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REPORT ON OIL ENGINE MACHINERY.

No. 7049

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of writing Report 7-5-1930 When handed in at Local Office 10-5-1930 Port of **MANCHESTER** Received at London Office 12 MAY 1930
in Survey held at **MANCHESTER** Date, First Survey 6-11-29 Last Survey 6-5-1930
Book. Number of Visits 12

on the ~~Single~~ ~~Twin~~ ~~Triple~~ ~~Quadruple~~ Screw vessel
at **Southampton** By whom built **Messrs J. F. Thornycroft & Co. Ltd.** Yard No. **1099** When built
ines made at **Manchester** By whom made **Messrs L. Gardner & Sons Ltd.** Engine No. **28503** When made **1930**
akey Boilers made at By whom made Boiler No. When made
ke Horse Power **500 Totals** Owners Port belonging to
n. Horse Power as per Rule **143** Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted
ide for which vessel is intended **Yachting**

ENGINES, &c. Type of Engines **Vertical, Solid Injection, Reversing, Air Starting** 2 or 4 stroke cycle **2** Single or double acting **Single**
imum pressure in cylinders **580 lbs/sq. in.** Diameter of cylinders **12 1/2"** Length of stroke **15"** No. of cylinders **5 each engine** No. of cranks **5**
n of bearings, adjacent to the Crank, measured from inner edge to inner edge **20 3/4"** Is there a bearing between each crank **Yes**
olutions per minute **290** Flywheel dia. **49"** Weight **3387 lbs.** Means of ignition **Heat of compression** of fuel used **Heavy Oil**
ank Shaft, dia. of journals as per Rule **7 3/4"** as fitted **Approved** Crank pin dia. **7 3/4"** Crank Webs Mid. length breadth **9 1/2"** Mid. length thickness **3 1/16"** Thickness parallel to axis **Solid** Thickness around eye-hole **Solid**
wheel Shaft, diameter as per Rule as fitted **Approved** Intermediate Shafts, diameter as per Rule as fitted Thrust Shaft, diameter at collars as per Rule as fitted **5"** **Approved**
be Shaft, diameter as per Rule as fitted Screw Shaft, diameter as per Rule as fitted Is the tube screw shaft fitted with a continuous liner

ronze Liners, thickness in way of bushes as per Rule as fitted Thickness between bushes as per rule as fitted Is the after end of the liner made watertight in the
If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner
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
If so, state type Length of Bearing in Stern Bush next to and supporting propeller
opeller, dia. Pitch No. of blades Material whether Moveable Total Developed Surface sq. feet
ethod of reversing Engines **Hand shaft act. & Air** Is a governor or other arrangement fitted to prevent racing of the engine when declutched **Yes** Means of lubrication
TO MAIN BEARINGS. **SOLID WITH OIL** Are the cylinders fitted with safety valves **Yes** Are the exhaust pipes and chimneys water cooled or lagged with
TO REMAINDER. **WATER COOLED** the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine
MANIFOLDS
oling Water Pumps, No. **One on each engine** Is the sea suction provided with an efficient strainer which can be cleared within the vessel
lge Pumps worked from the Main Engines, No. **One on each engine** Diameter **3"** Stroke **3 1/2"** Can one be overhauled while the other is at work
umps connected to the Main Bilge Line No. and Size How driven

illast Pumps, No. and size Lubricating Oil Pumps, including Spare Pump, No. and size **One 2" bore x 1 1/2" effective stroke ONE ON EACH ENGINE.**
e two independent means arranged for circulating water through the Oil Cooler Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge
umps, No. and size:—In Machinery Spaces
Holds, &c.
ndependent Power Pump Direct Suctions to the Engine Room Bilges, No. and size
re all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Are the Bilge Suctions in the Machinery Spaces
d from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges
re all Sea Connections fitted direct on the skin of the ship Are they fitted with Valves or Cocks
re 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
re 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 bunks How are they protected
That pipes pass through the deep tanks Have they been tested as per Rule
re 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
mpartment to another Is the Shaft Tunnel watertight Is it fitted with a watertight door worked from

f a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork
ain Air Compressors, No. **One on each engine** No. of stages **2** Diameters **2 1/2" & 7"** Stroke **3 1/2"** Driven by **crank shaft extension**
uxiliary Air Compressors, No. No. of stages Diameters Stroke Driven by
mall Auxiliary Air Compressors, No. **One Gardner** No. of stages **2** Diameters **1 7/8" & 4 1/2"** Stroke **2 3/4"** Driven by
avenging Air Pumps, No. **Branchable compression** Diameter Stroke Driven by **Gardner 3 1/2" type engine**
uxiliary Engines crank shafts, diameter as per Rule as fitted **Approved** Pins **2 1/2" dia.** Journals **2 5/8"**

