

# REPORT ON OIL ENGINE MACHINERY.

No. 31405

Received at London Office

Date of writing Report 2 April 1930 When handed in at Local Office 19 Port of New York

No. in Survey held at Schenectady, N.Y. Date, First Survey 14 Feb Last Survey 19 Mar 1930

eg. Book. Number of Visits 5

on the Single Screw vessel L.T.C. No. 1 Tons <sup>Gross</sup> 548 <sub>Net</sub> 321

built at Quincy, Mass. By whom built Bethlehem S. B. Corp. Yard No. 1436 When built 1930

Engines made at Cleveland, O. By whom made Winton Engine Co. Engine No.        When made 1930

Donkey Boilers made at        By whom made        Boiler No.        When made       

SHAFT Horse Power 500 Owners Lake Tankers Corporation Port belonging to Wilmington Del.

m. Horse Power as per Rule        Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

ade for which vessel is intended INLAND WATERS

**ENGINES, &c.**—Type of Engines 2 or 4 stroke cycle Single or double acting       

Maximum pressure in cylinders        Diameter of cylinders        Length of stroke        No. of cylinders        No. of cranks       

Position of bearings, adjacent to the Crank, measured from inner edge to inner edge        Is there a bearing between each crank       

Revolutions per minute 200 Flywheel dia.        Weight        Means of ignition        Kind of fuel used       

Crank Shaft, dia. of journals        as per Rule        Crank pin dia.        Crank Webs        Mid. length breadth        Thickness parallel to axis       

Wheel Shaft, diameter        as per Rule        Intermediate Shaft, diameter        as fitted        Thrust Shaft, diameter at collars        as per Rule       

Propeller Shaft, diameter        as per Rule        Screw Shaft, diameter        as fitted        Is the        shaft fitted with a continuous liner       

Cylinder Liners, thickness in way of bushes        as per Rule        Thickness between bushes        as fitted        Is the after end of the liner made watertight in the       

Propeller boss        **YES RUBBER RING** If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner        **YES**

Does the liner do 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       

Are two liners 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       

Length of Bearing in Stern Bush next to and supporting propeller 26"

Propeller, dia. 90 Pitch 70 No. of blades 4 Material CAST STEEL whether Moveable No Total Developed Surface        sq. feet

Method of reversing Engines        Is a governor or other arrangement fitted to prevent racing of the engine when declutched        Means of lubrication       

Thickness of cylinder liners        Are the cylinders fitted with safety valves        Are the exhaust pipes and silencers water cooled or lagged with       

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       

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

Bilge Pumps worked from the Main Engines, No.        Diameter        Stroke        Can one be overhauled while the other is at work       

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

Ballast Pumps, No. and size        Lubricating Oil Pumps, including Spare Pump, No. and size       

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

Bilge Pumps, No. and size:—In Machinery Spaces        In Pump Room       

Holds, &c.       

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

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

Are they fitted from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges       

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

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       

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       

Are that pipes pass through the bunkers        How are they protected       

Are that pipes pass through the deep tanks        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       

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        Is the Shaft Tunnel watertight        Is it fitted with a watertight door        worked from       

For 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.        No. of stages        Diameters        Stroke        Driven by       

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

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

Scavenging Air Pumps, No.        Diameter        Stroke        Driven by       

Auxiliary Engines crank shafts, diameter        as per Rule        as fitted       

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

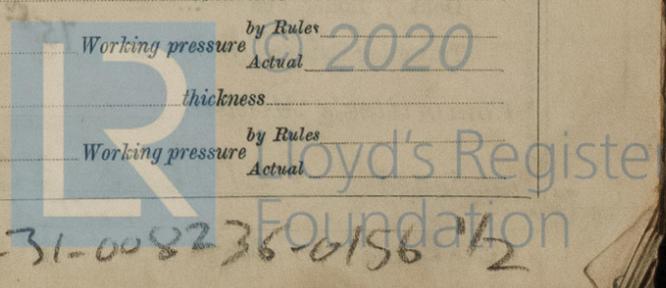
Can the internal surfaces of the receivers be examined and cleaned        Is a drain fitted at the lowest part of each receiver       

High Pressure 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.        Total cubic capacity        Internal diameter        thickness       

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



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IS A DONKEY BOILER FITTED? **No** If so, is a report now forwarded?

