

REPORT ON OIL ENGINE MACHINERY.

No 11492.

27 MAY 1943

14 JUN 1944

Received at London Office

1. Date of writing Report 19. When handed in at Local Office 19. Port of MANCHESTER.

2. Date, First Survey 11.12.42. Last Survey 11.5. 1943. Number of Visits 7

3. Name of vessel "EMPIRE ALDERNEY" A/ms 678

4. Name of Survey held at g. Book. MANCHESTER.

5. Name of Engineer Single Triple Quadruple Screw vessel

6. Name of Builder J. Harker Ltd. By whom built 166/7/8/9- Yard No. When built 1944

7. Name of Maker Openshaw, Manchester By whom made Crossley Bros. Ltd. Engine No. 131668 When made 1943.

8. Name of Maker - By whom made - Boiler No. - When made -

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1. Type of Engines Direct Injection Heavy Oil. 2 or 4 stroke cycle 2 Single or double acting Single.

2. Maximum pressure in cylinders 850 lbs/sq" Diameter of cylinders 10 1/2" Length of stroke 13 1/2" No. of cylinders 6 No. of cranks 6

3. Mean Indicated Pressure 76 lbs/sq" Is there a bearing between each crank Yes

4. Number of bearings, adjacent to the Crank, measured from inner edge to inner edge 14.11/16" Is there a bearing between each crank Yes

5. Revolutions per minute 300 Flywheel dia. 37 1/2" Weight 2166 Means of ignition Compression Kind of fuel used Diesel Oil.

6. Crank Shaft, Solid forged dia. of journals as per Rule Approved. 7 1/2" Crank pin dia. 7 1/4" Crank Webs Mid. length breadth 9 1/4" Thickness parallel to axis -

7. Flywheel Shaft, diameter as per Rule Flywheel Mounted. Intermediate Shafts, diameter as per Rule - Thrust Shaft, diameter at collars as per Rule Approved. 4 3/4"

8. Main Shaft, diameter as per Rule - Screw Shaft, diameter as per Rule - Is the tube screw shaft fitted with a continuous liner -

9. 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

10. Propeller boss - If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner -

11. 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 -

12. 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

13. If so, state type - Length of Bearing in Stern Bush next to and supporting propeller -

14. Propeller, dia. - Pitch - No. of blades - Material - whether Moveable - Total Developed Surface - sq. feet

15. Method of reversing Engines Direct Is a governor or other arrangement fitted to prevent racing of the engine - Yes Means of lubrication

16. Forced Exh. Manifold Water Cooled Thickness of cylinder liners 7/8" Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled or lagged with

17. Insulating material - If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine -

18. Cooling Water Pumps, No. One on ME 4 1/4" dia. x 3" Stroke. Is the sea suction provided with an efficient strainer which can be cleared within the vessel -

19. Bilge Pumps worked from the Main Engines, No. One Diameter 4 1/4" Stroke 3" Bilge and cooling water pumps interchangeable Yes.

20. Can one be overhauled while the other is at work -

21. Pumps connected to the Main Bilge Line No. and Size - How driven -

22. Is the cooling water led to the bilges - If so, state what special arrangements are made to deal with this water in addition to the ordinary bilge pumping

23. Arrangements -

24. Ballast Pumps, No. and size - Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size 1 1/2" & 1 3/4" x 2" stroke

25. Are two independent means arranged for circulating water through the Oil Cooler - Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge

26. Pumps, No. and size: - In Machinery Spaces - In Pump Room -

27. In Holds, &c. -

28. Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size -

29. Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes - Are the Bilge Suctions in the Machinery Spaces

30. And from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges -

31. Are all Sea Connections fitted direct on the skin of the ship - Are they fitted with Valves or Cocks -

32. Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates - Are the Overboard Discharges above or below the deep water line -

33. 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 -

34. That pipes pass through the bunkers - How are they protected -

35. That pipes pass through the deep tanks - Have they been tested as per Rule -

36. Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times -

37. 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

38. Compartment to another - Is the Shaft Tunnel watertight - Is it fitted with a watertight door - worked from -

39. If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork -

40. Main Air Compressors, No. - No. of stages - Diameters 5 1/2" & 2 1/2" Stroke 4" Driven by Main Engine.

41. Auxiliary Air Compressors, No. - No. of stages - Diameters - Stroke - Driven by -

42. Small Auxiliary Air Compressors, No. One on Main Eng. No. of stages 2 Diameters 5 3/4" & 2 1/2" Stroke 4" Driven by Main-Engine.

