

REPORT ON OIL ENGINE MACHINERY.

No. 87874

Received at London Office

19 DEC 1931

Port of

NEWCASTLE-ON-TYNE

Survey Report

When handed in at Local Office

Survey held at

Date, First Survey 3 April 1930

Last Survey 11 Dec 1931

Number of Visits 90

on the ^{Single} Twin ^{Triple} Screw vessel **M. V. "CARDIUM"**

Tons ^{Gross} 8236 ^{Net} 4828

Wallsend, By whom built Swan Hunter & W R'gar & Co. Yard No. 1637 When built 1931

made at St. Peter's By whom made Hawthorn Leslie & Co Engine No. 3784 When made 1931

Boilers made at St. Peter's By whom made Hawthorn Leslie & Co Boiler No. 3784 When made 1931

Indicated Horse Power 4000 Owners Anglo Saxon Pet Co. Port belonging to London

Indicated Power as per Rule 4123 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

which vessel is intended **Carrying Petroleum in bulk**

MAKING, &c.—Type of Engines Hawthorn Leslie & Co 2 or 4 stroke cycle Single or double acting Single

Pressure in cylinders 500 lbs Diameter of cylinders 630 mm Length of stroke 1100 mm No. of cylinders 6 No. of cranks 6

Bearings, adjacent to the Crank, measured from inner edge to inner edge 840 mm Is there a bearing between each crank Yes

Revolutions per minute 135 Flywheel dia. 2800 mm Weight 6 Tons Means of ignition Lamp Kind of fuel used Diesel Oil

Journal dia. as per Rule 398 mm as fitted 410 mm Crank pin dia. 410 mm Crank Webs Mid. length breadth 440 mm Mid. length thickness 240 mm Thickness parallel to axis 265.240 mm Thickness around eye-hole 149 mm

Shaft diameter as per Rule 398 mm as fitted 410 mm Intermediate Shafts, diameter as per Rule 10.55 as fitted 3.50 Thrust Shaft, diameter at collars as per Rule 11.633 as fitted 300 mm

Propeller diameter as per Rule 11.633 as fitted 328 mm Screw Shaft, diameter as per Rule 11.633 as fitted 328 mm Is the after end of the liner made watertight in the tube Yes

Shaft thickness in way of bushes as per Rule .656 as fitted as approved Thickness between bushes as per rule .492 as fitted 1.5 mm

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 No

Are the bearings fitted, is the shaft lapped or protected between the liners No Is an approved Oil Gland or other appliance fitted at the after end of the tube No

If so, state type Length of Bearing in Stern Bush next to and supporting propeller 1600 mm

Propeller dia. 6050 mm Pitch 3150 mm No. of blades 3 Material M. S. whether Moveable No Total Developed Surface 53.3 sq. feet

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 55 mm Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled or lagged with 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 8 ft

Water Pumps, No. two each engine Is the sea suction provided with an efficient strainer which can be cleared within the vessel Yes

Pumps worked from the Main Engines, No. 1 Diameter 150 mm Stroke 254 mm Can one be overhauled while the other is at work Yes

Connected to the Main Bilge Line No. and Size 2 - 8" x 8" x 10" How driven Steam

Pumps, No. and size 2 - 8" x 8" x 10" Lubricating Oil Pumps, including Spare Pump, No. and size 2 Rotary 6" x 4" x 10"

Independent means arranged for circulating water through the Oil Cooler Yes Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge

and size:—In Machinery Spaces 2-3 1/2" ER. Aft, 2-3 1/2" ER. Fwd, 2-3 1/2" Eff. 1-5" Diesel In Pump Room 3-3"

Direct Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1-5" to 8" x 8" x 10" pumps

Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Yes Are the Bilge Suctions in the Machinery Spaces easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges Yes

Connections fitted direct on the skin of the ship Yes Are they fitted with Valves or Cocks Valves

Are they fitted with a Discharge Valve always accessible on the plating of the vessel Yes Are the Overboard Discharges above or below the deep water line Above

Do they pass through the bunkers Cofferdam Suctions How are they protected Yes

Do they pass through the deep tanks Yes Have they been tested as per Rule Yes

Are valves, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes

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 No

Are means provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork Yes

Compressors, No. 1 - each engine No. of stages 3 Diameters 130 mm, 148 mm Stroke 450 mm Driven by Main engine

