

REPORT ON STEAM TURBINE MACHINERY.

No. 87061

Received at London Office 22 APR 1931

7 OCT 1931

Date of writing Report 19 When handed in at Local Office 20 April 1931 Port of Newcastle
 No. in Survey held at Newcastle Date, First Survey 5 Nov 1930 Last Survey 20 April 1931
 Reg. Book. on the steaming made by Parsons Marine Steam Turbine Co. 1/5 601/1
 Built at Glasgow By whom built A. Stephen & Son Ltd Yard No. 534 Tons Gross 14251 Net 7770
 Engines made at " By whom made " Engine No. 534 When built 1931
 Boilers made at " By whom made " Boiler No. When made
 Shaft Horse Power at Full Power 7700 Owners P & O Steam Navigation Co Port belonging to London
 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

No. of Turbines Ahead 6 Direct coupled, single reduction geared } to 2 propelling shafts. No. of primary pinions to each set of reduction gearing }
 Astern }
 direct coupled to } Alternating Current Generator phase periods per second } rated Kilowatts Volts at revolutions per minute;
 for supplying power for driving } Direct Current Generator }
 Propelling Motors, Type
 rated Kilowatts Volts at revolutions per minute. Direct coupled, single or double reduction geared to propelling shafts.

| TURBINE BLADING. | 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. 2520 2285 (Max Normal)
 I.P. 2260 2140
 L.P. 2920 2615
 Revolutions per minute, at full power, of each Turbine Shaft
 H.P. 2780 2700 (1st reduction wheel)
 I.P. 2780 2700
 L.P. 2012 1958 (main shaft 129 MAR 125 NOR)

Rotor Shaft diameter at journals
 H.P. Pitch Circle Diameter 4.4985" 1st reduction wheel
 I.P. 10.4979" main wheel 162.1819"
 L.P. Width of Face 2'-11" 1st reduction wheel

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings
 H.P. 12 1/4" 1st reduction wheel
 I.P. 12 1/4" main wheel 18 3/4"
 L.P. diameter at bottom of pinion teeth 6.9219" (H.P.)
 9.9213" (I.P.)

Flexible Pinion Shafts, diameter
 1st Pinion Shafts, diameter at bearings External 5 1/2" LP 6 3/4"
 2nd Internal 1 1/2" diameter at bottom of pinion teeth
 Wheel Shafts, diameter at bearings main 19" diameter at wheel Taper 22 1/2 25" Generator Shaft, diameter at bearings
 Propelling Motor Shaft, diameter at bearings

Intermediate Shafts, diameter as per rule Thrust Shaft, diameter at collars as per rule Tube Shaft, diameter as per rule
 as fitted 4" as fitted 4" as fitted

Screw Shaft, diameter as per rule Is the tube screw shaft fitted with a continuous liner Bronze Liners, thickness in way of 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

Thickness between bushes 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 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. 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 Lubricating Oil Pumps, including Spare Pump, No. and size Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size:—In Engine and Boiler 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? If so, is a report now forwarded?

Plans. Are approved plans forwarded herewith for Shafting Main Boilers Auxiliary Boilers Donkey Boilers

Superheaters General Pumping Arrangements Oil Fuel Burning Arrangements

Spare Gear. State the articles supplied: - Spare HP, IP + LP pinion shafts

FOR THE PARSONS MARINE STEAM TURBINE Co. LIMITED

D. J. Walker
MANAGING DIRECTOR

The foregoing is a correct description,

Dates of Survey while building { During progress of work in shops - - 1930 Nov 5, 11, 18, Dec 9 - JAN 1931 - 19th, 23, FEB 9, MAR 2, 12, APR 9, 20.
During erection on board vessel - - -
Total No. of visits 11.

Dates of Examination of principal parts - Casings Rotors Blading Gearing 20.4.31

Wheel shaft 9th Dec 1930 Thrust shaft Intermediate shafts Tube shaft Screw shaft

Propeller Stern tube Engine and boiler seatings Engine holding down bolts

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 8738 8766

Flexible Pinion Shaft, Material and tensile strength Identification Mark 8740 8769

Pinion shaft, Material and tensile strength Normalized Nickel Steel 40 tons tensile 24 tons elastic limit Identification Mark 8741 8772

1st Reduction Wheel Shaft, Material and tensile strength Identification Mark 8692/32

Wheel shaft, Material 04 Engol 3/35 Identification Marks 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

Is this machinery a duplicate of a previous case If so, state name of vessel

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

Two main gear wheels with their shafts, six working pinion shafts and three spare pinion shafts have been examined during the process of machining & cutting. The materials and workmanship are good & the above are now being forwarded to Messrs A. Stephen & Co. Glasgow C.S.R. Packet of forging reports & list of marks on same length

All forgings were supplied by Messrs The Limited Co. (formerly Koda works) Glasgow C.S.R.

The amount of Entry Fee ... £
To be credited from Glasgow letter 13.4.31
Donkey Boiler Fee ... £
Travelling Expenses (if any) £

When applied for, 2.10.31 E. J. Stoddart

When received, Charged on 51824

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 6 - OCT 1931

Assigned See Glasgow Report No. 51824

FRI. 30 OCT 1931

TUE. 16 FEB 1932

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