

REPORT ON STEAM TURBINE MACHINERY.

No. 119589
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 4-4-29 Last Survey 29-8-1929
Reg. Book. S/S "Barrowhill" (Number of Visits 11)

Built at Grunock By whom built Grunock Dry Dock Co Yard No. 417 When built
Engines made at " By whom made Rankine & Blackmore Engine No. 441 When made
Boilers made at " By whom made " Boiler No. " When made
Shaft Horse Power at Full Power 600 Owners The Barrow Shipping Co Port belonging to Glasgow
Nom. Horse Power as per Rule 100 Is Refrigerating Machinery fitted for cargo purposes 0 Is Electric Light fitted Yes
Trade for which Vessel is intended Foreign

STEAM TURBINE ENGINES, &c.—Description of Engines

One 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 _____
Direct Current Generator } 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. _____
L.P. 600 } Revolutions per minute, at full power, of each Turbine Shaft { H.P. _____
L.P. 4390 } 1st reduction wheel _____
main shaft 80

Rotor Shaft diameter at journals { H.P. _____
L.P. 110 m/m } Pitch Circle Diameter { 1st pinion 6.642" 1st reduction wheel 45.42" Width of { 1st reduction wheel 230 m/m
2nd pinion 10.57" main wheel 76.845" Face } main wheel 500 "

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 210 m/m 1st reduction wheel 285 m/m
2nd pinion 400 " main wheel 470 "

Flexible Pinion Shafts, diameter { 1st _____
2nd _____ } Pinion Shafts, diameter at bearings { External 140 m/m 220 m/m
Internal Solid } diameter at bottom of pinion teeth { 1st 6.0654"
2nd 9.7976"

Wheel Shafts, diameter at bearings { 1st 200 m/m diameter at wheel shroud, { 1st 1078 m/m Generator Shaft, diameter at bearings _____
main 420 " } main 1860 " Propelling Motor Shaft, diameter at bearings _____

Intermediate Shafts, diameter as per rule _____ as fitted 12.27 Thrust Shaft, diameter at collars as per rule _____ as fitted 18.3.29 Tube Shaft, diameter as per rule _____ as fitted _____

Screw Shaft, diameter as per rule _____ as fitted _____ Is the { tube _____ } shaft fitted with a continuous liner { _____ }
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 _____
as fitted _____

Thickness between bushes _____ 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 _____

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 pipes _____ Are the Overboard Discharges above or below the deep water line _____

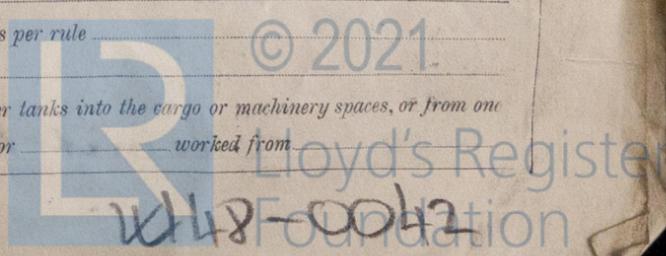
Are they each fitted with a Discharge Valve always accessible on the plating of the vessel _____ Are the Blow Off Cocks fitted with a spigot and brass covering plate _____

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? _____
 { 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 11-18-22 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 di Rotors 29-7-29 di Blading 29-7-29 di Gearing 29-7-29 di

Wheel shaft 7-8-29 di Thrust shaft 7-8-29 di 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 Guernock to be fitted on board.

The amount of Entry Fee £ 6-13-4
 Special £ 10-0-0
 Donkey Boiler Fee £ _____
 Travelling Expenses (if any) £ _____

When applied for, 9-SEP-1929
 When received, 11-11-29

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

Committee's Minute GLASGOW 10 SEP 1929

Assigned Transmit to London

