

REPORT ON MACHINERY.

No. 30357

Date of writing Report July 1st 1911 When handed in at Local Office 4/7/11 Port of Glasgow
No. in Survey held at Clydebank Date, First Survey 20th April 1910 Last Survey 6 July 1911
Boat 100 on the Stul Twin Is Argyllshire (Number of Visits 1)
Master W. Chicken Built at Clydebank By whom built J. Brown & Co Ltd Tons { Gross 10392
Engines made at Clydebank By whom made do when made 1911 Net 6610
Boilers made at do By whom made do when made 1911
Registered Horse Power 1264 Owners Turnbull Martin & Co Port belonging to Glasgow
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 4 each
Dia. of Cylinders 25-35½-51-72 Length of Stroke 51 Revs. per minute 77 Dia. of Screw shaft as per rule 15.6 Material of stul
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 yes fit tightly If two
liners are fitted, is the shaft lapped or protected between the liners — Length of stern bush 4'-6"
Dia. of Tunnel shaft as per rule 13.58 Dia. of Crank shaft journals as per rule 14.25 Dia. of Crank pin 15½ Size of Crank webs 29½ x 10½ Dia. of thrust shaft under
collars 14½ Dia. of screw 17-9 Pitch of Screw 20-0 No. of Blades 4 State whether moveable yes Total surface 90 ft
No. of Feed pumps 2 Diameter of ditto 4½ Stroke 25½ Can one be overhauled while the other is at work yes
No. of Bilge pumps 2 Diameter of ditto 5 Stroke 25½ Can one be overhauled while the other is at work yes
No. of Donkey Engines 6 Sizes of Pumps 14½-18 x 18 14-8 x 15 No. and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room 3 of 3½ Stakehold 2 of 3½ In Holds, &c. No 1 Hold 2 of 3½ No 2 Hold 2 of 3½ No 3 Hold
2 of 3½ No 4 Hold 2 of 3½ No 5 Hold 2 of 3½ No 6 Hold 2 of 3½ Tunnel Well 1 of 3½
No. of Bilge Injections 12 sizes 8-12 Connected to condenser, or to circulating pump each pp Is a separate Donkey Suction fitted in Engine room & size yes 3½
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 stakehold 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 & 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 24.2.11 of Stern Tubes 24.2.11 Screw shafts and Propellers 24.2.11
Is the Screw Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from upper main deck

BOILERS, &c.—(Letter for record 5) Manufacturers of Steel Stul Co of Scotland
Total Heating Surface of Boilers 19432 Is Forced Draft fitted yes No. and Description of Boilers Two single ended
Working Pressure 215 lbs Tested by hydraulic pressure to 430 lbs Date of test 12.10.10 No. of Certificate 10620
Can each boiler be worked separately yes Area of fire grate in each boiler 78.8 No. and Description of Safety Valves to
each boiler 2 spring loaded Area of each valve 8.29 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 14'-0" Length 11'-6" Material of shell plates stul
Thickness 1 3/4 Range of tensile strength 30½/34½ tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams Lap TR & TR
long. seams IBS. TR Diameter of rivet holes in long. seams 1 3/4 Pitch of rivets 10½ Lap of plates or width of butt straps 24½
Per centages of strength of longitudinal joint 94.1 Working pressure of shell by rules 233 Size of manhole in shell 22" x 18
Size of compensating ring 3'-6½ x 2'-11" No. and Description of Furnaces in each boiler 4 Brighton Material stul Outside diameter 46 5/8
Length of plain part top Thickness of plates crown 11 Description of longitudinal joint welded No. of strengthening rings —
Working pressure of furnace by the rules 243 Combustion chamber plates: Material stul Thickness: Sides 5/8 Back 3/4 Top 5/8 Bottom 1/6
Pitch of stays to ditto: Sides 7½ x 7½ Back 7½ x 7½ Top 7½ x 7½ If stays are fitted with nuts or riveted heads nuts Working pressure by rules 217
Material of stays stul Diameter at smallest part 1.48 Area supported by each stay 62 Working pressure by rules 215 End plates in steam space:
Material stul Thickness 1 5/16 Pitch of stays 16½ x 16 3/8 How are stays secured DN Working pressure by rules 221 Material of stays stul
Diameter at smallest part 3 3/16 Area supported by each stay 270 Working pressure by rules 306 Material of Front plates at bottom stul
Thickness 1 5/16 Material of Lower back plate stul Thickness 1 Greatest pitch of stays 14½ Working pressure of plate by rules 262
Diameter of tubes 2½ Pitch of tubes 3 3/4 x 3 3/4 Material of tube plates stul Thickness: Front 1 3/16 Back 7/8 Mean pitch of stays 9 3/8
Pitch across wide water spaces 13½ doubled Working pressures by rules 292 Girders to Chamber tops: Material stul Depth and
thickness of girder at centre 2 plates 8½ x 3 3/4 Length as per rule 30½ Distance apart 7½ Number and pitch of stays in each 3 of 7½
Working pressure by rules 220 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 —

