

## REPORT ON MACHINERY.

No. 15904.

Received at London Office

Date of writing Report

19

When handed in at Local Office

24/10/10 Port of Greenock.

WED. 2 NOV 1910

No. in Survey held at Greenock & Campbelltown.  
Reg. Book.Date, First Survey 24<sup>th</sup> March Last Survey 21<sup>st</sup> October 1910.  
(Number of Visits 46.)

on the SCREW STEAMER "BORE".

Tons { Gross 1209  
Net 719  
When built 1910

Master Built at Campbelltown. By whom built Campbelltown S.P. Coy.

Engines made at Greenock. By whom made John S. Nicolson 16<sup>th</sup> June when made 1910Boilers made at Greenock. By whom made John S. Nicolson 16<sup>th</sup> June when made 1910.

Registered Horse Power Owners Stockholm Rederiaktiebolag Svea. Port belonging to Stockholm.

Nom. Horse Power as per Section 28 136. Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted Yes.

ENGINES, &amp;c.—Description of Engines Triple Expansion No. of Cylinders Three No. of Cranks Three

Dia. of Cylinders 18"-2 1/2"-4 1/2" Length of Stroke 33" Revs. per minute 84" Dia. of Screw shaft as per rule 10 1/2" Material of screw shaft Iron

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 3'6"

Dia. of Tunnel shaft as per rule 8 1/2" Dia. of Crank shaft journals as per rule 9 1/2" Dia. of Crank pin 9 1/2" Size of Crank webs 14 x 6" Dia. of thrust shaft under

collars 9 1/2" Dia. of screw 12'6" Pitch of Screw 13'6" No. of Blades 4 State whether moveable No. Total surface 50 sq. ft.

No. of Feed pumps 2 Diameter of ditto 2 1/2" Stroke 18" Can one be overhauled while the other is at work Yes.

No. of Bilge pumps 2 Diameter of ditto 2 1/2" Stroke 18" Can one be overhauled while the other is at work Yes.

No. of Donkey Engines 2 Sizes of Pumps 7 x 8 x 8" 6 x 4 x 6" No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Four 2 1/2" dia. In Holds, &amp;c. No. 1 Hold: Two 2 1/2" dia.

No. 2 Hold: Two 2" dia. &amp; one 2 1/2" dia. Tunnel well: One 2 1/2" dia.

No. of Bilge Injections 1 sizes 5" Connected to condenser, or to circulating pump C.P. Is a separate Donkey Suction fitted in Engine room &amp; size Yes.

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

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 None. How are they protected

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 9/9/10. of Stern Tube 9/9/10. Screw shaft and Propeller 17/10/10.

Is the Screw Shaft Tunnel watertight Yes. Is it fitted with a watertight door Yes. worked from Upper platform

BOILERS, &amp;c.—(Letter for record S.) Manufacturers of Steel Stewart &amp; Lloyd. Plates. Laminated One Cap Base

Total Heating Surface of Boilers 2228 sq. ft. Is Forced Draft fitted No. No. and Description of Boilers 2: Cylindrical multi: Single End.

Working Pressure 180 lbs. Tested by hydraulic pressure to 360 lbs. Date of test 18/8/10. No. of Certificate 980.

Can each boiler be worked separately Yes. Area of fire grate in each boiler 35 sq. ft. No. and Description of Safety Valves to

each boiler 2: Sweet Spring Area of each valve 4.9 sq. in. Pressure to which they are adjusted 185 lbs. Are they fitted with easing gear Yes.

Smallest distance between boilers or uptakes and bunkers or woodwork 10" Mean dia. of boilers 11'6" Length 10'6" Material of shell plates Steel.

Thickness 3 1/2" Range of tensile strength 28 to 32 tons Are the shell plates welded or flanged No. Descrip. of riveting: cir. seams Lap double.

long. seams Lap double straps Diameter of rivet holes in long. seams 1 1/2" Pitch of rivets 7.08 3.54 Lap of plates or width of butt straps 15 1/4"

Per centages of strength of longitudinal joint rivets 90:4 Working pressure of shell by rules 184 lbs. Size of manhole in shell 16" x 12"

Size of compensating ring Flanged Ring No. and Description of Furnaces in each boiler 2: Deighton's Material Steel Outside diameter 43 1/4"

Length of plain part top 6'8 1/2" Thickness of plates crown 1 1/2" Description of longitudinal joint Weld. No. of strengthening rings None

Working pressure of furnace by the rules 189 lbs. Combustion chamber plates: Material Steel Thickness: Sides 5" Back 5" Top 5" Bottom 2 1/2"

Pitch of stays to ditto: Sides 8" x 8" Back 8" x 8" Top 8" x 8" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 212 lbs

Material of stays Steel Diameter at smallest part 1 3/8" full Area supported by each stay 64 sq. in. Working pressure by rules 184 lbs End plates in steam space:

Material Steel Thickness 1 1/4" Pitch of stays 16" x 16" How are stays secured 26 lbs. nuts &amp; washers Working pressure by rules 211 lbs. Material of stays Steel.

