

pt. 4a.

# REPORT ON STEAM TURBINE MACHINERY. No. 8661

Date of writing Report 22<sup>nd</sup> Dec 1944 When handed in at Local Office 10 Port of MELBOURNE Received at London Office 12 FEB 1945

No. in Survey held at Melbourne Date, First Survey 23<sup>rd</sup> June 1942 Last Survey 18<sup>th</sup> December 1944  
Reg. Book. 12 (Number of Visits 22)

on the S.S. "RIVER LODDON"

Built at Williamstown By whom built Commonwealth Naval Dockyard Yard No. 29 Tons Gross 4994  
Net 2746

Engines made at Melbourne By whom made Commonwealth Marine Engine Works Engine No. 1 When built 1944-12

Boilers made at Sydney N.S.W. & Melbourne By whom made Babcock & Wilcox Ltd. Boiler No. 1 When made 1944

Shaft Horse Power at Full Power 830 Owners Commonwealth of Australia Port belonging to Melbourne

Nom. Horse Power as per Rule 75 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

Trade for which Vessel is intended International and for Australian Coastal

TEAM TURBINE ENGINES, &c.—Description of Engines One L.P. Turbine with D.R. Gearing & 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 double reduction geared

direct coupled to Alternating Current Generator phase 3 periods per second 50 rated 3444 Kilowatts 14 Volts at 1500 revolutions per minute;

for supplying power for driving Propelling Motors, Type

rated 3444 Kilowatts 14 Volts at 1500 revolutions per minute. Direct coupled, single or double reduction geared to One propelling shafts.

T. URBINE. LADING.	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							2.9134	35.3544	1			
2ND							3.7068	36.9292	1			
3RD							4.4882	38.5040	1			
4TH							5.2756	40.0788	1			
5TH							6.0630	41.6536	1			
6TH							6.9685	43.4646	1			
7TH							7.8740	45.2756	1			
8TH												
9TH												
10TH												
11TH												
12TH												

Shaft Horse Power at each turbine H.P. 830 I.P. 830 L.P. 830 Revolutions per minute, at full power, of each Turbine Shaft H.P. 1500 I.P. 1500 L.P. 1500 1st reduction wheel 502.5 main shaft 89.6 90-15

Rotor Shaft diameter at journals H.P. 6.693 I.P. 6.693 L.P. 6.693 Pitch Circle Diameter 1st pinion 8.784 1st reduction wheel 60.2024 2nd pinion 4.2834 main wheel 79.1298 Width of Face 1st reduction wheel 10.25 main wheel 23.625

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion F. 10.2764 A. 8.5564 1st reduction wheel F. 61.58 A. 14.164 2nd pinion F. 2.9 A. 16.464 main wheel F. 2.9 A. 20.232

TRANSMISSION Flexible Pinion 1st 4 17/32 2nd 4 17/32 Pinion Shafts, diameter at bearings External 1st 4 59/64 Internal 1st 1 3/8 2nd 12 9/32 2nd 9 27/32 diameter at bottom of pinion teeth 1st 8.2074 2nd 13.511

Wheel Shafts, diameter at bearings 1st F. 9 1/4 A. 9 27/32 main F. 4 A. 19 1/8 diameter at wheel shroud, 1st 57 Generator Shaft, diameter at bearings main 75 13/64 Propelling Motor Shaft, diameter at bearings

Intermediate Shafts, diameter as per rule 13.4 13.25 ex turbine as fitted 13 1/2 for 250 lbs Thrust Shaft, diameter at collars as per rule 14.078 13.91 for 220 ex turbine as fitted 14 1/64

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 yes  
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 yes

If two liners are fitted, is the shaft lapped or protected between the liners yes Is an approved Oil Gland or other appliance fitted at the after end of the tube shaft If so, state type Length of Bearing in Stern Bush next to and supporting propeller

Propeller, diameter 13.4 Pitch 13.25 No. of Blades 13 State whether Moveable no Total Developed Surface 13.4 square feet.  
If Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine yes Can the H.P. or I.P. Turbine exhaust direct to the Condenser yes

No. of Turbines fitted with astern wheels 1 Feed Pumps No. and size How driven

Pumps connected to the Main Bilge Line No. and size How driven Lubricating Oil Pumps, including Spare Pump, No. and size

Are two independent means arranged for circulating water through the Oil Cooler yes Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size:—In Engine and Boiler Room In Pump Room

Ballast Pumps, No. and size 1 Independent Power Pump Direct Suctions to the Engine Room

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 yes  
Are all Sea Connections fitted direct on the skin of the ship yes Are they fitted with Valves or Cocks yes

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates yes Are the Overboard Discharges above or below the deep water line yes  
Are they each fitted with a Discharge Valve always accessible on the plating of the vessel yes Are the Blow Off Cocks fitted with a spigot and brass covering plate yes

That pipes pass through the bunkers yes How are they protected yes  
That pipes pass through the deep tanks yes Have they been tested as per rule yes

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times yes

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 yes Is the Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from yes

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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?

