

REPORT ON STEAM TURBINE MACHINERY. No. 65121

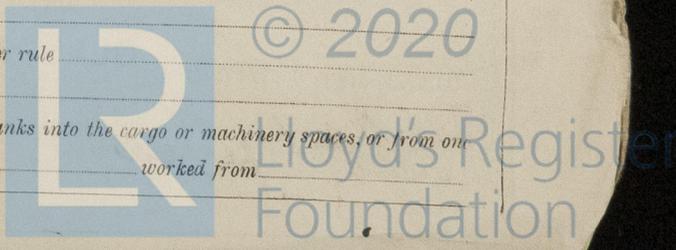
Date of writing Report 19th Feb 1942 When handed in at Local Office 21: 2: 1st 2nd Port of Glasgow Received at London Office 26 FEB 1942
 No. in Survey held at Reg. Book. Date, First Survey 18th Sep 1941 Last Survey 30th Jan 1942
 on the T.W. S. EMPIRE MIGHT (Number of Visits 18)
 Built at Greenock By whom built Greenock Dockyard Co. Yard No. 450 When built
 Engines made at Glasgow By whom made Barclay Curle & Co Ltd Engine No. GW. 77 When made 1942
 Boilers made at _____ By whom made _____ Boiler No. _____ When made _____
 Shaft Horse Power at Full Power 2500 *total for 2 turbines* Owners _____ Port belonging to _____
 Nom. Horse Power as per Rule 416 Is Refrigerating Machinery fitted for cargo purposes _____ Is Electric Light fitted _____
 Trade for which Vessel is intended _____

TEAM TURBINE ENGINES, &c.—Description of Engines Two LP turbines with DR gearing & hydraulic coupling

No. of Turbines Ahead 2 Direct coupled, single reduction geared, double reduction geared } to 2 propelling shafts. No. of primary pinions to each set of reduction gearing one
 Astern
 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 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							2.64"	36.77"	6			
2ND							3.47"	38.48"	"			
3RD							4.29"	40.08"	"			
4TH							5.12"	41.73"	"			
5TH							5.94"	43.39"	"			
6TH							7.12"	45.75"	"			
7TH							8.27"	48.03"	"			
8TH												
9TH												
10TH												
11TH												
12TH												

Shaft Horse Power at each turbine { H.P.
 I.P.
 L.P. 2500 } Revolutions per minute, at full power, of each Turbine Shaft { H.P.
 I.P.
 L.P. 3175 } 1st reduction wheel 515
 main shaft 92
 Motor Shaft diameter at journals { H.P.
 I.P.
 L.P. 170 7/8 } Pitch Circle Diameter { 1st pinion 10.4979" 1st reduction wheel 64.7015" Width of Face { 1st reduction wheel 280 7/8
 2nd pinion 17.1395" main wheel 93.1959" } main wheel 640 7/8
 Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 610 Aef 1st reduction wheel 2165 7/8 Aef
 2nd pinion 940 Aef main wheel 1160 7/8 Aef
 TRANSMISSION & PINION Shafts, diameter at bearings { 1st 115 7/8 } Pinion Shafts, diameter at bearings { External 1st 160 7/8 2nd 380 7/8 diameter at bottom of pinion teeth { 1st 9.9213"
 Flexible Pinion Shafts, diameter { 2nd } Internal 1st 2nd 315 7/8 } 2nd 16.5629"
 Wheel Shafts, diameter at bearings { 1st 280 7/8 Aef diameter at wheel shroud, { 1st 1550 7/8 Generator Shaft, diameter at bearings
 main 880 7/8 } main 2268 7/8 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 _____ Is the { tube } shaft fitted with a continuous liner { _____ } Bronze Liners, thickness in way of bushes as per rule _____
 as fitted _____ screw } 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 _____
 as fitted _____
 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 _____
 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. 29/2/42
 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 _____
 Holds, &c. _____
 Main Water Circulating Pump Direct Bilge Suctions, No. and size _____ Independent Power Pump Direct Suctions to the Engine Room _____
 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 fitted 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 an Auxiliary } 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:— *as per attached list*



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

The foregoing is a correct description,

Dates of Survey while building: During progress of work in shops -- 1941 Sep. 18, Oct. 10-17, Nov. 7, 20, 21, 29, Dec. 3, 16, 24, 31 (1942), Jan. 8, 13, 20, 22
During erection on board vessel --- 30
Total No. of visits 18

Dates of Examination of principal parts—Casings 7-11-41 & 20-11-41 Rotors 3-12-41 Blading 21-11-41 Gearing 20-1-42
Wheel shaft 20-1-42 Thrust shaft 20-1-42 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.M. Ingot Steel 35.8 tons* Identification Mark *10726, H.A.I. 233-4, 20-1-42*

1st Red. & Transmission
Flexible Pinion Shaft, Material and tensile strength *Nickel Steel 46.8 & 45.5 tons/10"* Identification Mark *10726, H.A.I. 2743-4, 20-1-42*
2nd Red.
Pinion shaft, Material and tensile strength *Nickel Steel 44.2 & 45.0 tons/10"* Identification Mark *10892, F84-5, H.A.I. 20-1-42*

1st Reduction Wheel Shaft, Material and tensile strength *S.M. Ingot Steel 28.8 tons/10"* Identification Mark *10726, D.B. 152-9, 20-1-42*
Wheel shaft, Material *S.M. Ingot Steel* Identification Mark *10726, H.A.I. 460-1, 20-1-42 T.P.* Thrust shaft, Material *S.M. Ingot Steel* Identification Mark *10726, D.B. 24, 20-1-42*

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 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 Greenock Dockyard Co's yard no 45
in conjunction with Messrs J.B. Kincaid & Co. Ltd Eng no 734.*

*Please see machinery report GRK N° 906
21/2/42
C.A.H.*

The amount of Entry Fee	£	✓	When applied for,
Special	£ 41 : 12	✓	24 FEB 1942
Donkey Boiler Fee	£	✓	When received,
Travelling Expenses (if any)	£		19

Performed
A.P. Gibberon
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **GLASGOW 24 FEB 1942**
Assigned *Sperred*
GLASGOW 11 AUG 1942
Lloyd's Register Foundation