

a List of

RECEIVED

Rpt. 4b.

REPORT ON OIL ENGINE MACHINERY.

No. 10/831

N.D.O.

21 JAN 1944

21 JAN 1944

Received at London Office 31 JAN 1944

Date of writing Report 21 JAN 1944 When handed in at Local Office 21 JAN 1944 Port of NEWCASTLE-ON-TYNE
No. in Survey held at Wallsend on Tyne. Date, First Survey 29th Sept. 1943 Last Survey 23rd Dec. 1943
Reg. Book. Number of Visits 60

23469 on the ^{Single} ~~Triple~~ ~~Quadruple~~ Screw vessel M.V. "EMPIRE INVENTOR" Tons ^{Gross} ~~Net~~
Built at Sunderland By whom built Sir J. Laing & Son Ltd Yard No. 749 When built 1944
Engines made at Wallsend By whom made N.E. Marine Eng Co (1938) Ltd Engine No. 3034 When made 1944
Donkey Boilers made at " By whom made " Boiler No. 3035 When made 1944
Brake Horse Power 4000 Owners Ministry of War Transport Port belonging to Sunderland
Nom. Horse Power as per Rule 1316 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes
Trade for which vessel is intended Carrying Petroleum in bulk 47 1/4

OIL ENGINES, &c.—Type of Engines Heavy bil. 27 3/8" 2 or 4 stroke cycle 2 Single or double acting D.A.
Maximum pressure in cylinders 575 Diameter of cylinders 700 Length of stroke 1200 No. of cylinders 5 No. of cranks 5
Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 1030 Is there a bearing between each crank yes
Revolutions per minute 101 Flywheel dia. 7'-6" Weight 4 1/4 tons Means of ignition Coupl^r Kind of fuel used Diesel oil
Crank Shaft, dia. of journals 17.4 Crank pin dia. 18" Crank Webs Mid. length breadth 10.88" Thickness parallel to axis 12"
CS welds as fitted 18" Mid. length thickness 7.25" shrunk Thickness around eye-hole 8 3/8"
Flywheel Shaft, diameter 14.29 Intermediate Shafts, diameter 15" Thrust Shaft, diameter at collars 15"
on Crankshaft as fitted 15 1/4"
Tube Shaft, diameter approved Is the screw shaft fitted with a continuous liner yes
Screw Shaft, diameter 16"
Bronze Liners, thickness in way of bushes 13/16" Thickness between bushes 9/16" 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 yes Is an approved Oil Gland or other appliance fitted at the after end of the tube shaft no If so, state type yes
Length of Bearing in Stern Bush next to and supporting propeller 5'-4 1/2"
Propeller, dia. 17'-0" Pitch 13'-6" No. of blades 4 Material Bronze whether Moveable no Total Developed Surface 114 sq. feet
Method of reversing Engines Servo Motor Is a governor or other arrangement fitted to prevent racing of the engine when declutched yes Means of lubrication forced
Thickness of cylinder liners 2 3/8" Are the cylinders fitted with safety valves yes Are the exhaust pipes and silencers water cooled or lagged with non-conducting material lagged
If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine yes

Cooling Water Pumps, No. 2 Distilled 3 Salt Is the sea suction provided with an efficient strainer which can be cleared within the vessel yes
What special arrangements are made for dealing with cooling water if discharged into bilges not so fitted
Bilge Pumps worked from the Main Engines, No. 2 Diameter 4 1/2" Stroke 20 3/8" Can one be overhauled while the other is at work yes
Pumps connected to the Main Bilge Line No. and Size 2 (160 tons) 12 1/2" x 10 1/2" x 24 How driven Steam
Ballast Pumps, No. and size 2 @ 12 1/2" x 10 1/2" x 24 Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size 2 (110 tons) 13" x 10 1/2" x 24"
Are two independent means arranged for circulating water through the Oil Cooler yes Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size:—In Machinery Spaces 2 @ 3 1/2" For 1 @ 3 1/2" aft 1 @ 2 1/2" in Ford & aft Cofferdams in Pump Room

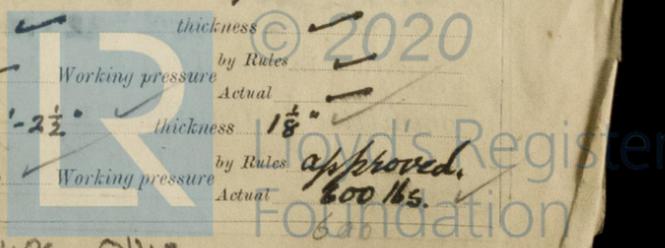
In Holds, &c.
Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1 @ 8" 1 @ 3 1/2"
Are all the Bilge Suction pipes in Holds yes fitted with strum-boxes yes Are the Bilge Suctions in the Machinery Spaces led from easily accessible mud-boxes, placed above the level of the working 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 platform plates yes Are the Overboard Discharges above or below the deep water line below
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 none How are they protected yes
What pipes pass through the deep tanks none 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 yes worked from yes
If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork yes