43. That provision is made for first Charging the Air Receivers -

44. scavenging Air Pumps, No. One Double Acting Tandem meter 20 1/2" Stroke 9 1/4" Driven by Main Engine.

45. Auxiliary Engines crank shafts, diameter as per Rule - No. - Position -

46. Have the Auxiliary Engines been constructed under special survey - Is a report sent herewith -

010495-010501-0240

Lloyd's Register Foundation

AIR RECEIVERS: — Have they been made under survey **Yes.** State No. of Report or Certificate **C.372** **C.73.**
Is each receiver, which can be isolated, fitted with a safety valve as per Rule **Safety Valve on line and fusible plug in each receiver**

Can the internal surfaces of the receivers be examined and cleaned **Yes.** Is a drain fitted at the lowest part of each receiver **Yes.**

Injection Air Receivers, No. — Cubic capacity of each — Internal diameter — thickness —
Seamless, lap welded or riveted longitudinal joint — Material — Range of tensile strength — Working pressure by Rules — Actual —
Starting Air Receivers, No. **Two** Total cubic capacity **30 cu. ft.** Internal diameter **21-0 1/8"** thickness **3/8" & 15/32"**
Seamless, lap welded or riveted longitudinal joint **Riveted & Welded.** Material **S.M. Steel** Range of tensile strength **26/30** Working pressure by Rules **350 lbs/** Actual **350 lbs/**

IS A DONKEY BOILER FITTED? —

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 **16.4.43.** (If not, state date of approval)

Receivers —

Separate Fuel Tanks —

Donkey Boilers —

General Pumping Arrangements —

Pumping Arrangements in Machinery Space —

Oil Fuel Burning Arrangements —

SPARE GEAR.

Has the spare gear required by the Rules been supplied **AS PER RULE REQUIREMENTS.**

State the principal additional spare gear supplied

The foregoing is a correct description

CROSSLEY BROTHERS LIMITED,

Manufacturer.

Dates of Survey while building { During progress of work in shops — **11.12.42, 17.12.42, 8.1.43, 4.2.43, 3.3.43, 6.3.43, 11.5.43.**
During erection on board vessel — —
Total No. of visits **Seven.**

Dates of Examination of principal parts — Cylinders **3.3.43.** Covers **3.3.43.** Pistons **6.3.43** Rods — Connecting rods **11.12.42 to 6.3.43.**
Crank shaft **18.1.43.** Flywheel shaft — Thrust shaft **4.2.43.** Intermediate shafts — Tube shaft —
Screw shaft — Propeller — Stern tube — Engine seatings — Engines holding down bolts —
Completion of fitting sea connections — Completion of pumping arrangements — Engines tried under working conditions —
Crank shaft, Material **O.H. Steel.** Identification Mark **LLOYD'S 1661.** Flywheel shaft, Material — Identification Mark —
Thrust shaft, Material **O.H. Steel.** Identification Mark **LLOYD'S 1954** Intermediate shafts, Material — Identification Marks —
Tube shaft, Material — Identification Mark — Screw shaft, Material — Identification Mark —
Identification Marks on Air Receivers **E2224 LLOYD'S TEST 700 lbs. W.P. 350 lbs. 2.7.41. JNB.**
E1945 " " " " " 5.12.40. JNB.

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 —

Description of fire extinguishing apparatus fitted —

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 **Messrs. Richards Ironworks, Yard No.**

General Remarks (State quality of workmanship, opinions as to class, &c. **THIS ENGINE HAS BEEN CONSTRUCTED UNDER SPECIAL SURVEY OF TESTED MATERIALS AND IN ACCORDANCE WITH THE SECRETARY'S LETTERS, APPROVED PLANS AND RULE REQUIREMENTS. THE MATERIALS AND WORKMANSHIP ARE GOOD, AND THE ENGINE WHEN TESTED IN SHOP UNDER FULL LOAD CONDITIONS GAVE SATISFACTORY RESULTS. THIS ENGINE IS SUITABLE, IN MY OPINION, FOR ITS INTENDED SERVICE, AND WHEN SATISFACTORILY INSTALLED AND REPORTED ON, WILL BE ELIGIBLE TO RECEIVE THE NOTATION OF L.M.C. (WITH DATE).**

The amount of Entry Fee .. £ **3 : 0 : 0** When applied for,
Special £ **24 : 0 : 0** **26.5.19.43.**
Donkey Boiler Fee ... £ : : When received,
Travelling Expenses (if any) £ **1 : 0 : 0** 19..

Committee's Minute

TUES. 18 JUL 1944

Assigned

see minute
on 18 Rpt

Engineer Surveyor to Lloyd's Register of Shipping.



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Foundation