

Slid No. 34109

Run No. 2961

8 JAN 1945

Rpt. 4.

REPORT ON STEAM RECIPROCATING ENGINE MACHINERY.

Received at London Office

Date of writing Report 20-10-44 When handed in at Local Office 20-10-44 Port of **BARROW.** 21 OCT 1944

No. in Survey held at **Barrow.** Date, First Survey 14-10-44 Last Survey 20-10-1943
 Reg. Book. on the **EMPIRE MANDALAY.** (Number of Visits 78.) Tons { Gross 7085 Net 4889
 Built at **Sunderland** By whom built **Shipbuilding Corp. (Leam Branch)** Yard No. **5** When built
 Engines made at **Barrow.** By whom made **Vickers-Armstrongs** Engine No. **847** When made **1943**
 Boilers made at **Sunderland** By whom made **G. Black (1938) L** Boiler No. **1333** When made **1944**
 Registered Horse Power Owners **Ministry of War Transport** Port belonging to **Sunderland**
 Nom. Horse Power as per Rule **510** Is Refrigerating Machinery fitted for cargo purposes **No** Is Electric Light fitted **Yes**
 Trade for which Vessel is intended

ENGINES, &c.—Description of Engines **Triple Expansion** Revs. per minute
 Dia. of Cylinders **24 1/2" - 39" - 70"** Length of Stroke **48"** No. of Cylinders **3** No. of Cranks **3**
 Crank shaft, dia. of journals as per Rule **24"** as fitted **14 1/4"** Crank pin dia. **14 3/4"** Crank webs Mid. length breadth **9"** Thickness parallel to axis **6 3/8"**
 Intermediate Shafts, diameter as per Rule **13.32"** as fitted **13 5/8"** Thrust shaft, diameter at collars as per Rule **14"** as fitted **14 1/4"**
 Tube Shafts, diameter as per Rule **14.85"** as fitted **15 1/4"** Is the tube screw shaft filled with a continuous liner **Yes**
 Screw Shaft, diameter as per Rule **14.85"** as fitted **15 1/4"** Is the tube screw shaft filled with a continuous liner **Yes**
 Bronze Liners, thickness in way of bushes as per Rule **3/4"** as fitted **13/16"** Thickness between bushes as per Rule **9/16"** as fitted **2/32"** 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
 Propeller, dia. **18' 3"** Pitch **16' 6"** No. of Blades **4** Material **C-1** whether Moveable **Solid** Total Developed Surface **110** sq. feet
 Feed Pumps worked from the Main Engines, No. Diameter Stroke Can one be overhauled while the other is at work
 Bilge Pumps worked from the Main Engines, No. **2** Diameter **4"** Stroke **27"** Can one be overhauled while the other is at work **Yes**
 Feed Pumps { No. and size Pumps connected to the Main Bilge Line { No. and size How driven
 Ballast Pumps, No. and size 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
 In Pump Room In Holds, &c.
 Main Water Circulating Pump Direct Bilge Suctions, No. and size Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size
 Are all the Bilge Suction Pipes in holds and tunnel well fitted with strum-boxes
 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
 Are all Sea Connections fitted direct on the skin of the ship Are they fitted with Valves or Cocks
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Are the Overboard Discharges above or below the deep water line
 Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Are the Blow Off Cocks fitted with a spigot and brass covering plate
 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
 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 Is the Shaft Tunnel watertight Is it fitted with a watertight door worked from

MAIN BOILERS, &c.—(Letter for record **S**) **Designed**—Total Heating Surface of Boilers **7248.5**
 Which Boilers are fitted with Forced Draft **All** Which Boilers are fitted with Superheaters **All**
 No. and Description of Boilers **3 S.B.** Working Pressure **220 lbs/sq. in.**

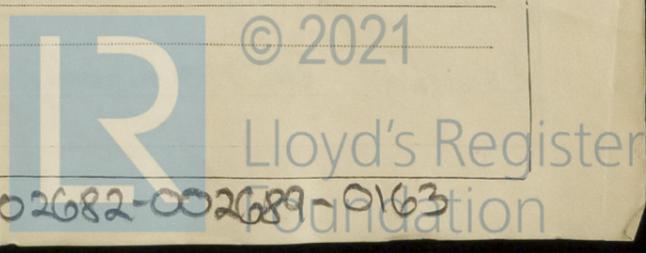
IS A REPORT ON MAIN BOILERS NOW FORWARDED? **No. Boilers from Barrow.**
 IS A DONKEY BOILER FITTED? If so, is a report now forwarded?

