

# 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  
 Reg. Book. 77484 on the "SIS" MANGALORE"  
 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 & J. 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

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;  
 for supplying power for driving Propelling Motors, Type Direct Current Generator  
 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 1/2"	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			
7TH							6"	39"	1			
8TH							6"	39"	1			
9TH	ASTERN											
10TH	2 Row impulse wheel 33" mean diam											
11TH	1 1/2 & 2 3/4"											
12TH												

Shaft Horse Power at each turbine { H.P. 2675 } I.P. - 1st reduction wheel 410  
 { L.P. 2675 } I.P. - main shaft 82 1/2  
 { L.P. 3094 } I.P. - main shaft 82 1/2

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

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

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

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

Intermediate Shafts, diameter { as per rule Thrust Shaft, diameter at collars as per rule Tube Shaft, diameter as per rule  
 { as fitted as fitted as fitted

Screw Shaft, diameter { as per rule Is the tube screw shaft fitted with a continuous liner Bronze Liners, thickness in way of bushes as per rule  
 { as fitted as fitted as fitted

Thickness between bushes { as per rule 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  
 { as fitted as fitted as fitted

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 yes Can the H.P. or I.P. Turbine exhaust direct to the

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

Ballast Pumps, No. and size Lubricating Oil Pumps, including Spare Pump, 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, &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 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?  
{ an Auxiliary }

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

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  
Dick H. Grierson Manufacturer.

Dates { During progress of } 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 1-6-8-11-13-21-25-27  
of Survey { During erection on } 28 July 13  
while { board vessel --- }  
building { 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 Lm. 30% ext. m3. LP-35.6 Lm. 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.

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

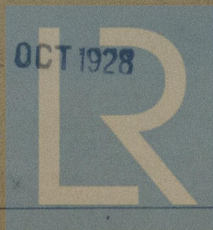
The amount of Entry Fee ... £ :  
Special ... £ 30 -  
Donkey Boiler Fee ... £ :  
Travelling Expenses (if any) £ :  
When applied for, 23-7-1928  
When received, 24-7-1928

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

Committee's Minutes GLASGOW 24 JUL 1928

Assigned See accompanying report

TUE. 9 OCT 1928



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