

# REPORT ON STEAM TURBINE MACHINERY. No. 48214

Received at London Office 25. 11. 1928

Date of writing Report 13-7-1928 When handed in at Local Office 17-7-1928 Port of Glasgow

No. in Survey held at Glasgow Date, First Survey 24-1-28 Last Survey 13-7-1928 (Number of Visits 30)

Reg. Book. 77484 on the "SIS" MANGALORE" Tons Gross Net

Built at Glasgow By whom built G. Bonnell & Co. Ltd Yard No. - When built 1920-6  
Engines made at Glasgow By whom made David Rowan & Co. Ltd Engine No. 886 When made 1928  
Boilers made at Glasgow By whom made David Rowan & Co. Ltd Boiler No. - When made 1920  
Shaft Horse Power at Full Power 5350 Owners T & G. Biscoelebank Ltd Port belonging to Liverpool  
Nom. Horse Power as per Rule 1147 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted yes  
Trade for which Vessel is intended General cargo

## STEAM TURBINE ENGINES, &c. - Description of Engines Parson two cylinder double reduction geared turbines

No. of Turbines Ahead 2 Direct coupled, single reduction geared to one propelling shafts. No. of primary pinions to each set of reduction gearing -  
Astern 2 double reduction geared

direct coupled to Alternating Current Generator phase periods per second rated Kilowatts Volts at revolutions per minute;  
Direct Current Generator

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.			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	1 7/8"	21 1/4"	5	1 3/16 & 2 3/16"			1 5/8"	30 1/2"	3	1 3/4"	28 1/2"	2
2ND	2"	22"	5				2 1/4"	31"	3	2 1/2"	30"	2
3RD	2 5/16"	22 7/8"	5				2 3/4"	32 1/2"	2	3 1/2"	32"	1
4TH	2 7/8"	23 3/4"	5				3 3/4"	34 1/2"	2	5"	35"	1
5TH	3 3/4"	25 1/2"	5				5"	37"	2	5"	35"	1
6TH							6"	39"	1	5"	35"	1
7TH							6"	39"	1			
8TH							6"	39"	1			
9TH	ASTERN						6"	39"	1			
10TH	2 Row impulse wheel 33" mean diam						6"	39"	1			
11TH	1 1/2 & 2 3/4"											
12TH												

Shaft Horse Power at each turbine { H.P. 2675, I.P. -, L.P. 2675 } Revolutions per minute, at full power, of each Turbine Shaft { H.P. 3094, I.P. -, L.P. 3094 } 1st reduction wheel 410, main shaft 82 1/2

Rotor Shaft diameter at journals { H.P. 6", I.P. -, L.P. 6" } Pitch Circle Diameter { 1st pinion 1st reduction wheel, 2nd pinion main wheel } Width of Face { 1st reduction wheel, main wheel }

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 1st reduction wheel, 2nd pinion main wheel }

Flexible Pinion Shafts, diameter { 1st, 2nd } Pinion Shafts, diameter at bearings External Internal 1st 2nd diameter at bottom of pinion teeth { 1st, 2nd }

Wheel Shafts, diameter at bearings { 1st, main } diameter at wheel shroud, { 1st, main } Generator Shaft, diameter at bearings Propelling Motor Shaft, diameter at bearings

Intermediate Shafts, diameter as per rule as fitted Thrust Shaft, diameter at collars as per rule as fitted 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 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 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. Can the H.P. or I.P. Turbine exhaust direct to the

If Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine yes Condenser yes No. of Turbines fitted with astern wheels 2 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

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

In Holds, etc. 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 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



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? If so, is a report now forwarded?

Plans. Are approved plans forwarded herewith for Shafting Main Boilers Auxiliary Boilers Donkey Boilers

Superheaters General Pumping Arrangements Oil Fuel Burning Arrangements

Spare Gear. State the articles supplied:— Two bolts and nuts for each rotor bearing, two bearing brushes, two bolts and nuts for each casing joint. 44 rotor and sleeve strips for glands. 6 pads and 24 liners for turbine adjusting blocks

The foregoing is a correct description,

For David Rowan & Co. Ltd. Manufacturer. Dick W. Grierson

Dates of Survey while building: During progress of work in shops -- 1928 Jan 24 Feb 6-10-21-22-27 Mar 5-9-19-28 Apr 12-24-27 May 14-9-11-14-18-23-29 Jun 4-6-8-11-13-21-25-27; During erection on board vessel --- 28 July 13; Total No. of visits 30

Dates of Examination of principal parts—Casings 24-4-28 Rotors 29-5-28 Blading 14-5-28 Gearing —

Wheel shaft ✓ Thrust shaft ✓ Intermediate shafts ✓ Tube shaft ✓ Screw shaft ✓

Propeller ✓ Stern tube ✓ Engine and boiler seatings 11-6-28 Engine holding down bolts 28-6-28

Completion of pumping arrangements — Boilers fixed — Engines tried under steam 13-7-28

Main boiler safety valves adjusted ✓ Thickness of adjusting washers —

Rotor shaft, Material and tensile strength S.M.S. steel HP-36.5 tons 30% ext m3. LP-35.6 tons 29.5% ext m3 Identification Mark

Flexible Pinion Shaft, Material and tensile strength Identification Mark

Pinion shaft, Material and tensile strength Identification Mark

1st Reduction Wheel Shaft, Material and tensile strength Identification Mark

Wheel shaft, Material Identification Mark Thrust shaft, Material Identification Mark

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

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

Date of test 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 carrying and burning oil fuel been complied with

Is this machinery a duplicate of a previous case yes If so, state name of vessel "Mathura"

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

The materials and workmanship are good. The turbines have been constructed under special survey and satisfactorily fitted in the vessel. See Repair Report attached.

ab 7/7/28

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

The amount of Entry Fee ... £ : When applied for, 23-7-1928; Special ... £ 30 -; Donkey Boiler Fee ... £ : When received, 24-7-1928; Travelling Expenses (if any) £ :

S. C. Davis, Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minutes GLASGOW 24 JUL 1928

TUE. 9 OCT 1928

Assigned See accompanying report



© 2020 Lloyd's Register Foundation