

Report on Steam Turbine Machinery. No. 112320

Received at London Office 30 NOV 1944

Date of writing Report 23.11.1944 When handed in at Local Office 29.11.1944 Port of London

No. in Survey held at Rugby Date, First Survey Oct 12th 1943 Last Survey 24.11.1944

Reg. Book on the H.M.S. OLNA (Number of Visits 55)

Tons (Gross 1266) (Net 773)

Built at Newcastle By whom built Messrs Swan Hunter & Wigham Richardson Yard No. 1689 When built

Engines made at Rugby By whom made Messrs B.T.H. Co Ltd Engine No. 1766 When made 1944

Boilers made at By whom made Boiler No. When made

Shaft Horse Power at Full Power 11,000 Owners See special endorsement 1.7.45 Port belonging to

Nom. Horse Power as per Rule Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted

Trade for which Vessel is intended

STEAM TURBINE ENGINES, &c.—Description of Engines Turbo-Electric.

No. of Turbines Ahead 2 Direct coupled, single reduction geared } propelling shafts. No. of primary pinions to each set of reduction gearing

Astern --- double reduction geared

Direct coupled to Alternating Current Generator 3 phase 65 periods per second (rated 4200 Kilowatts 3000 Volts at 3910 revolutions per minute; Direct Current Generator

or supplying power for driving one Propelling Motors, Type Synchronous - double unit

rated 8400 Kilowatts 3000 Volts at 115 revolutions per minute. Direct coupled, single or double reduction geared to one propelling shafts.

LOADING.	H. P.			I. 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.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.
1st Expansion	.65"	3-0.75" 2 Row										
2nd "	1.07"	3-1.0" Wheel										
3rd "	.86"	3-3.78" 1										
4th "	1.18"	3-4.42" 1										
5th "	1.55"	3-5.16" 1										
6th "	5.20"	3-7.26" 1										
7th "	4.75"	3-11.56" 1										
8th "	7.46"	4-4.88" 1										
9th "												
10th "												
11th "												
12th "												

Shaft Horse Power at each turbine H.P. 6500 I.P. 4150 L.P. 1st reduction wheel

Revolutions per minute, at full power, of each Turbine Shaft I.P. main shaft L.P.

Rotor Shaft diameter at journals H.P. 5 I.P. Pitch Circle Diameter 1st pinion 1st reduction wheel 2nd pinion main wheel Width of Face 1st reduction wheel main wheel

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion 1st reduction wheel 2nd pinion main wheel

Flexible Pinion Shafts, diameter 1st Pinion Shafts, diameter at bearings External 1st 2nd diameter at bottom of pinion teeth Internal 1st 2nd

Wheel Shafts, diameter at bearings 1st diameter at wheel shroud, main Generator Shaft, diameter at bearings 7.97 Propelling Motor Shaft, diameter at bearings 20.20

Intermediate Shafts, diameter as per rule as fitted Thrust Shaft, diameter at collars as per rule as fitted

Tube Shaft, diameter as per rule as fitted Screw Shaft, diameter as per rule as fitted Is the tube screw shaft fitted with a continuous liner

Bronze Liners, thickness in way of bushes as per rule as fitted Thickness between bushes as per rule as fitted Is the after end of the liner made watertight in the propeller boss

If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner

If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive

If two liners are fitted, is the shaft lapped or protected between the liners Is an approved Oil Gland or other appliance fitted at the after end of the tube shaft

If so, state type Length of Bearing in Stern Bush next to and supporting propeller

Propeller, diameter Pitch No. of Bades State whether Moveable Total Developed Surface square feet

If Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine Can the H.P. or I.P. Turbines exhaust direct to the condenser

No. of Turbines fitted with astern wheels None Feed Pumps No. and size How driven

Pumps connected to the Main Bilge Line No. and size How driven

Ballast Pumps, No. and size Lubricating Oil Pumps 2 off Electric Driven Specified 160 gals per min including Spare Pump, No. and size 70 lbs. / sq. in. gauge

Are two independent means arranged for circulating water through the Oil Cooler Suctions, connected both to Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size:—In Engine and Boiler Room In Pump Room

In Holds, &c. Main Water Circulating Pump Direct Bilge Suctions, No. and size Independent Power Pump Direct Suctions to the Engine Room

Bilges, No. and size Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes

Are the Bilge Suctions in the Machinery Space led from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges

Are all Sea Connections fitted direct on the skin of the ship Are they fitted with Valves or Cocks

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Are the Overboard Discharges 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 pass through the bunkers How are they protected

What pipes pass through the deep tanks Have they been tested as per rule

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

Is the arrangement of valves and their connections such as to prevent the possibility of water passing from the sea or from water tanks into the cargo or machinery spaces, or from one compartment to another

Is the Shaft Tunnel watertight Is it fitted with a watertight door worked from



BOILERS, &c.—(Letter for record.....) Total Heating Surface of Boilers.....

Is Forced Draft fitted..... No. and Description of Boilers..... Working Pressure.....

Is a Report on Main Boilers now forwarded?.....

Is ^{a Donkey} _{an Auxiliary} Boiler fitted?..... If so, is a report now forwarded?.....

Is the donkey boiler intended to be used for domestic purposes only.....

