

REPORT ON OIL ENGINE MACHINERY.

No. 87052

Rpt. 4b

Received at London Office 21 APR 1931
NEWCASTLE-ON-TYNE

When handed in at Local Office 20/4/31 Port of St. Peter's Hebburn Date, First Survey 3rd Feb 1930 Last Survey 16 April 1931
Number of Visits 91

on the ^{Single} ~~Twin~~ ~~Triple~~ ~~Quadruple~~ Screw vessel M.Y. Helix. Tons { Gross 3007 Net 1630
Built at Hebburn By whom built Hawthorn Leslie & Co. Ltd. Ward No. 546 When built 1931
Engines made at St. Peter's By whom made Hawthorn Leslie & Co. Ltd. Engine No. 3776 When made - do -
Boilers made at St. Peter's By whom made Hawthorn Leslie & Co. Ltd. Boiler No. 3776 When made - do -
Indicated Horse Power 1400 Owners Anglo Saxon Pet. Co., Ltd. Port belonging to Cardiff.
Nominal Horse Power as per Rule 380 Is Refrigerating Machinery fitted for cargo purposes 70 Is Electric Light fitted yes.
Trade for which vessel is intended Carrying Oil in Bulk. 35/16

TYPE OF ENGINES, &c.—Type of Engines Twin Hawthorn Workshop 2 or 4 stroke cycle 4 Single or double acting Single
Maximum pressure in cylinders 530 lbs Diameter of cylinders 460 ¹/₄ in. Length of stroke 900 ¹/₄ in. No. of cylinders 12 (2x6) No. of cranks 12
Position of bearings, adjacent to the Crank, measured from inner edge to inner edge 640 ¹/₄ in. Is there a bearing between each crank yes.
Revolutions per minute 150 Flywheel dia. 5'-11 1/2" Weight 4.6 TONS Means of ignition Compressed Kind of fuel used Diesel oil.
Crank Shaft, dia. of journals as per Rule 292 ¹/₄ in. as fitted 300 ¹/₄ in. Crank pin dia. 300 ¹/₄ in. Crank Webs Mid. length breadth 600 ¹/₄ in. shrunk Thickness parallel to axis 200 ¹/₄ in.
Flywheel Shaft, diameter as per Rule 292 ¹/₄ in. as fitted 300 ¹/₄ in. Intermediate Shafts, diameter as per Rule 182 ¹/₄ in. as fitted 215 ¹/₄ in. Thrust Shaft, diameter at collars as per Rule 191 ¹/₄ in. as fitted 215 ¹/₄ in.
Propeller Shaft, diameter as per Rule 292 ¹/₄ in. as fitted 250 ¹/₄ in. Screw Shaft, diameter as per Rule 202 ¹/₄ in. as fitted 250 ¹/₄ in. Is the { tube } shaft fitted with a continuous liner { yes }
Bronze Liners, thickness in way of bushes as per Rule 14 ¹/₄ in. as fitted 20 ¹/₄ in. Thickness between bushes as per rule - 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 the tube shaft. Length of Bearing in Stern Bush next to and supporting propeller 450 ¹/₄ in.

Propeller, dia. 9'-6" Pitch 8'-0" No. of blades 3 Material M.B. whether Moveable 70 Total Developed Surface 24 sq. feet
Method of reversing Engines Low Air Is a governor or other arrangement fitted to prevent racing of the engine when declutched yes Means of lubrication
oil. Thickness of cylinder liners 40 ¹/₄ in. 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 Tunnel.

Cooling Water Pumps, No. 1 each engine, 2 spare, the sea suction provided with an efficient strainer which can be cleared within the vessel yes
Large Pumps worked from the Main Engines, No. 1, each, Diameter 90 ¹/₄ in. Stroke 330 ¹/₄ in. Can one be overhauled while the other is at work yes.
Pumps connected to the Main Bilge Line { No. and Size Ballast, general service 8'-8"-10" each pump (2) }
{ How driven Steam. }
Ballast Pumps, No. and size 1-8'-8"-10" Dup. Lubricating Oil Pumps, including Spare Pump, No. and size 3 1 each engine + 1
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 2-2 3/4" F.S., 1-3" aft.

