

Date of writing Report 24 Nov 1931 When handed in at Local Office 2/11/31 Port of NEWCASTLE-ON-TYNE  
No. in Survey held at Newcastle-on-Tyne Date, First Survey 23 Dec 1930 Last Survey 7/11/31  
Reg. Book. 28831 on the QUAD. S.S. MONARCH OF BERMUDA (Number of Visits 1)  
Built at Newcastle-on-Tyne By whom built Vickers-Armstrongs Ltd. Yard No. 1 When built 1931  
Engines made at Barrow-in-Furness By whom made General Electric Co. Engine No. 665 When made 1931  
Boilers made at Barrow-in-Furness By whom made Babcock & Wilcox Ltd. Boiler No. 6/1266 When made 1931  
Shaft Horse Power at Full Power 19,000 Owners Furness, Withy & Co. Ltd. Port belonging to London  
Nom. Horse Power as per Rule 44 11 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 Single casing Turbines

No. of Turbines Two Ahead Two Direct coupled, single reduction geared } to propelling shafts. No. of primary pinions to each set of reduction gearing 1  
Astern None double reduction geared }  
direct coupled to Alternating Current Generator 3 phase 50 periods per second } rated 15,000 Kilowatts. 3,000 Volts at 3,000 revolutions per minute;  
for supplying power for driving 4 Propelling Motors, Type Synchronous — Three phase  
rated 4,750 H.P. Volts at 155 revolutions per minute. Direct coupled, single or double reduction geared to 4 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	13 1/8	43 1/8	2									
2ND	7 1/8	47 1/8	1									
3RD	1 3/4	47 3/4	1									
4TH	1 3/4	47 3/4	1									
5TH	1 3/4	48 1/4	1									
6TH	2 3/4	50 3/4	1									
7TH	3 1/4	52 1/4	1									
8TH	4 1/4	56 1/4	1									
9TH	6 1/4	59 1/4	1									
10TH	8 1/4	64 1/4	1									
11TH	11 3/4											
12TH												

Shaft Horse Power at each turbine H.P. 10,050 Revolutions per minute, at full power, of each Turbine Shaft I.P. 3,000 1st reduction wheel  
L.P. main shaft

Rotor Shaft diameter at journals H.P. 7" Pitch Circle Diameter 1st pinion 1st reduction wheel Width of Face 1st reduction wheel  
L.P. 2nd pinion main 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 Pinion Shafts, diameter at bearings External 1st 2nd diameter at bottom of pinion teeth 1st  
2nd

Wheel Shafts, diameter at bearings 1st diameter at wheel shroud 1st Generator Shaft, diameter at bearings 9"  
main Propelling Motor Shaft, diameter at bearings 15"

Intermediate Shafts, diameter as per rule 12.58" Thrust Shaft, diameter at collars as per rule 13.2" Tube Shaft, diameter as per rule  
as fitted 13.75" as fitted 14.5" as fitted

Screw Shaft, diameter as per rule 13.66" Is the tube shaft fitted with a continuous liner yes Bronze Liners, thickness in way of bushes as per rule 7.2"  
as fitted 14.875" as fitted 15"

Thickness between bushes as per rule 5.4" 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 no 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 no If two liners are fitted, is the shaft lapped or protected between the liners no 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 7'-5"

Propeller, diameter 13'-0" Pitch 15'-6" No. of Blades 4 State whether Moveable no Total Developed Surface 60 square feet.

If Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine no Can the H.P. or L.P. Turbine exhaust direct to the

Condenser no No. of Turbines fitted with astern wheels None Feed Pumps No. and size 2 Turbo 125,000 lbs/hr. each; 2 Recip. 112,500 lbs/hr. each;  
How driven 1 Recip. 30,000 lbs/hr. Steam

Pumps connected to the Main Bilge Line No. and size Three @ 130/190 tons/hr.; One Emergency — Dupondale 130 tons/hr.

