

# REPORT ON STEAM RECIPROCATING ENGINE MACHINERY.

Received at London Office

Sydney, N. S. W.

22 MAR 1945

Date of writing Report 10<sup>th</sup> Feb 1945 When handed in at Local Office

Port of

No. in Survey held at Port Kembla, Sydney & Whyalla. Reg. Book.

Date, First Survey 1<sup>st</sup> March 1943 Last Survey 1<sup>st</sup> Feb 1945 (Number of Visits 71)

on the S.S. "RIVER MURCHISON"

Tons { Gross 5062. Net 2623. When built 1945. when made 1945. when made 1945.

Built at Whyalla By whom built Broken Hill Pty Co Ltd Yard No. 4  
Engines made at Port Kembla N.S.W. By whom made Australian Iron & Steel Ltd Engine No. 6.  
Boilers made at Newcastle N.S.W. By whom made Broken Hill Pty Co Ltd Boiler No. -  
Nominal Registered Horse Power Recip - 493 Turbine - 73 Owners Commonwealth of Australia Port belonging to Port Adelaide.  
Nom. Horse Power as per Rule 566 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes.

## ENGINES, &c.—Description of Engines Triple expansion with Bauer Wachs Exhaust Turbine & D. R. Gearing

Dia. of Cylinders 24 1/2, 40 1/2, 67 Length of Stroke 48 Revs. per minute 85 No. of Cylinders 3 No. of Cranks 3  
Dia. of Crank shaft journals as per rule 14.078" as fitted 14 1/8" Dia. of Crank pin 14 1/8" Crank webs Mid. length breadth 21 1/4" shrunk Thickness parallel to axis 9" Mid. length thickness 9" Thickness around eye-hole 6 7/16"  
Diameter of Thrust shaft under collars as per rule 14.078" as fitted 14 1/4" Diameter of Tunnel shaft as per rule 13.4" as fitted 13 1/2" Diameter of Screw shaft as per rule 14.825" as fitted 15 1/8" Is the Screw shaft fitted with a continuous liner the whole length of the stern tube Yes Is the after end of the liner made watertight in the propeller boss Yes

If the liner is in more than one length are the joints burned Yes (Liner thickness 25/32" & 19/32") If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with 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 appliance fitted at the after end of the shaft to permit of it being efficiently lubricated Yes Length of Stern Bush 5' 0 1/2" Diameter of Propeller 17' 0"

Pitch of Propeller 16' 9" (average) No. of Blades 4 State whether Moveable Yes Total Surface 102 square feet.

No. of Feed Pumps fitted to the Main Engines 4 Diameter of ditto Stroke Can one be overhauled while the other is at work Yes  
No. of Bilge Pumps fitted to the Main Engines 4 Diameter of ditto Stroke Can one be overhauled while the other is at work Yes

Total number and size of power driven Feed and Bilge Auxiliary Pumps ONE MAIN FEED 12 & 8 x 22 ONE BIAGE 9 & 10 x 24 ONE GENERAL SERVICE (Aux feed) 10 1/2 & 7 x 21 ONE BALLAST (Con. to Bilge Main) 10 1/2 & 12 x 24  
No. and size of Pumps connected to the Main Bilge Line ONE BIAGE - 9 & 10 x 24 & ONE BALLAST 10 1/2 & 12 x 24

No. and size of Ballast Pumps { ONE BALLAST 10 1/2 & 12 x 24 ONE GEN SERVICE 10 1/2 & 7 x 21 No. and size of Lubricating Oil Pumps, including Spare Pump Two - 8' & 9" x 18"

Are two independent means arranged for circulating water through the Oil Cooler Yes No. and size of suction connections to both Main Bilge Pumps and Auxiliary Bilge Pumps;—In Engine and Boiler Room Eng Room - Two 3", Boiler Rm - Two 3" and in Holds, &c. Thrust recess - One 2 1/2"

In Holds:—One 3" port & One 3" starbd in all holds (Nos 1, 2, 3, 4 & 5) One 2 1/2" port & starbd sides of cofferdams & one 2 1/2 in tunnel well.

No. and size of Main Water Circulating Pump Bilge Suctions One 11" dia No. and size of Donkey Pump Direct Suctions to the Engine Room Bilges One 5" dia Are all the Bilge Suction Pipes in holds and tunnel well fitted with strum-boxes Yes

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 connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks All Valves, except Blr & Evap Blow down cocks.

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Yes Are the Discharge Pipes above or below the deep water line both.  
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

What Pipes are carried through the bunkers Bilge pipes How are they protected Steel casing  
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 Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Eng Room at level of 2<sup>nd</sup> deck.

