

REPORT ON STEAM TURBINE MACHINERY. No. 59888

Received at London Office... JUN 15 1938

Date of writing Report *1st June* 1938 When handed in at Local Office *13/6/38* Port of *Glasgow*
 No. in Survey held at *Glasgow* Date, First Survey *2.12.37* Last Survey *1st June* 1938
 Reg. Book. on the *S/S "SCIENTIST"* (Number of Visits *19*) Tons { Gross *6199* Net *3794*
 Built at *Port Glasgow* By whom built *Lithgows Ltd* Yard No. *911* When built
 Engines made at *Glasgow* By whom made *Barclay Curle & Co Ltd* Engine No. *BW59* When made
 Boilers made at By whom made Boiler No. When made
 Shaft Horse Power at Full Power *1512* Owners *THE CHARANTE S.S. Co (J. & J. Harrison)* Port belonging to *Liverpool*
 Nom. Horse Power as per Rule *252* Is Refrigerating Machinery fitted for cargo purposes *No* Is Electric Light fitted *Yes*
 Trade for which Vessel is intended

STEAM TURBINE ENGINES, &c. — Description of Engines *One L.P. Turbine with Double Reduction Gear & Hydraulic Coupling*

No. of Turbines Ahead *one* Direct coupled, single reduction geared } to *one* propelling shafts. No. of primary pinions to each set of reduction gearing *one*
 Astern *—* double reduction geared }
 direct coupled to { Alternating Current Generator phase periods per second { rated Kilowatts Volts at revolutions per minute;
 for 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 LADING. | 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 | | | | | | | 94 mm | 1138 mm | 1 | | | |
| 3RD | | | | | | | 115 " | 1180 " | 1 | | | |
| 4TH | | | | | | | 136 " | 1222 " | 1 | | | |
| 5TH | | | | | | | 154 " | 1264 " | 1 | | | |
| 6TH | | | | | | | 179 " | 1308 " | 1 | | | |
| 7TH | | | | | | | 204 " | 1364 " | 1 | | | |
| 8TH | | | | | | | 235 " | 1420 " | 1 | | | |
| 9TH | | | | | | | | | | | | |
| 10TH | | | | | | | | | | | | |
| 11TH | | | | | | | | | | | | |
| 12TH | | | | | | | | | | | | |

Shaft Horse Power at each turbine { H.P. I.P. L.P. *1512* } Revolutions per minute, at full power, of each Turbine Shaft { H.P. I.P. L.P. *2640* } 1st reduction wheel *428* main shaft *82*

Rotor Shaft diameter at journals { H.P. I.P. L.P. *170 mm* } Pitch Circle Diameter { 1st pinion *11.1407"* 1st reduction wheel *68.7722"* 2nd pinion *18.2927"* main wheel *91.6992"* } Width of Face { 1st reduction wheel *310 mm* main wheel *680 mm* }

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion *330 mm* 2nd pinion *487 mm* } 1st reduction wheel *1830 mm* main wheel *590 mm*

Transmission Flexible Pinion Shafts, diameter { 1st *130 mm* 2nd *—* } Pinion Shafts, diameter at bearings External *170 mm* Internal *420 mm* } diameter at bottom of pinion teeth { 1st *10.5641"* 2nd *14.5163"* }

Wheel Shafts, diameter at bearings { 1st *300 mm* main *550 mm* } diameter at wheel shroud, { 1st *1650 mm* Generator Shaft, diameter at bearings main *2218 mm* Propelling Motor Shaft, diameter at bearings

Intermediate Shafts, diameter as per rule... Thrust Shaft, diameter at collars as fitted *425 mm* Tube Shaft, diameter as fitted... as per rule... as fitted...

