

# REPORT ON OIL ENGINE MACHINERY.

No. 105105

17 MAY 1948

Rpt. 4b.

Date of writing Report 21. 4 1948 When handed in at Local Office 21. 4 1948 Port of NEWCASTLE-ON-TYNE  
 To. in Survey held at NEWCASTLE & HEBBURN-ON-TYNE Date, First Survey 26. 8. 46 Last Survey 16. 4 1948  
 Reg. Book. 6448 Single Screw vessel DIESEL ELECTRIC VESSEL "HURIS" Number of Visits 129 Gross 8220.89  
 Triple Tons Net 4701.33 Quadruple  
 Built at HEBBURN-ON-TYNE By whom built R & W HAWTHORN LESLIE & CO. LTD. Yard No. 686 When built 1948  
 Engines made at NEWCASTLE-ON-TYNE By whom made R & W HAWTHORN LESLIE & CO. LTD. Engine No. 4031 When made 1948  
 Funkey Boilers made at WALLSEND-ON-TYNE By whom made N.E. MAC. ENG CO (1938) LTD. Boiler No. 3157 When made 1947.  
 Brake Horse Power EACH ENGINE 1100 (Total 4400) Owners THE ANGLO SAXON PETROLEUM CO. LTD.  
 N.H.P. 558  
 N. Power as per Rule 831 ✓ Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes  
 Trade for which vessel is intended OPEN SERVICE.