MAIN BOILERS, &c.—(Letter for record ) Total Heating Surface of Boilers 7212 sq ft  
Is Forced Draft fitted Yes No. and Description of Boilers 2 W.T. (B & W Type) Working Pressure 240 lbs  
IS A REPORT ON MAIN BOILERS NOW FORWARDED? Yes.  
IS A DONKEY BOILER FITTED? No. If so, is a report now forwarded? —

PLANS. Are approved plans forwarded herewith for Shafting No Main Boilers 26/8/41 Auxiliary Boilers Donkey Boilers  
(If not state date of approval) See Sectys letter, E. 28, 10/12/42, forwarding copies of Plans for SS "BURNSIDE"  
General Pumping Arrangements Approved 1/6/42 Oil fuel Burning Piping Arrangements 3/7/41

SPARE GEAR. State the articles supplied:— As per Rules, (See list forwarded with F.E. Rpt No 19252 on "RIVER CLARENCE").

The foregoing is a correct description, (for Main Engines)  
FOR AUSTRALIAN IRON & STEEL LTD,  
Manufacturer.



Dates of Survey while building:
   
During progress of work in shops: 1943: - March 1, 2, 9, 10, 19, 22 April 5, 6, 7, 14, 20, 21, 29 May 17, 18, 27, 28 June 3, 4, 9, 14, 25 July 13, 14, 16, 28, 29 Aug 9, 20 Sept 7, 8, 23, 24 Oct 21, 29 Nov 9, 24, 25 Dec 13, 1944: - Feb 15, 16, March 14
   
During erection on board vessel: 1944: - August 14, 15, 16, 17. Sept 8, 14, 18, 25. Oct 3, 11, 17, 22, 30 Nov 9, 16, 24, Dec 1, 5, 7, 15, 21
   
1945: - Jan 3, 11, 14, 28, 29, 30, 31, Feb 1st
   
Total No. of visits 71.

Dates of Examination of principal parts - Cylinders H.P. 29/10/43 M.P. & L.P. 24/11/43 Slides 6/1/44
   
Covers 29/10/43 & 24/11/43 Pistons 6/1/44 Rods 14/3/44
   
Connecting rods 14/3/44 Crank shaft 14/3/44 Thrust shaft 17/7/44
   
Tunnel shafts 11/3/44 Screw shaft 11/3/44 Propeller 14/9/44
   
Stern tube 8/9/44 Engine and boiler seatings 8/9/44 Engines holding down bolts 24/11/44
   
Completion of pumping arrangements 11/1/45 Boilers fixed 24/11/45 Engines tried under steam 14/1/45 & 31/1/45
   
Completion of fitting sea connections 14/9/44 Stern tube 14/9/44 Screw shaft and propeller 18/9/44
   
Main boiler safety valves adjusted 31/1/45 Thickness of adjusting washers Port Inner Outer Supt Inner Outer Supt
   
Material of Crank shaft Mild Steel. (tested to Rule requirements) Identification Mark on Do. H.P. & M.P. No 259, L.P. No 260, C.R.M., 14.3.44
   
Material of Thrust shaft " " " " " Identification Mark on Do. No M 316/3 B.P.F. 17.7.44
   
Material of Tunnel shafts " " " " " Identification Marks on Do. (No 1772, No 1687 3/4, No 1687 3/2, No 1661 1/2, No 1019 2/7, No 1601 1/2. E.G.H. 11.3.44.
   
Material of Screw shafts " " " " " Identification Marks on Do. No 2042B. (spare) No 2152 (fitted) E.G.H. 11.3.44
   
Material of Steam Pipes " " " Test pressure 720 lbs Date of Test 8/9/44 to 3/1/45
   
Is an installation fitted for burning oil fuel Yes Is the flash point of the oil to be used over 150°F. Yes
   
Have the requirements of the Rules for carrying and burning oil fuel been complied with Yes
   
Is this machinery duplicate of a previous case Yes If so, state name of vessel S.S. "RIVER DERWENT"

General Remarks (State quality of workmanship, opinions as to class, &c.)
   
The Machinery of this Vessel has been built under Special Survey in accordance with the Rules and approved Plans. The Materials & workmanship are good. The Installation has been fitted on board in an efficient manner, tested under full power working conditions and found satisfactory, and is now eligible, in our opinion, to be classed in the Society's Register Book, with record of 2 L.M.C. 2, 45., T.S. (C.L.) and the Notations of 2 W.T. Boilers 240 lbs, (Spt 220 lbs), F.D., One L.P. Turbine with D.R. gearing and hydraulic coupling. Fitted for Oil Fuel 2, 45, F.P. above 150°F.

Certificate to be sent to Sydney N.S.W. The Surveyors are requested not to write on or below the space for Committee's Minute.

The amount of Entry Fee ... £ 7 : 10 :
   
Special ... £ 206 : 12 :
   
Donkey Boiler Fee ... £ : :
   
Travelling Expenses (if any) £ 50 : 0 :

*Chas. K. Nabeck*  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 6 APR 1945
   
Assigned Su F.E. machy. rpt.

