

# REPORT ON STEAM TURBINE MACHINERY. No. 94862

t. 4a. Received at London Office 31 MAR 1937  
 Date of writing Report 16/11/37 When handed in at Local Office 27/3/37 Port of NEWCASTLE-ON-TYNE  
 Date, First Survey 8 June 1936 Last Survey 25 March 1937  
 Reg. Book. SS. LLANDAFF (Number of Visits 11)  
 on the SS. LLANDAFF Tons } Gross  
 Net

built at Sunderland By whom built Bartram & Co Ld Yard No. 275 When built 1937  
 Engines made at Hebburn (Newcastle-on-Tyne) By whom made White's Mar. Engrs. Co Ld Engine No. 9.C. When made 1937  
 Turbine made at Newcastle-on-Tyne By whom made R.W. Hawthorn, Leslie & Co Ld Turbine No. 9887 When made 1937  
 Shaft Horse Power at Full Power 675 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 \_\_\_\_\_  
 Description of Engines 4 cyl. Compound Recip Eng, S/R Geared with L.P. Turbine, D/R Geared to ONE Screw Shaft.

No. of Turbines ONE combined in one casing to ONE propelling shaft. No. of primary pinions to each set of reduction gearing   
 Alternating Current Generator  phase \_\_\_\_\_ periods per second \_\_\_\_\_  
 Direct Current Generator  rated \_\_\_\_\_ Kilowatts \_\_\_\_\_ Volts at \_\_\_\_\_ revolutions per minute;  
 Propelling Motors, Type  rated \_\_\_\_\_ Kilowatts \_\_\_\_\_ Volts at \_\_\_\_\_ revolutions per minute. Direct coupled, single or double reduction geared to \_\_\_\_\_ propelling shafts.

TURBINE	H.P.			I.P.			L.P.			H.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.
EXHAUST STEAM TURBINE							2 ROWS PARALLEL, THUS:-	22 1/8"	2	3 ROW IMPULSE WHEEL		
							8 ROWS IN TAPER:-	1 1/16" to 2 3/8"	22 3/8" to 25 3/4"	MEAN DIA. BLADES 22 1/4"		
							6 ROWS IN TAPER:-	2 7/8" to 5 5/16"	25 3/4" to 30 5/8"	BLADE HEIGHTS 1 1/4" to 2"		
							ROTOR PARALLEL 20" DIA					

Shaft Horse Power at each turbine { H.P. - I.P. - L.P. 675 }  
 Revolutions per minute, at full power, of each Turbine Shaft { H.P. - I.P. - L.P. 3500 }  
 Propeller Shaft diameter at journals { H.P. - I.P. - L.P. 4" }  
 EXH. ST. TURB. { H.P. - I.P. - L.P. 3500 }  
 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 }

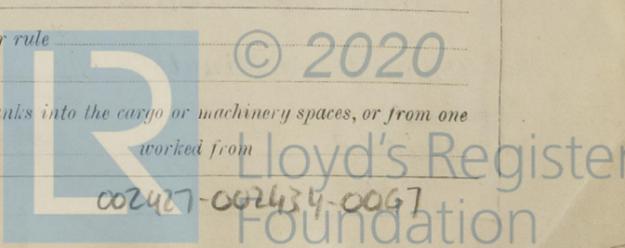
Pinion Shafts, diameter at bearings { 1st - External - 2nd - Internal }  
 Wheel Shafts, diameter at bearings { 1st - diameter at wheel shroud, main }  
 Generator Shaft, diameter at bearings \_\_\_\_\_  
 Propelling Motor Shaft, diameter at bearings \_\_\_\_\_  
 Thrust Shaft, diameter at collars \_\_\_\_\_  
 Intermediate Shafts, diameter as per rule \_\_\_\_\_ as fitted \_\_\_\_\_  
 Tube Shaft, diameter as per rule \_\_\_\_\_ as fitted \_\_\_\_\_  
 Screw Shaft, diameter as per rule \_\_\_\_\_ as fitted \_\_\_\_\_

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 and the joints 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 face chamfered 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 \_\_\_\_\_  
 Length of Bearing in Stern Bush next to and supporting propeller \_\_\_\_\_  
 State whether moveable \_\_\_\_\_  
 Total Developed Surface \_\_\_\_\_ square feet.  
 Can the H.P. or I.P. Turbine 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 \_\_\_\_\_  
 Are two independent means arranged for circulating water through the Oil Cooler \_\_\_\_\_  
 Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size:—In Engine and Boiler Room \_\_\_\_\_ In Pump Room \_\_\_\_\_  
 Main Water Circulating Pump Direct Bilge Suctions, 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 stowhold 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 \_\_\_\_\_  
 How are they protected \_\_\_\_\_  
 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 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 \_\_\_\_\_

PLANT LONDON No. 103861  
 GEARING POWER LONDON  
 MADE BY LONDON  
 S.R. DR. MADE BY LONDON



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?

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

Superheaters General Pumping Arrangements Oil Fuel Burning Arrangements

Has the spare gear required by the Rules been supplied Yes

State the principal additional spare gear supplied 2. main Bearing Bushes one Complete Carbon Ring for Clands one set Mitchell Thrust Pads one set Liners for forward side of Thrust Block 2 Springs for Carbon Rings one Relief Valve Spring one Spring for Governor 2 Stud & nuts for Bearing Keeps one Stud, one bolt & one fitted bolt (each with nut) for Cylinder Horizontal Joint.

The foregoing is a correct description,

Dates of Survey while building 1936 June 8. Sep. 8. 16. 22. Oct. 22. 23 Dec 4. 8. 1937 Jan 8. 12. Mar 25. Total No. of visits 10.

Dates of Examination of principal parts—Casing 16/9/37 Rotor 23/10/36 Blading 12/1/37 Gearing

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 LP Turbine Engine tried under steam 8/1/37

Main boiler safety valves adjusted Thickness of adjusting washers

Rotor shaft, Material and tensile strength S.M. Steel 59.8 x 60.1 Kg/cm<sup>2</sup> Identification Mark LLOYDS N° 2326 G.H.J. 30-4-36 A.W. 23-10-36

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 S/S LLANASHE.

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

This L.P. Exh. Steam Turbine has been constructed under special survey in accordance with the Rules, and the materials and workmanship are good.

The Turbine was satisfactorily tested in the Shop, then set up with the DR/SR Gearing, and afterwards dispatched to Sunderland to be installed with Whiteshar Engg Co Engine P.C. in Bartram's Ship No. 275.

Table with columns for Fee Type (Entry, Special, Donkey Boiler, Travelling Expenses), Amount (£), and When applied for/When received.

A. Watt, Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE 25 MAY 1937 Assigned See Old J.E. 52092

