

23 OCT 1929

REPORT ON STEAM TURBINE MACHINERY.

No. 149589
11 SEP 1929

Rpt. 4a.

Received at London Office

Date of writing Report 2-9-1929 When handed in at Local Office 7-9-1929 Port of Glasgow
 No. in Survey held at Reg. Book. Date, First Survey 4-4-29 Last Survey 29-8-1929
 on the S/S "Barrowhine" (Number of Visits 11) Tons { Gross Net
 Built at Glenock By whom built Glenock Dry Dock Co Yard No. 417 When built
 Engines made at " By whom made Rankine & Blackmore Engine No. 441 When made
 Boilers made at B.W. By whom made " Boiler No. " When made
 Shaft Horse Power at Full Power 600 Owners The Barrow Shipping Co Ltd Port belonging to Glasgow
 Nom. Horse Power as per Rule 100 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes
 Trade for which Vessel is intended Foreign

STEAM TURBINE ENGINES, &c.—Description of Engines Barry Mack Installation B.W. 17 made by H. Beardmore & Co. Ltd. Glasgow

No. of Turbines One Ahead One Direct coupled, single reduction geared One 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 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							96 m/m	792 m/m	1			
2ND							109 "	816 "	1			
3RD							119 "	838 "	1			
4TH							133 "	866 "	1			
5TH							146 "	892 "	1			
6TH							160 "	920 "	1			
7TH												
8TH												
9TH												
10TH												
11TH												
12TH												

Shaft Horse Power at each turbine { H.P. 600 L.P. 600 } Revolutions per minute, at full power, of each Turbine Shaft { H.P. 4390 L.P. 4390 }
 Rotor Shaft diameter at journals { H.P. 110 m/m L.P. 110 m/m } Pitch Circle Diameter { 1st pinion 6.642" 2nd pinion 10.57" } 1st reduction wheel 45.42" main wheel 76.845" Width of Face { 1st reduction wheel 230 m/m main wheel 500 " }
 Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 210 m/m 2nd pinion 400 " } 1st reduction wheel 285 m/m main wheel 470 "
 Flexible Pinion Shafts, diameter { 1st ✓ 2nd ✓ } Pinion Shafts, diameter at bearings { External 140 m/m Internal 140 m/m } 1st solid 2nd solid diameter at bottom of pinion teeth { 1st 6.0654" 2nd 9.7976" }

Wheel Shafts, diameter at bearings { 1st 200 m/m main 420 " } diameter at wheel shroud, { 1st 1078 m/m main 1860 " } Generator Shaft, diameter at bearings ✓
 Intermediate Shafts, diameter as per rule 12.27 as fitted 12 3/8 Thrust Shaft, diameter at collars as per rule 18.3.29 as fitted 330 m/m 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 L.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 ✓

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. ✓ Independent Power Pump Direct Suctions to the Engine 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 ✓

Bilges, No. and size ✓ 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 stakehold 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 ✓

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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? If so, is a report now forwarded?
{ an Auxiliary }

Plans. Are approved plans forwarded herewith for Shafting Main Boilers Auxiliary Boilers Donkey Boilers
(If not state date of approval)

Superheaters General Pumping Arrangements Oil Fuel Burning Arrangements

Spare Gear. State the articles supplied:—

The foregoing is a correct description, FOR WILLIAM BEARDMORE & CO., LIMITED. G. Langlands, Manufacturer.

Dates of Survey while building { During progress of work in shops -- 1929 Apr 4 18 22 May 7 21 29 June 13 17 July 25 29 Aug 1 7 22 29
{ During erection on board vessel ---
Total No. of visits 14

Dates of Examination of principal parts—Casings 7-8-29 li Rotors 29-7-29 li Blading 29-7-29 li Gearing 29-7-29 li

Wheel shaft 7-8-29 li Thrust shaft 7-8-29 li 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 8. 35.6 tons Identification Mark 2954

Flexible Pinion Shaft, Material and tensile strength Identification Mark ✓

Pinion shaft, Material and tensile strength 8. 46 tons Identification Mark 2954

1st Reduction Wheel Shaft, Material and tensile strength 8. 37 tons Identification Mark 2954

Wheel shaft, Material 8 Identification Mark 2954 Thrust shaft, Material 8 Identification Mark 2954

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 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 clutch, have been built under special survey in accordance with the approved plans, and the Society's Rules & requirements, the materials and workmanship are good. It has been forwarded to Greenock to be fitted on board.

The amount of Entry Fee £ : : When applied for, 9-SEP-1929
due Res 6-13-4
Special 3-6-8 £ 10 : :
Donkey Boiler Fee £ : : When received, 11-11-29
Travelling Expenses (if any) £ : :

Committee's Minute GLASGOW 10 SEP 1929

Assigned Transmit to London