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

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... Length of Bearing in Stern Bush neat 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

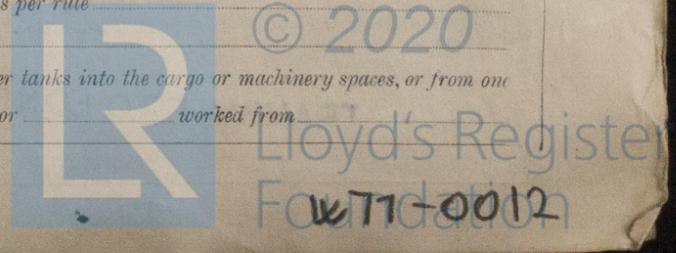
Main Water Circulating Pump Direct Bilge Suctions, No. and size Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes

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

How are they protected Have they been tested as per rule That pipes pass through the bunkers That pipes pass through the deep tanks

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times 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 Working Pressure
 Is Forced Draft fitted No. and Description of Boilers
 Is a Report on Main Boilers now forwarded? If so, is a report now forwarded?
 Is a Donkey (an Auxiliary) Boiler fitted? Main Boilers Auxiliary Boilers Donkey Boilers
 Plans. Are approved plans forwarded herewith for Shafting (If not state date of approval)
 Superheaters General Pumping Arrangements Oil Fuel Burning Arrangements
 Spare Gear. State the articles supplied:— *As per attached list*



FOR BARCLAY, CURLE & CO., LTD.
 Alexander Macneil
 Chief Draughtsman

The foregoing is a correct description,

Dates of Survey while building: 1937. Dec 2. 1938. Jan 14, 20, Feb 9, 22, Mar 22, Apr 17, 15, May 2, 5, 11, 14, 16, 18, 25, 30, June 1.

19. Dates of Examination of principal parts—Casings 14-5-38 Rotors 11-5-38 Blading 16-5-38 Gearing 16-5-38
 Wheel shaft 15-4-38 Thrust shaft 4-4-38 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 *Cement mortar Ingt steel 37.4 in. (min)* Identification Mark *LLOYDS 23 GA*
 1st Red Pinion Shaft, Material and tensile strength *Cement mortar Ingt steel 44.0 in. (min)* Identification Mark *LLOYDS 22 GA*
 2nd Red Pinion shaft, Material and tensile strength *Cement mortar Ingt steel 43.0 in.* Identification Mark *LLOYDS 21 GA*
 1st Reduction Wheel Shaft, Material and tensile strength *S.M. Ingt steel 31.1 in.* Identification Mark *LLOYDS 16 GA*
 Wheel shaft, Material *S.M. Ingt steel* Identification Mark *LLOYDS 28 GA* Thrust shaft, Material *S.M. Ingt steel* Identification Mark *LLOYDS 17 GA*
 Transmission Intermediate shafts, Material *S.M. Ingt steel* Identification Marks *LLOYDS 8 GA* Tube shaft, Material Identification Marks
 Screw shaft, Material Identification Marks Steam Pipes, Material Test pressure

Is the flash point of the oil to be used over 150°F. Have the requirements of the Rules for carrying and burning oil fuel 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.) *This machinery has been built under Special Survey and in accordance with the Rules. The materials and workmanship are good. It will be fitted on board Messrs Lloyds Yard No 911, at Glasgow in conjunction with Messrs D. Rowan & Co. No 1023.*

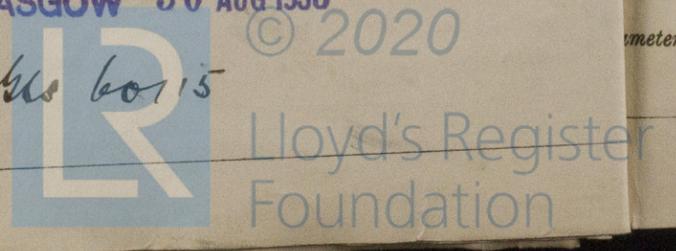
GLASGOW 20-8-38. The LP turbine with its gearing and clutch has been satisfactorily fitted on board the vessel see Gls Rpt. No 60115.

The amount of Entry Fee ... £ : :
 Special ... £ 25 : 4 :
 Donkey Boiler Fee ... £ : :
 Travelling Expenses (if any) £ : :
 When applied for, 14 JUN 1938
 When received, 4. 8. 1938 (per double)

G. L. ...
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 14 JUN 1938 GLASGOW 30 AUG 1938

Assigned TRANSMIT TO LONDON



Rob 13/6/38

Certificate (if required) to be sent to ...