

REPORT ON MACHINERY.

No. 7464

WED. NOV. 11. 1914

Received at London Office
 Writing Report 7th Nov 10/14 When handed in at Local Office 7th Nov 10/14 Port of Belfast
 in Survey held at Belfast Date, First Survey 1st Oct 1913 Last Survey 5th Nov 1914
 Book on the T.S.S. Essequibo (Number of Visits 99) Gross 8464 Tons Net 5178 Tons
 Built at Belfast By whom built Markman Clark & Coy Ltd When built 1914
 Lines made at Belfast By whom made when made
 Makers made at By whom made when made
 Registered Horse Power 1055 Owners Royal Mail S.P. Coy Port belonging to Belfast
 Horse Power as per Section 28 7067 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes

GINES, &c.—Description of Engines Twin Screw Quadruple Expansion of Cylinders 8 No. of Cranks 8
 No. of Cylinders 22-31 1/2-45 1/2-65 Length of Stroke 45 Revs. per minute 90 Dia. of Screw shaft as per rule 13.4 Material of screw shaft as fitted 14.375 J. 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 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
 shafts are fitted, is the shaft lapped or protected between the liners Yes Length of stern bush 4'-9"
 Dia. of Tunnel shaft as per rule 11.9 Dia. of Crank shaft journals as per rule 12.5 Dia. of Crank pin 13 1/4 Size of Crank web 24 1/2 x 9 Dia. of thrust shaft under
 bars 13 1/4 Dia. of screw 16'-6" Pitch of Screw 17'-9" No. of Blades 3 State whether moveable Yes Total surface 78 sq ft
 No. of Feed pumps None Diameter Main Engines Can one be overhauled while the other is at work Yes
 No. of Bilge pumps one each engine 5 1/2 Stroke 24 Can one be overhauled while the other is at work Yes
 No. of Donkey Engines See other sheet No. and size of Suctions connected to both Bilge and Donkey pumps
 Engine Room 6-3 1/2 In Holds, &c. 10-3 1/2, 6-3, 3-2 1/2

No. of Bilge Injections 2 sizes 9 Connected to condenser, or to circulating pump Pump as 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 Below
 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
 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 /-7-14 of Stern Tube /-7-14 Screw shaft and Propeller 3-7-14
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Upper Deck

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Beardmore & Coy Ltd
 Total Heating Surface of Boilers 1194 sq ft Forced Draft fitted Yes No. and Description of Boilers 2 Double End Cylinders
 Working Pressure 215 lbs Tested by hydraulic pressure to 430 lbs Date of test 26-6-14 No. of Certificate 463
 Can each boiler be worked separately Yes Area of fire grate in each boiler 143 sq ft No. and Description of Safety Valves to
 each boiler 3 Direct Spring Area of each valve 14.19 sq 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 15 Mean dia. of boilers 16'-0" Length 20'-0" Material of shell plates Steel
 Thickness 1/8 Range of tensile strength 30 1/2-33 1/2 Tons Are the shell plates welded or flanged No. Descrip. of riveting: cir. sec. Lap D.S.
 Long. seams Butts & Bevel Diameter of rivet holes in long. seams 1 1/8 Pitch of rivets 10 1/2 Lap of plates or width of butt straps 2 3/4
 Percentages of strength of longitudinal joint rivets 90.5 Working pressure of shell by rules 253 lbs Size of manhole in shell 16-x-12
 plate 84.5
 No. and Description of Furnaces in each boiler 8-Murrows Material Steel Outside diameter 44 1/2
 Length of plain part top 4 Thickness of plates crown 3 1/4 bottom 3 1/4 Description of longitudinal joint Weld No. of strengthening rings
 Working pressure of furnace by the rules 248 lbs Combustion chamber plates: Material Steel Thickness: Sides 43/64 Back Top 43/64 Bottom 29/32
 Pitch of stays to ditto: Sides 7 1/2 x 7 1/2 Back Top 8 x 8 1/2 If stays are fitted with nuts or riveted heads Nuts inside Working pressure by rules 226 lbs

