

REPORT ON MACHINERY.

No. 16733

Received at London Office

Date of writing Report 10 When handed in at Local Office 7.8.14 Port of Greenock
 No. in Survey held at Greenock Date, First Survey 23.6.13 Last Survey 6/8 1914.
 Reg. Book. on the **SCREW STEAMER "DOGRA"** (Number of Visits 60)

Master J. P. Domo Built at Port Glasgow. By whom built Russell & Co. Tons { Gross 5138.
 Net 2280.5.
 When built 1914

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

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

Registered Horse Power _____ Owners Asiatic Steam Nav Coy 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, &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 14 1/2" Material of Steel
 as per rule 14 1/2" as fitted 14 3/4" 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 No. If two liners are fitted, is the shaft lapped or protected between the liners Yes. Length of stern bush 5' 0"

Dia. of Tunnel shaft 12 9/16" as per rule 12 9/16" as fitted 13" Dia. of Crank shaft journals 13 1/2" as per rule 13 1/2" as fitted 13 5/8" Dia. of Crank pin 13 5/8" Size of Crank webs 19" x 8 1/2" Dia. of thrust shaft under collars 13 5/8" Dia. of screw 17 1/2" 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 1/2" Stroke 24" Can one be overhauled while the other is at work Yes

No. of Donkey Engines Three Sizes of Pumps 9" x 12" 2" x 10" 6" x 16" No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Four 3 1/2" dia. In Holds, &c. N°1 HOLD Two 3 1/2" dia. N°2 HOLD Two 3 1/2" dia. N°3 HOLD (DEEP TANK) Two 6" dia. Two 5 1/2" dia. N°4 HOLD Two 3 1/2" dia. TUNNEL WELL One 2 1/2" 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 & 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 No

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 No

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, &c.—(Letter for record Yes) Manufacturers of Steel Glasgow Iron & Steel Coy Ltd.

Total Heating Surface of Boilers 6264 sq. ft. Is Forced Draft fitted Yes No. and Description of Boilers 2: Cylinder 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 45 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 7/16" 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 Butt Straps Diameter of rivet holes in long. seams 1 3/8" Pitch of rivets 9 3/4" 4.89" lap of plates or width of butt straps 20 1/2"

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

Size of compensating ring Plate flanged No. and Description of Furnaces in each boiler 4: Deighton's Material Steel Outside diameter 44 1/2"

Length of plain part top 7' 6 3/8" Thickness of plates orow 3 1/2" Description of longitudinal joint weld. No. of strengthening rings None
 bottom 7' 6 3/8" bottom 3 1/2"

Working pressure of furnace by the rules 185 lbs Combustion chamber plates: Material Steel Thickness: Sides 5 1/8" Back 5 1/8" Top 5 1/8" Bottom 7 1/8"

Pitch of stays to ditto: Sides 8" x 9 3/16" Back 7 1/2" x 9 3/16" Top 7 1/2" x 9 3/16" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 183 lbs

Material of stays See Iron Diameter at smallest part 1 1/2" net Area supported by each stay 43 sq. in. Working pressure by rules 193 lbs End plates in steam space: Material Steel Thickness 1 1/16" Pitch of stays 16 1/2" x 20 5/8" How are stays secured Double nuts Working pressure by rules 193 lbs Material of stays Steel

Diameter at smallest part 2 1/16" Area supported by each stay 340 sq. in. Working pressure by rules 193 lbs Material of Front plates at bottom Steel

Thickness 3/8" Material of Lower back plate Steel Thickness 1 1/16" Greatest pitch of stays 12 1/2" Working pressure of plate by rules 190 lbs

Diameter of tubes 2 1/2" Pitch of tubes 5 3/32" x 5 3/32" Material of tube plates Steel Thickness: Front 3/4" Back 3/4" Mean pitch of stays 9.29"
 7 1/2" backing

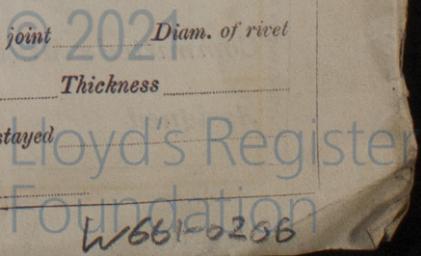
Pitch across wide water spaces 13 1/4" Working pressures by rules 217 lbs 233 lbs. Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 9 1/2" x 1 1/8" Length as per rule 33.6" Distance apart 9 1/2" Number and pitch of stays in each 3: 7 1/2"

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



VERTICAL DONKEY BOILER— Manufacturers of Steel

No. 171 Description See separate report When made _____ Where fired _____
 Made at _____ By whom made _____ Fire grate area _____ Description of Safety
 Working pressure _____ tested by hydraulic pressure to _____ Date of test _____ No. of Certificate _____ Date of adjustment _____
 Values _____ No. of Safety Valves _____ Area of each _____ Pressure to which they are adjusted _____
 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 _____ Rivets _____
 Dia. of rivet holes _____ Whether punched or drilled _____ Pitch of rivets _____ Lap of plating _____ Per centage of strength of joint _____ 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 C.I. Propeller Blades, 1 Propeller shaft, 1 Crank shaft, 1 Cyl.
 Escape valves & springs, 17 Shaft Coupling Bolts, 2 Conn. Rod top End Bolts, 2 Conn. Rod Bottom End Bolts,
 2 Main Bearing Bolts, 6 Holding down Bolts, 6 Junk Ring Bolts, 6 Cylinder Cover Bolts, 6 Valve chest cover Bolts,
 2 Feed pump valves, 2 Relief Pump valves, 1 Feed Escape valve spring, 12 Boiler tubes, 12 Condenser tubes
 12 Condenser Timbers, 1 Spring for each set safety valves, Iron, Bolts, etc.

The foregoing is a correct description,

Rankin Blackmore & Co. Manufacturer.

Dates of Survey while building: During progress of work in shops --- 1913 Aug 8, Sept 16, Oct 2, 7, 17, Nov 4, 26, Dec 9, 11, 18, 22, 28, 31, 1914 Jan 9, 15, 19, 22, 27, 30.
 During erection on board vessel --- July 2, 10, 17, 25, 29, Mar 4, 9, 17, 24, 31, Apr 7, 9, 11, 15, 17, 22, 24, 28, May 4, 7, 11, 13, 15, 17, 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 21/3/14 Covers 14/4/14 Pistons 31/3/14 Rods 21/3/14
 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 24/6/14 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 acc 12 inch dia. 5/4, 5/6, 8/16
 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. 100

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
 12.8.14

The amount of Entry Fee .. £ 3 : : When applied for. 7.8.14
 Special .. £ 42. 2 : :
 Donkey Boiler Fee .. £ - : : When received. 10.8.14
 Travelling Expenses (if any) £ : :
 Committee's Minute FRI. AUG. 14. 1914
 Assigned + LMC 8.14 J.D.
 Engineer-Surveyor to Lloyd's Register of British & Foreign Shipping.

GREENOCK

Certificate (if required) to be sent to the Surveyors as requested not to write on or below the space for Committee's Minute.

