

Rpt. 4.

REPORT ON MACHINERY.

Received at London Office

MIDDLESBRO'

FRI. MAY. 22. 1914

Date of writing Report 20.5.14 19 When handed in at Local Office 21.5.14 Port of MIDDLESBRO'
No. in Survey held at Stockton-on-Tees Date, First Survey 27th June. Last Survey 28th April 1914.
Reg. Book. on the Jarvis ex. Sandow. (S.S. N^o 158) Tons { Gross Not
Master Built at Gool By whom built Gool S. B. & Repairing to Ltd When built 1914
Engines made at Stockton By whom made Mr. F. J. Harker when made 1914
Boilers made at Stockton By whom made Messrs Riley Bros Ltd (N^o 4637) when made 1914
Registered Horse Power Owners Port belonging to Bombay
Nom. Horse Power as per Section 28 74 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Twin Compound No. of Cylinders 4 No. of Cranks 4
Dia. of Cylinders Twin 12"-27" Length of Stroke 16" Revs. per minute 165 Dia. of Screw shaft as per rule 5 1/2" Material of screw shaft as fitted 5 3/8" steel
Is the screw shaft fitted with a continuous liner the whole length of the stern tube no 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 2 liners - not protected Length of stern bush 1'-11"
Dia. of Tunnel shaft as per rule 5 1/2" Dia. of Crank shaft journals as per rule 5 1/2" Dia. of Crank pin 5 1/2" Size of Crank webs 9 5/8" x 9 1/4" Dia. of thrust shaft under
collars 5 1/2" Dia. of screw 6'-0" Pitch of Screw 5'-0" No. of Blades 4 State whether moveable no Total surface 18 sq ft
No. of Feed pumps 1 Diameter of ditto 2" Stroke 8" Can one be overhauled while the other is at work yes } each engine
No. of Bilge pumps 1 Diameter of ditto 2 1/2" Stroke 8" Can one be overhauled while the other is at work yes
No. of Donkey Engines 1 Sizes of Pumps 4 1/2" x 2 3/4" Langge No. and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room 3 - 2" In Holds, &c. 7. 6 1/2" holds & one 6"

fore peak
No. of Bilge Injections 2 sizes 2 1/2" Connected to condenser or to circulating pump Yes Is a separate Donkey Suction fitted in Engine room & size Yes 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 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 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 Steam & Exh. 6" wood lags How are they protected Wooden boxes
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 9-4-14 of Stern Tube 12-4-14 Screw shaft and Propeller 19-3-4 29-4-14
Is the Screw Shaft Tunnel watertight Is it fitted with a watertight door worked from
See Report attached hereto Mdb. 8445

BOILERS, &c.—(Letter for record) Manufacturers of Steel See Report attached hereto Mdb. 8445
Total Heating Surface of Boilers Is Forced Draft fitted No. and Description of Boilers
Working Pressure Tested by hydraulic pressure to Date of test No. of Certificate
Can each boiler be worked separately Area of fire grate in each boiler No. and Description of Safety Valves to
each boiler Area of each valve Pressure to which they are adjusted Are they fitted with easing gear
Smallest distance between boilers or uptakes and bunkers or woodwork Mean dia. of boilers Length Material of shell plates
Thickness Range of tensile strength Are the shell plates welded or flanged Descrip. of riveting: cir. seams
long. seams Diameter of rivet holes in long. seams Pitch of rivets Lap of plates or width of butt straps
Per centages of strength of longitudinal joint rivets Working pressure of shell by rules Size of manhole in shell
Size of compensating ring No. and Description of Furnaces in each boiler Material Outside diameter
Length of plain part top Thickness of plates crown Description of longitudinal joint No. of strengthening rings
bottom Working pressure of furnace by the rules Combustion chamber plates: Material Thickness: Sides Back Top Bottom
Pitch of stays to ditto: Sides Back Top If stays are fitted with nuts or riveted heads Working pressure by rules End plates in steam space
Material of stays Diameter at smallest part Area supported by each stay Working pressure by rules Material of stays
Material Thickness Pitch of stays How are stays secured Working pressure by rules Material of Front plates at bottom
Diameter at smallest part Area supported by each stay Working pressure by rules Working pressure of plate by rules
Thickness Material of Lower back plate Thickness Greatest pitch of stays Mean pitch of stays
Diameter of tubes Pitch of tubes Material of tube plates Thickness: Front Back Mean pitch of stays
Pitch across wide water spaces Working pressures by rules Girders to Chamber tops: Material Depth and
thickness of girder at centre Length as per rule Distance apart Number and pitch of stays in each
Working pressure by rules Superheater or Steam chest; how connected to boiler 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

