

# REPORT ON STEAM TURBINE MACHINERY. No. 59166

Date of writing Report 11<sup>th</sup> Dec 1937 When handed in at Local Office 13-12-37 Port of Glasgow Received at London Office DEC 15 1937

No. in Survey held at Glasgow Date, First Survey 6<sup>th</sup> May Last Survey 8<sup>th</sup> Dec 1937

Reg. Book. T 55 on the SS Colan Bullerai (Number of Visits 23)

Built at Greenock By whom built Greenock Dockyard Co Yard No. 431 When built 1928

Engines made at Glasgow By whom made Barclay Currie & Co Ltd Engine No. BW 53 When made 1937

Boilers made at \_\_\_\_\_ By whom made \_\_\_\_\_ Boiler No. \_\_\_\_\_ When made \_\_\_\_\_

Shaft Horse Power at Full Power 2480 Owners Colan Line Steamers Ltd Port belonging to Glasgow

Nom. Horse Power as per Rule 413 Is Refrigerating Machinery fitted for cargo purposes \_\_\_\_\_ Is Electric Light fitted \_\_\_\_\_

Trade for which Vessel is intended \_\_\_\_\_

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

No. of Turbines 2 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 1/4	35 23/32	one			
2ND							3 5/8	34 1/2	one			
3RD							4 3/4	38 23/32	one			
4TH							5 23/64	40 1/2	one			
5TH							6 1/4	41 23/32	one			
6TH							6 3/8	43 1/2	one			
7TH							7 1/8	45 1/2	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 91.1249 } Width of Face { 1st reduction wheel 11.0238 main wheel 25.194

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 11.22 and 12.496 1st reduction wheel 15.748 and 69.489 2nd pinion 18.504 and 18.504 main wheel 22.835 and 22.835

Flexible Pinion Shafts, diameter { 1st  2nd  } Pinion Shafts, diameter at bearings External { 1st 6.29 2nd 14.96 } Internal { 1st  2nd  } diameter at bottom of pinion teeth { 1st 8.207 2nd 18.364

Wheel Shafts, diameter at bearings { 1st 11.02 } diameter at wheel shroud, { 1st 60.48 } Generator Shaft, diameter at bearings  { main 86.81 } Propelling Motor Shaft, diameter at bearings

Intermediate Shafts, diameter as per rule \_\_\_\_\_ as fitted \_\_\_\_\_ Thrust Shaft, diameter at collars as per rule \_\_\_\_\_ as fitted 15.0 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 { \_\_\_\_\_ } 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 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. \_\_\_\_\_

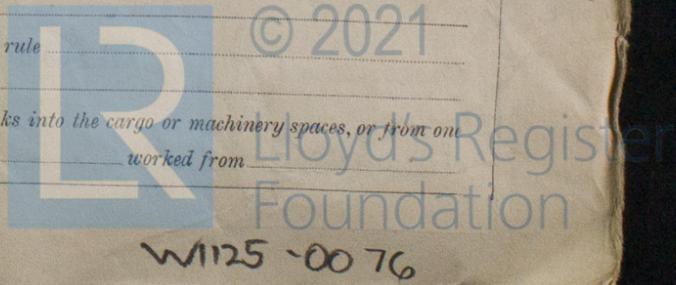
Main Water Circulating Pump Direct Bilge Suctions, No. and size \_\_\_\_\_ Independent Power Pump Direct Suctions to the Engine Room \_\_\_\_\_ Bilges, No. and size \_\_\_\_\_ Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes \_\_\_\_\_

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

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?

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:— See attached list.



FOR BIRDALE, GURLE & CO., LTD. Alexander Macnutt, Manufacturer.

The foregoing is a correct description,

Dates of Survey while building: During progress of work in shops -- 1937 May 6-19-26 June 2-8-23 July 2-16-30 Aug 2 Sep 1-6-13 20 Oct 8-21-28 During erection on board vessel --- Nov 9-10-19-22-26 Dec 1-2-8 Total No. of visits 25

Dates of Examination of principal parts—Casings 21-26-10-37 Rotors 8-10-37 Blading 9-11-37 Gearing 19-11-37

Wheel shaft 10-11-37 Thrust shaft 6-9-37 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 shafts, Material and tensile strength Green Mark Eng't Steel 340 x 362 ton Identification Mark 3380/1 W.A.S. G.S.

1st Red Flexible Pinion Shaft, Material and tensile strength S.M. Eng't Steel 460 x 450 ton Identification Mark 3376/4 W.A.S. G.S.

2nd Red Pinion shaft, Material and tensile strength S.M. Eng't Steel 425 x 428 ton Identification Mark 3378/9 W.A.S. G.S.

1st Reduction Wheel Shaft, Material and tensile strength S.M. Eng't Steel 29.0 ton Identification Mark 3374/5 W.A.S. G.S.

Wheel shaft, Material S.M. Eng't Steel Identification Mark 7658-9 W.A.S. G.S. Thrust shaft, Material S.M. Eng't Steel Identification Mark 3370/1 W.A.S. G.S.

Transmission Intermediate shafts, Material S.M. Eng't Steel Identification Marks 5635/1-2 W.A.S. G.S. 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 Yes If so, state name of vessel Greenock Dockyard No 430 G.S. No 58913

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 has been shipped to Greenock for fitting on board the vessel.

13/12/37

Table with columns: The amount of Entry Fee, Special, Donkey Boiler Fee, Travelling Expenses (if any), When applied for, When received.

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

Committee's Minute GLASGOW 14 DEC 1937 Assigned Deferred

GLASGOW 1 - MAR 1938 See Brk. Rpt. No. 20574