

REPORT ON STEAM TURBINE MACHINERY. No. 4970

pt. 4a.

Received at London Office 31 AUG 1946

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)
 Gross 6659.17 Tons 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 & ENGRG. CO. LTD. Engine No. When made 1946
 Engines made at GEARING - MELBOURNE By whom made Babcok & Wilcox Ltd. Boiler No. When made 1946
 Boilers made at Sydney N.S.W. By whom made Commonwealth of Australia Port belonging to Brisbane
 Shaft Horse Power at Full Power 830 Owners Commonwealth of Australia Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes
 Nom. Horse Power as per Rule 75 Trade for which Vessel is intended International

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

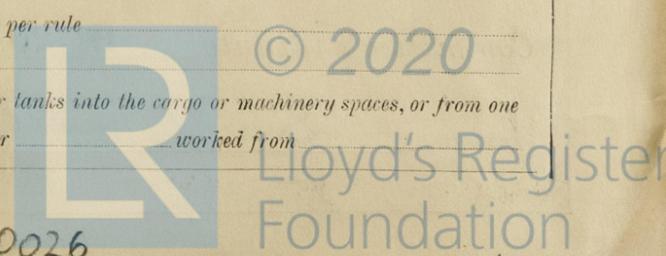
No. of Turbines Ahead One Direct coupled, single reduction geared to one propelling shafts. No. of primary pinions to each set of reduction gearing One
 Astern
 direct coupled to Alternating Current Generator phase periods per second Direct Current Generator rated Kilowatts Volts at revolutions per minute;
 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. 3444 L.P. 3444 }
 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 16.4" }
 Pinion Shafts, diameter at bearings { External 1st 4.59" 2nd 12.32" Internal 1st 1.98" 2nd 9.32" }
 Wheel Shafts, diameter at bearings { 1st 57" 2nd 75.36" }
 Generator Shaft, diameter at bearings
 Propelling Motor Shaft, diameter at bearings
 Intermediate Shafts, diameter as per rule 13.4" as fitted 13.2"
 Thrust Shaft, diameter at collars as per rule 14.078" as fitted 14.64"
 Tube Shaft, diameter as per rule
 Screw Shaft, diameter as per rule Is the tube shaft fitted with a continuous liner
 Thickness between bushes as per rule Is the after end of the liner made watertight in the propeller boss
 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
 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 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

SEE ATTACHED MACHINERY REPORT



003147-003153-0026

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? _____

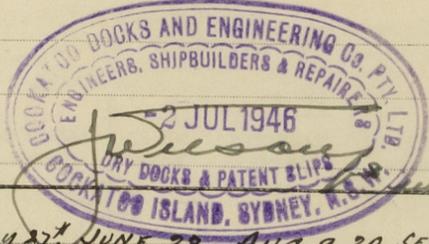
Is { a Donkey } Boiler fitted? _____ is a report now forwarded? _____
 { an Auxiliary }

Plans. Are approved plans forwarded herewith for Shafting _____ Main Boilers _____ Auxiliary Boilers _____ Donkey Boilers _____
 (If not state date of approval) SEE ATTACHED MACHINERY REPORT

Superheaters _____ General Pumping Arrangements _____ Oil Fuel Burning Arrangements _____

Spare Gear. State the articles supplied:—

The foregoing is a correct description,



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.E.C. Lloyds No
 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 316/10 B.P.F.
 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.

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

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

J. North, & *A. J. McEwan*
 Engineer Surveyors to Lloyd's Register of Shipping.

Committee's Minute **FRI. 20 SEP 1946**

Assigned *See F.E. machy. rpt*

