

REPORT ON MACHINERY.

No. 6895

Received at London Office

JAN 21 1911

of writing Report 11th Jan 1911 When handed in at Local Office 11th Jan 1911 Port of Belfast
 in Survey held at Belfast Date, First Survey April 1910 Last Survey 11th Jan 1911
 Book. on the T. S. S. "Arankola" (Number of Visits 59)
 ster Built at Belfast By whom built Workman Clark & Co Ltd Tons {Gross 4026
 Lines made at Belfast By whom made Workman Clark & Co Ltd (N^o 298) when made 1911 Net 1801
 Meters made at So By whom made So (N^o 298) when made 1911
 Registered Horse Power 1346 Owners British India Steam Navigation Co Ltd Port belonging to Glasgow
 n. Horse Power as per Section 28 1346 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

GINES, &c.—Description of Engines Twin Quadruple Expansion No. of Cylinders 8 No. of Cranks 8
 No. of Cylinders 24 1/2 35 50 70 Length of Stroke 14 8 Revs. per minute 100 Dia. of Screw shaft as per rule 14.01 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
 shafts are fitted, is the shaft lapped or protected between the liners Yes Length of stern bush 5.0
 Dia. of Tunnel shaft as per rule 13.1 Dia. of Crank shaft journals as per rule 13.78 Dia. of Crank pin 14 Size of Crank webs 19 1/2 x 9 1/2 Dia. of thrust shaft under
 cranks 14 Dia. of screw 15.0 Pitch of Screw 20.6 No. of Blades 3 State whether moveable Yes Total surface 63 sq ft
 of Feed pumps 2 Watts Diameter of ditto 12 1/2 Stroke 3 1/4 Can one be overhauled while the other is at work Yes
 of Bilge pumps 4 Diameter of ditto 8 Stroke Penistery Can one be overhauled while the other is at work Yes
 of Donkey Engines 14 Sizes of Pumps See other side No. and size of Suctions connected to both Bilge and Donkey pumps
 Engine Room 4-3 x 1-3 1/2 In Holds, &c. N^o 1-2-3; N^o 2-2-3; N^o 3-1-3
 of Bilge Injections 2 sizes 9 Connected to condenser, or to circulating pump Yes Is a separate Donkey Suction fitted in Engine room of size Yes-3 1/2 x 3 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
 Are all pipes carried through the bunkers None How are they protected Yes
 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 31.10.10 of Stern Tube 31.10.10 Screw shaft and Propeller 31.10.10
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from top platform

WATSON, &c.—(Letter for record 8) Manufacturers of Steel Wm Beardmore & Steel Co of Scotland
 Total Heating Surface of Boilers 21950 Is Forced Draft fitted Yes No. and Description of Boilers 2 Double ended & 4 single ended
 Working Pressure 215 lbs Tested by hydraulic pressure to 430 lbs Date of test 27.10.10 No. of Certificate 439
 Can each boiler be worked separately Yes Area of fire grate in each boiler 139.3 sq ft No. and Description of Safety Valves to
 each boiler Triple spring loaded Area of each valve 12.56 Pressure to which they are adjusted 220 lbs Are they fitted with easing gear Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 13 1/2 Mean dia. of boilers 15.6 Length 20.6 Material of shell plates Steel
 Thickness 1 5/8 Range of tensile strength 29463 lbs Are the shell plates welded or flanged No Descrip. of riveting: cir. seams O. & T. R.
 straight seams T. R. O. B. S. Diameter of rivet holes in long. seams 1 5/8 Pitch of rivets 10 1/2 Lap of plates or width of butt straps 23 1/4
 Percentages of strength of longitudinal joint rivets 90 Working pressure of shell by rules 250 lbs Size of manhole in shell 17" x 13"
 plate 84.5 No. and Description of Furnaces in each boiler 4 Horizontal Material Steel Outside diameter 42 1/4
 Length of plain part top 41 Thickness of plates crown 41 Description of longitudinal joint weld No. of strengthening rings 4
 bottom 64 Working pressure of furnace by the rules 245 Combustion chamber plates: Material Steel Thickness: Sides 64 Back 64 Top 41 Bottom 8
 Distance of stays to ditto: Sides 8 x 7 1/2 Back 8 x 6 1/4 If stays are fitted with nuts or riveted heads Yes Working pressure by rules 217
 Material of stays Steel Diameter at smallest part 1.76 Area supported by each stay 61 Working pressure by rules 230 End plates in steam space:
 Material Steel Thickness 1 1/8 Pitch of stays 19 1/2 x 15 1/2 How are stays secured O. N. W. L. Working pressure by rules 215 Material of stays Steel
 Diameter at smallest part 7.85 Area supported by each stay 302.35 Working pressure by rules 229 Material of Front plates at bottom Steel
 Thickness 1 Material of Lower back plate Yes Thickness Yes Greatest pitch of stays Yes Working pressure of plate by rules Yes
 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 1 1/8 Mean pitch of stays 7 3/8
 Distance across wide water spaces 13 1/2 Working pressures by rules 218 lbs Girders to Chamber tops: Material Steel Depth 13
 Thickness of girder at centre 8 x 20 3/4 Length as per rule 4 2 3/8 Distance apart 8 1/4 Number and pitch of stays in each 60 6 1/4 x 7 1/8
 Working pressure by rules 215 Superheater or Steam chest; how connected to boiler Yes Can the superheater be shut off and the boiler worked
 separately Yes Diameter Yes Length Yes Thickness of shell plates Yes Material Yes Description of longitudinal joint Yes Diam. of rivet
 holes Yes Pitch of rivets Yes Working pressure of shell by rules Yes Diameter of flue Yes Material of flue plates Yes Thickness Yes
 Strengthened with rings Yes Distance between rings Yes Working pressure by rules Yes End plates: Thickness Yes How stayed Yes
 Working pressure of end plates Yes Area of safety valves to superheater Yes Are they fitted with easing gear Yes

