

REPORT ON STEAM TURBINE MACHINERY.

No. 60212

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Date of writing Report 19 When handed in at Local Office 20-9-38 Port of Glasgow
 No. in Survey held at Glasgow Date, First Survey 25.5.37 Last Survey 17-9-1938
 Reg. Book. on the new steel S/S MANCHESTER PROGRESS (Number of Visits 114)
 Tons Gross 5620 Net 3343
 Built at Glasgow By whom built Blythwood SBCo Yard No. 51 When built 1938
 Engines made at Glasgow By whom made David Rowan & Co Ltd Engine No. 1022 When made 1938
 Boilers made at Glasgow By whom made David Rowan & Co Ltd Boiler No. 1022 When made 1938
 Shaft Horse Power at Full Power 4200 Owners Manchester Liners Ltd Port belonging to Manchester
 Nom. Horse Power as per Rule 796 Is Refrigerating Machinery fitted for cargo purposes yes Is Electric Light fitted yes
 Trade for which Vessel is intended

STEAM TURBINE ENGINES, &c.—Description of Engines Parsons Geared turbines

No. of Turbines Ahead 3 Direct coupled, single reduction geared } to one propelling shaft. No. of primary pinions to each set of reduction gearing 3
 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 —
 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	11/16"	20 3/4"	13	1 3/8"	29 1/4"	7	2 3/8"	49 1/4"	2	H.P. Astern —		
2ND	7/8"	21 1/8"	13	1 13/16"	30 7/8"	7	3 1/4"	50 1/2"	2	3 Row Impulse wheel.		
3RD	1 1/16"	21 1/2"	13	2 3/8"	31 1/4"	7	4 3/8"	52 3/4"	2	L.P. Astern —		
4TH	1 3/8"	22 1/8"	13	3 1/8"	32 3/4"	7	5 3/4"	55 1/2"	1	2 Row Impulse wheel.		
5TH	1 3/4"	22 7/8"	13	4 1/8"	34 3/4"	7	6 1/4"	56 1/2"	1	Reaction blading:—		
6TH							8"	60"	1	1 1/2"	40 1/2"	2
7TH							8"	60"	1	2 1/8"	41 3/4"	2
8TH							8"	60"	1	3"	43 1/2"	2
9TH										3"	43 1/2"	2
10TH										3"	43 1/2"	2
11TH												
12TH												

Shaft Horse Power at each turbine { H.P. 1400 I.P. 1400 L.P. 1400 } H.P. 2040 I.P. 2040 L.P. 2040
 1st reduction wheel — main shaft 93
 Revolutions per minute, at full power, of each Turbine Shaft

Rotor Shaft diameter at journals { H.P. 6 1/2" I.P. 6 1/2" L.P. 6 1/2" } Pitch Circle Diameter { 1st pinion 6.64" 2nd pinion — } 1st reduction wheel — main wheel 145.88"
 Width of Face { 1st reduction wheel — main wheel 26"

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 10 3/4" — 13 3/4" 2nd pinion — } 1st reduction wheel — main wheel bearing 4.10"

Flexible Pinion Shafts, diameter { 1st — 2nd — } Pinion Shafts, diameter at bearings External 1st { 6" 2nd { — } diameter at bottom of pinion teeth { 1st 6'-5" 2nd —

Wheel Shafts, diameter at bearings { 1st — 2nd — } Boss diameter at wheel shroud { 1st — 2nd — } Generator Shaft, diameter at bearings — Propelling Motor Shaft, diameter at bearings —

Intermediate Shafts, diameter as per rule 14.24" as fitted 14 1/4" Thrust Shaft, diameter at collars as per rule 14.953" as fitted 15" Tube Shaft, diameter as per rule — as fitted —

Screw Shaft, diameter as per rule 15.74" as fitted 15 3/4" Is the { tube screw } shaft fitted with a continuous liner { yes } Bronze Liners, thickness in way of bushes as per rule .78" as fitted 13/16"

Thickness between bushes as per rule .58" as fitted 3/4" 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 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 yes 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 no Length of Bearing in Stern Bush next to and supporting propeller 5'-3"

Propeller, diameter 18'-0" Pitch 15'-9 1/2" No. of Blades 4 State whether Moveable no Total Developed Surface 103.5 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 L.P. Turbine exhaust direct to the

Condenser: yes No. of Turbines fitted with astern wheels 2 Feed Pumps { No. and size 2 @ 10 1/2"-8x22 main. 1 @ 9'-6x10 (aux) How driven steam steam

Pumps connected to the Main Bilge Line { No. and size Two ballast pumps. Bilge pump — 1 @ 6'-6x6. How driven steam steam

Ballast Pumps, No. and size 2 @ 9'-11x10" Lubricating Oil Pumps, including Spare Pump, No. and size 2 @ 7'-8x18"

Are two independent means arranged for circulating water through the Oil Cooler yes Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size:—In Engine and Boiler Room 2 @ 2 3/4" Engine room. 2 @ 2 3/4" stokehold. 1 @ 2 1/2" cofferdam. 1 @ 2" thrust recess. 1 @ 2" duct recess.