Main Air Compressors, No. none No. of stages 3 Diameters 11 1/2" Stroke 7" Driven by Steam
Auxiliary Air Compressors, No. 2 No. of stages 3 Diameters 11 1/2" Stroke 7" Driven by Steam
Small Auxiliary Air Compressors, No. 2 No. of stages 3 Diameters 11 1/2" Stroke 7" Driven by Steam
Scavenging Air Pumps, No. 2 Diameter 83" Stroke 20 3/8" Driven by M. Engine

Auxiliary Engines crank shafts, diameter 1 Crowley BWB4 for Lighting purposes, & DG No. 131709 Position Starboard Side Eng Room Dynamometer Flat
AIR RECEIVERS:—Is each receiver, which can be isolated, fitted with a safety valve as per Rule Safety Valve on Compressors
Can the internal surfaces of the receivers be examined and cleaned yes Is a drain fitted at the lowest part of each receiver yes
High Pressure Air Receivers, No. 2 Cubic capacity of each 400 cft Internal diameter 4'-2 1/2" thickness 1 1/8"
Seamless, lap welded or riveted longitudinal joint Riveted Material Steel Range of tensile strength 29-33 Working pressure approved 600 lbs.
Starting Air Receivers, No. 2 Total cubic capacity 400 cft Internal diameter 4'-2 1/2" thickness 1 1/8"
Seamless, lap welded or riveted longitudinal joint Riveted Material Steel Range of tensile strength 29-33 Working pressure approved 600 lbs.

003479-003486-0142



IS A DONKEY BOILER FITTED?

yes. 2DB

If so, is a report now forwarded?

yes

Is the donkey boiler intended to be used for domestic purposes only

no

PLANS. Are approved plans forwarded herewith for Shafting

15. 1. 42 31. 8. 42 Receivers 8. 9. 42

Separate Tanks

24. 8. 42

Donkey Boilers

31. 3. 42

General Pumping Arrangements

19. 4. 43 24. 5. 43 11. 6. 43

Oil Fuel Burning Arrangements

11. 6. 43

SPARE GEAR.

Has the spare gear required by the Rules been supplied

yes.

State the principal additional spare gear supplied

See attached sheets.

The foregoing is a correct description

John Neill

DIRECTOR

Manufacturer.

Dates of Survey while building

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

60 approx.

Dates of Examination of principal parts - Cylinders Various Tested 60lbs Covers Various TESTED 80lbs Pistons Various TESTED 70lbs Rods 18. 8. 43 Connecting rods 18. 8. 43

Crank shaft 9. 2. 43. Flywheel shaft Thrust shaft 15. 2. 43 Intermediate shafts 12. 8. 43 Tube shaft

Screw shaft 8. 6. 43 Propeller 1. 3. 43 8. 6. 43 Stern tube 18. 2. 43, 16. 4. 43 Engine seatings . . . 43 Engines holding down bolts 14. 12. 43.

Completion of fitting sea connections 12. 4. 43 Completion of pumping arrangements 11. 1. 44 Engines tried under working conditions 31/12/43 10. 11

Crank shaft, Material Steel Identification Mark ReH 9. 2. 43. Flywheel shaft, Material Identification Mark 7937. 7939 CP
Thrust shaft, Material Identification Mark ReH 15. 2. 43 Intermediate shafts, Material Steel Identification Marks ReH 12. 8. 43
Tube shaft, Material Identification Mark Screw shaft, Material Steel Identification Mark 7918 CP ReH 8. 6. 43

Is the flash point of the oil to be used over 150° F. yes

Have the requirements of the Rules for oil fuel pipes and tank fittings been complied with yes

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 constructed & installed under Special Survey in accordance with the approved Plans, the Requirements of the Rules & the Specification. The Materials & Workmanship are good & the machinery proved satisfactory under working conditions in the Shops & after installation on board. Torriograph readings from Shafting taken, photostat copy enclosed.

The machinery is eligible in my opinion to have the Record.

+ LMC 1. 44 6hp Engines 2 SC IIA 2DB 180 lbs. CL.

Vessel in drydock. Propeller & Sea fastenings examined 20. 1. 44 ReH.

The amount of Entry Fee .. £ 6 : 0 : 10
Special + 25% .. £ 166 : 2 : 6
2 air Receivers £ 4 - 4 0
Donkey Boiler Fee + 25% £ 32 : 12 : 0
Travelling Expenses (if any) £ : : 19

When applied for, 27 JAN 1944

When received,

FRI. 25 FEB 1944

Committee's Minute

Assigned

+ LMC 1. 44

R. C. Moffatt

Engineer Supervisor to Lloyd's Register of Shipping.



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NEWCASTLE-ON-TYNE

(The Survivors are requested not to write on or below the space for Committee's Minute.)