**E**NGINES, &c. — Type of Engines 4-HAWTHORN-SULZER TRUNK PISTON AIRLESS INJECTION SUPERCHARGED. 2 or 4 stroke cycle 4 ✓ Single or double acting SINGLE ✓  
 Maximum pressure in cylinders 850 lbs/in<sup>2</sup> Diameter of cylinders 340 mm Length of stroke 480 mm No. of cylinders 8 ✓ No. of cranks 8 ✓  
 Mean Indicated Pressure 134 lbs/in<sup>2</sup> Ahead Firing Order in Cylinders 1, 4, 7, 6, 8, 5, 2, 3. Span of bearings, adjacent to the crank, measured from inner edge to inner edge 380 mm Is there a bearing between each crank YES Revolutions per minute 375 ✓  
 Flywheel dia. DETUNED FLATTED. Moment of inertia of flywheel (16lbs. in<sup>2</sup> or Kg.cm.<sup>2</sup>) Means of ignition COMPRESSION Kind of fuel used OIL.  
 Crank Shaft, Solid forged dia. of journals as per Rule 212 mm Crank pin dia. 220 mm Crank webs Mid. length breadth 400 mm ✓ Thickness parallel to axis ✓  
 Semi-built dia. of journals as fitted 220 mm Crank webs Mid. length thickness 105 mm shrunk Thickness around webs ✓  
 Air Propulsion Intermediate Shafts, diameter as per Rule 12.6" Thrust Shaft, diameter at collars as fitted 14½" ADAMSON COUPLINGS ✓  
 Propeller shaft, diameter as per Rule 14½" at collars as per Rule 13.23" ✓  
 Motor. 15" FOR BEARING. 18 AT SPIDER, 14½" AT COUPLING. Intermediate Shafts, diameter as per Rule 13.94  
 Tube Shaft, diameter as per Rule 23.19" ✓ Is the screw shaft fitted with a continuous liner YES ✓  
 as fitted 14½" FOR COUPLING. Thickness between bushes as per Rule 17.59" ✓  
 Bronze Liners, thickness in way of bushes as per Rule 25/32" as fitted 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 ✓  
 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 tube shaft NO If so, state type VARIABLE Length of bearing in Stern Bush next to and supporting propeller 5' 2 7/16" ✓  
 Propeller, dia. 16.05 ft Pitch 11.67 ft. 9.36 ft. No. of blades 4 Material MANG. BRASS whether moveable NO Total developed surface 98 sq. feet  
 Moment of inertia of propeller (16lbs. in<sup>2</sup> or Kg.cm.<sup>2</sup>) ✓ Kind of damper, if fitted ✓  
 Method of reversing Engines Non REVERSING Is a governor or other arrangement fitted to prevent racing of the engine when declutched YES Means of lubrication FORCED Thickness of cylinder liners 24 mm Are the cylinders fitted with safety valves YES Are the exhaust pipes and silencers water cooled lagged with non-conducting material LAGGED. If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being siphoned back to the engine FUMELL Cooling Water Pumps, No. Two ✓ Is the sea suction provided with an efficient strainer which can be cleared within the vessel YES  
 Bilge Pumps worked from the Main Engines, No. None Diameter ✓ Stroke ✓ Can one be overhauled while the other is at work ✓  
 Pumps connected to the Main Bilge Line No. and size ONE GENERAL SERVICE 190 TONS/H.C. ONE BILGE 32 TONS/H.C. ONE SANITARY 35 TONS/H.C.  
 Hoist driven STEAM STEAM ELECTRIC.  
 Is the cooling water led to the bilges NO If so, state what special arrangements are made to deal with this water in addition to the ordinary bilge pumping arrangements ✓  
 Ballast Pumps, No. and size ONE 100 TONS/H.C. (STEAM) Power Driven Lubricating Oil Pumps, including spare pump, No. and size TWO 100 STEAM 50 TONS/H.C.  
 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 1-3½" FOR. PUMP. ENG. CO. LTD. 1-3½" AFT WELL 1-3½" AFT WELL 1-2 COFFERDAM. 1-2" AFT PUMP ROOM. In pump room 2-4 MAIN PUMP ROOM.  
 In holds, &c. FOREHOLD ONE 2" FOR. STAC. ONE 2" FOR. STAC. ONE 2" FOR. STAC. ONE 2" FOR. COFFERDAM ONE 4" Dia. AFTER COFFERDAM ONE 4" Dia.  
 Independent Power Pump Direct Suctions to the engine room bilges, No. and size THREE V-6" Dia 2-5" Dia.  
 Are all the bilge suction pipes in holds and tunnel well 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 NO 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 ABOVE.  
 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 OIL FUEL ONE 4" Dia. AFTER COFFERDAM Suction 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 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 ✓ Is it fitted with a watertight door ✓ Worked from ✓  
 If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork ✓  
 Main Air Compressors, No. None No. of stages ✓ diameters ✓ stroke ✓ driven by ✓  
 Auxiliary Air Compressors, No. ONE 90 C.F.M. FREE AIR PER MINUTE (BROTHEKHOOD VERTICAL SINGLE CYL. STEAM ENGINE ALSO COUPLED TO DYNAMO) STEAM ENGINE.  
 Small Auxiliary Air Compressors, No. ONE 14.5" No. of stages ✓ diameters ✓ stroke ✓ driven by ELECTRIC MOTOR.  
 What provision is made for first charging the air receivers AUXILIARY STEAM.  
 Supercharging Air Pumps, No. Four (ONE EACH ENGINE) diameter 220,000 CUBIC FT/H.C. stroke ✓ EXHAUST GAS FOR ENGINE.  
 Auxiliary Engines crank shafts, diameter as per Rule APPROVED  
 as fitted JOURNALS 4 3/16" PINS 3 1/4" (RUSTON 45CSA)  
 Have the auxiliary engines been constructed under special survey RUSTON 45CSA YES Position RUSTON, ENGINE CO. LTD. NO. 10000001. STAR & SIDE.  
 Is a report sent herewith YES

AIR RECEIVERS:—Have they been made under survey  YES. State No. of report or certificate

Is each receiver, which can be isolated, fitted with a safety valve as per Rule  YES.

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, welded or riveted longitudinal joint  Material  Range of tensile strength  Working pressure by Rules  Actual

Starting Air Receivers, No. ONE Total cubic capacity 104 cu/ft Internal diameter 4'-0 1/2" thickness  $\frac{1}{8}$

Seamless, welded or riveted longitudinal joint RIVETED Material MILD STEEL Range of tensile strength 26/32 Tons Working pressure by Rules  $460 \text{ lbs}$  Actual  $450 \text{ lbs}$

IS A DONKEY BOILER FITTED  YES 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  YES Receivers  Separate fuel tanks  Notes

(If not, state date of approval)

Donkey boilers  General pumping arrangements  YES Pumping arrangements in machinery space  YES

Oil fuel burning arrangements  YES

Have Torsional Vibration characteristics been approved  YES Date of approval SEE LONDON LETTER 26.4.4

#### SPARE GEAR.

Has the spare gear required by the Rules been supplied  YES

State the principal additional spare gear supplied AS PER ATTACHED LISTS.