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
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
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, 1 set of feed & bilge pump valves, 1 set of piston springs, a quantity of assorted bolts & nuts, and iron of various sizes. Tail shaft, thrust shaft, Crank shaft & other gear.

John Brown & Company, Limited.

The foregoing is a correct description,

J. Henderson Manufacturer.

Dates of Survey while building	During progress of work in shops—	1910. Apr. 20. May 26. June 1. 7. 21. 22. 29. July 4. 12. 27. Aug 11. 16. 24. Sep 5. 12. 21. 28. 29. Oct 4. 6. 12. 18. 19.
	During erection on board vessel—	25. Nov 2. 9. 15. 18. 21. 24. Dec 1. 5. 6. 16. 20. 1911. Jan 6. 12. 16. 20. Feb 1. 7. 10. 15. 16. 22. 24. 28.
	Total No. of visits	Mar 1. 7. 8. 10. 11. 15. 17. 20. 23. 29. 31. April 3. 4. 10. 12. 18. 24. 28. May 4. 11. 17. 22. 30. June 7. 9. 14. 19. 20. 26. 27. 28. 29. 30. July 6. 81.

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

Dates of Examination of principal parts—		Cylinders 16. 8. 10. 16. 21. 9. 10	Slides 29. 9. 10	Covers 21. 9. 10	Pistons 21. 9. 10	Rods 9. 11. 10
Connecting rods 18. 10. 10	Crank shaft 29. 9. 10	Thrust shaft 29. 9. 10	Tunnel shafts 29. 9. 10	Screw shaft 29. 9. 10	Propeller 16. 2. 11	
Stern tube 29. 9. 10	Steam pipes tested 22. 2. 11	4. 5. 11	Engine and boiler seatings 24. 2. 11	Engines holding down bolts 31. 3. 11		
Completion of pumping arrangements 28. 4. 11	Boilers fixed 4. 4. 11	Engines tried under steam 30. 6. 11				
Main boiler safety valves adjusted 28. 4. 11	Thickness of adjusting washers	FSEB. PV $\frac{5}{8}$ SV $\frac{5}{32}$ ASEB. PV $\frac{5}{8}$ SV $\frac{5}{32}$ DEB. FV $\frac{3}{8}$ CV $\frac{9}{32}$ AV $\frac{5}{16}$ SEB. FV $\frac{3}{8}$ CV $\frac{9}{32}$ AV $\frac{5}{16}$				
Material of Crank shaft <i>steel</i>	Identification Mark on Do. 399	Material of Thrust shaft <i>steel</i>	Identification Mark on Do. 399			
Material of Tunnel shafts <i>steel</i>	Identification Marks on Do. 399	Material of Screw shafts <i>steel</i>	Identification Marks on Do. 399			
Material of Steam Pipes <i>steel</i>	Test pressure 645 lbs.					

General Remarks (State quality of workmanship, opinions as to class, &c. *The materials & workmanship are good. The machinery of this vessel has been constructed under special survey in accordance with the rules and approved plans and has been seen working satisfactorily under steam. This machinery is eligible in our opinion for classification and to have the record + L.M.C. 7. 11.*

It is submitted that this vessel is eligible for THE RECORD + L.M.C. 7. 11. 2 DB & 2 SB. F.D.

J.W.D. 4/7/11 H.P.

The amount of Entry Fee .. £	3	When applied for,	3/7/1911
Special	76 : 12	When received,	9. 7. 11
Donkey Boiler Fee			
Travelling Expenses (if any) £			

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

Committee's Minute *Glasgow* 14 JUL 1911

Assigned *+ L.M.C.*

7. 11 F.D.



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