

## REPORT ON STEAM TURBINE MACHINERY. No. 69970

Received at London Office 20 SEP 1945

Rpt. 4a.

Date of Writing Report 9-10-45 When handed in at Local Office 17-9-45 Port of GLASGOW.  
No. in Survey held at GLASGOW. Date, First Survey 19-9-44 Last Survey 5-9-1945  
Reg. Book. on the "CITY OF CARLISLE" (Number of Visits 38)  
Built at BIRKENHEAD By whom built CAMMELL LAIRD & CO. LTD. Yard No. 1156 When built  
Engines made at GLASGOW. By whom made BARCLAY CURLE & CO. LTD. Engine No. E.W.160 When made 1945.  
Boilers made at By whom made Boiler No. When made  
Shaft Horse Power at Full Power 8,000 Owners Port belonging to  
Nom. Horse Power as per Rule Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted  
Trade for which Vessel is intended

## STEAM TURBINE ENGINES, &amp;c.—Description of Engines PARSONS REACTION (astern impulse)

No. of Turbines Ahead Three ✓ Direct coupled, single reduction geared } to One ✓ propelling shaft. No. of primary pinions to each set of reduction gearing Three ✓  
Astern Two ✓ 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	.75"	16.5"	8	1.05"	21.10"	3	Coned Casing			H.P. Astern (in I.P. Casing) 3		
2ND	.88"	16.76"	8	1.35"	21.70"	3	1st Row - 2" High 11			.94"	28.44"	1 st.
3RD	1.10"	17.2"	8	1.80"	22.60"	3	Last Row 10"			1.90"	29.65"	2 nd.
4TH	1.40"	17.8"	8	2.60"	24.20"	3				5.0"	33.0"	3 rd.
5TH				3.20"	25.40"	2	1st Row - 44" Tip Dia.			L.P. Astern (in L.P. Casing) 3		
6TH							Last " - 60" " "			2.75"	55.25"	1 st.
7TH										4.70"	57.45"	2 nd.
8TH										6.00"	59.00"	3 rd.
9TH												
10TH												
11TH												
12TH												

Shaft Horse Power at each turbine { H.P. 2666 ✓ I.P. 2666 ✓ L.P. 2666 ✓ }  
Revolutions per minute, at full power, of each Turbine Shaft { H.P. 4500 ✓ I.P. 4500 ✓ L.P. 2400 ✓ }  
HP & IP 7.927" 1st reduction wheel 710 ✓ main shaft 100 ✓

Rotor Shaft diameter at journals { H.P. 5" ✓ I.P. 5" ✓ L.P. 8" ✓ }  
Pitch Circle Diameter { 1st pinion L.P. 14.728" 1st reduction wheel 49.9186" 2nd pinion 19.0184" main wheel 134.928" }  
Width of Face { 1st reduction wheel 21" main wheel 33.1/2" }

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 10" 1st reduction wheel 2'-6.1/2" 2nd pinion 1'-4.3/8" main wheel 1'-7.1/8" }  
HP & IP 5 1/2" 1st LP 14.7812" 2nd LP 14.637" 1st LP 14.637" 2nd LP 18.1702"

Flexible Pinion Shafts, diameter { 1st - 2nd - }  
Pinion Shafts, diameter at bearings { External 1st 1.1/2" 2nd 2.1/2" diameter at bottom of pinion teeth }  
Internal 1st 49.92" 2nd 135.57" Generator Shaft, diameter at bearings 18.702" 1st LP 14.637" 2nd LP 18.1702"

Wheel Shafts, diameter at bearings { 1st 11" ✓ main 19" ✓ }  
Rim 1st 49.92" 2nd 135.57" Propelling Motor Shaft, diameter at bearings  
Intermediate Shafts, diameter as per rule as fitted Thrust Shaft, diameter at collars as per rule as fitted 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  
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

© 2021

Lloyd's Register  
Foundation

01800-01804-0273



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? No

Is { a Donkey } Boiler fitted?  
{ an Auxiliary }

If so, is a report now forwarded?

Plans. Are approved plans forwarded herewith for Shafting  
(If not state date of approval)

No

Main Boilers

Auxiliary Boilers

Donkey Boilers

Superheaters

General Pumping Arrangements

Oil Fuel Burning Arrangements

Spare Gear. State the articles supplied:— List attached.

The foregoing is a correct description,

A. Macneill.

Manufacturer.

Dates of Survey while building { During progress of work in shops -- 1944 Sep 19, 27, Nov 11, 24, Dec 21, 27, 1945 Jan 4, 9, 17, 23, 26, 30, Feb 2, 9, 15, Mar 6, 8, 14, 27, 29, Apr 6, 19, May 15, 26, 29, Jun 5, 15, 19, 22, 27, 28  
During erection on board vessel --- July 3, 4, Aug 1, 9, 10, 31, Sep 3  
Total No. of visits 38

Dates of Examination of principal parts—Casings HP 8-3-45, IP 14-3-45, MP 27-8-45, Rotor HP 5-6-45, MP 3-7-45, Blading 5-6-45, 3-7-45, Gearing 29-5-45.

Wheel shaft 29-5-45, 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, Thickness of adjusting washers

Rotor shaft, Material and tensile strength O.H. Steel 34/38 tons.

LLOYD'S TEST NOS. 610, 525, F.1  
Identification Mark N.K. 5-6-45 J.S. 3-7-

Flexible Pinion Shaft, Material and tensile strength

Identification Mark  
LLOYD'S TEST NOS. 995, 996, 997  
Identification Mark N.K. 29-5-45  
LLOYD'S TEST NOS. 981, 985, 105  
Identification Mark N.K. 29-5-45

Sec. Pinion shaft, Material and tensile strength Nickel Steel 40 /48 tons.

1st Reduction Wheel Shaft, Material and tensile strength Nickel Steel 40/48 tons.  
LLOYDS 13359, F.1917

Wheel shaft, Material Steel, Identification Mark N.K. 29-5-45, Thrust shaft, Material, Identification Mark

Intermediate shafts, Material, 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 YES ✓ If so, state name of vessel s.s. "PAPAROA" Gls. Rpt.No. 67973 ✓

General Remarks (State quality of workmanship, opinions as to class, &c. This machinery has been constructed under special survey in accordance with the rules and approved plans, tried under steam in engine works' test bed and found satisfactory.

The materials and workmanship are good.

The machinery is now ready for dispatch to Birkenhead for installation in Messrs. Cammell Laird's

Ship No. 1156

This machinery has been fitted on board, tried under working conditions & found satisfactory. See Gls. Liverpool Rpt No

The amount of Entry Fee ... £ : : When applied for,  
Special ... £ : : 19  
Donkey Boiler Fee ... £ : : When received,  
Travelling Expenses (if any) £ : : 19

M. Russell  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 18 SEP 1945

Assigned Superfund par Completion

LIVERPOOL 26 FEB 1946  
See Minutes on Liverpool Rpt. Machinery Report