

REPORT ON STEAM TURBINE MACHINERY. No. 60156

Received at London Office SEP - 7 1938

Date of writing Report 31st Aug 1938 When handed in at Local Office S. 9. 10 38 Port of Glasgow
No. in Survey held at Glasgow Date, First Survey 2nd Aug 1937 Last Survey 23rd August 1938
Reg. Book. on the T. S. S. CLAN FORBES (Number of Visits 37)

Built at Greenock By whom built Greenock Dockyard Co. Ltd Yard No. 434 When built
Engines made at Glasgow By whom made Barclay Currie & Co. Ltd Engine No. BW.56 When made 1938
Boilers made at Glasgow By whom made John & Nucleo Ltd Boiler No. 693 When made 1938
Shaft Horse Power at Full Power 2480 Owners The Glasgow Steam Ship Co. Ltd Port belonging to Glasgow
Nom. Horse Power as per Rule 413 Is Refrigerating Machinery fitted for cargo purposes 90 Is Electric Light fitted Yes
Trade for which Vessel is intended Gullion

STEAM TURBINE ENGINES, &c.—Description of Engines Two L.P. Turbines with D.R. Gearing & Hydraulic Coupling

No. of Turbines Ahead 2 ~~Direct coupled, single reduction geared~~ to 2 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							3 7/64	35 23/32	one			
2ND							3 55/64	37 3/32	one			
3RD							4 39/64	38 23/32	one			
4TH							5 23/64	40 3/32	one			
5TH							6 7/64	41 23/32	one			
6TH							6 3/32	43 7/16	one			
7TH							7 7/8	45 1/4	one			
8TH												
9TH												
10TH												
11TH												
12TH												
13TH												

Shaft Horse Power at each turbine { H.P. I.P. L.P. 1240 } Revolutions per minute, at full power, of each Turbine Shaft { H.P. I.P. L.P. 3320 }
Rotor Shaft diameter at journals { H.P. I.P. L.P. 6.69 } Pitch Circle Diameter { 1st pinion 8.784 1st reduction wheel 63.8446 2nd pinion 19.1397 main wheel 91.1279 } Width of Face { 1st reduction wheel 11.0238 main wheel 25.197 }

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 11.22 & 12.796 1st reduction wheel 15.748 & 69.489 2nd pinion 18.504 & 18.504 main wheel 22.835 & 22.835 }

Flexible Pinion Shafts, diameter { 1st — 2nd — } Pinion Shafts, diameter at bearings { External 1st 6.29 2nd 14.96 Internal — } diameter at bottom of pinion teeth { 1st 8.207 2nd 18.367 }

Wheel Shafts, diameter at bearings { 1st 11.02 main 34.64 } diameter at wheel shroud, { 1st 60.78 main 86.81 } 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 per rule — as fitted 15 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 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 —

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. —

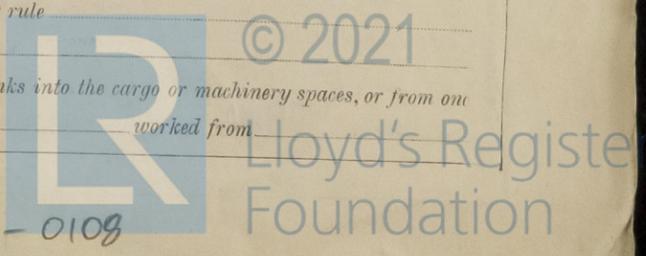
Main Water Circulating Pump Direct Bilge Suctions, No. and size — Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size — Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes

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 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 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 Boiler fitted? (an Auxiliary) Main Boilers Auxiliary Boilers Donkey Boilers

Plans. Are approved plans forwarded herewith for Shafting (If not state date of approval) General Pumping Arrangements Oil Fuel Burning Arrangements

Superheaters Spare Gear. State the articles supplied:— See attached list.



FOR BAROLAY, CURLE & CO., LTD

Alexander Macneil, Manufacturer.

The foregoing is a correct description,

Dates of Survey while building: 1937 Aug: 2 Oct: 21 Nov: 19 Dec: 8, 14, 20, 22, 28 (1938) Jan: 13, 14, 25, 28 Feb: 9, 22 28 Mar: 22 Apr: 5, 7, 15 May: 2, 5, 11, 30 June: 6, 13, 20, 27 July: 4, 5, 13, 28 Aug: 1, 5, 9

Dates of Examination of principal parts: Casings, Rotor shaft, Blading, Gearing, Wheel shaft, Thrust shaft, 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, Rotor shaft, Material and tensile strength S.M. Ingot Steel 35.2 tm & 34.4 tm, Identification Mark N° 955-956 GA, Flexible Pinion Shaft, Material and tensile strength Nickel Steel 41.5 tm & 42.4 tm, Identification Mark N° 1053-1054 GA, Pinion shaft, Material and tensile strength Nickel Steel 42.3 tm & 41.5 tm, Identification Mark N° 1002-1004 GA, 1st Reduction Wheel Shaft, Material and tensile strength S.M. Ingot Steel 29.3 tm & 29 tm, Identification Mark N° 995-996 GA, Wheel shaft, Material S.M. Ingot Steel Identification Mark N° 517-518 GA, Thrust shaft, Material S.M. Ingot Steel Identification Mark N° 2439-2440 GA, Intermediate shafts, Material Identification Marks Tube shaft, Material Identification Marks, Transmission shaft, Material S.M. Ingot Steel Identification Marks 920-921 GA, Steam Pipes, Material Test pressure

Date of test, 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 Yes. If so, state name of vessel Barclay Curle BW53 R/N° 5916

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 & workmanship are good. It has been shipped to Greenock for installation on the vessel.

These Turbines have been securely fitted on board & a found satisfactory see London. Macneil Greenock

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

The amount of Entry Fee ... £ : : Special ... £ 41 : 6 : Donkey Boiler Fee ... £ : : Travelling Expenses (if any) £ : :

When applied for, 6-SEP 1938, When received, 29-10-38

Signature of Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 6-SEP 1938

Assigned TRANSMIT TO LONDON

