

# REPORT ON MACHINERY.

No. 4523

WED. 11.12.1920

Received at London Office

Report 18. 2. 1920 When handed in at Local Office 24. 2. 1920 Port of Manchester  
 Survey held at Manchester Date, First Survey 8. 10. 19 Last Survey 13. 1. 1920  
 (Number of Visits 15)

RATEAU STEAM TURBINES. Nos. 1725 & 1726  
 S.S. MANGALORE

Gross Tons  
 Net Tons

Built at By whom built When built

at Manchester By whom made Metropolitan Tickers when made 1919  
 Made at Glasgow By whom made D. Rowan & Co. Ltd. when made 1920  
 at Glasgow  
 Owners J. J. Brocklebank & Co. Ltd. Port belonging to Liverpool  
 Horse Power Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes  
 Power at Full Power 5000

ENGINES, &c.—Description of Engines RATEAU IMPULSE H.P. & L.P. No. of Turbines Two.

Shaft Journals, H.P. 4 1/2" L.P. 4 1/2" Diameter of Pinion Shaft  
 Distance between Centres of Bearings Diameter of Pitch Circle  
 Shaft Distance between Centres of Bearings Diameter of Pitch Circle of Wheel  
 Diameter of Thrust Shaft under Collars Diameter of Tunnel Shaft as per rule as fitted  
 Diameter of same as per rule as fitted Diameter of Propeller Pitch of Propeller  
 State whether Moveable Total Surface Diameter of Rotor Drum, H.P. L.P. Astern  
 of Groove, H.P. L.P. Astern Revs. per Minute at Full Power, Turbine Propeller

## DETAILS OF BLADING.

H. P.			L. P.			ASTERN.		
HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.
15 1/8" x 2 1/8"	3'-2 13/16" x 3'-4"	2	3 1/16"	3'-5 1/16"	1	H. P.	3'-5 1/4" x 3'-4 1/2"	2
1 1/16"	3'-3 1/16"	1	3 7/8"	3'-5 7/8"	1	2" x 3"	3'-5 1/4" x 3'-4 1/2"	2
1 5/16"	3'-3 5/16"	1	4 3/4"	3'-6 3/4"	1	L. P.	3'-5 1/4" x 3'-4 1/2"	2
1 3/4"	3'-3 3/4"	1	5 1/2"	3'-7 1/2"	1			
2 1/4"	3'-4 1/4"	1	6 3/8"	3'-8 3/8"	1			
			8 1/4"	3'-10 1/4"	1			
			10 5/16"	4'-0 5/16"	1			

Feed pumps  
 Bilge pumps  
 Bilge suction in Engine Room  
 In Holds, &c.  
 Connected to condenser, or to circulating pump Is a separate Donkey Suction fitted in Engine Room & size  
 suction pipes fitted with roses Are the roses in Engine room always accessible  
 ons with the sea direct on the skin of the ship Are they Valves or Cocks  
 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  
 led 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  
 carried through the bunkers How are they protected  
 locks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times  
 action Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges  
 aft Tunnel watertight Is it fitted with a watertight door worked from

&c.—(Letter for record) Manufacturers of Steel  
 Surface of Boilers Is Forced Draft fitted No. and Description of Boilers  
 Tested by hydraulic pressure to Date of test No. of Certificate  
 be worked separately Area of fire grate in each boiler No. and Description of Safety Valves to  
 Area of each valve Pressure to which they are adjusted Are they fitted with easing gear  
 e between boilers or uptakes and bunkers or woodwork Mean dia. of boilers Length Material of shell plates  
 Range of tensile strength Are the shell plates welded or flanged Descrip. of riveting: cir. seams  
 Diameter of rivet holes in long. seams Pitch of rivets Lap of plates or width of butt straps  
 strength of longitudinal joint Working pressure of shell by rules Size of manhole in shell  
 plates  
 No. and Description of Furnaces in each Boiler Material Outside diameter  
 top crown Description of longitudinal joint No. of strengthening rings  
 part bottom Thickness of plates bottom  
 re of furnace by the rules Combustion chamber plates: Material Thickness: Sides Back Top Bottom  
 o ditto: Sides Back Top If stays are fitted with nuts or riveted heads Working pressure by rules  
 ys Diameter at smallest part Area supported by each stay Working pressure by rules End plates in steam space  
 Thickness Pitch of stays How are stays secured Working pressure by rules Material of stays  
 allst part Area supported by each stay Working pressure by rules Material of Front plates at bottom  
 Material of Lower back plate Thickness Greatest pitch of stays Working pressure of plate by rules  
 es Pitch of tubes Material of tube plates Thickness: Front Back Mean pitch of stays  
 de water spaces Working pressures by rules Girders to Chamber tops: Material Depth and  
 der at centre Length as per rule Distance apart Number and pitch of stays in each  
 ure by rules Steam dome: description of joint to shell % of strength of joint Diameter  
 ell plates Material Description of longitudinal joint Diameter of rivet holes Pitch of rivets  
 ure of shell by rules Crown plates: Thickness How stayed

W432-0208



SUPERHEATER. Type \_\_\_\_\_ Date of Approval of Plan \_\_\_\_\_ Tested by Hydraulic Pressure to \_\_\_\_\_  
Date of Test \_\_\_\_\_ Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler \_\_\_\_\_  
Diameter of Safety Valve \_\_\_\_\_ Pressure to which each is adjusted \_\_\_\_\_ Is Easing Gear fitted \_\_\_\_\_

IS A DONKEY BOILER FITTED? \_\_\_\_\_ If so, is a report now forwarded? \_\_\_\_\_

SPARE GEAR. State the articles supplied:— *One sealing gland box, one spare thrust bearing, one set of bearing bushes for rotor, one escape valve spring for each size fitted, one complete spare governor head, one set of coupling bolts for each size, for turbine couplings, 5% spare condenser tubes & packings, one nest of spare tubes suitable for use with any of the three oil coolers, a quantity of assorted bolts & nuts.*

The foregoing is a correct description,

METROPOLITAN-VICKERS ELECTRICAL CO. LTD.

Manufacturer.

Dates of Survey while building  
During progress of work in shops --  
During erection on board vessel ---  
Total No. of visits

*from 8<sup>th</sup> October 1919 various dates to 13<sup>th</sup> January 1920*

Is the approved plan of main boiler forwarded herewith

" " " donkey " " "

Dates of Examination of principal parts—Casings *10.11.19* Rotors *30.10.19* Blading *7.11.19* Gearing

Rotor shaft *16.10.18* 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 and tensile strength of Rotor shaft *stainless steel 340 tons and 33.3 tons* Identification Mark on Do *U452, U453*

Material and tensile strength of Pinion shaft \_\_\_\_\_ Identification Mark on Do. \_\_\_\_\_

Material of Wheel 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 a duplicate of a previous case \_\_\_\_\_ If so, state name of vessel \_\_\_\_\_

General Remarks (State quality of workmanship, opinions as to class, &c.) *The steam turbines H.P. & L.P. have been built under survey and tested in accordance with the rules, the material & workmanship, so far as could be seen are sound & good and eligible in my opinion to be classed with this free with record L.M.C.*

*These turbines have now been satisfactorily fitted on board (See G.L.R.P. 18/6/20) G. L. R. P.*

The amount of Entry Fee ... £ : : When applied for, \_\_\_\_\_  
Special *12/12/19* ... £ : : \_\_\_\_\_  
Donkey Boiler Fee ... £ : : When received, \_\_\_\_\_  
Travelling Expenses (if any) £ : : *4/8/20* \_\_\_\_\_

Committee's Minute

Assigned



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