Can the donkey boiler be used for domestic purposes only
 PLANS. Are approved plans forwarded herewith for Shafting **19-11-40** Main Boilers **18-8-41** Auxiliary Boilers Donkey Boilers
 Superheaters General Pumping Arrangements **30-12-40** Oil fuel Burning Piping Arrangements

SPARE GEAR.
 Has the spare gear required by the Rules been supplied **See List attached.**
 State the principal additional spare gear supplied

The foregoing is a correct description.
 For VICKERS-ARMSTRONGS LIMITED,
Mitchell

Manufacturer.



1944 Oct. 14-16. Nov. 1, 4, 7, 10, 25, 28. Dec. 2, 5, 8, 12, 15, 18, 22, 26, 31. 1942 Jan. 6, 8, 16, 22, 29. Feb. 4, 10, 17, 24, 25, 27. Mar. 2, 3, 6, 26. Apr. 7, 13, 15, 18, 24. May. 1, 7, 9, 19, 21. June. 2, 8, 12, 17, 19, 22, 30. July. 2, 6, 17, 24. Aug. 12, 15, 21. Sept. 1, 8, 14, 19, 22. Oct. 1, 8, 14. Nov. 14, 20, 24. Dec. 11, 14, 16. 1943 Apr. 9. May 21. Aug. 20. Sep. 2, 16. Oct. 11, 14, 20.

Dates of Survey while building
 During progress of work in shops - -
 During erection on board vessel - - -
 Total No. of visits

78.

Dates of Examination of principal parts—Cylinders 6.3.42 & 21.5.42. Slides 2-9.43. Covers 6.3.42 & 21.5.42.
 Pistons 24.11.42. Piston Rods 9.4.43. Connecting rods 9.4.43.
 Crank shaft 14.12.43. Thrust shaft. Intermediate shafts.
 Tube shaft. Screw shaft. Propeller.
 Stern tube 18.6.42. Engine and boiler seatings. Engines holding down bolts.
 Completion of fitting sea connections.
 Completion of pumping arrangements. Boilers fixed. Engines tried under steam.
 Main boiler safety valves adjusted. Thickness of adjusting washers.
 Crank shaft material Steel. Identification Mark 102. D.L.H.C.14/44. Thrust shaft material. Identification Mark.
 Intermediate shafts, material. Identification Marks. Tube shaft, material. Identification Mark.
 Screw shaft, material. Identification Mark. Steam Pipes, material. Test pressure. Date of Test.
 Is an installation fitted for burning oil fuel. 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 Yes. If so, state name of vessel Vickers-Armstrongs No 846 Bow Rpt 2957.

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

These Engines have been constructed under Special Survey in accordance with the approved plans, the Specification & the Rules. The workmanship & materials are good. The Engines are eligible, in my opinion, to have the record of R.L.M.C. (with class) when fitted in a vessel classed with the Society. They are being sent to Sunderland for fitting in a vessel under Geo. Clarkes No 1333. The line shafts has already been sent to Sunderland in the black state for machining. This line shafts is to be fitted in Geo Clarkes No 1334 & the shafting covered by Bow Rpt No 2957 (V.A. No 846) has been allocated to Geo Clarkes No 1333.

The amount of Entry Fee ... £ 6 : 0 : When applied for, 31. 10. 1943. When received, 19.

The amount of Entry Fee ... £ 6 : 0 :
 2/5 Special + 25% Special ... £ 50 : 5 :
 Donkey Boiler Fee ... £ : :
 Travelling Expenses (if any) £ : :

D. J. G. Colquhoun
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 16 FEB 1945

Assigned See F.E. machy.rph.

