

REPORT ON STEAM RECIPROCATING ENGINE MACHINERY.

Received at London Office.

Date of writing Report 19... When handed in at Local Office **27 JUL 1943** Port of **Sunderland**
 No. in Survey held at **Sunderland** Date, First Survey **Nov 28 1941** Last Survey **June 7 1943**
 Reg. Book (Number of Visits **70**)
 on the **SS "EMPIRE DUCHESS"**
 Built at **Sunderland** By whom built **Short Bros Ltd** Yard No. **478** When built **1943**
 Engines made at **Sunderland** By whom made **J Dickinson & Son** Engine No. **2724** When made **1943**
 Boilers made at **Wallsend** By whom made **N.E. Marine Eng Co (1938) Ltd** Boiler No. When made
 Registered Horse Power Owners Port belonging to
 Nom. Horse Power as per Rule **510** Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted
 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 **13.897** Crank pin dia. **14.75** Crank webs Mid. length breadth **22"** Thickness parallel to axis **9"**
 as fitted **14.25** Mid. length thickness **9"** shrunk Thickness around eye-hole **6.375"**
 Intermediate Shafts, diameter as per Rule **13.33** Thrust shaft, diameter at collars as per Rule **13.997**
 as fitted **13.625** as fitted **14.25**
 Tube Shafts, diameter as per Rule Screw Shaft, diameter as per Rule Is the { tube } shaft fitted with a continuous liner {
 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
 as fitted 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
 at If so, state type Length of Bearing in Stern Bush next to and supporting propeller
 Propeller, dia. Pitch No. of Blades Material whether Moveable Total Developed Surface 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 { No. and size
 How driven Main Bilge Line 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

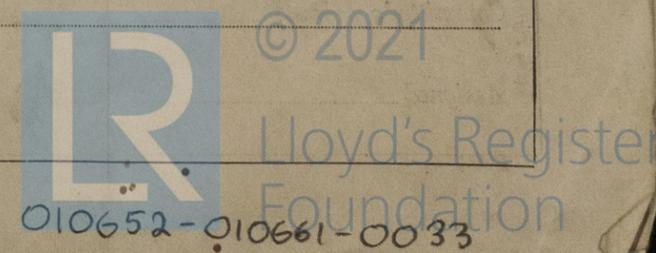
MAIN BOILERS, &c.—(Letter for record) Total Heating Surface of Boilers **7248 ?**
 Which Boilers are fitted with Forced Draft Which Boilers are fitted with Superheaters
 No. and Description of Boilers Working Pressure **220 ?**
IS A REPORT ON MAIN BOILERS NOW FORWARDED?
IS A DONKEY BOILER FITTED? If so, is a report now forwarded?
 Can the donkey boiler be used for domestic purposes only
PLANS. Are approved plans forwarded herewith for Shafting Main Boilers Auxiliary Boilers Donkey Boilers
 (If not state date of approval)
 Superheaters General Pumping Arrangements Oil fuel Burning Piping Arrangements

SPARE GEAR.

Has the spare gear required by the Rules been supplied **Please see Newcastle Report**
 State the principal additional spare gear supplied

The foregoing is a correct description.

JOHN DICKINSON & SONS LTD.
[Signature] Manufacturer.
 RESIDENT MANAGER



NOTE.—The words which do not apply should be deleted.

1941. May 28
 1942. Jan 2, 6, 9, 13, 21, 28, Feb 3, 6, 20, March 5, 9, 12, 19, 24, April 1, 3, 9, 11, 17, 18, 22, 27, 28, May 8
 14, 21, 26, 28, 30, June 4, 23, 29, 30, July 1, 3, 6, 8, 10, 14, 16, 17, 27, 29, 31, Aug 4, 10, 12, 17, 20, 21, 27, 28, Sep 1,
 2, 14, 16, 18, 22, 24, 28, Oct 1, 5, 8, 9, 14, 16, Dec 4, 1943. May 20, June 7, = 70.

Dates of Survey while building

During progress of work in shops - -

During erection on board vessel - - -

Total No. of visits.....

Dates of Examination of principal parts—Cylinders HP 2/9/42 MP 27/8/42 LP 29/6/42 Slides 3/7/42 Covers 17/8/42

Pistons 1/9/42 Piston Rods 24/9/42 Connecting rods 14/7/42

Crank shaft 10/7/42 Thrust shaft 11/7/41 (92s) 29/7/42 Intermediate shafts 29/7/42

Tube shaft ✓ Screw shaft ✓ Propeller ✓

Stern tube ✓ 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 Cast steel webs Identification Mark 10480 Tg 10/7/42 Thrust shaft material Ingot steel Identification Mark 10480 HAI 11/7/41 (92s)

Intermediate shafts, material Ingot steel Identification Marks (10480 (S) 29/7/42) (10426 (T) Tg 29/7/42) 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 ✓ If so, state name of vessel ✓

General Remarks (State quality of workmanship, opinions as to class, &c.) This engine has been built under Special Survey in accordance with the approved plans, specification & the rules of the Society. The materials & workmanship are good. This machinery has been despatched to Newcastle for fitting on board vessel.

The amount of Entry Fee ... £ 6 : 0 : } When applied for,
 Special 2/5 .. £ 40 : 4 : } 7 JUL 1943
 Specification
 Donkey Boiler Fee ... £ 10 : 1 : }
 Travelling Expenses (if any) £ : : } When received, 19

J. Grieve
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute ... 3/5 75.7-6 TUES. 4 JAN 1944
 Assigned ... See minute on P.B. Rph



SUNDERLAND

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