

Rpt. 4a.

REPORT ON STEAM TURBINE MACHINERY. No. 71513

MAR 1947

Received at London Office 5 MAR 1947

Date of writing Report 26-2-47 When handed in at Local Office 10 Port of GLASGOW
No. in Survey held at GLASGOW Date, First Survey 21.10.46 Last Survey 13.2.1947
Reg. Book. on the S/S 'CRAFTSMAN'
Built at PORT GLASGOW By whom built LITHGOWS LTD. Yard No. 1020 When built 1947
Engines made at GLASGOW By whom made BARCLAY CURRIE & CO. LTD. Engine No. BW 88 When made 1947
Boilers made at Glasgow By whom made David Rowan & Co. Ltd Boiler No. 1198 When made 1947
Shaft Horse Power at Full Power 1460 Owners T & J. Harrison Port belonging to Liverpool
Nom. Horse Power as per Rule 3/ Is Refrigerating Machinery fitted for cargo purposes NO. Is Electric Light fitted 4/2
Trade for which Vessel is intended Open Sea Service

STEAM TURBINE ENGINES, &c.—Description of Engines One L.P. Turbine with Double Reduction Gear & Hydraulic Coupling
No. of Turbines Ahead One Direct coupled, single reduction geared to one propelling shafts. No. of primary pinions to each set of reduction gearing One
Astern Direct coupled, 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.

Table with columns: TURBINE BLADING, H.P., I.P., L.P., ASTERN. Rows: 1ST EXPANSION, 2ND, 3RD, 4TH, 5TH, 6TH, 7TH, 8TH, 9TH, 10TH, 11TH, 12TH. Includes blade height, diameter, and number of rows.

Shaft Horse Power at each turbine { H.P. 1460 L.P. 2640 }
Revolutions per minute, at full power, of each Turbine Shaft { H.P. 428 I.P. 82 L.P. 2640 }
Rotor Shaft diameter at journals { H.P. 170 1/4 I.P. 18.2829 L.P. 91.6992 }
Pitch Circle Diameter { 1st pinion 11.1407 2nd pinion 18.2829 }
1st reduction wheel 68.7722 main wheel 91.6992
Width of Face { 1st reduction wheel 310 1/4 main wheel 680 1/4 }

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 330 1/4 + 305 1/4 2nd pinion 487 1/4 main wheel 590 1/4 }
TRANSMISSIONS
Flexible Pinion Shafts, diameter { 1st 130 1/4 2nd }
Pinion Shafts, diameter at bearings { External 170 1/4 Internal 50 1/4 }
Generator Shaft, diameter at bearings { 1st 1650 1/4 main 2218 1/4 }
Propelling Motor Shaft, diameter at bearings { 1st 10.5641 2nd 17.5703 }

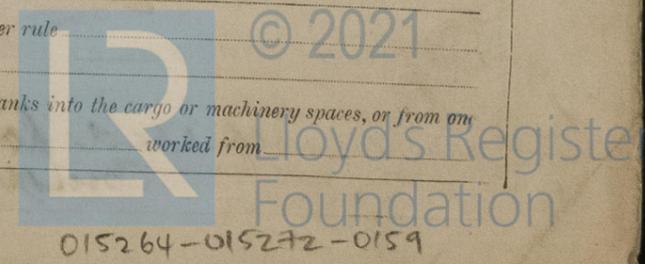
Wheel Shafts, diameter at bearings { 1st 300 1/4 main 550 1/4 }
Intermediate Shafts, diameter as per rule as fitted
Thrust Shaft, diameter at collars as per rule as fitted 425 1/4
Tube Shaft, diameter as per rule as fitted
Screw Shaft, diameter as per rule as fitted
Is the tube screw shaft fitted with 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 2 off 10 1/2 x 11 1/2 x 18" STEAM PUMP STROKE
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



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**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?

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 \_\_\_\_\_  
(If not state date of approval)

Superheaters  General Pumping Arrangements \_\_\_\_\_ Oil Fuel Burning Arrangements \_\_\_\_\_

Spare Gear. State the articles supplied:— \_\_\_\_\_



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The foregoing is a correct description, *A. Macneil* Manufacturer.

Dates of Survey while building: During progress of work in shops -- *1946 Oct. 29. Dec. 19. 30 1947 Jan. 12. 20 Feb. 6. 13*  
During erection on board vessel --- *8*  
Total No. of visits \_\_\_\_\_

Dates of Examination of principal parts—Casings *30-12-46* Rotors *6-2-47* Blading *6-2-47* Gearing *6-2-47*  
Wheel shaft *6-2-47* Thrust shaft *6-2-47* 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 *O.H. Steel 37 tons/sq. inch* Identification Mark *LLOYDS N°154 J.M.L. 6-2-47*  
*1<sup>st</sup> RED.* Flexible Pinion Shaft, Material and tensile strength *Nickel Steel 45 tons/sq. inch* Identification Mark *LLOYDS N° F211 J.M.L. 6-2-47*  
*2<sup>nd</sup> RED.* Pinion shaft, Material and tensile strength *Nickel Steel 46 tons/sq. inch* Identification Mark *LLOYDS N° F212 J.M.L. 6-2-47*  
1st Reduction Wheel Shaft, Material and tensile strength *O.H. Steel 28.2 tons/sq. inch* Identification Mark *LLOYDS N°158 J.M.L. 6-2-47*  
Wheel shaft, Material *O.H.S.* Identification Mark *LLOYDS N°161 J.M.L. 6-2-47* Thrust shaft, Material *O.H.S.* Identification Mark *LLOYDS N°159 J.M.L. 6-2-47*  
TRANSMISSION Intermediate shaft, Material *O.H.S.* 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 material and workmanship are good. This turbine is now ready for dispatch to Messrs David Rowan & Co. Ltd., for installation in Messrs Guthrie & Co. Ltd., Yard N° 1020.*)

*This exhaust turbine has been satisfactorily installed on board the vessel, examined under full working conditions & found satisfactory.*

The amount of Entry Fee ... £ *30 + 7/6* When applied for, *4 MAR 1947*  
Special ... £ *39*  
Donkey Boiler Fee ... £ : : When received, *28/6 1947*  
Travelling Expenses (if any) £ : :

*W. Russell & J. Lam*  
Engineer Surveyors to Lloyd's Register of Shipping.

Committee's Minute \_\_\_\_\_  
Assigned *Referred for completion*

