

# REPORT ON STEAM TURBINE MACHINERY. No. 19560 (a)

Date of writing Report 10<sup>th</sup> March 1944 When handed in at Local Office 19 Port of Sydney, N. S. W.  
 No. in Survey held at Sydney & Melbourne Date, First Survey 28/7/42 Last Survey 29<sup>th</sup> Feb 1944  
 Reg. Book. S.S. "RIVER GLENELG" (Number of Visits 25)  
 Built at Whyalla (S. Aust.) By whom built Broken Hill Pty Co Ltd Yard No. 3 When built 1944  
 Engines made at Port Kembla (N.S.W.) By whom made Australian Iron & Steel Ltd Engine No. 4 When made 1944  
 Boilers made at Newcastle N.S.W. By whom made Broken Hill Pty Co Ltd Boiler No. - When made 1944  
 Net Horse Power at Full Power 830 Owners Commonwealth of Australia Port belonging to Adelaide  
 Net Horse Power as per Rule 75 Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted Yes  
 for which Vessel is intended International

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

Turbines One Direct coupled, single reduction geared to One propelling shaft. No. of primary pinions to each set of reduction gearing One  
Astern double reduction geared  
 coupled to Alternating Current Generator phase - periods per second - rated - Kilowatts - Volts at - revolutions per minute;  
 supplying power for driving - Propelling Motors, Type -  
- Kilowatts - Volts at - revolutions per minute. Direct coupled, single or double reduction geared to - propelling shafts.

EXPANSION	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.
							2.9134"	35.3544"	1			
							3.7008	36.9292	1			
							4.4882	38.5040	1			
							5.2756	40.0788	1			
							6.0630	41.6536	1			
							6.9685	43.4646	1			
							7.8740	45.2756	1			

Horse Power at each turbine H.P. 830 I.P. 810 L.P. 830 Revolutions per minute, at full power, of each Turbine Shaft  
H.P. 810 I.P. 810 L.P. 810 1st reduction wheel 502.5  
L.P. 810 I.P. 810 L.P. 344.4 main shaft 89.6

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" Width of Face  
2nd pinion 14.2834" main wheel 79.1298" 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. 10.37/64, A. 8.55/64 1st reduction wheel F. 61.5/8, A. 14.1/64  
2nd pinion F. & A. 16.41/64 main wheel F. & A. 20.31/32

Pinion Shafts, diameter at bearings External 1st 4.57/64 Internal 1st 1.8" 2nd 12.19/32 9.37/32 diameter at bottom of pinion teeth  
1st 8.2074" 2nd 13.511"

Generator Shaft, diameter at bearings 1st 57" Propelling Motor Shaft, diameter at bearings  
main 75.13/64 as per rule 14.078" Thrust Shaft, diameter at collars  
as fitted 14.1/32 as per rule 14.078" as fitted 14.1/32

Screw Shaft, diameter as per rule Screw Shaft, diameter as per rule as fitted Is the tube screw shaft fitted with a continuous liner  
as fitted as fitted as fitted

Liners, thickness in way of bushes as per rule Thickness between bushes as per rule Is the after end of the liner made watertight in the  
as fitted as fitted as fitted after end of the liner

Engine room power co 85

attached Machinery Report

**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? \_\_\_\_\_ *Machinery Report*  
 If so, is a report now forwarded? \_\_\_\_\_

Is the donkey boiler intended to be used for domestic purposes *see attached* \_\_\_\_\_

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 \_\_\_\_\_

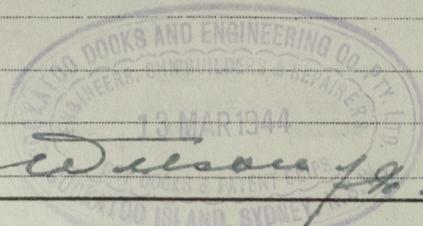
Has the spare gear required by the Rules been supplied *Yes* **SPARE GEAR.**

