

REPORT ON STEAM RECIPROCATING ENGINE MACHINERY.

Received at London Office

JUL 1943

Date of writing Report 18.6.43 When handed in at Local Office 18.6.43 Port of Liverpool
 No. in Survey held at NORTHWICH Date, First Survey July 16th /42 Last Survey June 3rd 1943
 Reg. Book. on the S.S. "EMPIRE BILLOW" (Number of Visits 34) Tons } Gross 214.54
 Net 74.39
 Built at Northwich By whom built W.J. Yarwood & Sons Ltd Yard No. 718 When built 1943
 Engines made at Northwich By whom made W.J. Yarwood & Sons Ltd Engine No. 177 When made 1925-1943
 Boilers made at Carfin By whom made Anderson Boiler No. 3733 When made 1943
 Registered Horse Power _____ Owners _____ Port belonging to _____
 Nom. Horse Power as per Rule 50 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes
 Trade for which Vessel is intended Water Carrier

ENGINES, &c.—Description of Engines Compound Revs. per minute 325 I.H.P. 140
 Dia. of Cylinders 13 1/2 x 28 Length of Stroke 22 No. of Cylinders 2 No. of Cranks 2
 Crank shaft, dia. of journals as per Rule Approved Crank pin dia. 6 5/16 Crank webs Mid. length breadth shrunk Thickness parallel to axis 4 1/2
 as fitted 6 5/16 Mid. length thickness shrunk Thickness around eye-hole 2 1/2
 Intermediate Shafts, diameter as per Rule Approved Thrust shaft, diameter at collars as per Rule Approved
 as fitted 6 as fitted 6 5/16
 Tube Shafts, diameter as per Rule ✓ Screw Shaft, diameter as per Rule Approved Is the tube shaft fitted with a continuous liner No
 as fitted ✓ as fitted 7 1/8 as fitted ✓

Bronze Liners, thickness in way of bushes as per Rule ✓ Thickness between bushes as per Rule ✓ 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 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 ✓
 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 Yes
 If so, state type Yarwoods Length of Bearing in Stern Bush next to and supporting propeller 2-6
 Propeller, dia. 7-8 Pitch 7-9 No. of Blades 4 Material CI whether Movable Solid Total Developed Surface 19 sq. feet
 Feed Pumps worked from the Main Engines, No. One Diameter 2 Stroke 11 Can one be overhauled while the other is at work ✓
 Bilge Pumps worked from the Main Engines, No. One Diameter 2 Stroke 11 Can one be overhauled while the other is at work ✓
 Feed Pumps } No. and size 1-2x11 1-4x6x12 Pumps connected to the } No. and size 1-2x11 1-6x4 1/2 x 6
 How driven M. Eng. (Wais) Steam Main Bilge Line } How driven M. Eng. Steam
 Ballast Pumps, No. and size 1-6x4 1/2 x 6 GS Lubricating Oil Pumps, including Spare Pump, No. and size ✓
 Are two independent means arranged for circulating water through the Oil Cooler ✓ Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge Pumps;—In Engine and Boiler Room 2-2
 In Pump Room ✓ In Holds, &c. No holds Hand pumps to stow forward.

Main Water Circulating Pump Direct Bilge Suctions, No. and size 1-2 1/2 Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1-2 1/2
 Are all the Bilge Suction Pipes in holds and tank 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 on Kingposts 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 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 ✓ How are they protected ✓
 What pipes pass through the deep tanks ✓ 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 None Is it fitted with a watertight door ✓ worked from ✓

MAIN BOILERS, &c.—(Letter for record S) Total Heating Surface of Boilers 991 sq ft
 Is Forced Draft fitted No No. and Description of Boilers 1.SB. Working Pressure 140 lbs/sq.
 IS A REPORT ON MAIN BOILERS NOW FORWARDED? Yes report No: 66683
 IS A DONKEY BOILER FITTED? No If so, is a report now forwarded? ✓
 Is the donkey boiler intended to be used for domestic purposes only ✓

PLANS. Are approved plans forwarded herewith for Shafting 16.7.42 Main Boilers ✓ Auxiliary Boilers ✓ Donkey Boilers ✓
 (If not state date of approval)
 Superheaters ✓ General Pumping Arrangements 8.9.42 Oil fuel Burning Piping Arrangements ✓
SPARE GEAR.
 Has the spare gear required by the Rules been supplied. Yes
 State the principal additional spare gear supplied. as per specifications to date

If not, state whether, and when, one will be sent

The foregoing is a correct description,
W. J. YARWOOD & SONS (1938) LTD.

Albert Yarwood
Managing Director

Manufacturer.



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Foundation

Dates of Survey while building } During progress of work in shops -- } 1942 July 14.22, Aug 12, Sept 23, Oct 1.5.20, Nov 3.11.13.20, Dec 4.10.16, 1943 Jan 12.20.26
 } During erection on board vessel --- } Feb 2.9.12.17.24, Mar 4.10.16.24.30, Apr 13.20, May 5.12.25, June 1.3.
 Total No. of visits 34

Dates of Examination of principal parts—Cylinders 13.11.42 Slides 20.10.42 Covers 20.10.42
 Pistons 13.11.42 Piston Rods 20.1.43 Connecting rods 20.1.43
 Crank shaft 1.10.42 Thrust shaft 2.2.43 Intermediate shafts ✓
 Tube shaft ✓ Screw shaft 22.7.42 Propeller 24.2.43
 Stern tube 24.2.43 Engine and boiler seatings 9.2.43 Engines holding down bolts 13.4.43
 Completion of fitting sea connections 24.5.43
 Completion of pumping arrangements 12.5.43 Boilers fixed 30.3.43 Engines tried under steam 3.6.43
 Main boiler safety valves adjusted 3.6.43 Thickness of adjusting washers Pat 2 1/64" Star 1/32"
 Crank shaft material M.S. Identification Mark A.T.T. 3.7.25 Thrust shaft material MS Identification Mark RSE 12.6.25
 Intermediate shafts, material ✓ Identification Marks 6936 Tube shaft, material ✓ Identification Mark
 Screw shaft, material MS Identification Mark JFC.24.4.42 Steam Pipes, material Copper Test pressure 280 Date of Test 28.4.43
 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 ✓ 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.) The Machinery of this vessel has been built under special survey, in accordance with the approved plans and the Specification approved by the Ministry of Shipping. The materials and workmanship are good. After erection in the shops, the boiler and machinery have been fitted on board, together with the auxiliaries, in an efficient manner; the safety valves adjusted under steam and an accumulation test carried out. The spare gear has been checked. On completion a satisfactory basin trial at full power was held.

In my opinion the machinery of this vessel is eligible to be classed in the Register Book, with a notation of + LMC 6.43.

Note: See London letter 'E' of August 31st 1942 regarding the date of build of main engines. Final date approved 24/

50N HP = 12-10-0
 min 15
 + 25% 3-15-0
 18-15-0
 Bw 6-12-0
 12-3-0

The amount of Entry Fee ... £ 2 : 0 : When applied for,
 Bal Special ... £ 12 : 3 : 30 JUN 1943
 Donkey Boiler Fee ... £ : : When received,
 Travelling Expenses (if any) £ 2 : 7 : 19

C. Reed
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute LIVERPOOL
 Assigned + LMC 6.43 O.G. ghr



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