In Holds, &c. N°1 hold—2 @ 3". N°2 hold—2 @ 3". N°3 hold (Deep tank)—2 @ 2 1/2". Bunker—2 @ 2 1/2". N°4 hold (Deep tank)—2 @ 2 1/2". N°5 hold—2 @ 2 1/2". N°6 hold—2 @ 3". Hold well—1 @ 3". Tunnel well—1 @ 2 1/2".

Main Water Circulating Pump Direct Bilge Suctions, No. and size 1 @ 10" Independent Power Pump Direct Suctions to the Engine Room

Bilges, No. and size 1 @ 5" 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 Sea Connections fitted direct on the skin of the ship yes Are they fitted with Valves or Cocks both

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates yes Are the Overboard Discharges 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 pass through the bunkers none How are they protected —

What pipes pass through the deep tanks none 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 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 Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from upper deck

BOILERS, &c.—(Letter for record (9)) Total Heating Surface of Boilers 9195 sq ft
Is Forced Draft fitted yes No. and Description of Boilers 398 Working Pressure 225
Is a Report on Main Boilers now forwarded? yes
Is { a Donkey } Boiler fitted? no If so, is a report now forwarded? -
{ an Auxiliary }
Plans. Are approved plans forwarded herewith for Shafting no Main Boilers yes Auxiliary Boilers - Donkey Boilers -
(If not state date of approval)
Superheaters no General Pumping Arrangements no Oil Fuel Burning Arrangements -
Spare Gear. State the articles supplied:— In accordance with rule requirements - 1938-9

The foregoing is a correct description,

For David Rowan & Co. Ltd
Arch. H. Greenson

Manufacturer.

Dates of Survey while building { During progress of work in shops -- 1937 May: 25 Sep: 23 Oct: 7.8.13.14 Nov: 5.8.9.16.26 Dec: 3.7.8.9.23.24.28.29 (1938) Jan: 12.14.19.26 Feb: 29.31 Mar: 2.4.7.8.10.14.15.17.18.19.21.22.23.25.28.30.31 Apr: 1.5.8.12.13.14.25 May: 3.4.9.11.12.13.16.17.18.20.25.27.30.31 June: 1.3.4.6.7.8.10.14.17.20.23.24.27.28.30 July: 5.6.7.8.11.12.13 Aug: 3.5.8.10.12.17.19.22.24.29 Sep: 1.5.6.13.14.17
During erection on board vessel ---
Total No. of visits 114

Dates of Examination of principal parts—Casings 10-2-38 Rotors 7-2-38 Blading 17-6-38 Gearing 29-6-38

Wheel shaft 4-5-38 Thrust shaft 14-4-38 Intermediate shafts 23-6-38 Tube shaft - Screw shaft 7-6-38

Propeller 1-6-38 Stern tube 24-5-38 Engine and boiler seatings 27-6-38 Engine holding down bolts 22-8-38

Completion of pumping arrangements 5-9-38 Boilers fixed 12-8-38 Engines tried under steam 17-9-38

Main boiler safety valves adjusted 1-9-38 Thickness of adjusting washers Port boiler - port valve 5/16". all other 3/8".

Rotor shaft, Material and tensile strength S.M. 1 steel, P 34.4 ton. MP 34.4 ton. LP 35.5 ton Identification Mark HP-1076 } Lloyd's
MP-1056 } L.C.D.
LP-1077 } 29-6-38

Flexible Pinion Shaft, Material and tensile strength - Identification Mark -

Pinion shaft, Material and tensile strength Dead Nickel Steel HP-470-472. MP-479-474. LP-463-486 Identification Mark HP-900 } Lloyd's
MP-902 } L.C.D.
LP-901 } 29-6-38

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

Wheel shaft, Material Ingot steel Identification Mark HP-465 } Lloyd's
LP-469 } 29-6-38 Thrust shaft, Material Ingot steel Identification Mark HP-465 } Lloyd's
LP-469 } 29-6-38

Intermediate shafts, Material Ingot steel Identification Marks HP-465 } Lloyd's
LP-469 } 29-6-38 Tube shaft, Material - Identification Marks -

Screw shaft, Material 7 steel Identification Marks HP-465 } Lloyd's
LP-469 } 29-6-38 Steam Pipes, Material Steel Test pressure 675 lb

Date of test 6-5-9-38 Is an installation fitted for burning oil fuel no

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 Manchester City. Gls Rpt No 58730

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

The materials and workmanship are good
The machinery has been constructed under special survey. satisfactorily fitted in
the vessel, tried under steam and found good. It is eligible in my opinion
for classification and the Record + LMC 9, 38.

The amount of Entry Fee £ 6 :
Special £ 114.16 :
Donkey Boiler Fee £ :
Travelling Expenses (if any) £ :

When applied for,

20 SEP 1938

When received,

27/9/38

S. H. Davis.

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 20 SEP 1938

Assigned + LMC 9, 38

Y.S.



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Foundation