

# REPORT ON STEAM TURBINE MACHINERY.

No. 94862

31 MAR 1937

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Date of writing Report 16/1/37 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  
 Survey held at Newcastle on Tyne  
 Reg. Book. SS. LLANDAFF

On the Sunderland By whom built Bartram & Co Ld Yard No. 275 When built 1937  
 Engines made at Heston (Newcastle) 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 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 single reduction geared to ONE propelling shaft. No. of primary pinions to each set of reduction gearing ✓  
 of rivet holes and pitch ONE casing double reduction geared  
 Direct coupled to Alternating Current Generator phase periods per second rated Kilowatts Volts at revolutions per minute  
 supplying power for driving ✓ Propelling Motors, Type ✓  
Direct coupled, single or double reduction geared to propelling shafts.

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.
						2 ROWS PARALLEL, THUS:-			3 ROW IMPULSE WHEEL		
						1 1/16"	22 1/8"	2	MEAN DIA. BLADES	22 1/4"	
						8 ROWS IN TAPER:-			BLADE HEIGHTS	1 1/4" TO 2"	
						1 1/16" TO 2 7/8"	22 1/8" TO 25 3/4"	8			
						6 ROWS IN TAPER:-					
						2 7/8" TO 5 5/16"	25 3/4" TO 30 5/8"	6			
						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  
 Rotor Shaft diameter at journals H.P. - I.P. - L.P. 4" Pitch Circle Diameter 1st pinion 1st reduction wheel main shaft EXH. ST. TURB. 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 main wheel 2nd pinion main wheel 1st reduction wheel main wheel

Pinion Shafts, diameter at bearings 1st 2nd External Internal 1st 2nd diameter at both ends of pinion teeth 1st 2nd

Wheel Shafts, diameter at bearings 1st 2nd diameter at wheel shroud 1st 2nd Generator Shaft, diameter at bearings Propelling Motor Shaft, diameter at bearings

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 after end of the liner made watertight in the

Bronze Liners, thickness in way of bushes as per rule as fitted Thickness between bushes as per rule as fitted If the liner is in more than one length and the joints are made by fusion through the whole thickness of the liner

Propeller boss 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 Is an approved Oil Gland or other appliance fitted at the after end of the tube

Propeller, diameter Pitch No. of Blades State whether moveable Total Developed Surface square feet. Can the H.P. or I.P. Turbine exhaust direct to the

Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine No. and size How driven

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 Lubricating Oil Pumps, including Spare Pump, No. and size Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge

Are two independent means arranged for circulating water through the Oil Cooler In Pump Room

Pumps, No. and size:—In Engine and Boiler Room

Holds, &c.

Main Water Circulating Pump Direct Bilge Suctions, No. and size

Bilges, No. and size

Are 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

apartment to another

Is the Shaft Tunnel watertight

Is it fitted with a watertight door

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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

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 Studs & nuts for Bearing Keeps  
one Stud, one bolt & one fitted bolt (each with nut)  
for Cylinder Horizontal Joint.

R. & W. HAWTHORN, LONDON & CO. LIMITED

R. B. Johnson

Manufacture

The foregoing is a correct description,

Dates of Survey  
During progress of work in shops --  
During erection on board vessel --  
Total No. of visits

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 & 60.1 Kg/cm<sup>2</sup> 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 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 White Star Engg Co Engine 9.C. in Bartram's Ship No. 275.

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

A. Watt.

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUE 25 MAY 1937

Assigned

See Std J.E. 52092



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