

REPORT ON STEAM RECIPROCATING ENGINE MACHINERY.

Date of writing Report 7.6.1942 When handed in at Local Office 10 JUL 1942 Received at London Office 13 JUL 1942
 No. in Survey held at HULL Date, First Survey 22.10.41 Last Survey 5.6.1942
 Reg. Book on the STEAM TUG **EMPIRE RACE** (Number of Visits 41)
 Built at Hesse By whom built Richard Hurston & Son Ltd Yard No. 421. When built 1942
 Engines made at HULL By whom made Chas. D. Holmes & Co. Engine No. 1595. When made 1942
 Boilers made at HULL W. HARTLEPOOL By whom made Central Marine Eng. Co. Boiler No. R. 343. When made 1942
 Registered Horse Power Owners The Ministry of War Transport Port belonging to 343
 Nom. Horse Power as per Rule 177. Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted Ya.
 Trade for which vessel is intended

ENGINES, &c.—Description of Engines Triple Expansion Revs. per minute 116
 Dia. of Cylinders 16"-26"-43" Length of Stroke 30" No. of Cylinders 3 No. of Cranks 3
 Crank shaft, dia. of journals as per Rule 8.8" as fitted 9 1/8" Crank pin dia. 9 1/8" Mid. length breadth — Thickness parallel to axis 5 3/4"
 Intermediate Shafts, diameter as per Rule 8.375" as fitted 8 7/8" Crank webs Mid. length thickness — shrunk Thickness around eye-hole 4 1/16"
 Thrust shaft, diameter at collars as per Rule 8.9" as fitted 9 1/8"
 Tube Shafts, diameter as per Rule None Screw Shaft, diameter as per Rule 9.7" as fitted 9 7/8" Is the {tube/screw} shaft fitted with a continuous liner {No/Yes} No
 Bronze Liners, thickness in way of bushes as per Rule — as fitted — Thickness 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 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. Ya. If so, state type NEWARK (No. 1). Length of Bearing in Stern Bush next to and supporting propeller 42"

Propeller, dia. 11'-0" Pitch 11'-8" No. of Blades 4 Material C.I. whether Moveable Solid Total Developed Surface 46 sq. feet
 Feed Pumps worked from the Main Engines, No. 2 Diameter 3" Stroke 18" Can one be overhauled while the other is at work. Ya.
 Bilge Pumps worked from the Main Engines, No. 2 Diameter 3" Stroke 18" Can one be overhauled while the other is at work. Ya.
 Feed Pumps No. and size One 7"x5"x6 Duplex Pumps connected to the Main Bilge Line No. and size 2"x3"x18", One 7"x7"x8" Duplex
 How driven Independent Steam Main Eng. Independent Steam
 Ballast Pumps, No. and size One 7"x7"x8" Duplex Lubricating Oil Pumps, including Spare Pump, No. and size NONE
 Are two independent means arranged for circulating water through the Oil Cooler NONE Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge Pumps:—In Engine and Boiler Room 2 @ 2", 2 @ 2 1/4" In Holds, &c. One @ 2" Dia in Fore Peak. Frt. Bilge. Apr. Peak.

Main Water Circulating Pump Direct Bilge Suctions, No. and size One 5 1/2" Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size One @ 2 1/4" One at 2 1/4" in Bl. Rm. Are all the Bilge Suction Pipes in holds and tunnel well fitted with strum-boxes Ya.
 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. Ya.
 Are all Sea Connections fitted direct on the skin of the ship on Steel Plate Boxes. 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. Ya. 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. Ya. Are the Blow Off Cocks fitted with a spigot and brass covering plate. Ya.
 What Pipes pass through the bunkers. NONE 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. Ya.
 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. Ya. Is the Shaft Tunnel watertight. NONE. Is it fitted with a watertight door. worked from.