None

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 _____ Description of Safe _____
 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:— 6 Top end bolts. 6 Bottom end bolts. One set of coupling bolts
 2 bilge pump valve & seats. 2 feed pump valves & seats.

The foregoing is a correct description,

F. J. Harker

Manufacturer.

Dates of Survey while building
 During progress of work in shops — June 27, July 2, Aug 5, 11, 18, 25, Oct 1, 15, 27, Nov 5, 28, Dec 10, 17, 1914
 During erection on board vessel — Nov 18, Dec 6, 20, 28, Sept 2, Oct 2, 8, 24, Jan 4, 1915
 Total No. of visits 30 + 13 + 9

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

Dates of Examination of principal parts—Cylinders 15.10.13 Slides 5.11.13 Covers 5.11.13 Pistons 28.11.13 Rods 26.9.13
 Connecting rods 15.10.13 Crank shaft 17.12.13 Thrust shaft 29.1.14 Tunnel shafts 11.3.14 Screw shaft 11.3.14 Propeller 27.2.14
 Stern tube 27.2.14 Steam pipes tested 6.7.14 Engine and boiler seatings 6.4.14 Engines holding down bolts 16.5.14
 Completion of pumping arrangements 4.1.15 Boilers fixed 16.5.14 Engines tried under steam 24.10.14
 Main boiler safety valves adjusted 24.10.14 Thickness of adjusting washers 5" Bl. SV 1/4" P.V. 1/2" P.H. Bl. SV 1/4" R. 3/16"
 Material of Crank shaft *Ing Steel* Identification Mark on Do. 6871 Material of Thrust shaft *Ing Steel* Identification Mark on Do. 6871
 Material of Tunnel shafts *Ing Steel* Identification Marks on Do. 6871 Material of Screw shafts *Ing Steel* Identification Marks on Do. 6871
 Material of Steam Pipes *Copper* Test pressure 260 lbs

General Remarks (State quality of workmanship, opinions as to class, &c. *The engines & boilers have been forwarded to Goble, where, it is stated, they will be fitted on board and the boiler mountings fitted. These engines have been built under special survey. The materials and workmanship are sound and good. In my opinion the vessel will be eligible to have the notation of T L M C - with a date in the Register Book, when the engines and boilers have been satisfactorily fitted on board, in accordance with the Rules and examined under steam. The stern tubes, shafting & sea connections, have been fitted at Goble, also the engines & boilers placed on board secured. The vessel has proceeded to Newcastle where the survey will be completed.*

Newcastle-on-Tyne. 4.1.15 *Frank A. Livingston*
 Boiler mountings fitted, steam pipes tested & fitted, engines tried under steam & safety valves adjusted, spare gear checked. it will be observed that no spare main bearing bolts are supplied as this vessel is understood to be only for harbour use this is submitted for the favourable consideration of the committee. An electric installation has been fitted a report of which will be forwarded when received from the Electricians. The machinery of this vessel is in good order & safe working condition & is eligible in my opinion to have the notation of T L M C - 15 subject to windlass steam pipes which pass through bunkers being cased in with iron.

The amount of Entry Fee £ 2 - 0 - 0 When applied for, 21.5.1914
 2/3 Special Audit Mille £ 3 - 14 - 0
 Donkey Boiler Fee *Wiley & Bros Ltd* £ 3 - 14 - 0 When received, *after letter from Mille*
 Travelling Expenses (if any) £ _____

Committee's Minute *FRI. JAN. 8 - 1915*
 Assigned *+ L.M.C. 1.15* *TUE. 19. AUG. 1919*
Reginald & Rain
Wm Morrison
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.



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