

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~~ ~~Double~~ ~~Triple~~ ~~Quadruple~~ Screw vessel L.T.C. No. 1 Tons Gross 548 Net 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
In 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
as fitted Motor Intermediate Shaft, diameter as per Rule 5.43" shrunk Thickness around eye-hole
as fitted Thrust Shaft, diameter at collars as per Rule 3.51
as fitted 6.5
Screw Shaft, diameter as per Rule 5.88 Is the shaft fitted with a continuous liner YES
as fitted 6.5
Copper Liners, thickness in way of bushes as per Rule .47 Thickness between bushes as per rule .35
as fitted .56 as fitted .375 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
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
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
ft. No If so, state type 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
conducting material If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine
Cooling Water Pumps, No. Is the sea suction provided with an efficient strainer which can be cleared within the vessel
Large Pumps worked from the Main Engines, No. Diameter Stroke Can one be overhauled while the other is at work
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
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
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
That pipes pass through the bunkers How are they protected
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
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. 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

YES

Receivers

Separate Tanks

PLANS. Are approved plans forwarded herewith for Shafting

(If not, state date of approval)

Donkey Boilers

General Pumping Arrangements

YES

Oil Fuel Burning Arrangements

SPARE GEAR.

Has the spare gear required by the Rules been supplied

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 *W. H. 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
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
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
17-1-30

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 & 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

Committee's Minute

Assigned + LMC 5-30

Note - 2 Oil Engines connected to Elec. Motor & Sc. Shaft.

CERTIFICATE WRITTEN.

9a.

NEW YORK

Continuation of Report No. 31405 dated 2 April 1930. on the

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.



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