MAIN BOILERS, &c.—(Letter for record 5) Total Heating Surface of Boilers 2778 sq. ft.
 Which Boilers are fitted with Forced Draft. Ya. Which Boilers are fitted with Superheaters. NONE.
 No. and Description of Boilers One S.B. Working Pressure 210 lb./sq. in.
 IS A REPORT ON MAIN BOILERS NOW FORWARDED? Ya.
 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 3-1-41 Main Boilers 8-8-40 Auxiliary Boilers. Donkey Boilers.
 Superheaters. General Pumping Arrangements 1-11-40. Oil fuel Burning Piping Arrangements. NONE.

SPARE GEAR.
 Has the spare gear required by the Rules been supplied. Yes.
 State the principal additional spare gear supplied. As Specification: see attached list.

The foregoing is a correct description.
 FOR CHARLES D. HOLMES & CO., LTD.
 W.R. Evans

Manufacturer.



EMPIRE RACE.

Dates of Survey while building
 During progress of work in shops - - 1941. Oct 22. 24. 30. Nov. 3. 12. Dec. 31. 1942. 13. 20. 27. 28. Mar. 2. 6. 13. 20. 23. 27. 30.
 During erection on board vessel - - Apr. 2. 3. 7. 8. 13. 14. 15. 17. 21. 22. 27. May 1. 4. 5. 6. 9. 11. 12. 13. 29. June 1. 2. 4. 5.
 Total No. of visits 41.

Dates of Examination of principal parts - Cylinders 27/3/42. 4/4/42. 23/4/42 Slides 20/3/42. Covers 27/3/42. 7/4/42. 23/3/42.
 Pistons 27/3/42. 13/4/42. Piston Rods 13/2/42. Connecting rods 27/3/42.
 Crank shaft 20/2/42. Thrust shaft 20/2/42. Intermediate shafts 27/2/42.
 Tube shaft NONE Screw shaft 22-10-41. Propeller 22/10/41.
 Stern tube 30/10/41. Engine and boiler seatings 27. 4. 42. Engines holding down bolts 27. 4. 42.
 Completion of fitting sea connections 12/11/41.
 Completion of pumping arrangements 12. 5. 42. Boilers fixed 27. 4. 42. Engines tried under steam 12. 5. 42.
 Main boiler safety valves adjusted 12. 5. 42. Thickness of adjusting washers 7/16 F, 15/32 A.
 Crank shaft material M.S. Coupling 6344 Journals 6345 AEG. 4-11-41 Identification Mark Pms. 6815 AEG. Thrust shaft material M.S. Identification Mark 6289 AEG. 27/10/42.
 Intermediate shafts, material M.S. Identification Marks 6290. AEG. 4/11/41. Tube shaft, material NONE Identification Mark ✓
 Screw shaft, material M.S. Identification Mark 6127 AEG. 22-9-41. Steam Pipes, material Steel. ✓ Test pressure 630 lb. Date of Test 22/4/42.
 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. Yes. If so, state name of vessel S. Tug. EMPIRE BIRCH Hull Rpt. 51472

General Remarks (State quality of workmanship, opinions as to class, &c.)
 The Machinery of this vessel has been constructed in accordance with the approved plans, the specification and the Society's Rules, of varied material supplied by firms approved by the Society.
 The Workmanship & materials are good.
 The Machinery and auxiliaries have been fitted aboard and when tried at as near full power as practicable in the Basin found satisfactory in every respect.
 The vessel's machinery is eligible in our opinion to have the records of LMC 5,42. and O.G. and the notations T. 3 Cy. 16", 26", 43" - 30" 177 NHP. 200 lb. 15B. 3c.f. G5 64, 4 F.D. H.S. 2778 4

Certificate to be sent to
 The amount of Entry Fee ... £ 3 : - : -
 Special Supervision of Spec. ... £ 25 : - : -
 Donkey Boiler Fee ... £ 11 : - : -
 Travelling Expenses (if any) £ : : -
 Assessed at from (Hull 137) (part) ... £ 9. 7. 1942
 When applied for, ... 9. 7. 1942
 When received, ... 19.

W.S. Shillies
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE 21 JUL 1942
 Assigned + Lambert 42
 J.D. Co.

