

REPORT ON MACHINERY.

No. 4604

Received at London Office
MANCHESTER.

FRI JUN 18 1920

Date of writing Report 10.6.20 When handed in at Local Office 17.6.20 Port of

No. in Survey held at Manchester
Reg. Book.

Date, First Survey 8th Oct 1919 Last Survey 5th June 1920
(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. Bonnell & Co. When built 1920

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

Boilers made at Glasgow By whom made Do. Rowan & Godd (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 _____
as fitted _____

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

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	15/16" x 2 1/8"	3-2 13/16" x 3-4"	2	3 1/16"	3-5 1/16"	1			
2ND "	1 1/16"	3-3 1/16"	1	3 7/8"	3-5 7/8"	1	2" x 3"	3-8 3/4" x 3-4 1/2"	2
3RD "	1 3/16"	3-3 5/16"	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 3-3 3/8"	2
6TH "				8 1/4"	3-10 1/4"	1			2 wheels
7TH "				10 3/16"	4-0 3/16"	1			one row
8TH "						1			in shell.

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 _____ 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 _____ Thickness of plates _____ 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 _____ 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 _____

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.
J. Simpson Eng. Co.

Dates of Survey while building { During progress of work in shops - - } *From October 8th 1919 & various dates to 5th June 1920. 20 visits*
 { During erection on board vessel - - - }
 Total No. of visits _____

Is the approved plan of main boiler forwarded herewith _____
 " " " donkey " " " _____
 Dates of Examination of principal parts—Casings *11.9.20* 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
J. de Basthope Gls. 4/1/21

J. de Basthope
 Engineer Surveyor to Lloyd's Register of Shipping.

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

Committee's Minute **GLASGOW: 5-JAN 1921**

Assigned *See Gls. Rpt. No 40685*

