

## Report on Steam Turbine Machinery. No. 112320

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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 12<sup>th</sup> 1943 Last Survey 24.11.1944  
Reg. Book (Number of Visits 55)  
on the ship H.M.S. OLNA 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 of Motor By whom made See special endorsement 1.7.45 Boiler No. When made  
Shaft Horse Power at Full Power 11,000 Owners S.H.P. 2 units 23.12.44 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, &amp;c.—Description of Engines Turbo-Electric.

No. of Turbines Ahead 2 Direct coupled, single reduction geared  
Astern 1 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;  
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.

TURBINE 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									
2nd	1.07"	3-1.0"	1									
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  
Revolutions per minute, at full power, of each Turbine Shaft I.P. 1st reduction wheel  
L.P. main shaft

Rotor Shaft diameter at journals H.P. 5 I.P. 7  
Pitch Circle Diameter 1st pinion 1st reduction wheel  
2nd pinion 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

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, 1st Generator Shaft, diameter at bearings 7" 7"  
main main Propelling Motor Shaft, diameter at bearings 20" 20"

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

Tube Shaft, diameter as per rule Screw Shaft, diameter as per rule  
as fitted

Bronze Liners, thickness in way of bushes as per rule 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

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 (one is standby)  
2 off Electric Driven Specified 160 gals per min 70 lbs. ga. gauge

Ballast Pumps, No. and size Lubricating Oil Pumps, including Spare Pump, No. and size

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

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Foundation

014784-014785-0038



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 } Boiler fitted?..... If so, is a report now forwarded?.....  
an Auxiliary

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 stacks.

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	During progress of work in shops - -	1943. 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.
	During erection on board vessel - - -	June 6, 8, 18, 20 July 4, 11, 18, 21, 27 Aug 14, 18, 22, 30 Sept 19, 22, 26 Oct 4, 6, 10, 13, 27, 31 Nov 3, 14, 17, 21, 24
	Total No. of visits.....	55

Dates of Examination of principal parts—	Casings..... Port 21.7.44 etc. Starb 22.9.44 etc.	Rotors..... Port 18.4.44. Starb 18.7.44	Blading..... Port 31.5.44 Starb 18.7.44	Gearing.....
Motor				
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..... 58529. F113 Lloyds WH.  
Rotor shaft, Material and tensile strength..... Port } Siemens Steel. 40 tons tensile. Starb } Port EC. 26.9.44.  
Flexible Pinion Shaft, Material and tensile strength..... Identification Mark..... Starb 58540 F114 Lloyds WH.  
Identification Mark EC. 24.11.44.

Pinion shaft, Material and tensile strength..... Identification Mark.....  
Main Motor..... Identification Mark.....  
1st Reduction Wheel Shaft, Material and tensile strength..... Siemens Steel. 35 tons. Identification Mark..... Lloyds. 57823. F134.  
Identification Mark WH. EC. 27.10.44.

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 has been 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 ... £	:	:	When applied for.
Special ... £	:	:	19
Donkey Boiler Fee ... £	:	:	When received.
Travelling Expenses (if any) £	:	:	19

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

FRI. 6 JUL 1945

Committee's Minute.....

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