Is the donkey boiler intended to be used for domestic purposes only?  **GENERATOR-MOTOR**  
**PLANS.** Are approved plans forwarded herewith for Shafting **YES** Receivers \_\_\_\_\_ Separate Tanks \_\_\_\_\_  
Donkey Boilers \_\_\_\_\_ General Pumping Arrangements **YES** Oil Fuel Burning Arrangements \_\_\_\_\_  
**SPARE GEAR.**

Has the spare gear required by the Rules been supplied? **NO**  
State the principal additional spare gear supplied \_\_\_\_\_

**FOR GENERAL DESCRIPTION OF ELECTRIC APPARATUS FOR PROPULSION OF VESSEL  
PLEASE SEE FOLLOWER SHEET HEREWITH.**

The foregoing is a correct description,  
General Electric Company

By **H. W. Niven** Manufacturer.  
Manager, Federal & Marine Dept.

Dates of Survey while building  
During progress of work in shops - 1930 Feb 14, 24 Mar 8, 11, 19.  
During erection on board vessel - 1930 APRIL 17, 22-26-29, MAY 6-14-15-20-23-28.  
Total No. of visits 5 + 10

Dates of Examination of principal parts - Cylinders  Covers  Pistons  Rods  Connecting rods   
**GENERATOR**  Thrust shaft 14 Feb 1930 Flywheel shaft  Thrust shaft 3-3-30 **MOTOR**  Intermediate shafts 14 Feb  Tube shaft   
Screw shaft 24-4-30 Propeller 24-4-30 Stern tube 11-4-30 Engine seatings 8-4-30 Engines holding down bolts 6-5-30

Completion of fitting sea connections 26-4-30 Completion of pumping arrangements 23-5-30 Engines tried under working conditions 27-5-30  
**GENERATOR** Thrust shafts, Material **STEEL** Identification Mark **JSH** Flywheel shaft, Material Identification Mark **LLOYDS**  
Thrust shaft, Material **STEEL** Identification Mark **LLOYDS 1049** **MOTOR** Intermediate shafts, Material **Steel** Identification Marks **JSH**  
Tube shaft, Material  Identification Mark  Screw shaft, Material **STEEL** Identification Mark **LLOYDS 104**

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

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

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, etc.)

The Main & Auxiliary Generators, the double armature Motor, & the Control Board for the propulsion of this vessel have been built under Special Survey in accordance with the Rules & approved plans, & the workmanship & material are good.

They have been forwarded to Quincy to be fitted on board, & when this has been done in accordance with the Rules & to the satisfaction of the Surveyor, & the machinery has been satisfactorily tested at full power, it will be eligible, in my opinion, to receive the record of L.M.C. (with date) & the notation "2 OIL ENGINES CONNECTED TO ELEC. MOTOR & SC. SHAFT."

THE MAIN AUXILIARY GENERATORS AND MOTOR HAVE BEEN FITTED IN THE VESSEL. QUALITY OF WORKMANSHIP IS GOOD, THEY HAVE BEEN EXAMINED UNDER WORKING CONDITIONS & FOUND SATISFACTORY AND IN THE OPINION OF THE UNDERSIGNED

ELIGIBLE TO HAVE THE RECORD OF **+ LMC 5-30** WITH NOTATION "2 OIL ENGINES CONNECTED TO ELECTRIC MOTOR & SC. S"

Installation of Machinery \$ 100  
The amount of Entry Fee ... F.E. \$ 15  
Special ... \$ 100  
Donkey Boiler Fee ... \$  
Travelling Expenses (if any) ... \$ 75  
When received, 11 JUNE 1930  
When applied for, April 19, 1930  
John S. Hee  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute NEW YORK JUN 18 1930

Note - Assigned + LMC 5-30  
2 Oil Engines connected to Elec. Motor & Sc. Shaft.

ELECTRICAL MACHINERY FOR PROPULSION

BETHLEHEM S. B. Co # 1436.

The propulsion equipment consists of two Winton Diesel engines, each direct connected to a General Electric Co. generator rated LDRM 7-A - 6 Pole - 210 k.w. - 375 R.P.M., 250 volt, shunt wound. These two generators supply power to the main motor, which is of the double armature type and each motor is rated LDRM-9-A - 8 Poles - 250 H.P. - 200 R.P.M., 240 volts, total 500 H.P. 500 volts.

The two main generators are operated in series with the two armatures of the double motor. The generators are operated at constant speed, the speed of the motor being obtained by varying the voltage of the generator, this being the variable voltage system of control.

Reversal is obtained by reversing the fields of the main generator.

In addition to the above, there are two auxiliary generators or exciters, rated MPC 6 - 20 k.w. - 375 R.P.M. 125 volts; one of each of these is mounted on the shaft extension of each main generator. These auxiliary generators are exciters operating at constant speed and constant voltage, and provide excitation for the main generators and motors and power for the various motor driven auxiliaries.

The forgings have been tested as per Rules, the generators and motors examined during construction and the workmanship and material found good.

The generators and electric motor have been tested at the works by being run against each other and under these conditions were found good.

J. S. H.