

REPORT ON MACHINERY.

No. 66688

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Date of writing Report 30th Sept 1914

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Port of NEWCASTLE-ON-TYNE

No. in Survey held at Newcastle

Date, First Survey 27 Sept 1914 Last Survey 4th Sept 1914

Reg. Book. 141 on the Machinery of the S.S. Mahanada

(Number of Visits 26)

Master Built at Glasgow By whom built C. Cornell & Co. Ltd When built 1914

Engines made at Newcastle By whom made Parsons Marine Steam Turbine Co. Ltd When made 1914

Boilers made at By whom made when made

Registered Horse Power 3600 Owners T. & J. Brocklebank Ltd Port belonging to Liverpool

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

ENGINES, &c.—Description of Engines *Gears turbines* No. of Cylinders *2 turbines* No. of Cranks

Dia. of Cylinders Length of Stroke Revs. per minute Dia. of Screw shaft as per rule as fitted Material of screw shaft

Is the screw shaft fitted with a continuous liner the whole length of the stern tube Is the after end of the liner made water tight in the propeller boss 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

Dia. of Tunnel shaft as per rule as fitted Dia. of Crank shaft journals as per rule as fitted Dia. of Crank pin Size of Crank webs Dia. of thrust shaft under collars Dia. of screw Pitch of Screw No. of Blades State whether moveable Total surface

No. of Feed pumps Diameter of ditto Stroke Can one be overhauled while the other is at work

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

No. of Donkey Engines Sizes of Pumps No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room In Holds, &c.

No. of Bilge Injections sizes Connected to condenser, or to circulating pump Is a separate Donkey Suction fitted in Engine room & size

Are all the bilge suction pipes fitted with roses Are the roses in Engine room always accessible Are the sluices on Engine room bulkheads always accessible

Are all connections with the sea direct on the skin of the ship Are they Valves or Cocks

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Are the Discharge Pipes above or below the deep water line

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Are the Blow Off Cocks fitted with a spigot and brass covering plate

What pipes are carried through the bunkers How are they protected

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times

Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges

Dates of examination of completion of fitting of Sea Connections of Stern Tube Screw shaft and Propeller

Is the Screw Shaft Tunnel watertight Is it fitted with a watertight door worked from

BOILERS, &c.—(Letter for record) Manufacturers of Steel

Total Heating Surface of Boilers Is Forced Draft fitted No. and Description of Boilers

Working Pressure 180 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 plate 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 bottom Thickness of plates crown bottom Description of longitudinal joint No. of strengthening rings

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

Material of stays Diameter at smallest part Area supported by each stay Working pressure by rules End plates in steam space

Material Thickness Pitch of stays How are stays secured Working pressure by rules Material of stays

Diameter at smallest part Area supported by each stay Working pressure by rules Material of Front plates at bottom

Thickness Material of Lower back plate Thickness Greatest pitch of stays Working pressure of plate by rules

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

IS A DONKEY BOILER FITTED?

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:—

The foregoing is a correct description,

Manufacturer.

Dates of Survey while building	During progress of work in shops --	1913	1914
		Feb. 7. Oct. 6. 23. Nov. 14. 19. 25. Dec. 9. 30. Jan. 9. 13. 19. 29. Feb. 11. 25. Mar. 13. 18.	Jan. 9. 13. 19. 29. Feb. 11. 25. Mar. 13. 18.
	During erection on board vessel --	Apr. 2. 22. 24. May. 8. 14. Jun. 5. 30. Jul. 27. Aug. 24. Sep. 4.	Apr. 2. 22. 24. May. 8. 14. Jun. 5. 30. Jul. 27. Aug. 24. Sep. 4.
	Total No. of visits	26	

Is the approved plan of main boiler forwarded herewith

" " " donkey " " "

Dates of Examination of principal parts—Cylinders	Slides	Covers	Pistons	Rods
Connecting rods	Crank shaft	Thrust shaft	Tunnel shafts	Screw shaft
Propeller	Stern tube	Steam pipes tested	Engine and boiler seatings	Engines holding down bolts
Completion of pumping arrangements	Boilers fixed	Engines tried under steam		
Main boiler safety valves adjusted	Thickness of adjusting washers			
Material of Crank shaft	Identification Mark on Do.	Material of Thrust shaft	Identification Mark on Do.	
Material of Tunnel shafts	Identification Marks on Do.	Material of Screw shafts	Identification Marks on Do.	
Material of Steam Pipes	Test pressure			

Is an installation fitted for burning oil fuel Is the flash point of the oil to be used over 150°F.

Have the requirements of Section 49 of the Rules been complied with

Is this machinery duplicate of a previous case If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, &c.) *The turbine cylinders and casings have been examined during construction and afterwards tested by water pressures; the rotors and blades have been examined, the pinions and gear wheels have been examined in the rough and afterwards when finished. The steel main steam pipe to the H.P. stern turbine has been tested to 540 lbs., and all steam valves & pipes attached to the turbines have been tested. The materials used are good and the workmanship is superior. The turbines and gear have been seen running under steam in the shop with satisfactory results. The machinery has now been sent to the Clyde where it is to be fitted on board. When the machinery has been properly fitted & secured in the ship; in my opinion the vessel will be eligible for the record of L.M.C.*

The amount of Entry Fee	£ 2 Glasgow	When applied for,
Special	£ 1/2 allowed to	19
Donkey Boiler Fee	£ 1 Newcastle	When received,
Travelling Expenses (if any) £		19

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

Committee's Minute GLASGOW 17 NOV. 1914

Assigned See minute on Gls. Rpt. No. 34565.

