

# REPORT ON OIL ENGINE MACHINERY.

No. 11967

Received at London Office JUL -1 1937

Date of writing Report 19 When handed in at Local Office 30.6.1937 Port of Belfast  
Date, First Survey 3rd Aug 1936 Last Survey 29th June 1937  
Number of Visits 135

Survey held at Belfast  
No. in Survey held at Belfast  
g. Book.

0051 on the <sup>Single</sup> ~~Triple~~ ~~Quadruple~~ Screw vessel SINGLE "ROXBURGH CASTLE"  
Tons { Gross 7800  
Net 4738

built at Belfast By whom built Harland & Wolff Yard No. 993 When built 1937  
Engines made at do By whom made do do Engine No. 993 When made 1937  
Monkey Boiler made at Annan By whom made Cochran & Co. Annan Lt. Boiler No. 13430 When made 1936  
Horse Power 1647 Owners Union Castle Mail S.S. Co. Port belonging to London  
Nom. Horse Power as per Rule 1642 Is Refrigerating Machinery fitted for cargo purposes yes Is Electric Light fitted yes  
Trade for which vessel is intended Ocean going 243k 55 1/2

**ENGINES, &c.** Type of Engines H.W. Airless injection 2 or 4 stroke cycle 2 Single or double acting double  
Maximum pressure in cylinders 49 Kg/cm<sup>2</sup> Diameter of cylinders 620 mm Length of stroke 1400 mm No. of cylinders 8 No. of cranks 8  
Mean Indicated Pressure 100 lbs  
No. of bearings, adjacent to the Crank, measured from inner edge to inner edge 1164 mm Is there a bearing between each crank yes  
Revolutions per minute 104 Flywheel dia. 2483 mm Weight 2500 Kg Means of ignition Compression Kind of fuel used Diesel Oil  
Crank Shaft, dia. of journals as per Rule as app'd Crank pin dia. 500 mm Crank Webs Mid. length breadth 960 mm Thickness parallel to axis 260 mm  
as fitted 500 mm Mid. length thickness 260 mm Thickness around eye-hole 225 mm  
Flywheel Shaft, diameter as per Rule as app'd Intermediate Shafts, diameter as per Rule as app'd Thrust Shaft, diameter at collars as per Rule as app'd  
as fitted 18" as fitted 490 mm  
Screw Shaft, diameter as per Rule as app'd Is the screw shaft fitted with a continuous liner yes  
as fitted 19 3/4"

Bronze Liners, thickness in way of bushes as per Rule as fitted 1" Thickness between bushes as per rule as fitted 27/32 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  
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  
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  
No If so, state type Length of Bearing in Stern Bush next to and supporting propeller 6'-9"

Propeller, dia. 19'-6" Pitch 17'-10" No. of blades 4 Material Mang. B. whether Moveable Solid Total Developed Surface 130 sq. feet  
Method of reversing Engines Air Is a governor or other arrangement fitted to prevent racing of the engine when declutched yes Means of lubrication  
Forced Thickness of cylinder liners 42 mm Are the cylinders fitted with safety valves yes Are the exhaust pipes and silencers water cooled or lagged with  
non-conducting material lagged If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine  
Cooling Water Pumps, No. Two Is the sea suction provided with an efficient strainer which can be cleared within the vessel yes  
Large Pumps worked from the Main Engines, No. Diameter Stroke Can one be overhauled while the other is at work

Pumps connected to the Main Bilge Line { No. and Size Two Bilge 110 tons/hr Ballast pump 150 tons/hr  
How driven Electric motor Electric motor  
the cooling water led to the bilges No If so, state what special arrangements are made to deal with this water in addition to the ordinary bilge pumping  
arrangements  
Ballast Pumps, No. and size One 150 tons/hr Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size Two 300 tons/hr  
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 Machinery Spaces One 5 1/2" direct suction. 2-3 1/2" 5-2 1/2" 1-4" tunnel In Pump Room 2-3 1/2"  
Holds, &c. One 2 1/2" from refig holds aft. 6-3 1/2" from fore-holds 1-2" from refig space copper drain  
Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1-5 1/2" Ballast pump.

Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes yes Are the Bilge Suctions in the Machinery Spaces  
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 Valves  
Are they fixed sufficiently high on the ship's side to be seen without lifting the platform 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 bunkers 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  
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  
apartment to another yes Is the Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from Upper deck  
On a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork  
Main Air Compressors, No. No. of stages Diameters Stroke Driven by  
Auxiliary Air Compressors, No. 2 No. of stages 2 Diameters 280/245 mm Stroke 130 mm Driven by El motor  
Small Auxiliary Air Compressors, No. 1 No. of stages 2 Diameters 106/34 mm Stroke 80 mm Driven by Steam Engine  
Scavenging Air Pumps, No. Capacity 341 m<sup>3</sup>/min each at 307 rpm and Pressure 1.2 atmos absolute Driven by Main engines

Auxiliary Engines crank shafts, diameter as per Rule as app'd No. 3 Position On seats in Main motor room  
as fitted 280 mm journal 250 crank pin



