

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 CURLE & 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 31 Is Refrigerating Machinery fitted for cargo purposes NO Is Electric Light fitted YES  
Trade for which Vessel is intended Open Sea Service

## STEAM TURBINE ENGINES, &amp;c.—Description of Engines. One L.P. Turbine with Double Reduction Gear &amp; Hydraulic Coupling

No. of Turbines Ahead 1 Direct coupled, single reduction geared to 1 propelling shaft. No. of primary pinions to each set of reduction gearing 1  
Astern 0 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												
2ND							94 7/8	1138 7/8	1			
3RD							115	1180	1			
4TH							136	1222	1			
5TH							157	1264	1			
6TH							179	1308	1			
7TH							204	1364	1			
8TH							235	1420	1			
9TH												
10TH												
11TH												
12TH												

Shaft Horse Power at each turbine { H.P. 1460  
I.P. 2640  
L.P. 1460  
Revolutions per minute, at full power, of each Turbine Shaft { H.P. 428  
I.P. 82  
L.P. 2640  
1st reduction wheel 428  
main shaft 82  
Rotor Shaft diameter at journals { H.P. 170 7/8  
I.P. 18.2827  
L.P. 170 7/8  
Pitch Circle Diameter { 1st pinion 11.1407  
2nd pinion 18.2827  
1st reduction wheel 68.7722  
main wheel 91.6992  
Width of Face { 1st reduction wheel 310 7/8  
main wheel 680 7/8  
Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 330 7/8 + 305 7/8  
2nd pinion 487 7/8  
1st reduction wheel 1530 7/8  
main wheel 590 7/8  
TRANSMISSION  
Flexible Pinion { 1st 130 7/8  
Shafts, diameter { 2nd 130 7/8  
Pinion Shafts, diameter at bearings { External 170 7/8  
Internal 50 7/8  
1st 430 7/8  
2nd 355 7/8  
diameter at bottom of pinion teeth { 1st 10.5641  
2nd 17.5703  
Wheel Shafts, diameter at bearings { 1st 300 7/8  
main 550 7/8  
diameter at wheel shroud, { 1st 1650 7/8  
main 2218 7/8  
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 425 7/8  
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 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 2 off 10 1/2" x 11 1/2" x 18"  
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 bunks 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



4. 71513.

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  
(If not state date of approval)

Superheaters ☒ General Pumping Arrangements Oil Fuel Burning Arrangements

Spare Gear. State the articles supplied:—



The foregoing is a correct description,

A. Macnault

Manufacturer.

Dates of Survey while building { During progress of work in shops -- } 1946 Oct 24, 29, Dec 19, 30 1947 Jan 13, 20 Feb 6, 13  
{ During erection on board vessel --- }  
Total No. of visits 8

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 34 tons/sq. inch

Identification Mark 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 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 J.M.L. 6-2-47

1<sup>st</sup> Reduction Wheel Shaft, Material and tensile strength O.H. Steel 28.2 tons/sq. inch

Identification Mark J.M.L. 6-2-47

Wheel shaft, Material O.H.S. Identification Mark J.M.L. 6-2-47 Thrust shaft, Material O.H.S.

Identification Mark J.M.L. 6-2-47

TRANSMISSION Intermediate shaft, Material O.H.S. Identification Marks J.M.L. 6-2-47 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  
Special ... £ 39  
Donkey Boiler Fee ... £  
Travelling Expenses (if any) £

When applied for,

4 MAR 1947

When received,

28/6/1947

W. Russell & J. Macnault, A.R. Surveyors  
Engineer Surveyors to Lloyd's Register of Shipping.

Committee's Minute

Assigned

Referred for completion

GLASGOW

4 MAR 1947



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