

## REPORT ON MACHINERY.

No. 29585

Received at London Office

Date of writing Report Decr 17 1910 When handed in at Local Office Decr 17 1910 Port of Glasgow  
 No. in Survey held at Clydebank Date, First Survey 6th April 1910 Last Survey 13th Decr 1910  
 Reg. Book. on the Stul & Preussen (Number of Visits 38)  
 Master M. Ziller Built at Clydebank By whom built J. Brown & Co Ltd Tons { Gross 2986  
 Engines made at Clydebank By whom made J. Brown & Co Ltd when made 1910 Net 811H  
 Boilers made at do By whom made do when made 1910  
 Registered Horse Power Owners Hamburg Amerika line Port belonging to Hamburg  
 Nom. Horse Power as per Section 28 696 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

ENGINES, &c.—Description of Engines Quadruple Expansion No. of Cylinders 4 No. of Cranks 4  
 Dia. of Cylinders 26"-39"-56"-78" Length of Stroke 54" Revs. per minute 80 Dia. of Screw shaft as per rule 15.244 Material of stul  
 as fitted 16 7/8" screw shaft  
 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 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 vulcanised rubber Length of stern bush 5'-4"  
 Dia. of Tunnel shaft as per rule 13.1 Dia. of Crank shaft journals as per rule 13.75 Dia. of Crank pin 15 3/4" Size of Crank webs 29 1/4" x 11 1/2" Dia. of thrust shaft under  
 collars 15 1/2" Dia. of screw 18'-9" Pitch of Screw 18'-9" No. of Blades 4 State whether moveable yes Total surface 105 ft  
 No. of Feed pumps 2 Diameter of ditto 5 1/4" Stroke 30" Can one be overhauled while the other is at work yes  
 No. of Bilge pumps 2 Diameter of ditto 5" Stroke 30" Can one be overhauled while the other is at work yes  
 No. of Donkey Engines 2 Sizes of Pumps 1 duplex 9-10 x 12 Ballast No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room 3 of 3 1/2" - 2 of 2 1/2" In Holds, &c. No 1 Hold 1 1/2 of 3 1/2" - No 2 Hold 2 1/2 of 3 1/2" - No 3 Hold  
2 1/2 of 3 1/2" - No 4 Hold 2 1/2 of 3 1/2" - No 5 Hold 2 of 3 1/2" Tunnel well 1 of 2 1/2" Camphor hold 1 of 3 1/2"  
 No. of Bilge Injections 1 sizes 10" Connected to condenser, or to circulating pump yes 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 above  
 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 & Ballast 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 16-8-10 of Stern Tube 16-8-10 Screw shaft and Propeller 16-8-10  
 Is the Screw Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from upper deck

OILERS, &c.—(Letter for record 3) Manufacturers of Steel D Colville & Sons  
 Total Heating Surface of Boilers 10160 ft Is Forced Draft fitted yes No. and Description of Boilers 4 Single Inded.  
 Working Pressure 215 lbs Tested by hydraulic pressure to 430 lbs Date of test 2-9-10 No. of Certificate 10568  
 Can each boiler be worked separately yes Area of fire grate in each boiler 62 ft No. and Description of Safety Valves to  
 each boiler 2 spring loaded Area of each valve 9.62" 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 2'-0" Mean dia. of boilers 15'-6" Length 11'-0" Material of shell plates stul  
 Thickness 1 1/4" Range of tensile strength 29/33 tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams DR lap  
 long. seams DBS. TR Diameter of rivet holes in long. seams 1 1/4" Pitch of rivets 10 1/2" Lap of plates or width of butt straps 23 1/2"  
 Per centages of strength of longitudinal joint 90.8 Working pressure of shell by rules 251 Size of manhole in shell 16 x 12  
 Size of compensating ring Mc Kells No. and Description of Furnaces in each boiler 3 Morrison Material stul Outside diameter 49 1/2"  
 Length of plain part top 23 Thickness of plates bottom 32 Description of longitudinal joint welded No. of strengthening rings yes  
 Working pressure of furnace by the rules 241 Combustion chamber plates: Material stul Thickness: Sides 3/32 Back 21/32 Top 21/32 Bottom 17/32  
 Pitch of stays to ditto: Sides 7/8 x 7/8 Back 7/8 x 7/8 Top 7/8 x 8 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 252  
 Material of stays stul Diameter at smallest part 1.46" Area supported by each stay 58" Working pressure by rules 274 End plates in steam space:  
 Material stul Thickness 1 1/8" Pitch of stays 16 x 15 1/4" How are stays secured DN + W Working pressure by rules 254 Material of stays stul  
 Diameter at smallest part 6.46" Area supported by each stay 244" Working pressure by rules 284 Material of Front plates at bottom stul  
 Thickness 15/16 Material of Lower back plate stul Thickness 7/8 Greatest pitch of stays 14 1/2" Working pressure of plate by rules 280  
 Diameter of tubes 2 1/2" Pitch of tubes 3 3/4 x 3 3/4 Material of tube plates stul Thickness: Front 15/16 Back 13/16 Mean pitch of stays 7 1/2"  
 Pitch across wide water spaces 13 3/4" Working pressures by rules 398 Girders to Chamber tops: Material Iron Depth and  
 thickness of girder at centre 2 plates 9 x 7/8 Length as per rule 31 1/2" Distance apart 8" Number and pitch of stays in each 3 of 7 1/4"  
 Working pressure by rules 215 Superheater or Steam chest; how connected to boiler none 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  
 If stiffened 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



