

REPORT ON MACHINERY.

No. 4804

Received at London Office

SAT 25 JUN 1921

MANCHESTER.

of writing Report

10

When handed in at Local Office 24. 6.

1921 Port of

in Survey held at Manchester.

Date, First Survey 11th Jan 1920.Last Survey 7th July

1921.

Book.

(Number of Visits 22)

on the H.P. & L.P. TURBINE SPINDLES, WHEELS, BLADING & D.R. GEARS.

Tons { Gross
Net

Built at Manchester.

By whom built

When built

Machines made at Manchester.

By whom made Metropolitan Traction & Co. Ltd. when made 1921.

Machines made at

By whom made

when made

Registered Horse Power

Owners

Port belonging to

Horse Power at Full Power 5,500

Is Refrigerating Machinery fitted for cargo purposes

Is Electric Light fitted

BINE ENGINES, &c.—Description of Engines

RATEAU IMPULSE TURBINES.

No. of Turbines TWO.

Diameter of Rotor Shaft Journals, H.P. 4 1/2" L.P. 4 1/2" Diameter of Pinion Shaft 1 3/8" (2 1/2" drive) 2 1/2" 13"

Diameter of Journals 1 1/2" 2 1/2" 13" Distance between Centres of Bearings 1 3/8" 2 1/2" 8 3/8" Diameter of Pitch Circle 1 1/2" 8 3/8" 2 1/2" 20 9/16"

Diameter of Wheel Shaft 1 1/2" 13" 2 1/2" 17 1/2" Distance between Centres of Bearings 1 3/8" 2 1/2" 7 3/8" Diameter of Pitch Circle of Wheel 1 1/2" 6 3/8" 2 1/2" 9 1/4"

Diameter of Face 1 1/2" 22" 2 1/2" 38" Diameter of Thrust Shaft under Collars

Diameter of Tunnel Shaft

as per rule

as fitted

Diameter of Screw Shafts

Diameter of same as per rule

Diameter of Propeller

Pitch of Propeller

Diameter 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 3180.

Propeller 90.

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.
WHEEL.									
EXPANSION	1 1/8" x 2 1/4"	3' 2 3/8" x 3' 2"	2.	2 3/8"	3' 4 3/8"	1.	H.P.		
"	1 1/8"	3' 2 3/8"	1.	2 3/8"	3' 4 3/8"	1.	2" x 3"	3' 3 3/8" x 3' 4 1/2"	2.
"	1"	3' 3"	1.	4"	3' 6"	1.			
"	1 3/8"	3' 3 3/8"	1.	5 3/8"	3' 7 3/8"	1.	L.P.		
"	1 3/8"	3' 3 3/8"	1.	6 3/8"	3' 8 3/8"	1.	3"	3' 1"	1.
"				8 1/4"	3' 10 1/4"	1.	5 3/8"	3' 8 3/8"	1.
"				10 3/8"	4' 0 3/8"	1.			

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

Per centages of strength of longitudinal joint

rivets

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

Thickness of plates

crown

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

1/10 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

Lloyd's Register Foundation

WV104-0222

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:— *Turbines:— One set (see) spare thrust pads (Mitchell)*

*Spares: 2 Bolts (or studs) + nuts for each side of Gear Bearing.
1 - 2 1/2" bolts (or studs) of the total number for each Gear Case joint.
2 sets of 17 1/2" x 13" Main Shaft Bearing bushes.
2 " - 13" x 16" Intermediate " " 1 - High speed pinion
1 " - 4 1/2" x 9" Bearing (stand)
2 " - 6" x 12" High speed bearing
2 " - 6" x 6" H.S. Pinion steady bearing*

The foregoing is a correct description,

METROPOLITAN-VICKERS ELECTRICAL CO. LTD.

J. Simpson Manufacturer.

Dates of Survey while building { During progress of work in shops -- *July 15, Jan. 11, 17, Dec. 20, Nov. 8, 17, 24, Dec. 6, 1920, Jan. 4, 31, Feb. 4, 11, Mar. 4, 18, 28, May 11, 14, 23, JUN 1.*
During erection on board vessel --- *Total visits = 28.*
Total No. of visits _____

Is the approved plan of main boiler forwarded herewith _____

Dates of Examination of principal parts—Casings _____ Rotors *28.4.21.* Blading *31.1.21.* Gearing *3.6.21.*

Rotor shaft *15.7.20.* 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 fired _____ Engines tried under steam _____

Main boiler safety valves adjusted _____ Thickness of adjusting washers _____

Material and tensile strength of Rotor shaft *Nippon steel. 875 48500 lbs.* Identification Mark on Do. *HP 4889 LP 4886*

Material and tensile strength of Pinion shaft *Nickel steel. 489 44100 lbs.* Identification Mark on Do. *11065, 11066*

Material of Wheel shaft *Trid steel* Identification Mark on Do. *DVC* 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 & D.R. gears have been built under Special Survey & the materials used in accordance with the Rules of this Society. The materials & workmanship so far as could be seen are sound & good and eligible in my opinion to be classed with record & H.M.C. This machinery has been forwarded to Newcastle.*

Marks on coupling of main shaft. LLOYDS.
7.6.21
D.M.C.

The amount of Entry Fee *£ 35 8 0* When applied for, _____
Special ... £ : : 19 _____
Donkey Boiler Fee ... £ : : _____
Travelling Expenses (if any) £ : : _____
When received, *13/9/21* *Advised from London to Newcastle D.M.C.*

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

Committee's Minute *TUE. 27 SEP. 1921*

Assigned _____