WS32-0032

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 _____

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 _____ 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:— 2 connecting rod top end bolts & nuts; 2 connecting rod bottom end bolts & nuts; 2 main bearing bolts; 1 set of coupling bolts; a quantity of assorted bolts & nuts of various sizes; spare tail shaft; 2 propeller blades; 1 set of piston rings for each cylinder; 2 valve spindles complete; 2 pairs of crank bushes etc.

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

Dates of Survey while building	During progress of work in shops - -	April 1-14-21	May 4-18-23-26-25-31	June 3-9-15-20-30	July 29	August 3-5-8-11-17 to Oct. 31
		During erection on board vessel - -	April 15-18-19-22-30	Dec. 6-9-12-16-19-20-21-25-27	Jan 2-4-5-6-9-10-11	
			Total No. of visits	79		

Is the approved plan of main boiler forwarded herewith Yes

Dates of Examination of principal parts—Cylinders 25-8-10 Slides 28-9-10 Covers 18-10-10 Pistons 6-10-10 Rods 6-10-10

Connecting rods 26-8-10 Crank shaft 28-9-10 Thrust shaft 18-10-10 Tunnel shafts 18-10-10 Screw shaft 6-10-10 Propeller 17-10-10

Stern tube 19-10-10 Steam pipes tested 18, 19 & 30-11-10 Engine and boiler seatings 31-10-10 Engines holding down bolts 12-10-10

Completion of pumping arrangements 20-12-10 Boilers fixed 30-11-10 Engines tried under steam 11-11

Main boiler safety valves adjusted 16-12-10 Thickness of adjusting washers 7/16 to 9/16

Material of Crank shaft Steel Identification Mark on Do. 298 Material of Thrust shaft Steel Identification Mark on Do. 298

Material of Tunnel shafts Steel Identification Marks on Do. 298 Material of Screw shafts Steel Identification Marks on Do. 298

Material of Steam Pipes Wrought Iron Test pressure 675 lbs per sq

General Remarks (State quality of workmanship, opinions as to class, &c. Donkeys: Ballast 12" x 15" x 15"; Bilge 6" x 6";

Waste box 8" x 6" x 21"; Air Air 10 1/2" x 11 1/2" x 11 1/2" x 12"; 2 Waste deal air pumps 11" x 20" x 15"; 2 Waste 3rd Op 17" x 12 1/2" x 13";

Gen. per. 12 1/2" x 17" x 24"; Ash Cy. 10" x 7" x 15"; Fan 8" x 8" x 18"; Hot Water 6" x 6" x 13"; S.W. pump 6" x 6" x 13"

The machinery has been built under special survey; the material and workmanship being good, and satisfactorily tried under steam.

It is submitted that above vessel is eligible to a record of + L.M.C. 1. in the Register Book.

It is submitted that this vessel is eligible for **THE RECORD + L.M.C. 1. II.**

F.D. *J.W.D.*

The amount of Entry Fee	£ 3 - 0 - 0	When applied for,	
Special	£ 78 - 13 - 0	When received,	11-1-1911
Donkey Boiler Fee	£ :		
Travelling Expenses (if any)	£ :		20-1-1911

A. J. Ronald.
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping

Committee's Minute
 Assigned *+ L.M.C. 1. II*

MACHINERY CERTIFICATE WRITTEN.



Certificate (if required) to be sent to the office

The Surveyor is requested not to write on or below the space for Committee's Minute.