

# REPORT ON MACHINERY.

No. 4449

Serial No. H.P. 1664. L.P. 1665.

Received at London Office

When handed in at Local Office 18<sup>th</sup> 11<sup>th</sup> 1919 Port of MANCHESTER

Survey held at MANCHESTER Date, First Survey 18<sup>th</sup> June 1918 Last Survey 6<sup>th</sup> Mar 1919

the STANDARD STEAM TURBINES & REDUCTION GEAR for NI VESSEL S-S (Number of Visits 21.) Tons { Gross 6551. Net 4040

Built at CHEPSTON By whom built NATIONAL SHIPYARD When built 1920

made at MANCHESTER By whom made METROPOLITAN-VICKERS E.C. L<sup>o</sup>. when made 1919.

made at HUDDERSFIELD By whom made DAVID BROWN & SONS L<sup>o</sup> when made 1919.

Horse Power Owners Port belonging to

Power at Full Power 2900 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines RATEAU TURBINES & D.R. GEAR No. of Turbines 2. (H.P. & L.P.)

for Shaft Journals, H.P. 4 1/2" L.P. 4 1/2" Diameter of Pinion Shaft 1<sup>st</sup> 4 1/2" 2<sup>nd</sup> 9"

Journals 1<sup>st</sup> 4 1/2" 2<sup>nd</sup> 9" Distance between Centres of Bearings 1<sup>st</sup> 27" 2<sup>nd</sup> 46 1/2" Diameter of Pitch Circle 1<sup>st</sup> 6.302" 2<sup>nd</sup> 13.379"

Wheel Shaft 1<sup>st</sup> 9" 2<sup>nd</sup> 14 3/4" Distance between Centres of Bearings 1<sup>st</sup> 26" 2<sup>nd</sup> 45 1/2" Diameter of Pitch Circle of Wheel 1<sup>st</sup> 49.656" 2<sup>nd</sup> 76.765"

1<sup>st</sup> 18" 2<sup>nd</sup> 33 1/2" Diameter of Thrust Shaft under Collars 15" Diameter of Tunnel Shaft as per rule

as fitted Diameter of same as per rule Diameter of Propeller Pitch of Propeller

State whether Moveable Total Surface Diameter of Rotor Drum, H.P. L.P. astern

Bottom of Groove, H.P. L.P. Astern Revs. per Minute at Full Power, Turbine 3500 Propeller

## CLASSES 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.
5/8" + 1 7/8"	3 2/2" + 3 3/4"	2	1 3/8"	3 3 3/8"	1	H.P.		
3/16"	3 2 3/16"	1	1 7/8"	3 3 7/8"	1	1 7/16" + 2 1/4"	3 2 9/16" + 3 3 3/4"	2
1"	3 3"	1	2 1/2"	3 4 1/2"	1			
1 5/16"	3 2 15/16"	1	3 7/16"	3 5 7/16"	1	L.P.		
1 1/8"	3 3 3/8"	1	4 3/4"	3 6 3/4"	1	2 1/16"	3 4 1/16"	1
			6 1/8"	3 8 1/8"	1	4"	3 6"	1
			7"	3 9"	1			

Feed pumps

Bilge pumps

Bilge suction in Engine Room

In Holds, &c.

suction sizes 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

connections with the sea direct on the skin of the ship Are they Valves or Cocks

efficiently 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

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

carried through the bunkers How are they protected

Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times

suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges

Access to 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

sure Tested by hydraulic pressure to Date of test No. of Certificate

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

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 Description of riveting: cir. seams

Diameter of rivet holes in long. seams Pitch of rivets Lap of plates or width of butt straps

length of longitudinal joint rivets 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 Thickness of plates Description of longitudinal joint No. of strengthening rings

bottom bottom Working pressure by rules

of furnace by the rules Combustion chamber plates: Material Thickness: Sides Back Top Bottom

ditto: Sides Back Top If stays are fitted with nuts or riveted heads Working pressure by rules

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

thick 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

Pitch of tubes Material of tube plates Thickness: Front Back Mean pitch of stays

water spaces Working pressures by rules Girders to Chamber tops: Material Depth

at centre Length as per rule Distance apart Number and pitch of stays in each

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

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

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:— for Turbines:— two bearing bushes for turbine Spin  
four diaphragm packing rings, gland casing for spirals, one thrust shaft bearing  
assorted bolts and nuts, assorted spanners and tools, wear down gauges.

for D.R. GEAR:— 2 bearing bushes for Slow Speed wheel shaft, 2 bearing bushes for  
Pinion shaft, 2 bearing bushes for high speed wheel shaft, 2 bearing bushes for  
Pinion shaft, while installing fixtures for bearings, overhauling gear & assorted  
wear down gauges.

The foregoing is a correct description,

METROPOLITAN-VICKERS ELECTRICAL CO. LTD

Manufacturer.

DAVID BROWN & SONS, (LONDON) LTD

H.A. 12/11/19

1918 1919  
Dates of Survey while building { During progress of work in shops -- } 18. 26. 28 June, 5. 11. 17. 24 July, 28 Aug, 3. 9. 20. 30 Sept, 15 Oct, 11. 29 Nov, 10. 24 Dec, 27 Jan, 26 Feb, 22 March  
{ 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 July 1918 Rotors October 1918 Blading Nov. 1918 Gearing

Rotor shaft October 1919 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 forged mild steel U470 = 33.2 km U469 = 31.3 km Identification Mark on Do. U470

Material and tensile strength of Pinion shaft nickel chrome steel 1" = 48.56 km Identification Mark on Do. \_\_\_\_\_

Material of Wheel shaft mild steel Identification Mark on Do. N. 107. Material of Thrust shaft mild steel 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? Yes. If so, state name of vessel N.I. Standard

General Remarks (State quality of workmanship, opinions as to class, &c.)

These Steam turbines and double reduction gear have been built under  
Survey and the materials tested in accordance with the rules of this Society  
Materials and workmanship, so far as could be seen are sound and good and  
my opinion to be classed with record of L.M.C.

mark on coupling of slow speed shaft.

LLOYDS  
No. 107  
5-5-19  
A

The amount of Entry Fee ... £ : : When applied for, 3/11/21  
Special ... £ 7/3 : 0 : 8 : 1921  
Donkey Boiler Fee ... £ : : :  
Travelling Expenses (if any) £ : : : 22. 1. 21 1921

A. Campbell  
Engineer Surveyor to Lloyd's Register of

Committee's Minute TUE MAR 22 1921

FRI OCT. 14 1921 TUE NOV. 18 1921

Assigned See rpt 2002



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