Is the donkey boiler intended to be used for domestic purposes only

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

Main Boilers

Auxiliary Boilers

Donkey Boilers

Superheaters

General Pumping Arrangements

Oil Fuel Burning Arrangements

Has the spare gear required by the Rules been supplied

SPARE GEAR.

State the principal additional spare gear supplied

The foregoing is a correct description,

Commonwealth Government Marine Engine Works

K. Brasfara

Manufacturer.

Dates of Survey while building { During progress of work in shops -- 23/6/42, 8/9/42, 5/10/42, 23/11/42, 18/1/43, 5/2/43, 27/5/43, 10/6/43, 20/8/43, 23/9/43, 30/3/44, 24/4/44.  
During erection on board vessel --- 17/5/44, 30/5/44, 20/7/44, 1/8/44, 10/8/44, 6/9/44, 9/11/44, 14/12/44, 18/12/44.  
Total No. of visits 22.

Dates of Examination of principal parts—Casings 20/8/43 Rotors 20/8/43 Blading 23/9/43 Gearing 24/4/44

Wheel shaft 20/8/43 Thrust shaft 24/4/44 Intermediate shafts Tube shaft Screw shaft

Propeller Stern tube Engine and Machinery Report Engine holding down bolts

Completion of fitting sea connections SEE ATTACHED RECIPROCATING MACHINERY REPORT Completion of pumping arrangements Boilers fired Engines tried under steam

Main boiler safety valves adjusted Thickness of adjusting washers

Rotor shaft, Material and tensile strength M.S. longitudinal 35.6, tangential 36.2, Radial 36.0 tons/sq. inch. Identification Mark M.315/2 P.A.M.T. 24-4

TRANSMISSION Flexible Pinion Shaft, Material and tensile strength MILD STEEL 30.8 tons/sq. inch. Identification Mark M.317/6 B.P.F. 24-4

Pinion shaft, Material and tensile strength 1<sup>st</sup> RED. 32% NICKEL STEEL longitudinal 47.6, transverse 47.2 tons/sq. inch. Identification Mark M.317/2 B.P.F. 24-4

1st Reduction Wheel Shaft, Material and tensile strength MILD STEEL 32.0 tons/sq. inch. Identification Mark M.317/3 B.P.F. 24-4

Wheel shaft, Material M.S. 35.2 tons/sq. inch. Identification Mark M.317/3 P.A.M.T. 24-4-44 Thrust shaft, Material M.S. 29.8 tons/sq. inch. Identification Mark M.317/7 B.P.F. 24-4

Intermediate shafts, Material Identification Marks Tube shaft, Material Identification Marks

Screw shaft, Material Identification Marks Steam Pipes, Material Test pressure

Date of test MACHINERY REPORT 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 the use of oil as fuel been complied with

Is the vessel (not being an oil tanker) fitted for carrying oil as cargo If so, have the requirements of the Rules been complied with

If the notation for ice strengthening is desired, state whether the requirements in this respect have been complied with

Is this machinery a duplicate of a previous case Yes. If so, state name of vessel RIVER CLARENCE, RIVER BURDEKIN, RIVER GLENELG, RIVER DERWENT.

General Remarks (State quality of workmanship, opinions as to class, &c.) This turbine and gearing have been built under Special Survey in conformity with the Society's Rules and Regulations and the Secretary's letters and in accordance with the approved plans. The materials and workmanship are good. This machinery has been properly installed in the vessel, tested under full power working conditions and in our opinion is eligible to be classed with records as recommended in Reciprocating Machinery Report.

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

B. P. Fielden, P. A. McIntyre  
Engineer Surveyors to Lloyd's Register of Shipping.

Committee's Minute

Assigned Su F.E. machy. rpt.

FRI. 16 FEB 1945



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