

## REPORT ON MACHINERY.

No. 16733

Received at London Office

Date of writing Report

19

When handed in at Local Office

7.8.14 Port of Greenock

No. in Survey held at Greenock  
Reg. Book.

Date, First Survey 23.6.13. Last Survey 6/8/1914.

(Number of Visits 60)

on the SCREW STEAMER "DOGRA".

Master J. P. Domo Built at Port Glasgow. By whom built Russell &amp; Co.

Gross 5138.  
Tons Net 2280.5.  
When built 1914

Engines made at Greenock. By whom made Rankin &amp; Blackmore. when made 1914.

Boilers made at Greenock. By whom made Rankin &amp; Blackmore. when made 1914.

Registered Horse Power Owners Asiatic Steam Nav Co. Ltd. Port belonging to Liverpool.

Nom. Horse Power as per Section 28 442. 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 26"-42"-70" Length of Stroke 48" Revs. per minute 80 Dia. of Screw shaft as per rule 14.4" Material of Steel as fitted 14.3" 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 the 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 5'-0"

Dia. of Tunnel shaft as per rule 12.9" Dia. of Crank shaft journals as per rule 13.6" Dia. of Crank pin 13.5" Size of Crank webs 19" x 8" Dia. of thrust shaft under collars 13.5" Dia. of screw 17.6" Pitch of Screw 18" 0" No. of Blades 4 State whether moveable Yes. Total surface 100 Sq. ft.

No. of Feed pumps 2 Diameter of ditto 4" Stroke 21" Can one be overhauled while the other is at work Yes.

No. of Bilge pumps 2 Diameter of ditto 4.5" Stroke 24" Can one be overhauled while the other is at work Yes.

No. of Donkey Engines Three Sizes of Pumps 9" x 12" 9" x 10" 6" x 10" No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Four 3" dia. In Holds, &amp;c. No. 1 HOLD Two 3" dia. No. 2 HOLD Two 3" dia. No. 3 HOLD (DEEP TANK) Two 6" dia. x Two 3" dia. No. 4 HOLD Two 3" dia. TUNNEL WELL One 2.5" dia.

No. of Bilge Injections 1 sizes 8" Connected to condenser, or to circulating pump Centrifugal pump as a separate Donkey Suction fitted in Engine room &amp; size Yes. 3"

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 15/6/14 of Stern Tube 15/6/14 Screw shaft and Propeller 15/6/14.

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 No. 7) Manufacturers of Steel Glasgow Iron &amp; Steel Co. Ltd.

Total Heating Surface of Boilers 6264 sq. ft. Is Forced Draft fitted Yes. No. and Description of Boilers 2 Cylindrical boiler Single.

Working Pressure 180 lbs. Tested by hydraulic pressure to 360 lbs. Date of test 10/6/14 No. of Certificate 1149.

Can each boiler be worked separately Yes. Area of fire grate in each boiler 75 sq. ft. No. and Description of Safety Valves to each boiler 2. Direct Spring Area of each valve 14.19" Pressure to which they are adjusted 180 lbs. Are they fitted with easing gear Yes.

Smallest distance between boilers or uptakes and bunkers or woodwork 2' 6" Mean dia. of boilers 16' 6" Length 11' 6" Material of shell plates Steel

Thickness 1.76" 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 20" Butt straps Diameter of rivet holes in long. seams 1.3" Pitch of rivets 9.32" 4.89" of plates or width of butt straps 20.2"

Per centages of strength of longitudinal joint rivets 86 plate 85.9 Working pressure of shell by rules 191 lbs. Size of manhole in shell 16" x 12"

Size of compensating ring Plate flanged No. and Description of Furnaces in each boiler 4. Deighton's Material Steel Outside diameter 44.4"

Length of plain part top 7.6" Thickness of plates crown 1.7 bottom 1.32 Description of longitudinal joint welded. No. of strengthening rings none.

Working pressure of furnace by the rules 185 lbs. Combustion chamber plates: Material Steel Thickness: Sides 5" Back 5" Top 5" Bottom 7.6"

Pitch of stays to ditto: Sides 8" x 9.76" Back 7.2" x 9.76" Top 7.2" x 9.76" If stays are fitted with nuts or riveted heads nuts. Working pressure by rules 183 lbs.

Material of stays See below Diameter at smallest part 1.2" Area supported by each stay 73" Working pressure by rules 193 lbs. End plates in steam space

Material Steel Thickness 1.76" Pitch of stays 16.2" x 20.5" How are stays secured Double nuts. Working pressure by rules 193 lbs. Material of stays Steel

Diameter at smallest part 2.76" Area supported by each stay 340" Working pressure by rules 193 lbs. Material of Front plates at bottom Steel

Thickness 7.8" Material of Lower back plate Steel Thickness 1.76" Greatest pitch of stays 12.2" Working pressure of plate by rules 190 lbs.

