

REPORT ON MACHINERY.

No. 4449.

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

Received at London Office.

When handed in at Local Office 18-11-1919 Port of MANCHESTER

Survey held at MANCHESTER Date, First Survey 18 June 1918 Last Survey 6.11.1919

the STANDARD STEAM TURBINES & REDUCTION GEAR for NI VESSEL S-S

Built at CHEPSTON By whom built NATIONAL SHIPYARD

Made at MANCHESTER By whom made METROPOLITAN-VICKERS E.C. L^d.Made at HUDDERSFIELD By whom made DAVID BROWN & SONS L^d.

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 1/2 4 1/2 2 1/2 9"

Journals 1 1/2 4 1/2 2 1/2 9" Distance between Centres of Bearings 1 1/2 27" 2 1/2 46 1/2" Diameter of Pitch Circle 1 1/2 6.302" 2 1/2 13.379"

Wheel Shaft 1 1/2 9" 2 1/2 14 3/4" Distance between Centres of Bearings 1 1/2 26" 2 1/2 45 1/2" Diameter of Pitch Circle of Wheel 1 1/2 44.656" 2 1/2 76.765"

1 1/2 18" 2 1/2 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 1/2" + 3'3 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 1/16"	3'5 7/16"	1	L.P.		
1 1/8"	3'3 1/8"	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.

Connections 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

Connections 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

Connections 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

Connections carried through the bunkers How are they protected

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

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

Connections, Lift 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

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

Boilers worked separately Area of fire grate in each boiler No. and Description of Safety Valves to

Boilers Area of each valve Pressure to which they are adjusted Are they fitted with easing gear

Boilers between boilers or uptakes and bunkers or woodwork Mean dia. of boilers Length Material of shell plates

Boilers Range of tensile strength Are the shell plates welded or flanged Description of riveting: cir. seams

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

Boilers rivets Working pressure of shell by rules Size of manhole in shell

Boilers plates

Boilers ing ring No. and Description of Furnaces in each Boiler Material Outside diameter

Boilers top crown Description of longitudinal joint No. of strengthening rings

Boilers part bottom Thickness of plates bottom

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

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

Boilers Diameter at smallest part Area supported by each stay Working pressure by rules End plates in steam space

Boilers Thickness Pitch of stays How are stays secured Working pressure by rules Material of stays

Boilers test part Area supported by each stay Working pressure by rules Material of Front plates at bottom

Boilers Material of Lower back plate Thickness Greatest pitch of stays Working pressure of plate by rules

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

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

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

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

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

Boilers 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, (HDD^{ED})

1918
 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 *nickel nickel 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 *nickel steel* Identification Mark on Do. *N. 107* Material of Thrust shaft *nickel 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
 N^o. 107
 5-5-19
 A

The amount of Entry Fee ... £ _____ When applied for, _____

Special ... £ *7/3 0 8* _____ When received, _____

Donkey Boiler Fee ... £ _____

Travelling Expenses (if any) £ _____

Committee's Minute TUE MAR 22 1921

Assigned

See Apr 2002

A. Campbell
 Engineer Surveyor to Lloyd's Register of

FRI OCT. 14 1921 TUE NOV. 18 1921

Lloyd's Register
 Foundation