

REPORT ON MACHINERY.

No. 6636

Port of Belfast Received at London Office 12 JUL 1904
 No. in Survey held at Belfast Date, first Survey 1st Sept 1903 Last Survey 8th July 1904
 Reg. Book. L.S. Karoola (Number of Visits 79)
 Master Belfast Built at Belfast By whom built Fauland & Walford Tons Gross 1391 Net 1324
 Engines made at Belfast By whom made when made
 Boilers made at Belfast By whom made when made
 Registered Horse Power 1140 Owners M. Dwyer & M. E. Chapman Port belonging to Melburne
 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Twin Screw Quadruple Expansion Cylinders 8 No. of Cranks 8
 Dia. of Cylinder 23-33 1/2-48-69 Length of Stroke 54 Revs. per minute 75 Dia. of Screw shaft 14.16 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
 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 62
 Dia. of Tunnel shaft 13.24 Dia. of Crank shaft journals 13.9 Dia. of Crank pin 14.9 Size of Crank webs 26 1/2 x 10 1/2 of thrust shaft under
 collars 14 1/2 Dia. of screw 14.3 Pitch of Screw 20-9 No. of Blades 8 State whether moveable Yes Total surface 66 sq ft.
 No. of Feed pumps 2 Diameter of ditto 5 1/2 Stroke 30 Can one be overhauled while the other is at work Yes
 No. of Bilge pumps 1 Diameter of ditto 5 Stroke 30 Can one be overhauled while the other is at work Yes
 No. of Donkey Engines 2 Sizes of Sheet No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 4-3 1/2 x 4-2 1/2 In Holds, &c. 10-3 1/2 x 4-2 1/2

No. of Bilge Injections 2 sizes 9" Connected to condenser, or to circulating pump Yes Is a separate Donkey Suction fitted in Engine room & size Yes-2 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 Yes
 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 Four cold 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
 Dates of examination of completion of fitting of Sea Connections 26/2/04 of Stern Tube 4/3/04 Screw shaft and Propeller 4/3/04
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from top platform E. Room

BOILERS, &c.—(Letter for record S) Manufacturers of Steel J. G. Colville & Sons
 Total Heating Surface of Boilers 11250 sq ft Forced Draft fitted Yes No. and Description of Boilers 2. D. and Cylind.
 Working Pressure 215 lbs Tested by hydraulic pressure to 430 lbs Date of test 10-2-04 No. of Certificate 416
 Can each boiler be worked separately Yes Area of fire grate in each boiler 131 sq ft No. and Description of Safety Valves to
 each boiler 3 Area of each valve 11.846 Pressure to which they are adjusted 215 lbs Are they fitted with easing gear Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork about 6" Mean dia. of boilers 15-9" Length 20' Material of shell plates Steel
 Thickness 1 1/4" Range of tensile strength 29-33 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams Lap Rivet
 long. seams Butt Lap Diameter of rivet holes in long. seams 1 1/4" Pitch of rivets 10" Lap of plates or width of butt straps 23 1/2"
 Per centages of strength of longitudinal joint rivets 98.7 Working pressure of shell by rules 250 lbs Size of manhole in shell 17 x 15"
 plate 82.1

Size of compensating ring No. 1 No. and Description of Furnaces in each boiler 6 Material Steel Outside diameter 49 1/2"
 Length of plain part top 6" Thickness of plates crown 3 3/32" Description of longitudinal joint Weld No. of strengthening rings 3
 bottom 10" bottom 3 3/32" Working pressure of furnace by the rules 240 lbs Combustion chamber plates: Material Steel Thickness: Sides 5" Back 5" Top 5" Bottom 3 1/2"
 Pitch of stays to ditto: Sides 7 1/2 x 8 1/2" Back 5" Top 7 1/2 x 8 1/2" If stays are fitted with nuts or riveted heads Yes Working pressure by rules 228 lbs
 Material of stays Steel Diameter at smallest part 1 1/2" Area supported by each stay 65 1/2" Working pressure by rules 241 lbs End plates in steam space:
 Material Steel Thickness 1 1/2" Pitch of stays 18 1/2 x 15 1/2" How are stays secured Nuts & Washers Working pressure by rules 219 lbs Material of stays Steel
 Diameter at smallest part 1 1/2" Area supported by each stay 286 1/2 sq in Working pressure by rules 256 lbs Material of Front plates at bottom Steel
 Thickness 7" Material of Lower back plate Steel Thickness 7" Greatest pitch of stays 7 1/2 x 7 1/2" Working pressure of plate by rules 256 lbs
 Diameter of tubes 2 1/2" Pitch of tube 3 1/2 x 3 1/2" Material of tube plates Steel Thickness: Front 7" Back 1 1/2" Mean pitch of stays 7 1/2 x 7 1/2"
 Pitch across wide water spaces 13 1/2" Working pressures by rules 248 lbs Girders to Chamber tops: Material Iron Depth and
 thickness of girder at centre 10 x (7 1/2 x 2) Length as per rule 4-4 1/2" Distance apart 8 1/2" Number and pitch of stays in each 6-7 1/2"
 Working pressure by rules 373 lbs Superheater or Steam chest; how connected to boiler Can the superheater be shut off and the boiler worked
 separately Yes Diameter 48" Length 48" Thickness of shell plates 1 1/2" Material Steel Description of longitudinal joint Weld Diam. of rivet
 holes 1 1/2" Pitch of rivets 1 1/2" Working pressure of shell by rules 256 lbs Diameter of flue 12" Material of flue plates Steel Thickness 1 1/2"
 If stiffened with rings Yes Distance between rings 12" Working pressure by rules 256 lbs End plates: Thickness 1 1/2" How stayed Yes
 Working pressure of end plates 256 lbs Area of safety valves to superheater 12 sq in Are they fitted with easing gear Yes

