Pitch of tubes 3 3/4 x 3 5/8 Material of tube plates Steel Thickness: Front 1 1/4 Back 3/4 Mean pitch of stays 1 1/2 x 7 1/2
across wide water spaces 13 1/2 Working pressures by rules 203 lbs Girders to Chamber tops: Material Steel Depth and
thickness of girder at centre (8 3/4 x 3/4) x 2 Length as per rule 52 1/2 Distance apart 8 1/2 x 7 Number and pitch of stays in each 6 - 6 3/4 x 8 1/2
Working pressure by rules 235 lbs Steam dome: description of joint to shell V % of strength of joint
diameter Thickness of shell plates Material Description of longitudinal joint Diam. of rivet holes
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
of Test Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler
of Safety Valve Pressure to which each is adjusted Is Easing Gear fitted

IS A DONKEY BOILER FITTED?

If so, is a report now forwarded?

SPARE GEAR.

State the articles supplied:—

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

Manufacturer.

Dates of Survey while building
During progress of work in shops -- 1919
During erection on board vessel --- Jan^y 24-25
Total No. of visits 2

Is the approved plan of main boiler forwarded herewith

Yes

Dates of Examination of principal parts—Cylinders

Slides

Covers

Pistons

Rods

Connecting rods

Crank shaft

Thrust shaft

Tunnel shafts

Screw shaft

Propeller

Stern tube

Steam pipes tested

Engine and boiler seatings

Engines holding down bolts

Completion of pumping arrangements

Boilers fixed

Engines tried under steam

Completion of fitting sea connections

Stern tube

Screw shaft and propeller

Main boiler safety valves adjusted

Thickness of adjusting washers

Material of Crank shaft

Identification Mark on Do.

Material of Thrust shaft

Identification Mark on Do.

Material of Tunnel shafts

Identification Marks on Do.

Material of Screw shafts

Identification Marks on Do.

Material of Steam Pipes

Test pressure

Is an installation fitted for burning oil fuel

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 - G. Class Standard War Steamer built by
Hawland & Wolff Ltd

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

The machinery of this vessel has been constructed under Board of Trade and British Corporation Surveys, for the B type "Standard" vessel. The Classification having been requested shortly before the completion of the vessel, time did not permit of an extended examination, and the Barry Survey have been requested to supplement same. The details as stated in this Report are in my opinion correct, and the workmanship, as seen by me at various times in the works, is in accordance with the Builders well recognized good practice. On the official trial trip in Belfast Lough, the machinery was at full power, without a hitch, to the entire satisfaction of the owner's representatives, and the undersigned. Provided the Barry Surveyors Report is satisfactory, in my opinion the machinery of this vessel will merit the favourable consideration of the Committee for record in the Register Book. See Reg. Rpt No 170

The amount of Entry Fee ... £ Will be
Special ... Included in
Donkey Boiler Fee ... Total Fee of £200
Travelling Expenses (if any) £ 66.13.4

When applied for,

19

When received,

11.3.19

Committee's Minute

Assigned

R. J. B. Bennett

Engineer Surveyor to Lloyd's Register of Shipping.

TUE 11 MAR 1919

R. Mc. 1.19. J. D.

TUE NOV 2 1910
FRI MAR 26 1910

FRI JUL 15 1911

Lloyd's Register
Foundation

Belfast

T.S.S. Royal Star ex War Charon

1 Ballast Pump	10 $\frac{1}{2}$ " x 14" x 24" ✓
1 Fresh Water -	3" x 3" x 21" ✓
1 Aux ^y Feed -	9 $\frac{1}{2}$ " x 7" x 18" ✓
2 Main -	15 $\frac{1}{2}$ " x 11 $\frac{1}{2}$ " x 24" ✓
1 General -	9 $\frac{1}{2}$ " x 7" x 18" ✓
1 Main Centrifugal Circ ^l	13" pipe ✓
1 Aux ^y -	6" - ✓

Spare Gear (Principal Items)

- 4 Connecting rod top end bolts & nuts ✓
 4 - - - - - bottom ✓
 4 Main bearing bolts & nuts ✓
 6 Coupling bolts & nuts ✓
 1 Set Feed & Bilge Pump valves ✓
 3 Main & 3 Aux^y Feed Check valves ✓
 2 P. I. Propeller blades ✓
 9 Studs & nuts for do ✓
 1 Air pump rod & nut ✓
 1 - - - - - Guard ✓
 1 Slide valve spindle ✓
 200 Fire bars ✓
 20 Main Condenser tubes & 80 ferrules ✓
 1 Pair Connecting rod bottom end bushes ✓
 1 - - - - - top ✓
 1 Set metallic packing H. P. piston rod ✓
 30 Boiler tubes ✓
 1 Set Spare Gear Main & Aux^y Feed pumps ✓
 - - - - - Ballast & Main Circ^l ✓
 - - - - - Fan Engine ✓
 - - - - - Winches ✓
 Bolts, nuts, wire etc. ✓

R. F. Pennington

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