

REPORT ON MACHINERY

Received at London Office **THU 3 NOV. 1921**

Date of writing Report 19 When handed in at Local Office **2nd Nov 1921** Port of **MANCHESTER.**

No. in Survey held at **Manchester** Date, First Survey **16th March** Last Survey **26th October 1921**
Reg. Book. (Number of Visits **12**)

on the **H.P. & L.P. TURBINE SPINDLES, WHEELS & BLADING, ENGS NOS 1866 & 1867** } Gross
FOR SWAN HUNTER & WIGHAM RICHARDSON'S SHIP No 1130. } Net

Master **ROTOR PARTS** Built at _____ By whom built _____ When built _____
Engines made at **Manchester** By whom made **Metropolitan-Tickers & Co.** when made **1921.**

Boilers made at _____ By whom made _____ when made _____

Registered Horse Power **642 NHP** Owners _____ Port belonging to _____

Shaft Horse Power at Full Power **3200.** Is Refrigerating Machinery fitted for cargo purposes _____ Is Electric Light fitted _____

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

Diameter of Rotor Shaft Journals, H.P. **5"** L.P. **5"** 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.

WHEEL.	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	7/16" x 1/16"	3'-2 7/16" x 3'-2 1/16"	2.	1 1/16"	3'-3 5/16"	1.			
2ND	1/16"	3'-2 1/16"	1.	1 3/16"	3'-3 1/16"	1.	1" x 2 1/8"	3'-2 3/4" x 3'-3 3/8"	2 rows on one wheel
3RD	7/8"	3'-2 7/8"	1.	2 1/16"	3'-4 1/16"	1.			
4TH	7/8"	3'-2 7/8"	1.	4 3/16"	3'-6 3/16"	1.			
5TH	1"	3'-3"	1.	6 3/8"	3'-8 3/8"	1.			
6TH				8 1/4"	3'-10 1/4"	1.	2 1/2" x 5 7/8"	3'-0 1/2" x 3'-3 3/8"	2 wheels
7TH				10 3/16"	4'-0 3/16"	1.			one row on each.
8TH									

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 _____

BOILERS, &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: cin. 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 _____ 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 _____

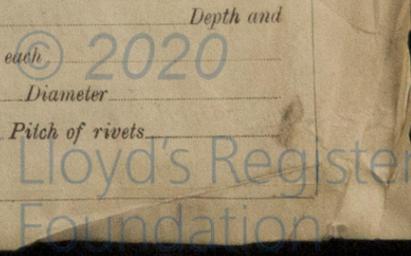
Pitch across wide water spaces _____ Working pressures by rules _____ Girders to Chamber tops: Material _____ Depth and thickness of girder at centre _____

Length as per rule _____ Distance apart _____ Number and pitch of stays in each _____ Diameter _____

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 set (ten) pads for Turbine Thrust Block (Michell Type)*

The foregoing is a correct description,

METROPOLITAN-VICKERS ELECTRICAL CO. LTD. *Simpson* Manufacturer.

Dates of Survey while building { During progress of work in shops -- } *14/3, 31/3, 8/4, 26/4, 7/7, 16/7, 31/8, 14/9, 22/9, 3/10, 10/10, 26/10 = 12 visits.*
 { During erection on board vessel --- }
 Total No. of visits _____

Is the approved plan of main boiler forwarded herewith _____

Dates of Examination of principal parts—Casings _____ Rotors *3-10-21* Blading *14-9-21* Gearing _____

Rotor shaft *22-9-21* 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 fired _____ Engines tried under steam _____

Main boiler safety valves adjusted _____ Thickness of adjusting washers _____

Material and tensile strength of Rotor shaft *Forged mild steel H.P. 38.0 T° L.P. 37.9 T°* Identification Mark on Do. *HP. U695 L.P. U682*

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.) *These spindles, wheels & blading have been constructed under special survey and the materials tested in accordance with the Rules of the Society; the materials & workmanship so far as could be seen are sound & good. These spindles have been dispatched to Messrs Swan Hunter & Wigham Richardson, Newcastle, to be fitted into casings & the turbines completed by them. Job No. 1130.*

The amount of Entry Fee £ _____
 Special ... £ *9 x 0*
 Donkey Boiler Fee ... £ _____
 Travelling Expenses (if any) £ _____

When applied for, _____

When received, *3/24/22*

L. Simpson
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *FRI. 6 OCT. 1922*

Assigned

See NWC No. 75999



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Certificate (if required) to be sent to... (The Surveyors are requested not to write on or below the space for Committee's Minute.)