

REPORT ON MACHINERY.

No. 16163
THU. DEC. 28. 1911

Received at London Office

Date of writing Report 19 When handed in at Local Office 20/12/1911 Port of Greenock.

No. in Survey held at Port Glasgow. Date, First Survey 23rd Dec. 1910 Last Survey 16th Dec. 1911
Reg. Book. (Number of Visits 100.)

on the SCREW STEAMER **MONTORO.**

Tons } Gross 4057
Net 2500.

Master Built at Port Glasgow By whom built Clyde S.B. Eng. Co. Ltd. When built 1911.

Engines made at Port Glasgow By whom made Clyde S.B. Eng. Co. Ltd. when made 1911.

Boilers made at Port Glasgow By whom made Clyde S.B. Eng. Co. Ltd. when made 1911.

Registered Horse Power Owners Burns, Philp & Co. Ltd. Port belonging to Sydney.

Nom. Horse Power as per Section 28 661. Is Refrigerating Machinery fitted for cargo purposes Yes. Is Electric Light fitted Yes.

ENGINES, &c.—Description of Engines Triple expansion. No. of Cylinders Three No. of Cranks Three

Dia. of Cylinders 27-43-72 Length of Stroke 48 Revs. per minute 82 Dia. of Screw shaft as per rule 14.65 Material of screw shaft as fitted 15.5 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 one length 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' 2 1/4"

Dia. of Tunnel shaft as per rule 13.37 Dia. of Crank shaft journals as per rule 13.93 Dia. of Crank pin 14 Size of Crank webs 9 1/2 x 20 Dia. of thrust shaft under collars 14 1/2 Dia. of screw 17.6 Pitch of Screw 17.0 No. of Blades 4 State whether moccable Yes Total surface 92 Sq. ft.

No. of Feed pumps 2 Diameter of ditto 4 1/2 Stroke 24 Can one be overhauled while the other is at work Yes MAIN FEED PUMPS. 2 12 x 9 x 21. Woodson's

No. of Bilge pumps 2 Diameter of ditto 4 Stroke 24 Can one be overhauled while the other is at work Yes

No. of Donkey Engines Five Sizes of Pumps 4 1/2 x 3 x 6, 10 x 7 x 10, 8 x 6 x 8, 9 x 10 x 10, 8 x 6 x 6 all duplex. grand size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Four 3 1/2 dia. In Holds, &c. No. 1 HOLD Two 3 1/2 dia. No. 2 HOLD Two 3 1/2 dia. No. 3 HOLD Two 3 1/2 dia. No. 4 HOLD One 3 1/2 dia. TUNNEL WELL One 2 1/2 dia.

No. of Bilge Injections 1 sizes 9" Connected to condenser, or to circulating pump C.P. Is a separate Donkey Suction fitted in Engine room & size Yes. 2-3 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

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 Hold Suctions How are they protected Cased in.

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 17/10/11 of Stern Tube 17/10/11. Screw shaft and Propeller 1/11/11.

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

BOILERS, &c.—(Letter for record S.I.R.) Manufacturers of Steel Steel Co. of Scotland.

Total Heating Surface of Boilers 11156 Is Forced Draft fitted Yes. No. and Description of Boilers Four Single Cylinder Multi.

Working Pressure 180 lbs. Tested by hydraulic pressure to 360 lbs. Date of test 10/5/11 & 12/6/11 No. of Certificate 1006 & 1012

Can each boiler be worked separately Yes. Area of fire grate in each boiler 63 Sq. ft. No. and Description of Safety Valves to each boiler 2: Direct Spring Area of each valve 9.62 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 8". Mean dia. of boilers 15.9 Length 11.6 Material of shell plates Steel

Thickness 1 1/8" 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 Double Strap Diameter of rivet holes in long. seams 1 1/2". Pitch of rivets 10 1/2". 5 1/8". Top of plates or width of butt straps 22".

Per centages of strength of longitudinal joint rivets 89.2 plate 85.3 Working pressure of shell by rules 208 lbs. Size of manhole in shell 17" x 13"

Size of compensating ring Flanged Ring No. and Description of Furnaces in each boiler 3: Dightons Material Steel Outside diameter 50 1/4"

Length of plain part top 4.6 Thickness of plates crown 5.8 Description of longitudinal joint Weld. No. of strengthening rings None. bottom 4.6

Working pressure of furnace by the rules 200 lbs. Combustion chamber plates: Material Steel Thickness: Sides 5 1/8" Back 5 1/8" Top 5 1/8" Bottom 15 1/16"

Pitch of stays to ditto: Sides 8" x 8 1/4" Back 8 1/4" x 8 1/4" Top 8" x 8 1/4" If stays are fitted with nuts or riveted heads Nuts. Working pressure by rules 193 lbs.

Material of stays Sp. Iron Diameter at smallest part 1 1/8" Area supported by each stay 70" Working pressure by rules 262 lbs. End plates in steam space: Material Steel Thickness 1 3/8" Pitch of stays 16" x 16 1/4" How are stays secured Double Nuts. Working pressure by rules 183 lbs. Material of stays Steel

Diameter at smallest part 2 3/8" Area supported by each stay 260" Working pressure by rules 211 lbs. Material of Front plates at bottom Steel Thickness 1 5/16" Material of Lower back plate Steel Thickness 3/2" Greatest pitch of stays 13 1/2" Working pressure of plate by rules 196 lbs.

