

REPORT ON STEAM RECIPROCATING ENGINE MACHINERY.

Received at London Office

JAN - 2 1941

Date of writing Report 23rd DEC 1940. When handed in at Local Office 27th DEC. 1940. Port of GreenockNo. in Survey held at Greenock
Reg. Book. on the EMPIRE FROSTDate, First Survey 11th DEC. 1939. Last Survey 25th DEC. 1940
(Number of Visits 51)

Built at Port Glasgow By whom built Messrs Lithgows Ltd. Yard No. 939 Tons { Gross 7005
Net 5129
When built 1940
Engines made at Greenock By whom made Messrs Rankin & Blackmore Engine No. 472 When made 1940
Boilers made at Dumbarton By whom made Wm Rennie & Bros Ltd Boiler No. S.D. 3381 When made 1940
Registered Horse Power 436 Owners He Ministry of Shipping Port belonging to Greenock
Nom. Horse Power as per Rule 436 Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted Yes
Trade for which Vessel is intended Foreign

ENGINES, &c. — Description of Engines Tuple Expansion (Computed values on H.P.) Revs. per minute
Dia. of Cylinders 33.5 37.2 68 Length of Stroke 48" No. of Cylinders 3 No. of Cranks 3
Crank shaft, dia. of journals 13.63 as per Rule 13.63 Crank pin dia. 13.4 Crank webs 13.4 Mid. length breadth 8.4 Thickness parallel to axis 8.4
as fitted 13.4 Mid. length thickness 13.63 Thickness around eye-hole 6.8
Intermediate Shafts, diameter 12.98 as per Rule 13 Thrust shaft, diameter at collars 13.63 as per Rule 13.63
as fitted 13 as fitted 13.4
Tube Shafts, diameter 14.5 as per Rule 14.5 Is the tube shaft fitted with a continuous liner Yes
as fitted 14.5 as fitted 14.5
Screw Shaft, diameter 3.4 as per Rule 3.4 as fitted 3.4
Bronze Liners, thickness in way of bushes 3.4 as per Rule 3.4 Thickness between bushes 5.56 as per Rule 5.56
as fitted 3.4 as fitted 5.56 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 Yes
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 No Is an approved Oil Gland or other appliance fitted at the after end of the tube
shaft No If so, state type Oil Gland Length of Bearing in Stern Bush next to and supporting propeller 59.2
Propeller, dia. 18.3 Pitch 17-3 No. of Blades 4 Material C.I. whether Movable No. Total Developed Surface 108 sq. feet
Feed Pumps worked from the Main Engines, No. Two Diameter 4" Stroke 24" Can one be overhauled while the other is at work Yes
Bilge Pumps worked from the Main Engines, No. Two Diameter 4" Stroke 24" Can one be overhauled while the other is at work Yes
Feed Pumps { No. and size One 9.5-7-21 (Main) One 9.5-7-21 Pumps connected to the { No. and size One -10.5-13-24 One 9.5-7-21
Pumps { How driven Steam Steam Main Bilge Line { How driven Steam
Ballast Pumps, No. and size One -10.5-13-24 Lubricating Oil Pumps, including Spare Pump, No. and size —
Are two independent means arranged for circulating water through the Oil Cooler Yes Suctions, connected to both Main Bilge Pumps and Auxiliary
Bilge Pumps; — In Engine and Boiler Room 3-3"
In Pump Room No. 3. 2-3" No. 4. 2-3" In Holds, &c. No. 1. 2-3" No. 2. 2-3.5" Crossbunker 2-2.5"
No. 3. 2-3" No. 4. 2-3" Cofferdam 1-2" Tunnel Well 1-2.5"
Main Water Circulating Pump Direct Bilge Suctions, No. and size 1-5" 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 Main Tank below others above
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 Fuel bilge suction How are they protected By wood casings
What pipes pass through the deep tanks — 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 Access to tunnel by trunk