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1-4" 18 Ballast pump, 5 pumps from 1-2 1/2"
Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes yes Are the Bilge Suctions in the Machinery Spaces
fitted 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 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

That pipes pass through the bunkers none How are they protected -
That 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 none Is it fitted with a watertight door - worked from -
If on 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. 1 each engine No. of stages 3 Diameters 90 ¹/₄ in. H.P. Stroke 330 ¹/₄ in. Driven by Main engine
Auxiliary Air Compressors, No. one No. of stages - Diameters 440 L.P. Stroke - Driven by Motor
Small Auxiliary Air Compressors, No. two No. of stages - Diameters - Stroke - Driven by Steam
Scavenging Air Pumps, No. none Diameter - Stroke - Driven by -
Auxiliary Engines crank shafts, diameter as per Rule - as fitted -

RECEIVERS:—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 yes What means are provided for cleaning their inner surfaces Manholes.
Is there a drain arrangement fitted at the lowest part of each receiver -
High Pressure Air Receivers, No. 2 Cubic capacity of each 10 G. FT. Internal diameter 16" thickness 7/8"
Seamless, lap welded or riveted longitudinal joint Seamless Material S Range of tensile strength 28/32 T. Working pressure by Rules 1000 lbs
Starting Air Receivers, No. two Total cubic capacity 600 C. F. Internal diameter 5'-3" thickness 7/8"
Seamless, lap welded or riveted longitudinal joint Riveted Material Steel Range of tensile strength 29.75/33 T. Working pressure by Rules 350 lbs

IS A DONKEY BOILER FITTED? yes If so, is a report now forwarded? yes
 PLANS. Are approved plans forwarded herewith for Shafting yes Receivers yes Separate Tanks yes
(If not, state date of approval)
 Donkey Boilers yes General Pumping Arrangements yes Oil Fuel Burning Arrangements yes
 SPARE GEAR as per Society's Rules & attached list.

The foregoing is a correct description,
R. & W. HAWTHORN, LESLIE & CO. LIMITED

R. S. Armstrong Manufacturer.
 DIRECTOR.

Dates of Survey while building
 During progress of work in shops -- 1930 Feb. 3. 6. 13. 20. 27. Mar. 11. 12. 18. 20. 26. 28. Apr. 3. 8. 28. May 7. 13. 16. 23. 30. June 12. 20. July 7. 14. 16. 18. 1931
 During erection on board vessel -- Aug. 6. 12. 15. 18. 19. 20. 22. 25. 27. 29. Sep. 2. 5. 9. 15. 26. Oct. 7. 10. 13. 15. 20. 27. 31. Nov. 7. 11. 14. 18. 20. 24. 26. Dec. 1. 5. 8. 17. 19. Jan. 14. 19. 21. 23. 26. 29. 30. Feb. 3. 5. 9. 18. 23. 24. 28. Mar. 3. 5. 6. 11. 16. 20. 23. 24. 30. 31. Apr. 1. 9. 14. 16.

Total No. of visits 91.
 Dates of Examination of principal parts—Cylinders 16/19/11/30 Covers 16/18/11/30 Pistons 15.9.30 Rods 15.9.30 Connecting rods 15.9.30
 Crank shaft 15.9.30 Flywheel shaft 21.5.30 Thrust shaft 15.9.30 Intermediate shafts 15.9.30 Tube shaft -
 Screw shaft 15.9.30 Propeller 18.11.30 Stern tube 18.11.30 Engine seatings 18.11.30 Engines holding down bolts 6.3.31
 Completion of filling sea connections 18.11.30 Completion of pumping arrangements 16.3.31 Engines tried under working conditions 16.4.31

Crank shaft, Material Steel Identification Mark Amo 101 Flywheel shaft, Material S. Identification Mark NR 8451
 Thrust shaft, Material Steel Identification Mark S.A.E. 15.9.30 Intermediate shafts, Material Steel Identification Marks NR 8454
 Tube shaft, Material - Identification Mark - Screw shaft, Material Steel Identification Mark S.A.E. 15.9.30

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 -
 Is this machinery duplicate of a previous case yes If so, state name of vessel M.V. Herpa.

General Remarks (State quality of workmanship, opinions as to class, &c.)
The Machinery has been built under special survey in accordance with the Rules of the Society, the approved plans, & has been securely fitted on board the vessel tried under working conditions, found satisfactory. The workmanship & materials are of good quality throughout.
The Machinery of this vessel is eligible, in my opinion, to have notation T.L.M.E. 4, 31 & S. & C.L.

Certificate (if required) to be sent to Newcastle-on-Tyne (The Surveyors are requested not to write on or below the space for Committee's Minutes.)

The amount of Entry Fee ... £ 5. : - : When applied for,
 Special ... £ 82. : - : **20 APR 1931**
 Donkey Boiler Fee ... £ 5. : 12. : When received,
 Travelling Expenses (if any) £ 6. : 6. : 22.4.31
 Receivers
 Committee's Minute **FRI. 24 APR 1931**

Geo. A. Ferguson
 Engineer Surveyor to Lloyd's Register of Shipping.

Assigned + L.M.C. 4.31 C.L.
Oil Eng. 150 lb.