Material of stays Steel Diameter at smallest part 2.06 Area supported by each stay 68 sq Working pressure by rules 273 lbs End plates in steam space:
 Material Steel Thickness 1/8 Pitch of stays 7 1/4 x 15 1/4 How are stays secured Nuts & Washers Working pressure by rules 216 lbs Material of stays Steel
 Area at smallest part 7.23 Area supported by each stay 30.5 sq Working pressure by rules 246 lbs Material of Front plates at bottom Steel
 Thickness 1/8 Material of Lower back plate Thickness Greatest pitch of stays Working pressure of plate by rules
 Diameter of tubes 2 1/2 Pitch of tubes 3 1/2 x 3 1/2 Material of tube plates Steel Thickness: Front 1/64 Back 1/6 Mean pitch of stays 7 1/2 x 7 1/4
 Pitch across wide water spaces 13 1/2 Working pressures by rules 219 lbs Girders to Chamber tops: Material Steel Depth and
 thickness of girder at centre 7 1/2 x (3/4 x 2) Length as per rule 49 1/2 Distance apart 8 1/2 Number and pitch of stays in each 6-6 1/2 x 8
 Working pressure by rules 253 lbs Superheater or Steam chest; how connected to boiler Can the superheater be shut off and the boiler worked
 separately Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet
 holes Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness
 If stiffened with rings Distance between rings Working pressure by rules End plates: Thickness How stayed
 Working pressure of end plates Area of safety valves to superheater Are they fitted with easing gear

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 Sa _____

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

If fitted with casing 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 _____ Radius of do. _____ Stayed by _____

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

SPARE GEAR. State the articles supplied:— *See other sheet*

The foregoing is a correct description,
FOR WORKMAN, CLARK & CO., LIMITED,
M. H. Bell Manufacturer.

Dates of Survey while building: During progress of work in shops— *1913: Dec 1, 7, 10, 13, 21, 23, 31 Nov 3, 26, 28, Dec 1, 2, 8 1914: Jan 2, 25.*
 During erection on board vessel— *Feb 3, 16, 27, March 6, 11, 19, 24, 26, 27, Apr 1, 10, 21, 28, up to Nov 5*
 Total No. of visits *99*

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

Dates of Examination of principal parts—Cylinders *2 - plates 13* Covers *To* Pistons _____ Rods _____

Connecting *26-6-14* Crank shaft *28-1-14* Tunnel shafts _____ Screw shaft *29-5-14* Propeller *29-6-14*

Stern tube *29-6-14* Steam pipes tested *5-9-14* Engine and boiler seatings *22-8-14* Engines holding down bolts *22-8-14*

Completion of pumping arrangements *1-10-14* Boilers fixed *10-8-14* Engines tried under steam *25-9-14*

Main boiler safety valves adjusted *25-9-14* Thickness of adjusting washers *10-12"* *5-11-14*

Material of Crank shaft *Steel* Identification Mark on Do. *LLOYDS R.T.B.* Material of Thrust shaft *Do* Identification Mark on Do. *Do*

Material of Tunnel shafts *Do* Identification Marks on Do. *LLOYDS R.T.B.* Material of Screw shafts *Do* Identification Marks on Do. *LLOYDS R.T.B.*

Material of Steam Pipes *W. Iron* Test pressure *650 lb sq. in.*

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 trial under steam in Belfast Lough the machinery worked satisfactorily. In my opinion, it is eligible for record *+ L.M.C. 11-14* and notation "Forced Draft" "Electric Light" & "Refrigerating Machinery".

It is submitted that this vessel is eligible for THE RECORD, + L.M.C. 11. 14. F.D.
 Ref Mch.

J.W.D. 1914

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

The amount of Entry Fee	£ 3 : 0 :	When applied for,
Special	£ 71 : 13 :	2-11-14
Donkey Boiler Fee	£	
Travelling Expenses (if any)	£	When received, 5-11-14

Committee's Minute *FRI. NOV. 20. 1914*
 Assigned *+ L.M.C. 11. 14*

MACHINERY CERTIFICATE WRITTEN



Certificate (if required) to be sent to this office. (The Surveyors are requested not to write on or below the space for Committee's Minute.)