Plans. Are approved plans forwarded herewith for Shafting..... Main Boilers..... Auxiliary Boilers..... Donkey Boilers.....
(If not, state date of approval)

Superheaters..... General Pumping Arrangements..... Oil Fuel Burning Arrangements.....

SPARE GEAR.

Has the spare gear required by the Rules been supplied..... **Yes.**

State the principal ~~additional~~ spare gear supplied..... **Complete set of bearings turbine & alternator - span springs (2) for all fitted.**

10% of blades, spacers and shrouds - assorted bolts including one set of coupling bolts - set of thrust pads.

Lub. Oil Pump & Cooler. - 1 set of bearings and packings - 1 oil cooler stack.

Alternator - 20 air cooler tubes - set of brushes and brush holders.

Propulsion Motor. - 1 set of brushes - 1/2 set of brush holders - 1 bearing liner - 10 stator coils.

Exciter Sets. - 1 span armature for exciter interchangeable with driving motor - set of bearings.

Control Gear - 1 set wearing parts - 1 solenoid for each set fitted.

Field Booster - span armature - field coil - 1 set of brushes - 1 set of bearings - 1 line of brush holders.

The foregoing is a correct description,

THE BRITISH THOMSON-HOUSTON CO., LTD. Manufacturer

Dates of Survey while building	1943.		1944.		1945.	
	During progress of work in shops - -	June 6, 8, 16, 20	Oct 12, Dec 28, 31, Jan 4, 12, 18, 25, Feb 1, 3, 8, 10, 15, 22, 29	Mar 7, 9, 14, 16, 21, Apr 11, 18, 20, 25, 28	May 4, 16, 18, 31	June 11, 18, 25, 28
	During erection on board vessel - -					
	Total No. of visits.....	55				

Dates of Examination of principal parts	Casings	Rotors	Blading	Gearing
Motor	Port 21.7.44 etc. Starb 22.9.44 etc.	Port 18.4.44. Starb 18.7.44	Port 31.5.44. Starb 18.7.44	Port 18.7.44
Wheel shaft	21.3.44 etc.			
Thrust shaft				
Intermediate shafts				
Tube shaft				
Screw shaft				

Propeller..... Stern tube..... Engine and boiler seatings..... Engine holding down bolts.....

Completion of fitting sea connections..... Completion of pumping arrangements..... Boilers fixed..... Engines tried under steam.....

Main boiler safety valves adjusted..... Thickness of adjusting washers..... **Port EC. 26.9.44. Starb S 8529. F113 Lloyds WH.**

Rotor shaft, Material and tensile strength..... **Port Starb } Siemens Steel. 40 tons tensile.** Identification Mark..... **Port EC. 26.9.44. Starb S 8540 F114 Lloyds WH.**

Flexible Pinion Shaft, Material and tensile strength..... Identification Mark..... **Port EC. 24.11.44. Starb S 7823. F124.**

Pinion shaft, Material and tensile strength..... Identification Mark..... **Port EC. 27.10.44. Starb WH.**

Main Motor 1st Reduction Wheel Shaft, Material and tensile strength..... **Siemens Steel. 35 tons.** Identification Mark.....

Wheel shaft, Material..... Identification Mark..... Thrust shaft, Material..... Identification Mark.....

Intermediate shafts, Material..... Identification Marks..... Tube shaft, Material..... Identification Marks.....

Screw shaft, Material..... Identification Marks..... Steam Pipes, Material..... Test pressure.....

Date of test..... 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 the Rules for the use of oil as fuel been complied with.....

Is the vessel (not being an oil tanker) fitted for carrying oil as cargo..... If so, have the requirements of the Rules been complied with.....

If the notation for ice strengthening is desired, state whether the requirements in this respect have been complied with.....

Is this machinery a duplicate of a previous case..... **No.** If so, state name of vessel.....

General Remarks. (State quality of workmanship, opinions as to class, &c.)..... **The turbines have been built under Special Survey in accordance with the rules and the approved plans. Forgings for the turbo-alternators and propulsion motor have been made at approved works and found in order during construction. Fabrication of the main motor was under Survey. When built the turbines were run at various speeds up to full and overspeed - under these conditions they were found in order as were the governors & trip gears. The propulsion motor was run (motor driven) at normal speed and found in order under no load. Turbines and all bearings were examined and found satisfactory when opened up after running. This machinery is in my opinion eligible to have notation L.M.C. when satisfactorily installed in the vessel and proved in order under working conditions.**

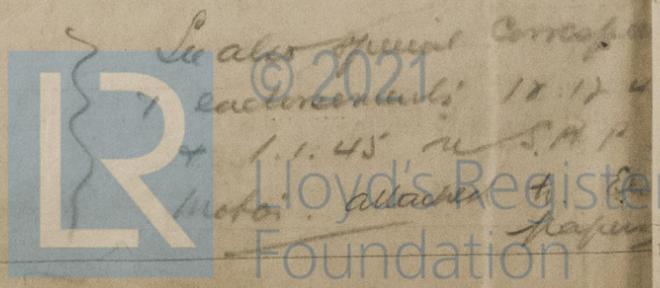
The amount of Entry Fee	Special	Donkey Boiler Fee	Travelling Expenses (if any)	When applied for	When received
£	£	£	£	19	19

E. Crossley.
Engineer Surveyor to Lloyd's Register of Shipping.

FRI. 6 JUL 1945

Committee's Minute.....

Assigned..... **See F.E. machy. rph.**



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