

REPORT ON MACHINERY.

Received at London Office **FRI. 4 NOV 1904**

Survey held at **Belfast** Date, first Survey **23 March** Last Survey **29 Oct 1904**
(Number of Visits **50**)

on the **P.S. "Star of Scotland"** Gross **6229** Tons Net **4000**
Built at **Belfast** By whom built **Workman Clark & Co.** When made **1904**
Made at **Belfast** By whom made **Workman Clark & Co.** when made **1904**
Horse Power **✓** Owners **The Star Line Limited** Port belonging to **Belfast**
Is Refrigerating Machinery fitted **Yes** Is Electric Light fitted **Yes**

ES, &c.—Description of Engines **Single Screw Triple Expansion** Cylinders **3** No. of Cranks **3**
Cylinders **27"-46"-78"** Length of Stroke **54"** Revs. per minute **62** Dia. of screw shaft as per rule **16-25** as fitted **19-8** Lgth. of stern bush **68"**
Dia. of crank shaft journals as per rule **15-5** as fitted **15-5** Dia. of Crank pin **10-2** No. of Crank webs **29** of thrust shaft under
Pitch of screw **20'-0"** No. of blades **4** State whether moveable **Yes** Total surface **110 sq ft.**
Diameter of ditto **5"** Stroke **27"** Can one be overhauled while the other is at work **Yes**
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No. and size of Suctions connected to both Bilge and Donkey pumps
4 Sizes of Pumps **10x8x2 1/2 8x6x6 8x10x10 4x4x4** Holds, &c. **8-32 1/2 + 1-22 1/2**
Room **4-32 1/2** Fore Hold Suctions
Connected to condenser, or to circulating pump **Yes** Is a separate donkey suction fitted in Engine room & size **Yes-3 1/2**
Are the roses in Engine room always accessible **Yes** Are the sluices on Engine room bulkheads always accessible **One**
Are they Valves or Cocks **Both**
Are the discharge pipes above or below the deep water line **Above**
Are the blow off cocks fitted with a spigot and brass covering plate **Yes**
How are they protected **Wood Casings**
Are the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges **Yes**
Are the stern tube, propeller, screw shaft, and all connections examined in dry dock **Before Launching** screw shaft tunnel watertight **Latched & Locked**
worked from **Top of R. Platform**
Total Heating Surface of Boilers **7849 sq ft** Is forced draft fitted **Yes-Hood**
Description of Boilers **4-Single End, Cylindrical, Natural Draft** Working Pressure **200 lbs** Tested by hydraulic pressure to **400 lbs**
Can each boiler be worked separately **Yes** Area of fire grate in each boiler **48 1/2 sq ft** and Description of safety valves to **400 lbs**
Pressure to which they are adjusted **205 lbs** Are they fitted with easing gear **Yes**
Mean dia. of boilers **13'-3"** Length **11'-6"** Material of shell plates **Steel**
Range of tensile strength **28-32** Are they welded or flanged **No** Descrip. of riveting: cir. seam **Lap Rivets** Beams **Cut the web**
Pitch of rivets **9 1/4"** Lap of plates or width of butt straps **20 1/2"**
Working pressure of shell by rules **228 lbs** Size of manhole in shell **16"x12"**
No. and Description of Furnaces in each boiler **3-Normans** Material **Steel** Outside diameter **4 1/4"**
Thickness of plates crown **3 3/4"** bottom **3 1/4"** Description of longitudinal joint **Weld** No. of strengthening rings **✓**
Combustion chamber plates: Material **Steel** Thickness: Sides **3 1/4"** Back **5"** Top **3 1/4"** Bottom **5"**
Stays are fitted with nuts or riveted heads **Nuts inside** Working pressure by rules **211 lbs**
Diameter at smallest part **1 1/8"** Area supported by each stay **64 sq in** Working pressure by rules **203 lbs** and plates in steam space:
Thickness **1 1/8"** Pitch of stays **16"x12"** How are stays secured **Nuts & Washers** Working pressure by rules **264 lbs** Material of stays **Steel**
Material of Front plates at bottom **Steel**
Greatest pitch of stays **18 1/2"** Working pressure of plate by rules **216 lbs**
Pitch of tubes **3 1/4"x3 5/8"** Material of tube plate **Steel** Thickness: Front **1"** Back **1 1/8"** Mean pitch of stays **7 1/2"x7 1/4"**
Working pressures by rules **210 lbs** Girders to Chamber tops: Material **Steel** Depth and
Distance apart **7 1/2"x6 1/2"** Number and pitch of Stays in each **3-6 1/2"**
Superheater or Steam chest; how connected to boiler **✓** Can the superheater be shut off and the boiler worked
Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet
Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness
End plates: Thickness How stayed
Area of safety valves to superheater Are they fitted with easing gear

DONKEY BOILER—

No. 100 Description When made Where fixed
 Made at By whom made No. of Certificate Fire grate area Description of safety valves
 Working pressure tested by hydraulic pressure to If fitted with easing gear If steam from main
 No. of safety valves Area of each Pressure to which they are adjusted Thickness Range
 enter the donkey boiler Dia. of donkey boiler Length Material of shell plates Thickness Range
 strength Descrip. of riveting long. seams Rivets Thickness of shell crown plates Radius of do. No. of Stays to
 Lap of plating Per centage of strength of joint Plates Thickness of furnace plates
 Dia. of stays. Diameter of furnace Top Bottom Length of furnace Working pressure of shell by ru
 joint Thickness of furnace crown plates Stayed by Thickness of water tubes
 Working pressure of furnace by rules Diameter of uptake Thickness of uptake plates

SPARE GEAR.

State the articles supplied:

2 Propeller blades; pair crank pin bushes; pair top end bushes; 2 slide valve spindles; air pump rod; set rings & springs H.P. set H.P. piston valve rings; 1 break-down couplings; 1 fan spindle for Centrifugal Condenser females. Boiler tubes set and all gear to Lloyd's Rules etc.

The foregoing is a correct description,

FOR WORKMAN, CLARK & CO., LIMITED Manufacturer.

Dates of Survey while building
 During progress of work in shops—
 During erection on board vessel—
 Total No. of visits

1904. March 23, 25, 30 April 7, 13, 15, 19, 20-26. May 3, 5, 10, 12, 16, 18, 24
 June 1, 6, 9, 10, 20, 24, 28. July 20, 22, 28. Aug 5, 6, 10, 16. Sept 5, 29. 1904
 Is the approved plan of main boiler forwarded herewith

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

Material of screw shaft. *Infant 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 non-corrosive
 If two liners are fitted, is the shaft lapped or protected between the liners

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

In my opinion, it is eligible to have record + L.M.C. 10
 "Forced Draft" & Electric Light.
 Reports on the Refrigerating & Electric Light installation will be forwarded later.

It is submitted that
 this vessel is eligible for
 THE RECORD

L.M.C. 10.04 F.D. ELEC. LIGHT.
 REF. MCHY.

Pms.
4.11.04

The amount of Entry Fee. £ 3 : - :
 Special £ 48 : 19 :
 Donkey Boiler Fee £ : :
 Travelling Expenses (if any) £ : :

When applied for,
 31-10-04
 When received,
 5-11-04

TUES. 29 NOV 1904

Committee's Minute

Assigned

R. J. Beveridge
 Engineer Surveyor to Lloyd's Register of British & Foreign

MACHINERY CERTIFICATE

WRITTEN.

TUES. 6 DEC 1904

Lloyd's Register Foundation