

REPORT ON MACHINERY.

No. 31148

Received at London Office WED. FEB. 28, 1912

Date of writing Report 19 When handed in at Local Office 27.2.12 Port of Glasgow

No. in Survey held at Clydebank Date, First Survey 16 June 1910 Last Survey 17 Feb 1912

Reg. Book. on the Steel Twin 1/2 Wiltshire (Number of Visits 68)

Master Built at Clydebank By whom built John Brown & Co. Ltd. Tons Gross 10390 Net 6598 When built 1912

Engines made at Clydebank By whom made do when made 1912

Boilers made at do By whom made do when made 1912

Registered Horse Power Owners Federal Steam Nav Co Port belonging to London

Nom. Horse Power as per Section 28 1264 Is Refrigerating Machinery fitted for cargo purposes yes Is Electric Light fitted yes

ENGINES, &c.—Description of Engines Twin screw Quadruple Expansion No. of Cylinders 8 No. of Cranks 8

Dia. of Cylinders 25-35 1/2-51-72 Length of Stroke 51 Revs. per minute 78 Dia. of Screw shaft as per rule 15 1/2 as fitted 16 1/2 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 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 water and non-corrosive — If two liners are fitted, is the shaft lapped or protected between the liners — Length of stern bush 7'-6"

Dia. of Tunnel shaft as per rule 13 1/2 as fitted 14 1/2 Dia. of Crank shaft journals as per rule 14 1/2 as fitted 14 1/2 Dia. of Crank pin 15 1/2 Size of Crank webs 29 1/2 x 10 1/2 Dia. of thrust shaft under collars 14 1/2 Dia. of screw 14 1/2 Pitch of Screw 20-0 No. of Blades 4 State whether moveable yes Total surface 90 ft

No. of Feed pumps 2 each Diameter of ditto 4 1/2 Stroke 25 1/2 Can one be overhauled while the other is at work yes

No. of Bilge pumps 2 each Diameter of ditto 5 Stroke 25 1/2 Can one be overhauled while the other is at work yes

No. of Donkey Engines 6 Sizes of Pumps 1-10 1/2-8 x 21 1-14 1/2-8 x 15 1-14 1/2-8 x 10 No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room 3 of 3 1/2 Strokehold 2 of 3 1/2 In Holds, &c. No 1-2 of 3 1/2 No 2-2 of 3 1/2 No 3-2 of 3 1/2 No 4-2 of 3 1/2 No 5-2 of 3 1/2 No 6-2 of 3 1/2 1 of 3 1/2 in each tunnel 1 of 3 1/2 in tunnel well

No. of Bilge Injections 1 sizes 12 Connected to condenser, or to circulating pump or is a separate Donkey Suction fitted in Engine room & size yes 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 none

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 bilge How are they protected under timber boards

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 30.11.11 of Stern Tube 30.11.11 Screw shaft and Propeller 30.11.11

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 D Colville & Sons

Total Heating Surface of Boilers 2 DE 12780 2 SE 6652 19432 Is Forced Draft fitted yes No. and Description of Boilers Two Double ended

Working Pressure 215 lbs Tested by hydraulic pressure to 430 lbs Date of test 1.3.11-17.3.11 No. of Certificate 10829-10868

Can each boiler be worked separately yes Area of fire grate in each boiler 157.6 ft No. and Description of Safety Valves to each boiler 3 spring loaded Area of each valve 11.04 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 8'-0" Mean dia. of boilers 17'-0" Length 20'-6" Material of shell plates steel

Thickness 1 3/4 Range of tensile strength 30 1/2/34 1/2 tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams DR+TR lap long. seams DBS-TR Diameter of rivet holes in long. seams 1 3/4 Pitch of rivets 10 1/2 Lap of plates or width of butt straps 24 1/2

Per centages of strength of longitudinal joint rivets 97.1 plate 83.4 Working pressure of shell by rules 233 Size of manhole in shell 16 x 12

Size of compensating ring 3'-6 1/2 x 2'-11" No. and Description of Furnaces in each boiler 8 Brighton Material steel Outside diameter 46 5/8

Length of plain part top Thickness of plates crown 16 Description of longitudinal joint welded No. of strengthening rings bottom 16

Working pressure of furnace by the rules 243 Combustion chamber plates: Material steel Thickness: Sides 5/8 Back — Top 5/8 Bottom 15/16