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 Safe
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 top end: 2 bottom end: 2 main bearing and 2 sets of couple bolts and nuts. Air pump head valve, seat, bucket and rod. Circulating pump impeller and shaft. Pair top and pair bottom end brasses. Eccentric strap. Valve spindle. Set of piston packing rings.

*John Brown & Company, Limited*  
The foregoing is a correct description,

*W. Henderson* Manufacturer.

Assistant Secretary.

Dates of Survey while building	During progress of work in shops—	1910. Apr 6. 25. May 4. 10. 16. 18. 26. June 1. 7. 16. 21. 29. July 12. 27. Aug 3. 16.
	During erection on board vessel—	Sep 2. 12. 21. 29. Oct 4. 6. 12. 18. 25. 27. 31. Nov 2. 4. 7. 15. 18. 24. Dec 6. 9. 12. 13.
Total No. of visits		38

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

Dates of Examination of principal parts—Cylinders 1-6-10 26-5-10 Slides 16-8-10 Covers 16-8-10 Pistons 16-8-10 Rods 16-8-10

Connecting rods 16-8-10 Crank shaft 16-6-10 Thrust shaft 7-6-10 Tunnel shafts 16-6-10 Screw shaft 1-6-10 Propeller 2-8-10

Stern tube 12-7-10 Steam pipes tested 4-10-10 16-11-10 Engine and boiler seatings 29-9-10 Engines holding down bolts 2-11-10

Completion of pumping arrangements 6-12-10 Boilers fixed 25-10-10 Engines tried under steam 13-12-10

Main boiler safety valves adjusted 6-12-10-9-12-10 Thickness of adjusting washers PFB  $\frac{5}{16}$  full AV  $\frac{5}{16}$  SFB  $\frac{5}{16}$  full AV  $\frac{5}{16}$

Material of Crank shaft *steel* Identification Mark on Do. *41Y HC* Material of Thrust shaft *steel* Identification Mark on Do. *41Y HC*

Material of Tunnel shafts *steel* Identification Marks on Do. *41Y HC* Material of Screw shafts *steel* Identification Marks on Do. *41Y HC*

Material of Steam Pipes *steel* 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 plan enclosed: and has been seen working under steam satisfactorily. Materials and workmanship are good.

This machinery is eligible in my opinion to be classed + LMC 12-10.

*1 cut feed valve  
both ends (as noted)*

It is submitted that  
this vessel is eligible for  
THE RECORD. + LMC 12.10.

F.D. *J.W.D. 22/12/10. J.P.D.*

The amount of Entry Fee	£ 3 : 0 :	When applied for,	19/12/10.
Special	£ 54 : 16 :	When received,	24/12/10.
Donkey Boiler Fee	£ :		
Travelling Expenses (if any)	£ :		

Committee's Minute *Glasgow* 20 DEC. 1910

Assigned + LMC 12, 10

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

Lloyd's Register Foundation

*Glasgow*

Certificate (if required) to be sent to

(The Surveys are requested not to write on or below the space for Committee's Minute.)