

REPORT ON STEAM TURBINE MACHINERY. No. 51256

Received at London Office 25 FEB 1931

Date of writing Report 18-2-1931 When handed in at Local Office 20-2-1931 Port of Glasgow
 No. in Survey held at Dalmuir Date, First Survey 22-9-30 Last Survey 17-2-1931
 Reg. Book. on the S.S. "Silary" (Number of Visits 18)
 Built at Birkenhead By whom built Cammell Laird & Co. Yard No. _____ When built _____
 Engines made at " By whom made " Engine No. 975 When made 1931
 Boilers made at _____ By whom made _____ Boiler No. _____ When made _____
 Shaft Horse Power at Full Power 1730 Owners _____ Port belonging to _____
 Nom. Horse Power as per Rule 288 Is Refrigerating Machinery fitted for cargo purposes _____ Is Electric Light fitted _____
 Trade for which Vessel is intended _____

STEAM TURBINE ENGINES, &c.—Description of Engines Bauer Mach Installation made by H. W. Hardmore & Co. S.S. Dalmuir, B.W.30.

No. of Turbines 1 none single reduction geared to 1 propelling shafts. No. of primary pinions to each set of reduction gearing 1
 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							89 m/m	1128 m/m	1			
2ND							110 "	1170 "	1			
3RD							131 "	1212 "	1			
4TH							152 "	1254 "	1			
5TH		<u>none</u>			<u>none</u>		178 "	1306 "	1		<u>none</u>	
6TH							206 "	1362 "	1			
7TH							235 "	1420 "	1			
8TH												
9TH												
10TH												
11TH												
12TH												

Shaft Horse Power at each turbine { H.P. _____ I.P. _____ L.P. 1730 } Revolutions per minute, at full power, of each Turbine Shaft { H.P. _____ I.P. _____ L.P. 2750 } 1st reduction wheel _____ main shaft 75

Rotor Shaft diameter at journals { H.P. _____ I.P. _____ L.P. 170 m/m } Pitch Circle Diameter { 1st pinion 12.8846" 1st reduction wheel 67.9152" 2nd pinion 19.4254" main wheel 123.694" } Width of Face { 1st reduction wheel 370 m/m main wheel 700 m/m }

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 835 m/m 1st reduction wheel 2447 m/m 2nd pinion 1040 m/m main wheel 1290 m/m }

Flexible Pinion Shafts, diameter { 1st _____ 2nd _____ } Pinion Shafts, diameter at bearings { External 1st 250 m/m 2nd 450 m/m Internal 1st _____ 2nd 360 " } diameter at bottom of pinion teeth { 1st 12.278" 2nd 18.653" }

Wheel Shafts, diameter at bearings { 1st 360 m/m } diameter at wheel shroud, { 1st 1647.012" } 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 fitted 17 5/8" Tube Shaft, diameter as per rule _____ as fitted _____

Screw Shaft, diameter as per rule _____ as fitted _____ Is the { tube _____ screw _____ } shaft fitted with a continuous liner _____ 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 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 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 2-9" x 10" x 24"

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 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 stowhold plates _____ Are the Overboard Discharges above or below the deep water line _____

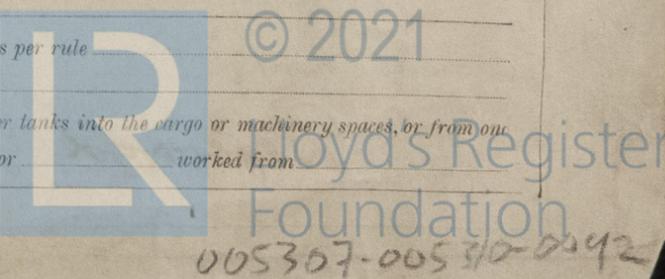
Are they each fitted with a Discharge Valve always accessible on the plating of the vessel _____ Are the Blow Off Cocks fitted with a spigot and brass covering plate _____

What pipes pass through the bunks _____ 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:—

FOR WILLIAM BEARDMORE & CO., LIMITED

G. Langlands Manufacturers.

The foregoing is a correct description,

Dates of Survey while building During progress of work in shops -- 1930 Sep 22 Oct 1 7 14 29 Nov 7 26 Dec 2 9 16 (1931) Jan 13 19 21 26 28 Feb 3 11 17

Dates of Examination of principal parts—Casings 3-2-31 etc Rotors 26-1-31 etc Blading 3-2-31 etc Gearing 12-1-31 etc

Wheel shaft 19-1-31 etc Thrust shaft 19-1-31 etc 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 S-35 Identification Mark 3892

Flexible Pinion Shaft, Material and tensile strength Identification Mark

Pinion shaft, Material and tensile strength H.S. 47.5 to 49. Identification Mark 3892

1st Reduction Wheel Shaft, Material and tensile strength S 35 Identification Mark 3892

Wheel shaft, Material S. Identification Mark 3892 Thrust shaft, Material S. Identification Mark 3892

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 carrying and burning oil fuel been complied with

Is this machinery a duplicate of a previous case No If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, &c. This Low Pressure Turbine with Double Reduction Gearing and hydraulic coupling has been built under special survey in accordance with the approved plans, and the Society's Rules and requirements, the materials and workmanships are good.

The installation has been dispatched to Birtanhead for fitting on board.

The amount of Entry Fee ... £ : When applied for, 23 FEB 1931

Special 1/8" of above due 2.8.16 £ 2.8.16 : When received, London Letter to School 11/3/31

Donkey Boiler Fee £ 5.15.0

Travelling Expenses (if any) £ :

Jas. Cairns, Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 24 FEB 1931

Assigned Deferred.



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Lloyd's Register Foundation

Rpt. 5a.

Date of writing

No. in Reg. Book.

3354 on

Master

Engines made

Boilers made

Nominal Horsepower

MULTIPLE

Manufactured

Total Heating Surface

No. and Description

Tested by

Area of Fire

Area of each

In case of damage

Smallest diameter

Smallest diameter

Largest diameter

Thickness

long. seams

Percentage

Percentage

Thickness

Material

Length of

Dimensions

End plates

How are

Tube plates

Mean pitch

Girders to

at centre

in each

Tensile strength

Pitch of

Working pressure

Thickness

Pitch of

Working pressure

Diameter

Working pressure

Diameter

Certificate (if required) to be sent to

(The Surveyors are requested not to write on or below the space for Committee's Minute.)