Diameter at smallest part 2 3/32" Area supported by each stay 256 sq. in. Working pressure by rules 234 lbs. Material of Front plates at bottom Steel.

Thickness 1" Material of Lower back plate Steel Thickness 2" Greatest pitch of stays 14" Working pressure of plate by rules 205 lbs.

Diameter of tubes 3 1/4" Pitch of tubes 4 1/2" x 4 1/2" Material of tube plates Steel Thickness: Front 1" Back 1 1/2" Mean pitch of stays 9"

Pitch across wide water spaces 14" Working pressures by rules 183 lbs 292 lbs. Girders to Chamber tops: Material Steel. Depth and

thickness of girder at centre 9 1/2" x 1 1/2" Length as per rule 31 7/8" Distance apart 8" Number and pitch of stays in each 3' 8"

Working pressure by rules 229 lbs. 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

Lloyd's Register  
Foundation

005668 005674 - 0278



VERTICAL DONKEY BOILER— Manufacturers of Steel

No. *None* 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 Stayed by

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

SPARE GEAR. State the articles supplied:— 1 Propeller, 2 sets Coupling Bolts & nuts, 1 set Conn. Rod top end Bolts, 1 set Conn. Rod bottom end Bolts, 1 set Main Bearing Bolts, 1 safety valve spring, 1 set Feed Pump valves, 1 set Bilge pump valves, Iron of various sizes, Bolts & nuts assorted sizes.

The foregoing is a correct description,

John Y. Knicaid & Co Ltd Manufacturer.

Dates During progress of work in shops— 1910. Mar. 24. 29. Apr. 13. 18. 22. May. 4. 6. 10. 14. 19. 26. 30. June 3. 4. 7. 10. 13.

Dates of Survey while building During erection on board vessel— 16. 17. 21. 28. July 6. 26. 28. Aug. 1. 5. 9. 12. 18. 23. 30. Sept. 3. 8. 9. 14. 21. 27. Oct. 6. 8. 12. 13. 14. 17. 19. 20. 21.

Total No. of visits 46.

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

Dates of Examination of principal parts—Cylinders 5/8/10. Slides 5/8/10. Covers 21/10/10. Pistons 16/6/10. Rods 16/6/10.

Connecting rods 16/6/10. Crank shaft *See report* Thrust shaft 5/8/10. Tunnel shafts 5/8/10. Screw shaft 18/8/10. Propeller 21/4/10.

Stern tube 18/8/10. Steam pipes tested 12/10/10. Engine and boiler seatings 9/9/10. Engines holding down bolts 8/10/10.

Completion of pumping arrangements 5/10/10. Boilers fixed 5/10/10. Engines tried under steam 21/10/10.

Main boiler safety valves adjusted 17/10/10. Thickness of adjusting washers *Port Boiler 2 1/2" 5 1/2" Star Boiler 2 1/2" 5 1/2"*

Material of Crank shaft *Steel* Identification Mark on Do. 1590. Material of Thrust shaft *Steel* Identification Mark on Do. 5414.

Material of Tunnel shafts *Steel* Identification Marks on Do. 5415-6-7. Material of Screw shafts *Iron* Identification Marks on Do. 3755.

Material of Steam Pipes *Copper* Test pressure 400 lbs.

General Remarks (State quality of workmanship, opinions as to class, &c.)

The engines and Boilers of this vessel have been built under special survey and the materials and workmanship are good. When completed they were examined on a full power trial and found to work well. The machinery throughout is now in good and efficient condition and eligible in my opinion to have the record of **LMC 10,10** marked in the Society's Register Book.

A 10 kw generating set Vertical Steam engine by Shanks Ayrbroath.

It is submitted that this vessel is eligible for THE RECORD. **LMC 10,10**

The amount of Entry Fee .. £ 2 : : When applied for, 25/10/10.

Special .. £ 20 : 8 : : When received, 28/10/10.

Donkey Boiler Fee .. £ : : F.C.S.B.

Travelling Expenses (if any) £ : 15/6 : : 1910.

Committee's Minute GLASGOW - 1 NOV. 1910

Assigned + LMC 10,10.

MACHINERY CERTIFICATE WRITTEN. 2/11/10



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Lloyd's Register Foundation

Greenock.

Certificate (if required) to be sent to

J.H.H. 31-10-10