

REPORT ON STEAM TURBINE MACHINERY. No. 74046

Received at London Office 1 JUN 1949

Date of writing Report 21-5-1949 When handed in at Local Office 30 MAY 1949 Port of **GLASGOW**

No. in Survey held at **GLASGOW** Date, First Survey 14-1-49 Last Survey 3-5-1949

Reg. Book. 19558 on the **SS "WAVE MONARCH"** (Number of Visits 22)

Tons } Gross 8159
Net 4545

Built at **GLASGOW** By whom built **HARLAND & WOLFF LTD.** Yard No. When built 1944

Engines made at **GLASGOW** By whom made **BARCLAY CURLE & CO LTD** Engine No. **EW 2** When made 1944

Boilers made at **RENFREW** By whom made **BABCOCK & WILCOX LTD.** Boiler No. When made 1944

Shaft Horse Power at Full Power **6800** Owners **THE ADMIRALTY** Port belonging to **LONDON**

Nom. Horse Power as per Rule **1496 = MN** Is Refrigerating Machinery fitted for cargo purposes **No** Is Electric Light fitted **YES**

Trade for which Vessel is intended **CARRYING PETROLEUM IN BULK.**

STEAM TURBINE ENGINES, &c.—Description of Engines **IMPULSE REACTION STEAM TURBINES**

Co. of Turbines Ahead **1 HP 1 LP** Direct coupled, single reduction geared } to **ONE** propelling shafts. No. of primary pinions to each set of reduction gearing **2**
Astern **ONE** double reduction geared }

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 LOADING.	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 (IMPULSE)	1.36 x 1.68	20.11 x 31.61	2				0.875	39.45	3			
2nd " (REACTION)	1.23	17.46	4				1.324	40.628	1	5"	49.5"	1st Row
3rd " "	1.52	18.04	4				1.896	41.492	1	4.875	52.45"	2nd Row
4th " "	1.68	18.36	6				2.468	42.936	1	9"	55.0"	3rd Row.
5th " "	2.04	19.14	6				3.109	44.218	1			
6th " "	2.58	20.16	6				3.824	45.648	1			
7th " "							4.509	47.078	1			
8th " "							5.30	48.6	1			
9th " "							6.13	50.26	1			
10th " "							7.024	52.094	1			
11th " "							8.185	54.34	1			
12th " "							9.0	56.0	1			

Shaft Horse Power at each turbine { H.P. 3500 ✓
I.P. -
L.P. 3300 ✓

Revolutions per minute, at full power, of each Turbine Shaft { H.P. 3941 ✓
I.P. -
L.P. 2865 ✓

Pinion Shaft diameter at journals { H.P. 5" ✓
I.P. -
L.P. 4" ✓

Pitch Circle Diameter { 1st pinion LP 13.0688" 1st reduction wheel 51.2041" ✓
2nd pinion 19.4894" main wheel 124.6448" ✓

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 16 3/4" ✓
2nd pinion 3'- 2 3/4" ✓

Pinion Shafts, diameter at bearings { External 1st HP 6" ✓
Internal 1st LP 4 1/2" ✓
2nd HP 11" ✓
2nd LP 2 1/2" ✓

Generator Shaft, diameter at bearings 11" ✓

Propelling Motor Shaft, diameter at bearings 5" ✓

Intermediate Shafts, diameter as per rule 16" ✓
as fitted 16" ✓

Thrust Shaft, diameter at collars as per rule 16 3/4" ✓
as fitted 16 3/4" ✓

Tube Shaft, diameter as per rule ✓
as fitted ✓

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 ✓

Distance 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 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 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 appliance fitted at the after end of the tube shaft **No**

Length of Bearing in Stern Bush next to and supporting propeller **No**

Propeller, diameter 18 FT. ✓ Pitch VAR. No. of Blades 4 State whether Moveable **No** Total Developed Surface 121 square feet.

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 sea **YES**

No. of Turbines fitted with astern wheels **ONE** Feed Pumps { No. and size 2 ✓ 3" WEIR'S TURBO
How driven STEAM

Lines connected to the Main Bilge Line { No. and size 1-10" x 9" x 10" FIRE & BILGE 1-10" x 9" x 10" BALLAST.
How driven STEAM.

Oil Pumps, No. and size 1-10" x 9" x 10" ✓ Lubricating Oil Pumps, including Spare Pump, No. and size 2 @ 8" x 9" x 18" ✓

Independent means arranged for circulating water through the Oil Cooler **YES** ✓ Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge

No. and size:—In Engine and Boiler Room 4 @ 3 1/2", 2 @ 2 1/2", 1 @ 2 1/2" TUNNEL WELL

Suctions, &c. FORE HOLD STORAGE CHAIN LOCKER 2 @ 2" FORE HOLD 2 @ 2" FORE HOLD PUMP ROOM 1 @ 3"

Water Circulating Pump Direct Bilge Suctions, No. and size 1 @ 14" ✓ Independent Power Pump Direct Suctions to the Engine Room

No. and size 1 @ 5" ✓ Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes **YES** ✓

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** ✓

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 stowhold plates **YES** ✓ Are the Overboard Discharges above or below the deep water line **BELOW** ✓

Are 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** ✓

Do they pass through the bunkers How are they protected

Do they pass through the deep tanks Have they been tested as per rule

Are pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times **YES** ✓

Are arrangements made for the prevention of leakage of steam or other fluids from the machinery 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 Is it fitted with a watertight door worked from

BOILERS, &c.—(Letter for record) Total Heating Surface of Boilers 12050
 Is Forced Draft fitted YES No. and Description of Boilers TWO - BABCOCK & WILCOX Working Pressure 460 Lbs/A
 Is a Report on Main Boilers now forwarded? YES
 Is a Donkey Boiler fitted? YES - TWO If so, is a report now forwarded? YES
 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.— AS REQUIRED

The foregoing is a correct description,

Dates of Survey while building
 { During progress of work in shops -- }
 { During erection on board vessel --- }
 Total No. of visits

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 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 YES

Is the flash point of the oil to be used over 150°F. YES Have the requirements of the Rules for the use of oil as fuel been complied with YES

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. The machinery & boilers of this vessel were installed under

British Corporation Survey. This has been opened out & examined in their entirety & found or placed in good condition.

Please see report of Liverpool.

The amount of Entry Fee	£	:	:	When applied for,
Special	£	:	:	19.
Donkey Boiler Fee	£	:	:	When received,
Travelling Expenses (if any)	£	:	:	19.

J. Blgray
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 31 MAY 1949
 Assigned SEE ACCOMPANYING MACHINERY REPORT.