Diameter of tubes 2.2" Pitch of tubes 3.32" x 3.32" Material of tube plates Steel Thickness: Front 4.4" Back 3.4" Mean pitch of stays 9.29"

Pitch across wide water spaces 13.4" Working pressures by rules 217 lbs. 233 lbs. Girders to Chamber tops: Material Steel Depth and

thickness of girder at centre 9.2" x 1.5" Length as per rule 33.6" Distance apart 9.2" Number and pitch of stays in each 3: 7.2"

Working pressure by rules 187 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  
W66-0206



# VERTICAL DONKEY BOILER—

Manufacturers of Steel

No. one Description See separate report When made \_\_\_\_\_ Where fired \_\_\_\_\_  
 Made at \_\_\_\_\_ By whom made \_\_\_\_\_ No. of Certificate \_\_\_\_\_ Fire grate area \_\_\_\_\_ Description of Safety  
 Working pressure \_\_\_\_\_ tested by hydraulic pressure to \_\_\_\_\_ Date of test \_\_\_\_\_ Date of adjustment \_\_\_\_\_  
 Valves \_\_\_\_\_ No. of Safety Valves \_\_\_\_\_ Area of each \_\_\_\_\_ Pressure to which they are adjusted \_\_\_\_\_ Length \_\_\_\_\_  
 If fitted with easing gear \_\_\_\_\_ If steam from main boilers can enter the donkey boiler \_\_\_\_\_ Descrip. of riveting long. seams \_\_\_\_\_ Rivets \_\_\_\_\_  
 Material of shell plates \_\_\_\_\_ Thickness \_\_\_\_\_ Range of tensile strength \_\_\_\_\_ Lap of plating \_\_\_\_\_ Per centage of strength of joint \_\_\_\_\_ Plates \_\_\_\_\_  
 Dia. of rivet holes \_\_\_\_\_ Whether punched or drilled \_\_\_\_\_ Pitch of rivets \_\_\_\_\_ Radius of do. \_\_\_\_\_ No. of stays to do. \_\_\_\_\_ Dia. of stays \_\_\_\_\_  
 Working pressure of shell by rules \_\_\_\_\_ Thickness of shell crown plates \_\_\_\_\_ Thickness of furnace plates \_\_\_\_\_ Description of joint \_\_\_\_\_  
 Diameter of furnace Top \_\_\_\_\_ Bottom \_\_\_\_\_ Length of furnace \_\_\_\_\_ Radius of do. \_\_\_\_\_ Stayed by \_\_\_\_\_  
 Working pressure of furnace by rules \_\_\_\_\_ Thickness of furnace crown plates \_\_\_\_\_ Dates of survey \_\_\_\_\_  
 Diameter of uptake \_\_\_\_\_ Thickness of uptake plates \_\_\_\_\_ Thickness of water tubes \_\_\_\_\_

## SPARE GEAR.

State the articles supplied:—

2 C.I. Propeller Blades, 1 Propeller shaft, 1 Crank shaft, 1 Cyet  
 2 main Bearing Bolts, 6 Holding down Bolts, 6 Junk Ring Bolts, 6 Cyet Cover Bolts, 6 Valve chest cover Bolts,  
 2 Reed pump valves, 2 Bilge Pump valves, 1 Feed escape valve opening, 12 Boiler tubes, 12 Condenser tubes  
 12 Condenser tubes, 1 Spring for each set safety valves, Iron, Bolt etc.

The foregoing is a correct description,

Rankin Blackmore Manufacturer.

Dates of Survey while building { During progress of work in shops -- } 1913 Aug 8, Sept 16, Oct 27, 17, Nov 4, 26, Dec 9, 11, 18, 22, 28, 31, 1914 Jan 9, 15, 19, 22, 27, 30.  
 { During erection on board vessel -- } Feb 2, 10, 17, 26, 29, Mar 4, 9, 17, 24, 31, Apr 7, 9, 11, 15, 17, 22, 24, 28, May 4, 7, 11, 13, 15, 19, 22.  
 Total No. of visits { } 60.  
 Is the approved plan of main boiler forwarded herewith Yes.  
 " " " donkey " " " " Yes.

Dates of Examination of principal parts—Cylinders 6/8/14 Slides 31/3/14 Covers 14/4/14 Pistons 31/3/14 Rods 31/3/14  
 Connecting rods 27/1/14 Crank shaft 10/13 Thrust shaft 25/2/14 Tunnel shafts 19/5/14 Screw shaft 23/5/14 Propeller 10/6/14  
 Stern tube 10/6/14 Steam pipes tested 26/6/14 Engine and boiler seatings 6/6/14 Engines holding down bolts 22/7/14  
 Completion of pumping arrangements 22/7/14 Boilers fixed 29/7/14 Engines tried under steam 6/8/14  
 Main boiler safety valves adjusted 30/7/14 Thickness of adjusting washers main Boiler tubes are 12 inch A.T. F. 46 A. 1 3/8  
 Material of Crank shaft Steel Identification Mark on Do. 3356 Material of Thrust shaft Steel Identification Mark on Do. 9050  
 Material of Tunnel shafts Steel Identification Marks on Do. 1296 Material of Screw shafts Steel Identification Marks on Do. 1294  
 Material of Steam Pipes W.I. Test pressure 540 lbs.

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

The Engines and Boilers were built under special survey and the materials and workmanship are good. When completed they were examined at work under a full head of steam and found to work satisfactorily.

The machinery throughout is now in good and efficient condition and eligible in our opinion to have the record of **LMC 8.14** marked in the Society's Register Book.

It is submitted that this vessel is eligible for THE RECORD.

+ LMC 8.14.

FD

8/15  
12.8.14

GRS

The amount of Entry Fee .. £ 3 : : :  
 Special .. £ 42. 2 : : :  
 Donkey Boiler Fee .. £ : : :  
 Travelling Expenses (if any) £ : : :  
 When applied for. 7.8.14  
 When received. 10.8.14

Committee's Minute

FRI. AUG. 14. 1914

Assigned

+ LMC 8.14 J.D.

WRITTEN 13/8/14

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



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Lloyd's Register Foundation

GREENOCK

Certificate (if required) to be sent to the Registrar of Shipping (if required) to be sent to the Registrar of Shipping

Is a Report also sent on the Hull of the Ship?

If not, state whether, and when, one will be sent

GE

St

Comm

Assign