

REPORT ON MACHINERY.

No. 4604

Received at London Office

FRI JUN 18 1920

MANCHESTER.

Date of writing Report 10.6.1920 When handed in at Local Office 17.6.1920 Port of

No. in Survey held at Manchester

Date, First Survey 8th Oct 1919 Last Survey 5th June 1920

Reg. Book.

(Number of Visits 20)

on the

RATEAU STEAM TURBINES. Nos 1740 & 1741.
(S.S. MATHURA)Tons { Gross
Net

Master Built at Glasgow By whom built E. Connell & Co. When built 1920

Engines made at Manchester By whom made Metropolitan Vickers & Co. when made 1920

Boilers made at Glasgow By whom made W. Rowan & Co. Ltd (no 658) when made 1920

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

Shaft Horse Power at Full Power Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

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

Diameter of Rotor Shaft Journals, H.P. 4 1/2" L.P. 4 1/2" Diameter of Pinion Shaft

Diameter of Journals Distance between Centres of Bearings Diameter of Pitch Circle

Diameter of Wheel Shaft Distance between Centres of Bearings Diameter of Pitch Circle of Wheel

Width of Face Diameter of Thrust Shaft under Collars Diameter of Tunnel Shaft as per rule

No. of Screw Shafts Diameter of same as per rule as fitted Diameter of Propeller Pitch of Propeller

No. of Blades State whether Moveable Total Surface Diameter of Rotor Drum, H.P. L.P. Astern

Thickness at Bottom of Groove, H.P. L.P. Astern Revs. per Minute at Full Power, Turbine Propeller

PARTICULARS 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.
1ST EXPANSION	15 1/6" x 2 1/8"	3'-2 13/16" x 3'-4"	2	3 1/6"	3'-5 1/6"	1			
2ND	1 1/6"	3'-3 1/6"	1	3 7/8"	3'-5 7/8"	1	2" x 3"	3'-8 1/4" x 3'-4 1/2"	2
3RD	1 5/6"	3'-3 5/6"	1	4 3/4"	3'-6 3/4"	1			mon wheel
4TH	1 3/4"	3'-3 3/4"	1	5 1/2"	3'-7 1/2"	1			
5TH	2 1/4"	3'-4 1/4"	1	6 3/8"	3'-8 3/8"	1	3" x 5 7/8"	3'-10 3/8" x 3'-8"	2
6TH				8 1/4"	3'-10 1/4"	1			2 wheels
7TH				10 3/6"	4'-0 3/6"	1			no row
8TH						1			no row

No. and size of Feed pumps

No. and size of Bilge pumps

No. and size of Bilge suction 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 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

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

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

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

Percentages of strength of longitudinal joint rivets Working pressure of shell by rules Size of manhole in shell

Size of compensating ring plates No. and Description of Furnaces in each Boiler Material Outside diameter

Length of plain part top crown Thickness of plates Description of longitudinal joint No. of strengthening rings

bottom 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

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 Steam dome: description of joint to shell % of strength of joint Diameter

Thickness of shell plates Material Description of longitudinal joint Diameter of rivet holes Pitch of rivets

Working pressure of shell by rules Crown plates: Thickness How stayed

003311-003320-0066

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, 5/8" spare condenser tubes and packers, 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.

Simpson Aug. 20.

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

From October 8th 1919 & various dates to 5th June 1920. 20 visits

Is the approved plan of main boiler forwarded herewith _____

Dates of Examination of principal parts—Casings *11.3.20* Rotors *29.3.20* Blading *29.3.20* Gearing _____

Rotor shaft *11.1.20* 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 *Mild Steel 33.2 and 31.8 tons* Identification Mark on Do. *U454, U488*

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 materials tested in accordance with the rules, the materials & workmanship so far as could be seen are sound & good & eligible in my opinion to be classed with this Society with record of L.M.C.*

These turbines have now been satisfactorily fitted on board See Glasgow Report No 40685 attached
E. de Basthose
Gls. 4/1/21

A. H. Simpson
Engineer Surveyor to Lloyd's Register of Shipping.

The amount of Entry Fee ... £ *12-9* When applied for, *17.6.1920*
Special ... £ :
Donkey Boiler Fee ... £ :
Travelling Expenses (if any) £ :
When received, *11.8.20*

Committee's Minute GLASGOW: 5-JAN1921

Assigned See Gls. Rpt. No 40685