Diameter of tubes 2 1/2" Pitch of tubes 3 3/4" x 3 3/4" Material of tube plates Steel Thickness: Front 1 3/2" x 1 5/16" Back 3/4" Mean pitch of stays 4 1/2"

Pitch across wide water spaces 13 1/2" Working pressures by rules FRONT BACK 208 lbs. 358 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 30.6". Distance apart 8 1/2". Number and pitch of stays in each 3.8"

Working pressure by rules 192 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

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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 _____ 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 Eccentric Straps, Air Pump Rod & Head valve grating, 1 set Bolt, End Bolts & Bushes, 1 set Top End Bolts & Bushes, 2 main bearing bolts, see Exh. No. 1/11/11, 1 set Coupling Bolt, 1 Propeller shaft, 3 Propeller Blade studs, 1 set spare gear for Fan Engine, 1 set H.P. Piston valve Rings, 1 set L.P. Piston valve Rings, 1 set Springs for each side of Piston, 1 Centrifugal Pump Shaft & Propeller, 4 C.I. Propeller Blades, Hommer's shaft Coupling, 48 Cylindrical Brass Cover Studs, 15 Jack Key Bolts, 2 Eccentric Rod Studs, 7 Eccentric Rod Bolts, 100 Bondman tubs & ferrules, 20 Studs for Condenser door, 1 set each air pump valve also Siph. Feed Sanitary, 1 set valves for all air pumps, 2 set valves for Woodson's pumps, 1 clean chest for do., 3 S. Valve Springs, 1 each valve Spring, 36 steam tubes, 12 stay tubes, 100 Bolt nuts etc. etc.

The foregoing is a correct description, *John Macdonald* Director, 1911. Jan. 6-11-13-18-23-24-26-27-30 Feb. 1-3-7-10-14-16-21-24-28 Mar. 2-3-14-17-20-21-23-25-28-31 Apr. 4-6-11-13-14-17-15-20-25-28 May. 1-3-8-10-13-25 June. 2-6-9-12-13-16-20-24-28-25-30 July. 1-18-21 Aug. 3-9-14-21-28

THE OLIVE SHIPBUILDING & ENGINEERING CO. LIMITED, Manufacturer.

Dates of Survey while building

During progress of work in shops - 1910. Dec. 23-28-29-30-31. Apr. 4-6-11-13-14-17-15-20-25-28. May. 1-3-8-10-13-25. June. 2-6-9-12-13-16-20-24-28-25-30. July. 1-18-21. Aug. 3-9-14-21-28.

During erection on board vessel - - - - -

Total No. of visits 100.

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

" " " donkey " " " *Yes*.

Dates of Examination of principal parts—Cylinders 13/11/11 Slides 12/9/11 Covers 16/12/11 Pistons 21/2/11 Rods 15/9/11

Connecting rods 14/9/11 Crank shaft 21/8/11 Thrust shaft 21/8/11 Tunnel shafts 4/9/11 Screw shaft 4/9/11 Propeller 12/9/11

Stern tube 15/9/11 Steam pipes tested 2/10/11, 8/11, 8/12/11 Engine and boiler seatings 17/10/11. Engines holding down bolts 10/11/11.

Completion of pumping arrangements 10/11/11. Boilers fixed 13/12/11. Engines tried under steam 16/12/11

Main boiler safety valves adjusted 13/12/11. Thickness of adjusting washers *S.F. P.V. 3/8" S.V. 3/8" S.A. P.V. 1/2" S.V. 1/2" P.F.P.V. 3/8" S.V. 3/8" R.A. P.V. 3/8" S.V. 3/8"*

Material of Crank shaft *Steel* Identification Mark on Do. 1024 Material of Thrust shaft *Steel* Identification Mark on Do. 1025

Material of Tunnel shafts *Steel* Identification Marks on Do. 1026 & 1027 Material of Screw shafts *Steel* Identification Marks on Do. 1024

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

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

The Engines & Boilers of this vessel were built under special survey and the materials and workmanship are good. On completion the machinery was tested on a full power trial and found to work satisfactorily. It is now in good and efficient condition throughout and eligible in my opinion to have the record of **LMC 12, 11** marked in the Society's Register Book.

It is submitted that this vessel is eligible for THE RECORD + LMC 12, 11

F.D.

JWR
29/12/11

The amount of Entry Fee .. £ 3 : : When applied for, _____

Special £ 53 : : 20/12/11-1911.

Donkey Boiler Fee £ : : When received, _____

Travelling Expenses (if any) £ : : 30.12.11

Committee's Minute GLASGOW 27 DEC. 1911

Assigned + LMC 12, 11

Wm. Austin
Engineer, Surveyor to Lloyd's Register of British & Foreign Shipping.



Lloyd's Register Foundation

Greenoch

Certificate (if required) to be sent to

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

2-5/11/11