R RECEIVERS:—Is each receiver, which can be isolated, fitted with a safety valve as per Rule **Safety valves fitted on compressors.**
Can the internal surfaces of the receivers be examined **Yes** What means are provided for cleaning their inner surfaces **Plug in ends (3" gal).**
Is there a drain arrangement fitted at the lowest part of each receiver **Yes**
High Pressure Air Receivers, No. **Not fitted** Cubic capacity of each Internal diameter thickness
Seamless, lap welded or riveted longitudinal joint Material Range of tensile strength Working pressure by Rules
Starting Air Receivers, No. **4 (211291, 211292, 211293, 211294)** Total cubic capacity **36008 FT.** Internal diameter **14 1/2"** thickness **4 sides, 1" centre of base**
Seamless, lap welded or riveted longitudinal joint **SEAMLESS CHESTERFIELD TYPE.** Material **Mild Steel** Range of tensile strength **28-32 tons** Working pressure by Rules **400 lbs/sq. in.**

IS A DONKEY BOILER FITTED?

If so, is a report now forwarded?

PLANS. Are approved plans forwarded herewith for Shafting *Yes*
(If not, state date of approval)

Receivers *Yes* Separate Tanks

Donkey Boilers General Pumping Arrangements

Oil Fuel Burning Arrangements

SPARE GEAR

The foregoing is a correct description,
L GARDNER & SONS, LIMITED.

William Gardner, Manufacturer.

DATES OF SURVEY
During progress of work in shops - 6/11/29, 12/11/29, 26/11/29, 11/12/29, 13/1/30, 24/3/30, 9/4/30, 11/4/30, 16/4/30, 28/4/30, 2/5/30, 6/5/30
During erection on board vessel -
Total No. of visits

Dates of Examination of principal parts - Cylinders 9-4-30 Covers 9-4-30 Pistons 11-4-30 Rods Connecting rods 6-11-29 12-11-29 11-12-29 11-1-30
Crank shaft 9-4-30 Flywheel shaft Thrust shaft 6-11-29 13-1-30 Intermediate shafts Tube shaft

Screw shaft Propeller Stern tube Engine seatings Engines holding down bolts
Completion of fitting sea connections Completion of pumping arrangements Engines tried under working conditions in shop 28-4-30 3-5-30 6-5-30

Crank shaft, Material *Mild Steel* Identification Mark *N° 3061a-3186 R.W.F.* Flywheel shaft, Material Identification Mark
Thrust shaft, Material *Mild Steel* Identification Mark *2 off N° 389 C.F.* Intermediate shafts, Material Identification Marks
Tube shaft, Material Identification Mark Screw shaft, Material Identification Mark

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

Is this machinery duplicate of a previous case *Yes* If so, state name of vessel *Bamper & Nicholson N° 364. Mech. Rpt. N° 6790*

General Remarks (State quality of workmanship, opinions as to class, &c.) *The above main engines of Gardner's Type 539, and one Gardner 312 Type three cylinder vertical engine N° 28516 direct coupled to a Newton's dynamo N° 31785 of 110/170 volts at 1000 R.P.M., the armature shaft extended in clutch coupled to a two stage Gardner air compressor N° 566, also one Gardner auxiliary 212 Type two cylinder vertical engine N° 28501 direct coupled to a Newton's dynamo N° 65950 of 110/170 volts, 50/78 amp, 8.5 K.W. at 800 R.P.M., have been built under Special Survey, and the materials tested in accordance with the rules of this Society. The materials so far as can be seen are sound and the workmanship is good. The engines proved satisfactory under shop tests on full loads, the main engines manoeuvred well.*

These engines are in my opinion eligible for the notation of L.M.C. with date when fitted on board the vessel in accordance with the rule requirements.

The amount of Entry Fee ... £ : : When applied for, 10-5-1930
Special ... £ 28 : 12 :
Donkey Boiler Fee ... £ : : When received, 4-6-1930
Travelling Expenses (if any) £ : : R.P.M.

Committee's Minute *WED. 11 JUN 1930*
Assigned *See Sou rpt. No 13966*

J. F. Campbell
Engineer Surveyor to Lloyd's Register of Shipping.
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The Surveyors are requested not to write on or below the space for Committee's Minute.