VERTICAL DONKEY BOILER— Manufacturers of Steel

No. _____ Description _____

Made at _____ By whom made _____ When made _____ Where fixed _____

Working pressure _____ tested by hydraulic pressure to _____ Date of test _____ No. of Certificate _____ Fire grate area _____ Description of S _____

Valves _____ No. of Safety Valves _____ Area of each _____ Pressure to which they are adjusted _____ Date of adjustment _____

If fitted with easing gear _____ If steam from main boilers can enter the donkey boiler _____ Dia. of donkey boiler _____ Length _____

Material of shell plates _____ Thickness _____ Range of tensile strength _____ Descrip. of riveting long. seams _____

Dia. of rivet holes _____ Whether punched or drilled _____ Pitch of rivets _____ Lap of plating _____ Per centage of strength of joint _____ Rivets _____ Plates _____

Working pressure of shell by rules _____ Thickness of shell crown plates _____ Radius of do. _____ No. of stays to do. _____ Dia. of stays _____

Diameter of furnace Top _____ Bottom _____ Length of furnace _____ Thickness of furnace plates _____ Description of joint _____

Working pressure of furnace by rules _____ Thickness of furnace crown plates _____ Stayed by _____

Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water tubes _____ Dates of survey _____

SPARE GEAR. State the articles supplied:—

4 M.B. propeller blades; propeller shaft; 2 large valves; 2 sets piston valves; main top end & main bottom end and green trap; 2 sets piston rings; 2 set air pump work; bucket & head valves; 2 sets of spindle centrifugal pump; 2 sets supply gear for all machinery, rollers, sandboxes etc. & all gear to 2 layers rollers etc.

The foregoing is a correct description,

For Harland & Wolff Ltd Manufacturer.

Dates of Survey while building

During progress of work in shops	1908, Sept 21, 4, 7, 9, 10, 14, 21, 23, Oct 5, 15, 21, 27, 30, Nov 4, 11, 13, 1909
During erection on board vessel	20, 23, 25, 27, Dec 1, 4, 8, 11, 16, 18, 22, 1909, Jan 5, 11, up to 8 July
Total No. of visits	49

Is the approved plan of main boiler forwarded herewith Yes

Dates of Examination of principal parts—

Cylinders	21-9-08	Covered	Pistons	Rods
Connecting rods	11-4-09	Crank shaft	21-10-08	Tunnel shafts
Stern tube	29-1-09	Steam pipes tested	24-2-09	Engines boiler seatings
Completion of pumping arrangements	2-6-09	Boilers fixed	6-4-09	Engines tried under steam
Main boiler safety valves adjusted	19-5-09	Thickness of adjusting washers	9-15-09	
Material of Crank shaft	Stee	Identification Mark on Do.	8-3-09	Material of Thrust shaft
Material of Tunnel shafts	Stee	Identification Marks on Do.	8-3-09	Material of Screw shafts
Material of Steam Pipes	N. Iron	Test pressure	845 lbs	

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

The machinery of this vessel has been constructed under Special Licence, and in accordance with the Rules. The material and the workmanship are of good description throughout, and an trial in Belfast Lough the machinery worked satisfactorily. In my opinion, it is eligible for classed **+L.M.C. 4-0** with the notation Electric light & Forced Draft, also Refrigerating Machine.

It is submitted that this vessel is eligible for THE RECORD, +L.M.C. 7.09. Elec. light. F.D.

J.W.D. 12/7/09
D.P.R. 12.7.09

The amount of Entry Fee, £ 3 : 0 :
Special, £ 44 : 0 :
Donkey Boiler Fee, £ : :
Travelling Expenses (if any) £ : :

When applied for, 5 July 1909
When received, 10.7.09

R. J. D. Russell
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping

Committee's Minute
Assigned
WES. 13 JUL 1909
+ L.M.C. 7.09
F.D. Elec. light.



MACHINERY CERTIFICATE WRITTEN.

Certificate (if required) to be sent to the space for Committee's Minute.