

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. 10th St 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 Glasgow 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 & N. McCulloch Ltd Boiler No. 693 When made 1938
 Shaft Horse Power at Full Power 2480 Owners Robertson & 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 Foreign

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
 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 7/8	35 3/32	one			
2ND							3 5/8	37 3/32	one			
3RD							4 3/8	38 3/32	one			
4TH							5 23/64	40 3/32	one			
5TH							6 7/8	41 3/32	one			
6TH							6 3/8	43 7/16	one			
7TH							7 7/8	45 1/4	one			
8TH												
9TH												
10TH												
11TH												
12TH												

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 }
 1st reduction wheel 457
 main shaft 92

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 2nd pinion 18.504 1st reduction wheel 15.748 2nd reduction wheel 22.835 }

Flexible Pinion Shafts, diameter { 1st 11.02 2nd 11.02 } Pinion Shafts, diameter at bearings { External 1st 6.29 2nd 14.96 Internal 1st 6.29 2nd 14.96 } diameter at bottom of pinion teeth { 1st 8.207 2nd 18.367 }

Wheel Shafts, diameter at bearings { 1st 11.02 2nd 11.02 } diameter at wheel shroud, { 1st 60.78 2nd 86.81 } Generator Shaft, diameter at bearings ☒
 Propelling Motor Shaft, diameter at bearings ☒

Intermediate Shafts, diameter as per rule 15 as fitted 15 Thrust Shaft, diameter at collars as per rule 15 as fitted 15 Tube Shaft, diameter as per rule 15 as fitted 15

Screw Shaft, diameter as per rule 15 as fitted 15 Is the { tube screw } shaft fitted with a continuous liner { ☒ } Bronze Liners, thickness in way of bushes as per rule 15 as fitted 15

Thickness between bushes as fitted 15 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 15

Propeller, diameter 15 Pitch 15 No. of Blades 15 State whether Moveable ☒ Total Developed Surface 15 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 15 No. of Turbines fitted with astern wheels 15 Feed Pumps { No. and size 15 How driven 15 }

Pumps connected to the Main Bilge Line { No. and size 15 How driven 15 }

Ballast Pumps, No. and size 15 Lubricating Oil Pumps, including Spare Pump, No. and size 15

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 15

In Holds, &c. 15

Main Water Circulating Pump Direct Bilge Suctions, No. and size 15 Independent Power Pump Direct Suctions to the Engine Room

Bilges, No. and size 15 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 15 How are they protected 15

What pipes pass through the deep tanks 15 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 ☒

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 BARCLAY, CURLE & CO., LTD

Alexander Macneil
Chief Draughtsman

Manufacturer.

The foregoing is a correct description,

Dates of Survey while building { During progress of work in shops -- } 1937 Aug: 2 Oct: 21 Nov: 19 Dec: 8. 14. 20. 22. 28 (1938) Jan: 13. 14. 25. 28 Feb: 9. 22
 { During erection on board vessel --- } 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
 Total No. of visits 37 15. 17. 23

Dates of Examination of principal parts—Casings 27.6.38 4.4.38 Rotors 15.4.38 Blading 1.8.38 Gearing 1.8.38
 Wheel shaft 22.3.38 Thrust shaft 1.8.38 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 35.2 tm. & 34.4 tm. each

Identification Mark N° 955-956 GA.

1st Red.

Pinion shaft, Material and tensile strength Nickel Steel 41.5 tm. & 42.4 tm.

Identification Mark N° 1053-1054 GA.

2nd Red.

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. & 29.4 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 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

Yes. If so, state name of vessel Barclay Curle BW53 Rm 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 Kalea & found satisfactory.

See London. Macneil
Greenock

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. km's.

Committee's Minute

GLASGOW 6-SEP 1938

Assigned

TRANSMIT TO LONDON

Engineer Surveyor to Lloyd's Register of Shipping.

See Greenock Report
No. 20662

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Lloyd's Register
Foundation