Ballast Pumps, No. and size Six @ 130 tons/hr. Lubricating Oil Pumps, including Spare Pump, No. and size One — 200 gal/hr. driven from turbine  
How driven Electric Motor for each turbine One — Rotary, driven by electric motor  
One — driven by independent turbine

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 5 @ 3" 1 @ 2 1/2" 5 @ 2" 2 @ 1 1/2" 5 @ 2 1/2" 5 @ 3" 1 @ 3 1/2" 2 @ 2"

In Holds, &c. N° 1 Hold — 2 @ 3" N° 2 Hold 2 @ 3" Chain Locker 1 @ 2 1/2" Forward Cofferdam 1 @ 2 1/2"

Main Water Circulating Pump Direct Bilge Suctions, No. and size 2 @ 17 1/2" Independent Power Pump Direct Suctions to the Engine Room

Bilges, No. and size 8 @ 4 1/2" 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 fitted to inner skin with steel pipes to shell. Are they fitted with Valves or Cocks yes.

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 below

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 bunker: Discharge pipes thro' oil fuel tanks & trimmings tanks Are they protected Substantial steel pipes.

What pipes pass through the deep tanks no Have they been tested as per rule yes.

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 Bulkhead Deck.



4<sup>A</sup> 87699.

BOILERS, &c. (Letter for record S.) Total Heating Surface of Boilers 42,200  $\text{ft}^2$  Superheaters 17,840  $\text{ft}^2$   
 Is Forced Draft fitted *yes*. No. and Description of Boilers *8 Babcock & Wilcox, W. Tube* Working Pressure *400 lbs./sq. in.*  
 Is a Report on Main Boilers now forwarded? *Glasgow Report No. 50997.*  
 Is *a Donkey* Boiler fitted? *no* If so, is a report now forwarded? *—*  
 Plans. Are approved plans forwarded herewith for Shafting *12.9.30* Main Boilers *yes*. Auxiliary Boilers *—* Donkey Boilers *—*  
 (If not state date of approval)  
 Superheaters *yes*. General Pumping Arrangements *yes*. Oil Fuel Burning Arrangements *yes*.  
 Spare Gear. State the articles supplied:— *Please see London Report No. 96703 and list of spare gear attached hereto.*

The foregoing is a correct description,

Manufacturer

Dates of Survey *1930 1931*  
 During progress of work in shops:— Dec. 23. Feb. 9. 23. 24. 26. Mar. 13. 16. 30. Apr. 14. 24. May 12. 26. June 11. 24. July 2. 3. 7. 8. 13. 15. 20. 21. 22. 23.  
 During erection on board vessel:— 24. 27. 30. 31. Aug. 8. 10. 11. 12. 13. 14. 17. 18. 19. 20. 21. 24. 25. 28. 29. 31. Sep. 1. 7. 9. 10. 11. 12. 14. 15. 16. 17. 18. 19. 21. 22. 23.  
 Total No. of visits *24. 25. 26. 27. 29. 30. Oct. 1. 2. 3. 5. 6. 7. 8. 9. 11. 12. 13. 14. 15. 16. 19. 23. 26. 30. Nov. 2.*  
 Dates of Examination of principal parts—Casings *20.11.30* Rotors *4.2.31* Blading *4.2.31* Alternator shaft *28.8.30*  
 Motor shaft *28.8.30* Thrust shaft *27.1.31* Intermediate shafts *27.2.31 22.3.31* Tube shaft *—* Screw shafts *24.2.31 7.4.31 16.3.31*  
 Propellers *17.2.31 16.3.31* Stern tube *22.12.30 to 16.3.31* Engine and boiler seatings *30.3.31 23.2.31* Engine holding down bolts *12.5.31 26.5.31*  
 Completion of pumping arrangements *16.10.31* Boilers fixed *26.5.31* Engines tried under steam *23.9.31*  
 Main boiler safety valves adjusted *1.10.31 13.10.31* Thickness of adjusting washers *See attached sheet.*  
 Rotor shaft, Material and tensile strength *O.H.S. 41 and 43 tons* Identification Mark *3982 L.Y. 21.10.30*  
 Alternator shaft, Material and tensile strength *O.H.S. 39 to 42 tons* Identification Mark *8781 L.Y. 9.8.30*  
 Piston shaft, Material and tensile strength *—* Identification Mark *8776 L.Y. 30.7.30*  
 Piston shaft, Material and tensile strength *—* Identification Mark *—*  
 Piston shaft, Material and tensile strength *—* Identification Mark *—*  
 Piston shaft, Material *O.H.S.* Identification Mark *3824 L.P. 28.8.30* Thrust shaft, Material *Ingot Steel* Identification Mark *587 W.C.*  
 Intermediate shafts, Material *Ingot Steel* Identification Marks *587 W.C.* Tube shaft, Material *—* Identification Marks *—*  
 Screw shafts, Material *Ingot Steel* Identification Marks *587 W.C.* Steam Pipes, Material *1/2 Steel* Test pressure *1200 lbs./sq. in.*  
 Date of test *18.7.31 to 14.10.31* 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 *no*. If so, have the requirements of the Rules been complied with *—*  
 Is this machinery a duplicate of a previous case *no*. If so, state name of vessel *—*