*FOR R. & W. HAWTHORN, LESLIE & CO. LIMITED  
38 Foresight*  
The foregoing is a correct description AND THE PARTICULARS OF THE INSTALLATION AS FITTED ARE AS APPROVED  
Manufacturer. FOR TORSIONAL VIBRATION

Dates of Survey while building	During progress of work in shops - APR. 1, 2, 9, 11, 15, 17, 18, 21, 22, MAY. 8, 15, JUNE 2, 11, 25, 26, 27, 30, JULY 3, 15, 17, 22, 25, 28, 31, AUG. 5, 6, 8, 11, 12, 13, 15, 19, 28 SEPT. 1, 8, 10, 16, 17, 18, 21 During erection on board vessel - OCT. 10, NOV. 6, 12, 18, 19, 20, 21, 25, 27, DEC. 1, 10, 12, 16, 18, 29, 31, (1948) JAN. 6, 7, 8, 9, 15, 16, 19, 20, 21, 27, 28, 29, 30, FEB. 2, 9, 10, 11, 12, 13, 16, 17, 18, 19, 25, 26, 31
Total No. of visits	17. 9. 46
Dates of examination of principal parts—Cylinders	Covers 17. 9. 46
Crank shafts	Pistons 17. 9. 46
Screw shaft	Rods <input checked="" type="checkbox"/>
Completion of fitting sea connections	Connecting rods 24. 1. 47
Crank shaft, material	Flywheel shaft 3. 12. 46
Thrust shaft, material	Intermediate shafts 7. 1. 48
Tube shaft, material	Tube shaft <input checked="" type="checkbox"/>
Identification marks on air receivers	Propeller 30. 9. 47
Welded receivers, state Makers' Name	Stern tube 11. 4. 47
Is the flash point of the oil to be used over 150°F	Engine seatings 14. 4. 47
Have the requirements of the Rules for oil fuel pipes and tank fitting been complied with	Engine holding down bolts 23. 2. 48
Description of fire extinguishing apparatus fitted	Completion of pumping arrangements 25. 2. 48
Is the vessel (not being an oil tanker) fitted for carrying oil as cargo	Engines tried under working conditions 16. 4. 48
If the notation for ice strengthening is desired, state whether the requirements in this respect have been complied with	Stear Fire Extinguishing Fitted Under OUTSIDE BILGE TANK IN ENGINE ROOM APPROVED 2. 5. 47
Is this machinery duplicate of a previous case	SEE ATTACHED PLAN
General Remarks (State quality of workmanship, opinions as to class, &c.)	The machinery of the vessel has been constructed & installed under special survey The materials & workmanship are good. Satisfactory basin & sea trials were witnessed & the machinery is eligible in my opinion for the record of FLMCA, 48 & notation TSCL - Oil engines connected to electric motor & screw shafts - Mch aft - 200/180 lbs/ft.

Fee: Propeller damaged whilst vessel lying fitting out, removed, repaired & refitted, see Liverpool  
Apt 10. C5104 (attached) fee £ 22.2.0. An Receiv £ 40.0.0 (New Fee).  
Fest Entry:-  $\frac{3}{5}$  old fee £ 158.2.0 = £ 94.17.0 }  
 $\frac{3}{5}$  new fee £ 241.4.0 = £ 96.10.0 } Total £ 191.7.0.

The amount of Entry Fee ... £ 191 : 7 : 0  
Special Air Receiv £ 4 : 0 :  
Liverpool Repairs to Propeller £ 2 : 2 :  
Donkey Boiler Fee... £ : :  
Travelling Expenses (if any) £ : :

When applied for 24 MAY 1948

When received 19

J.A. Orde  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned Deferred

FRI. 5 NOV 1948

+ LMC W. 48

LR-FAF-TB15-151



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Foundation