State the principal additional spare gear supplied *see list forwarded with s.s. "River Clarence" Rpt. No 19252.*

for Reduction Gearing:—

Commonwealth Government Marine Engine Works  
*R. Graydon*  
 Manager. MELBOURNE.

for Turbine:—



The foregoing is a correct description,

Dates of Survey while building  
 During progress of work in shops -- 28/7/42, 8/9/42, 5/10/42, 20/11/42, 23/11/42, 30/12/42, 18/1/43, 25/1/43, 16/2/43, 22/3/43, 5/4/43, 17/5/43, 9/6/43, 10/6/43, 17/8/43.  
 During erection on board vessel --- 15/11/43, 7/12/43, 21/12/43, 12/1/44, 21/1/44, 13/2/44, 24/2/44, 26/2/44, 29/2/44  
 Total No. of visits 25

Dates of Examination of principal parts—Casings 22/3/43 Rotors 9/6/43 Blading 9/6/43 Gearing 17/8/43

Wheel shaft 17/8/43 Thrust shaft 17/8/43 Intermediate shafts \_\_\_\_\_ Tube shaft \_\_\_\_\_ Screw shaft \_\_\_\_\_

Propeller \_\_\_\_\_ Stern tube \_\_\_\_\_ Engine and boiler seatings *see attached Machinery Report.* Engine holding down bolts \_\_\_\_\_

Completion of fitting sea connections \_\_\_\_\_ 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 *M.S. 36.6 tons per sq. in.* Identification Mark *Lloyds No 192 A.L.*

*TRANSMISSION*  
 Flexible Pinion Shaft, Material and tensile strength *M.S. 31.6 tons* Identification Mark *M 317/3 B.P.F.*

Pinion shaft, Material and tensile strength *3 1/2% Nickel Steel, Transverse 48.6, Longit! 48.6 tons* Identification Mark *M 317/2 B.P.F.*

1st Reduction Wheel Shaft, Material and tensile strength *M.S. 31.6 tons per sq. in.* Identification Mark *M 317/1 B.P.F.*

Wheel shaft, Material *M.S. 32 tons* Identification Mark *M 317/1 B.P.F. 17/8/43* Thrust shaft, Material *M.S. 29.3 tons* Identification Mark *M 316/2 B.P.F.*

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.* Is an installation fitted for burning oil fuel \_\_\_\_\_

Is the flash point of the oil to be used over 150°F. *See attached* 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"*

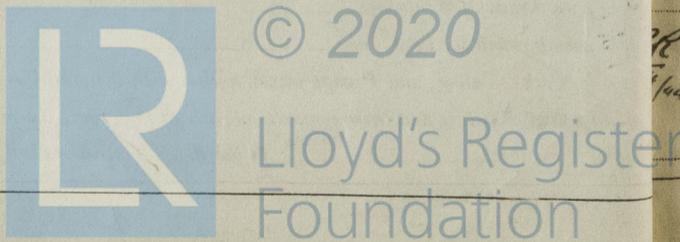
General Remarks (State quality of workmanship, opinions as to class, &c.)

*This Turbine & Gearing have been built under special survey in accordance with the Rules & approved plans. The materials & workmanship are good. They have been efficiently installed on board the vessel, tried under full power working conditions with satisfactory results and in our opinion now eligible for record recommended in attached Machinery Report.*

The amount of Entry Fee ... £	:	:	When applied for,
Special ... £	:	:	19
Donkey Boiler Fee ... £	:	:	When received,
Charged on attached <i>Machy Report.</i>			19
Travelling Expenses (if any) £			:

*W. J. Graydon & B. P. Ziesden*  
 Engineer Surveyors to Lloyd's Register of Shipping.

Committee's Minute \_\_\_\_\_ THURS 11 MAY 1944  
 Assigned *See p. machy rpt.*



Certificate (if required) to be sent to... (The Surveyors are requested not to write on or below the space for Committee's Minute.)