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

The machinery and boilers, built at Witton and Glasgow (See Lon. Rpt. No. 96703 and Lb. Rpt. No. 50997), have been satisfactorily fitted on board the vessel; the materials and workmanship are good.

The boilers, after erection in the vessel, were tested by hydraulic pressure to 500 lbs./sq. in. with satisfactory results, and the safety valves adjusted under steam to 400 lbs./sq. in.

On completion the machinery was tested under working conditions and found satisfactory. This machinery is eligible, in my opinion, for classification, and to have the record

✱ L.M.C. 11.31 - C.L. *—* Fitted for oil fuel 11.31 F.P. above 150°F.

The amount of *Survey* *175 12 4* When applied for, *30.10.1931*  
*Special* *243 1 11*  
*Donkey Boiler* *61 7 2*  
*Travelling Expense* *43 8 10*  
*178 3 5*  
*10*  
 Assigned *+ L.M.C. 11.31 F.D. C.L.*  
 Fitted for oil fuel 11.31 F.P. above 150°F

Committee's Minute

TUE, 10 NOV 1931

Assigned

Rpt. 9a.

Port of *NEWCASTLE-ON-TYNE* Continuation of Report No. 87699 dated

on the

QUAD. S.S. "MONARCH OF BERMUDA"  
 Thickness of Adjusting Washers - Main Boilers Safety Valves:—  
 FOR BOILER ROOM. AFTER BOILER ROOM.

PORT FOR BOILER	STARBOARD FOR BOILER	PORT FOR BOILER	STARBOARD FOR BOILER
P.V. $\frac{19}{32}$ S.V. $\frac{19}{32}$	P.V. $\frac{5}{8}$ S.V. $\frac{19}{32}$	P.V. $\frac{19}{32}$ S.V. $\frac{39}{64}$	P.V. $\frac{39}{64}$ S.V. $\frac{39}{64}$
SUPERHEATER S.V. $\frac{19}{32}$	SUPERHEATER S.V. $\frac{9}{16}$	SUPERHEATER S.V. $\frac{5}{8}$	SUPERHEATER S.V. $\frac{39}{64}$
PORT AFTER BOILER	STARBOARD AFTER BOILER	PORT AFTER BOILER	STARBOARD AFTER BOILER
P.V. $\frac{19}{32}$ S.V. $\frac{19}{32}$	P.V. $\frac{19}{32}$ S.V. $\frac{19}{32}$	P.V. $\frac{19}{32}$ S.V. $\frac{39}{64}$	P.V. $\frac{19}{32}$ S.V. $\frac{19}{32}$
SUPERHEATER S.V. $\frac{19}{32}$	SUPERHEATER S.V. $\frac{19}{32}$	SUPERHEATER S.V. $\frac{19}{32}$	SUPERHEATER S.V. $\frac{9}{16}$

H.B. Forster.



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