Air Compressors, No. one No. of stages 3 Diameters see attached Report by Steam

Auxiliary Air Compressors, No. none No. of stages - Diameters - Stroke - Driven by -

Engines crank shafts, diameter as per Rule 398 mm as fitted 410 mm See also kept 17376

RECEIVERS:—Is each receiver, which can be isolated, fitted with a safety valve as per Rule Yes

Are the internal surfaces of the receivers examined and cleaned Yes Is a drain fitted at the lowest part of each receiver Yes

Pressure Air Receivers, No. two Cubic capacity of each 14 c.f. Internal diameter 450 mm thickness 2 1/4 mm

Material 8 Range of tensile strength 32/36 T Working pressure by Rules 1460 Actual 1100

Low Pressure Air Receivers, No. one Total cubic capacity 1400 c.f. Internal diameter 4-10 mm thickness 1/8"

Material 8 Range of tensile strength 28/32 T Working pressure by Rules 390 Actual 350

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
(If not, state date of approval)

Receivers yes

Separate Tanks yes

Donkey Boilers yes

General Pumping Arrangements yes

Oil Fuel Burning Arrangements yes

SPARE GEAR.

Has the spare gear required by the Rules been supplied as per Society's Rules, attached list

State the principal additional spare gear supplied

For

R. & W. HAWTHORN, LESLIE & Co. LTD.

The foregoing is a correct description,

R. B. Johnston

GENERAL MANAGER

Manufacturer.

Dates of Survey while building	During progress of work in shops - -	1930 Apr 28. 15. 28. May 7. 30. June 12. July 15. 31. Aug. 6. 11. 18. Sep. 9. 15. Oct. 7. 10. 20.
	During erection on board vessel - -	7. 13. 14. 18. 20. 24. Dec. 19. 1931 Jan. 19. 21. 26. Feb. 2. 5. 9. 18. 23. 27. Mar. 4. 6. 16. 23. 30. Apr. 8. 15. 22. 23. 28. 29. June 4. 8. 17. 29. July 3. 10. 14. 16. 21. 24. 27. 28. 30. Aug. 21. 22. 24. 27. 31. Sep. 22. 23. 28. 29. Oct. 1. 7. 15. 21. 28. 30. Nov. 9. 19. 20. 24. 30. Dec. 1. 9. 10. 11.
	Total No. of visits	90.

Dates of Examination of principal parts—Cylinders 27/31, 18/31, 8/31 Covers 8/31 Pistons 15/31 Rods 15/31 Connecting rods 15/31
 Crank shaft Att. 2/31 Flywheel shaft 23/31 Thrust shaft 27/31 Intermediate shafts 23/31 Tube shaft 23/31
 Screw shaft 23/31 Propeller 23/31 Stern tube 23/31 Engine seatings 16/31 Engines holding down bolts 30/31
 Completion of fitting sea connections 15/9/31 Completion of pumping arrangements 10/10/31 Engines tried under working conditions 10/10/31

Crank shaft, Material As per attached Report Flywheel shaft, Material S Identification Mark FFA 27/31
 Thrust shaft, Material S Identification Mark FFA 27/31 Intermediate shafts, Material S Identification Marks FFA 27/31
 Tube shaft, Material - Identification Mark - Screw shaft, Material S Identification Mark FFA 27/31

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 oil tanker 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 Bardita, Caprella, Capo

General Remarks (State quality of workmanship, opinions as to class, &c.)

The Machinery has been built under special survey accordance with the Rules of the Society & the approved plans & has been securely fitted on board the vessel & tried under full 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 + L.M.C. 12.31 + T. S.I.C.L.

The amount of Entry Fee ..	£ 6 : -	When applied for,	
Special ...	£ 110 : 13		5/12/1931
Donkey Boiler Fee ...	£ 15 : 4	When received,	
Travelling Expenses (if any)	£ 16 : 16		8/12/1931

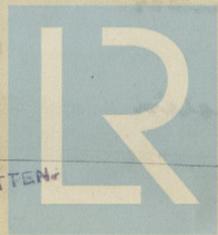
Yed. A. Ferguson
Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute TUE. 22 DEC 1931

Assigned + L.M.C. 12.31 C.L.

Oil Eng. 2 R.B. 150 lb.

CERTIFICATE WRITTEN



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Lloyd's Register Foundation

NEWCASTLE-ON-TYNE

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