W242-0130

**AIR RECEIVERS:**—Is each receiver, which can be isolated, fitted with a safety valve as per Rule *Yes*

Can the internal surfaces of the receivers be examined and cleaned *Yes* Is a drain fitted at the lowest part of each receiver *Yes*  
**High Pressure Air Receivers, No. 2** Cubic capacity of each *538 cu/ft* Internal diameter *6'-0 3/8"* thickness *1 1/32"*  
 Seamless, lap welded or riveted longitudinal joint *Riveted* Material *Steel* Range of tensile strength *28/32* Working pressure *by Rules 372 lbs*  
*EMERGENCY* Actual *356 lbs*  
**Starting Air Receivers, No. One** Total cubic capacity *180 litres* Internal diameter *1'-6"* thickness *3/8"*  
 Seamless, lap welded or riveted longitudinal joint *Riveted* Material *Steel* Range of tensile strength *28/32 tons* Working pressure *by Rules 371 lbs*  
 Actual *336 lbs*

**IS A DONKEY BOILER FITTED?** *Yes* If so, is a report now forwarded? *Yes*  
 Is the donkey boiler intended to be used for domestic purposes only *Yes*

**PLANS.** Are approved plans forwarded herewith for Shafting *Yes* Receivers *Yes* Separate Fuel Tanks *Yes*  
 (If not, state date of approval)  
 Donkey Boilers *Yes* General Pumping Arrangements *Yes* Pumping Arrangements in Machinery Space *Yes*  
 Oil Fuel Burning Arrangements *Yes*

**SPARE GEAR.**

Has the spare gear required by the Rules been supplied

State the principal additional spare gear supplied

*See attached list*

The foregoing is a correct description.

FOR HARLAND AND WOLFF, LIMITED  
*Marshall* Manufacturer.  
 Assistant Secretary

1936  
 Dates of Survey while building  
 During progress of work in shops-- Aug 3, 12, 26, 28 Sept 2, 3, 4, 11, 15, 16, 19, 28 Oct 1, 2, 3, 6, 13, 14, 15, 19, 20, 21, 22, 26, Nov 2, 4, 5, 6, 7, 11, 13, 14, 16, 17, 20, 23, 24, 26, 27, 28 Dec 1, 2, 3, 4, 5, 8, 9, 10, 11, 12, 15, 16, 17, 18, 21, 22, 23, 24, 1937 Jan 4, 5, 6, 9, 11, 12, 13, 20, 21, 22, 25, 26 Feb 2, 4, 6, 9, 10, 11, 12, 13, 16, 17, 18, 19, 20, 22, 23, 25, 26 Mar 1, 2, 3, 9, 10, 11, 16, 18, 19, 22, Apr 5, 6, 7, 8, 9, 12, 13, 15, 16, 24, 26, 28, 29, 30 May 7, 10, 11, 18, 19, 20, 22, 26, 28 June 2, 4, 7, 10, 11, 17, 18, 29  
 Total No. of visits *135*

Dates of Examination of principal parts—Cylinders *20-1-37, 21-3-37* Covers *6-11-37, 31-3-37* Pistons *8-11-37, 1-3-37* Rods *15-10-37* Connecting rods *23-11-37*

Crank shaft *4-2-37* Flywheel shaft *-* Thrust shaft *4-2-37* Intermediate shafts *11-3-37, 11-3-37* Tube shaft *✓*

Screw shaft *10-3-37* Propellers *13-10-37* Stern tube *5-3-37* Engine seatings *16-3-37* Engines holding down bolts *29-4-37*

Completion of fitting sea connections *16-3-37* Completion of pumping arrangements *18-6-37* Engines tried under working conditions *18-6-37*

Crank shaft, Material *S* Identification Mark *L10405 253* Flywheel shaft, Material *✓* Identification Mark *✓*

Thrust shaft, Material *S* Identification Mark *L10405 472* Intermediate shafts, Material *S* Identification Marks *N 2, 3, 4, 11, 15, 110405*

Tube shaft, Material *✓* Identification Mark *✓* Screw shaft, Material *S* Identification Mark *L10405 256*

Is the flash point of the oil to be used over 150° F. *Yes*

Have the requirements of the Rules for oil fuel pipes and tank fittings 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 *✓*

If the notation for Ice Strengthening is desired, state whether the requirements in this respect have been complied with *✓*

Is this machinery duplicate of a previous case *Yes* If so, state name of vessel *Rochester Castle*

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

*The machinery of this vessel has been constructed under special survey. The materials and workmanship are sound & good. The main engines and auxiliaries have been efficiently installed and tried out under working conditions with satisfactory results. In our opinion the vessel is eligible for notation in the Society Register Book + LMC 6. 37. CL. DB 100 lbs Oil ENGINE*

The amount of Entry Fee ..	£ 6 : 0	When applied for,	
Special ..	£ 141 : 1	30. 6. 1937,	
Air Receivers ..	£ 8 : 8	When received,	
Donkey Boiler Fee ..	£ 5 : 8	21. 7. 1937	
Travelling Expenses (if any) £			

*Charles J. Hunter & R. Lee Amner*  
 Engineer Surveyors to Lloyd's Register of Shipping.

Committee's Minute **JUL 6 JUL 1937**  
 Assigned *+ Lmb. 6. 37*  
*DB-100 lbs*  
*oil by. C*



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