

# Report on Steam Turbine Machinery.

17867.

No. 112742

Received at London Office 24 APR 1945

Date of writing Report April 19<sup>th</sup> 45. When handed in at Local Office April 19. Port of London.  
 Date, First Survey 22 May 1943. Last Survey April 11<sup>th</sup> 1945.  
 (Number of Visits 28)  
 Tons (Gross 8184 Net 4554)

on the A/M S/M. 824.  
 Built at Hamilton Hill. By whom built Lumas Shipbuilding Co. Ltd. Yard No. 363. When built 1945.  
 Engines made at West Drayton. By whom made Power Plant Co. Ltd. Engine No. A/M S/M 346.  
 Boilers made at West Drayton. By whom made Power Plant Co. Ltd. Boiler No. A/M S/M 346.  
 Shaft Horse Power at Full Power 6,800. Owners. 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 Double Reduction Gearing Turbines.  
 No. of Turbines 2. Direct coupled, single reduction geared to one propelling shaft. No. of primary pinions to each set of reduction gearing 2.  
 Direct coupled to Alternating Current Generator. phase periods per second rated. Kilowatts. Volts at. revolutions per minute;  
 or supplying power for driving Propelling Motors, Type.  
 rated. Kilowatts. Volts at. revolutions per minute. Direct coupled, single or double reduction geared to 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												
2nd												
3rd												
4th												
5th												
6th												
7th												
8th												
9th												
10th												
11th												
12th												

Shaft Horse Power at each turbine H.P. 3400. I.P. 3400. L.P. 3400. Revolutions per minute, at full power, of each Turbine Shaft H.P. 1st reduction wheel 731. I.P. 116.1. L.P. main shaft.  
 Rotor Shaft diameter at journals H.P. Pitch Circle Diameter 1st pinion 9.4264" 1st reduction wheel 51.2041" Width of Face 1st reduction wheel 20 1/2". I.P. 2nd pinion 13.0688" main wheel 124.6478" main wheel 39". L.P. 2nd pinion 19.4894" 1st reduction wheel 38.45". main wheel 42".

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion 16.45" main wheel 42". 2nd pinion 16.45" main wheel 42".  
 Flexible Pinion 1st. Pinion Shafts, diameter at bearings External 1st 13" 2nd 5" diameter at bottom of pinion teeth 1st 18.928". 2nd 18.941".  
 Shafts, diameter 2nd.

Wheel Shafts, diameter at bearings 1st 11" diameter at wheel shroud, 1st 46.45" Generator Shaft, diameter at bearings. main 119.45" Propelling Motor Shaft, diameter at bearings.  
 Intermediate Shafts, diameter as per rule. Thrust Shaft, diameter at collars as per rule.  
 Tube Shaft, diameter as fitted. Screw Shaft, diameter as fitted. Is the tube shaft fitted with a continuous liner.

Bronze Liners, thickness in way of bushes as per rule. Thickness between bushes as per rule. 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 Blades. 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. 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, 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.

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?.....  
{ an Auxiliary }

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.....  
(If not, state date of approval)

Main Boilers.....

Auxiliary Boilers.....

Donkey Boilers.....

Superheaters.....

General Pumping Arrangements.....

Oil Fuel Burning Arrangements.....

#### SPARE GEAR.

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

State the principal additional spare gear supplied.....

*Spare gear as required by R/M/S/M Specification.  
2HP-22P pinion bearings, 1-2nd Red. shaft  
bearing, 1-1st main bearing. Bearing bolts nuts, studs etc.*

The foregoing is a correct description,

*R.M. Smith*

Manufacture.....

Dates of Survey while building { During progress of work in shops - { 1943: May 22 June 29 July 6 13 20 Aug 31 Oct 12 26.  
During erection on board vessel - { Oct 25 Nov 2 22 Dec 7 28  
1945: Jan 3 10 17 24 31 Feb 7 14 28 Mar 7 14 21 27 28 Apr 11 18  
Total No. of visits..... 28.

Dates of Examination of principal parts—Casings.....

Rotors.....

Blading.....

Gearing..... *has 15-4*

Wheel shaft.....

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.....

Rotor shaft, Material and tensile strength.....

Identification Mark.....

Flexible Pinion Shaft, Material and tensile strength.....

Identification Mark.....

Pinion shaft, Material and tensile strength.....

Identification Mark.....

1st Reduction Wheel Shaft, Material and tensile strength.....

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.....

*Yes.*

If so, state name of vessel.....

*A/45/M. 341-2-3-4*

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

*Gearing dispatched to Richardson & Co. Ltd. West Hartlepool.*

*The above gearing & gear case have been constructed to approved plans from materials manufactured at works approved by the Committee. The workmanship is considered satisfactory & in my opinion the gearing is suitable to be installed in the vessel for which it is intended.*

*This gearing has been incorporated in Engine No 2752.*

The amount of Entry Fee ... £ : : When applied for.

Special ... £ 21 : 0 : 0

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Donkey Boiler Fee ... £ : : When received.

Travelling Expenses (if any) £ 4 : 0 : 6

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FRI, 13 JUL 1945

Committee's Minute.....

Assigned.....

*See Mdt fe machy rpl 17867*



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