MAIN BOILERS, &c. — (Letter for record S.) Total Heating Surface of Boilers 5830 ft.
Which Boilers are fitted with Forced Draft Both Which Boilers are fitted with Superheaters —
No. and Description of Boilers 2. SE. Multitubular Working Pressure 220 lbs./sq. in.
IS A REPORT ON MAIN BOILERS NOW FORWARDED? Yes
IS A DONKEY BOILER FITTED? No If so, is a report now forwarded? —
Can the donkey boiler be used for domestic purposes only —
PLANS. Are approved plans forwarded herewith for Shafting Yes Main Boilers Yes Auxiliary Boilers — Donkey Boilers —
(If not state date of approval) Superheaters — General Pumping Arrangements Yes Oil fuel Burning Piping Arrangements —

SPARE GEAR.

Has the spare gear required by the Rules been supplied YesState the principal additional spare gear supplied Cam Valve Gear.

1 Valve spindle
2 Crosshead blocks and pins.
4 Cam Rollers with pins.

The foregoing is a correct description.

RANKIN & BLACKMORE LTD.,

W. H. W. D.

Managing Director.

Manufacturer.

J.H.

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(1939) DEC. 11. (1940) APR. 11-20. MAY 4. 20-28. JUNE 3-10. 16-18. 20. JULY 1-3. 8-10. 15-18. 22-25. AUG. 7-9. 12-14. 16-23. 25-30. SEPT. 2-6. 23-25. 31. OCT. 2-4. 8-10. 16-21. 23-25. NOV. 4-11. 14-28. 29-30. DEC. 6-10. 12-20. 25.

During progress of work in shops --
 During erection on board vessel --
 Total No. of visits 51.

Dates of Examination of principal parts—Cylinders 2/9/40. Slides 8/10/40 Covers 23/10/40
 Pistons 23/10/40 Piston Rods 30/9/40 Connecting rods 30/9/40
 Crank shaft 25/9/40 Thrust shaft 10/10/40 Intermediate shafts 21/10/40
 Tube shaft — Screw shaft 28/8/40 Propeller 28/8/40
 Stern tube 28/8/40 Engine and boiler seatings 24/9/40 Engines holding down bolts 28/11/40
 Completion of fitting sea connections 30/8/40
 Completion of pumping arrangements 20/12/40 Boilers fixed 29/11/40 Engines tried under steam 17/12/40
 Main boiler safety valves adjusted 17/12/40 Thickness of adjusting washers Port. 5 1/8" Stand. 5 3/8"
 Crank shaft material S.M. Steel Identification Mark M.C. 26/9/40 Thrust shaft material S.M. Steel Identification Mark M.C. 10/10/40
 Intermediate shafts, material S.M. Steel Identification Marks M.C. 21/10/40 Tube shaft, material — Identification Mark —
 Screw shaft, material S.M. Steel Identification Mark 28/8/40 Steam Pipes, material S.D. Steel Test pressure 660/lbs. Date of Test 6/12/40
 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 the use of oil as fuel been complied with —
 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 No. If so, state name of vessel —

General Remarks (State quality of workmanship, opinions as to class, &c.) This machinery has been built under Special Survey, in accordance with the rules and the approved plans. The materials and workmanship are good. The engines and boilers have been securely fitted in the vessel, tried under steam and found satisfactory. The machinery is eligible, in my opinion, for the Record of L.M.C. 12-40 and T.S. (CL) and the Notation D.S.B. F.D.

As requested in the London Letter dated 4th March 1940, the plans and specification have been re-examined and a copy of the certificate issued is enclosed herewith.

The amount of Entry Fee ... £ 5 : 0 :
 Special (by boiler fee) £ 81 : 1 :
 + additional supervision ... £ : :
 Donkey Boiler Fee ... £ : :
 Travelling Expenses (if any) £ : :

When applied for, 27th DEC. 1940.
 When received, 9-15 1940.

M. Caldwell
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 31 DEC 1940

Assigned -1- Dec 12, 40



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