Pitch of stays to ditto: Sides 7 1/2 x 7 1/2 Back — Top 7 1/2 x 7 1/2 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 240

Material of stays steel Diameter at smallest part 1.48" Area supported by each stay 56" Working pressure by rules 215 End plates in steam space: Material steel Thickness 1 1/2 Pitch of stays 16 1/2 x 16 1/2 How are stays secured DN Working pressure by rules 221 Material of stays steel

Diameter at smallest part 3 3/16 Area supported by each stay 270" Working pressure by rules 306 Material of Front plates at bottom steel

Thickness 15/16 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 3/4 x 3 3/4 Material of tube plates steel Thickness: Front 13/16 Back 1" Mean pitch of stays 9 3/8

Pitch across wide water spaces 13 1/2 doubled Working pressures by rules 292 Girders to Chamber tops: Material steel Depth and thickness of girder at centre 2 plates 12 1/2 x 1 1/2 Length as per rule 4'-6" Distance apart 7 1/2 Number and pitch of stays in each 6 of 7 1/2

Working pressure by rules 223 Superheater or Steam chest; how connected to boiler none 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 —

See 26 Rpt 3035

Lloyd's Register
2760 0042

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 Safety
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:— 4 top end, 2 bottom end, 2 main bearing set of coupling bolts nuts
 set of feed & bilge pump valves - Assorted iron - bolts nuts - 2 valve spindles - 1 air pump rod - 1 pair
 bottom end brasses - 2 pairs top end brasses - Propeller shaft - 11 propeller studs nuts - 1 piston rod
 1 centrifugal pump shaft - set of valves for each auxiliary pump - Thrust shaft - Double throw crank shaft.
 The foregoing is a correct description,
 John Brown & Company, Limited

Dates of Survey while building	During progress of work in shops - -	1910 June 16-22 July 12 Aug 11-16-24 Sep 5-12-21 Oct 4-12-18-25 Nov 2-11-15-18-21-29 Dec 16
	During erection on board vessel - -	1911 Jan 6-16 Feb 1-7-15-16 March 1-7-11-15-17-31 Apr 10 May 4-10-17-30 June 7-14
	Total No. of visits	July 3 Aug 29 Sep 4-7-28 Oct 3-9-17 Nov 13-20-27-30 Dec 12-15-19 1912 Jan 11

Dates of Examination of principal parts—Cylinders	10-4-11 6-7-9-11 Slides	4-9-11 Covers	4-9-11 Pistons	28-9-11 Rods	28-9-11	
Connecting rods	29-8-11 Crank shaft	4-9-11 Thrust shaft	21-11-18 Tunnel shafts	29-11-18 Screw shaft	17-10-11 Propellers	27-11-11
Stern tube	27-11-11 Steam pipes tested	11-3-11 5-6-2-12 Engine and boiler seatings	30-11-11 Engines holding down bolts	31-1-12		
Completion of pumping arrangements	31-1-12 Boilers fixed	31-1-12 Engines tried under steam	14-2-12			
Main boiler safety valves adjusted	31-1-12 Thickness of adjusting washers	PBFV 23/24 CV 7/16 AV 17/32 SB FV 27/24 CV 31/24 AV 31/24				
Material of Crank shafts	steel Identification Mark on Do.	401 Material of Thrust shafts	steel Identification Mark on Do.	401		
Material of Tunnel shafts	steel Identification Marks on Do.	401 Material of Screw shafts	steel Identification Marks on Do.	401		
Material of Steam Pipes	steel & iron Test pressure	645 lbs				

General Remarks (State quality of workmanship, opinions as to class, &c.)
 The machinery of this vessel has been constructed under special survey in accordance with the rules and approved plans enclosed and has been seen working satisfactorily under steam. Materials & workmanship are good.

The machinery of this vessel is eligible in my opinion to be classed + LMC 2.12.

It is submitted that
 this vessel is eligible for
 THE RECORD + LMC 2.12.
 2DB & 2SB. F.D.

The amount of Entry Fee	£ 3 : 0 :	When applied for,	19-2-1912
Special	£ 46 : 12 :	When received,	23-2-1912
Donkey Boiler Fee	£ :		
Travelling Expenses (if any)	£ :		

Committee's Minute GLASGOW 27 FEB. 1912

Assigned + LMC 2.12

Harry Clarke
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

