

# REPORT ON STEAM TURBINE MACHINERY. No. 4970

pt. 4a.

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Date of writing Report 15-6-46 When handed in at Local Office 10 Port of Brisbane  
 No. in Survey held at Brisbane Date, First Survey 8-9-42 Last Survey 13-6-1946  
 Reg. Book. on the Single Screw Steamer "RIVER NORMAN" (Number of Visits 33)  
 Tons Gross 6659.17 Net 3908.81  
 Built at Brisbane By whom built Evans Deakin & Co. Ltd. Yard No. 19 When built 1946  
 Turbines & Gears TURBINE - SYDNEY N.S.W. By whom made COCKATOO DOCKS & ENGINE CO. LTD. Engine No. When made 1946  
 Engines made at GEARING - MELBOURNE By whom made Batecock & Wilcox Ltd. Boiler No. When made 1946  
 Boilers made at Sydney N.S.W. By whom made Batecock & Wilcox Ltd. Port belonging to Brisbane  
 Shaft Horse Power at Full Power 830 Owners Commonwealth of Australia  
 Nom. Horse Power as per Rule 75 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes  
 Trade for which Vessel is intended International

## 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  
 direct coupled to Alternating Current Generator phase periods per second Direct Current Generator 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							2.9134"	35.3544"	1			
2ND							3.7008"	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. 502.5 I.P. 89.6 L.P. 3444 }

Rotor Shaft diameter at journals { H.P. 6.693" I.P. 6.693" L.P. 6.693" }  
 Pitch Circle Diameter { 1st pinion 8.784" 2nd pinion 14.2834" }  
 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 10.25" 2nd pinion 14.2834" }  
 1st reduction wheel 60.2024" main wheel 79.1298"

TRANSMISSION Flexible Pinion Shafts, diameter { 1st 4 1/32" 2nd 4 1/32" }  
 Pinion Shafts, diameter at bearings { 1st 4 1/32" 2nd 4 1/32" }  
 External 1st 4 1/32" 2nd 4 1/32" Internal 1st 4 1/32" 2nd 4 1/32"

Wheel Shafts, diameter at bearings { 1st 5 1/8" 2nd 5 1/8" }  
 diameter at wheel shroud, { 1st 5 1/8" 2nd 5 1/8" }  
 Generator Shaft, diameter at bearings { 1st 5 1/8" 2nd 5 1/8" }  
 Propelling Motor Shaft, diameter at bearings { 1st 5 1/8" 2nd 5 1/8" }

Intermediate Shafts, diameter { as per rule 13.4" as fitted 13 1/2" }  
 Thrust Shaft, diameter at collars { as per rule 14.078" as fitted 14 1/8" }  
 Tube Shaft, diameter { as per rule 14.078" as fitted 14 1/8" }

Screw Shaft, diameter { as per rule 13.4" as fitted 13 1/2" }  
 Is the { tube screw } shaft fitted with a continuous liner { }  
 Thickness between bushes { as per rule 13.4" as fitted 13 1/2" }  
 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 { }

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  
 Are two independent means arranged for circulating water through the 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  
 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

SEE ATTACHED MACHINERY REPORT

003147-003153-0026

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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 } Boiler fitted?  
{ an Auxiliary }

is a report now forwarded?

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

SEE ATTACHED

MACHINERY REPORT

Main Boilers

Auxiliary Boilers

Donkey Boilers

Superheaters

General Pumping Arrangements

Oil Fuel Burning Arrangements

Spare Gear. State the articles supplied:—

The foregoing is a correct description,



Manufacturer

Dates of Survey while building { During progress of work in shops - - 1942:- SEPT 8, OCT 5, NOV 22. 1943:- JAN 18, May 27, JUNE 23, AUG 9, 20, SEPT 23, OCT 7  
During erection on board vessel - - - 1945 JULY 11, AUG 17, SEPT 5, OCT 17, 31, NOV 13, 26, DEC 3, 14, 1946 JAN 9, FEB 14, MAR 6, 19, APR 8, 11, 26, MAY 4, 14, 21, 28, JUNE 7, 11, 13  
Total No. of visits 33.

Dates of Examination of principal parts—Casings

Rotors

Blading

Gearing

Wheel shaft

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

M.S. 36.60 / 97.40 TONS PER SQ INCH.

Identification Mark 218. 7-10-43. A.T.M.C.

TRANSMISSION

Flexible Pinion Shaft, Material and tensile strength

M.S.O.H. 29.6 TONS PER SQ INCH

Identification Mark 317/10 B.P.F.

Pinion shaft, Material and tensile strength

3 1/2% NICKEL STEEL. LONGITUDINAL 42.0 TONS. TRANSVERSE 42.0 TONS.

Identification Mark 317/10 B.P.F.

WITH 2ND RED. PINION

1st Reduction Wheel Shaft, Material and tensile strength

NICKEL STEEL. LONGITUDINAL 42.4 TONS. TRANS 42.4 TONS

Identification Mark 317/10 B.P.F.

Wheel shaft, Material

M.S.O.H.

Identification Mark

317/10 B.P.F.

Thrust shaft, Material

M.S.O.H.

Identification Mark

Intermediate shafts, Material

Identification Marks

Tube shaft, Material

Identification Marks

Screw shaft, Material

Identification Marks

Test pressure

Date of test

SEE ATTACHED

MACHINERY REPORT

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 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

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 Turbine and Gearing have been built

under Special Survey in accordance with the Rules and Approved Plans. The materials and workmanship are good.

The Installation has been efficiently fitted on board the vessel, tried under full working conditions with satisfactory results, and is in our opinion, now eligible for record recommended in the attached Machinery Report.

The amount of Entry Fee

Special

Donkey Boiler Fee

Travelling Expenses (if any)

When applied for,

19.

When received,

19.

Committee's Minute

FRI. 20 SEP 1946

Assigned

See F.E. machy. rpt



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