

REPORT ON OIL ENGINE MACHINERY.

No. 108181

Received at London Office SEP 1936

Date of writing Report 7th Sept 1936 When handed in at Local Office 29 SEP 1936 Port of London

No. in Survey held at Bedford Date, First Survey 5th May 1936 Last Survey 2nd Sept 1936
Reg. Book. Number of Visits 24

on the ^{Single} Twin ^{Triple} Screw vessel ^{Quadruple} 3. GENERATOR SETS OF 375 KW. FOR PORT JACKSON. Tons { Gross 9687 Net 5826

Built at Newcastle By whom built Swan Hunter & Wigham Richardson Yard No. 1504 When built 1936

Engines made at Bedford By whom made W. H. Allen Sons & Co. Ltd Engine No. 56979 When made 1936

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

Generator type Brake Horse Power 554 EACH SET Owners Commonwealth & Dominion Line Ltd Port belonging to LONDON

Nom. Horse Power as per Rule 158 EACH Is Refrigerating Machinery fitted for cargo purposes YES Is Electric Light fitted YES

Trade for which vessel is intended

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

Maximum pressure in cylinders 650 lbs Diameter of cylinders 350 Length of stroke 470 No. of cylinders 6 No. of cranks 6
Mean Indicated Pressure 90.8

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 424 Is there a bearing between each crank YES
Revolutions per minute 350 Flywheel dia. 1800 Weight 5650 lbs Means of ignition Compression Kind of fuel used Heavy oil

Crank Shaft, dia. of journals as per Rule 197.7 as fitted 210.7 Crank pin dia. 210.7 Crank Webs Mid. length breadth 310 Mid. length thickness 105 Thickness parallel to axis shrunk Thickness around eye-hole

Flywheel Shaft, diameter as per Rule as fitted Intermediate Shafts, diameter as per Rule as fitted Thrust Shaft, diameter at collars as per Rule as fitted

Tube 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

Bronze 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 propeller boss

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

Propeller, dia. Pitch No. of blades Material whether Moveable Total Developed Surface sq. feet
Length of Bearing in Stern Bush next to and supporting propeller

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

Thickness of cylinder liners 26.7 Are the cylinders fitted with safety valves YES Are the exhaust pipes and silencers water cooled or lagged with non-conducting material YES

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. Not supplied with generators 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
Pumps connected to the Main Bilge Line No. and Size How driven

Is the cooling water led to the bilges If so, state what special arrangements are made to deal with this water in addition to the ordinary bilge pumping arrangements

Ballast Pumps, No. and size Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size 24 gal. per mt. capacity
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

In 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-bozes Are the Bilge Suctions in the Machinery Spaces led from easily accessible mud-bozes, 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

What pipes pass through the bunkers How are they protected
What pipes pass through the deep tanks Have they been tested as per Rule

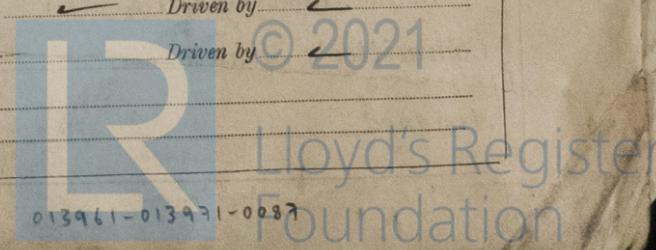
Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times

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. 2 Air compressors No. of stages Diameters Stroke Driven by

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

Scavenging Air Pumps, No. none 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. *yes*

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

High Pressure Air Receivers, No. *3* Cubic capacity of each *33 cubic ft* Internal diameter *23 7/8"* thickness *5/16"*

Seamless, lap welded or riveted longitudinal joint. Material *Steel* Range of tensile strength *26/30 ton* Working pressure by Rules *300 lb* Actual *300 lb*

Starting Air Receivers, No. *3* Total cubic capacity *33 cubic ft* Internal diameter *23 7/8"* thickness *5/16"*

Seamless, lap welded or riveted longitudinal joint. Material *Steel* Range of tensile strength *26/30 ton* Working pressure by Rules *300 lb* Actual *300 lb*

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. *yes*

PLANS. Are approved plans forwarded herewith for Shafting *Approved 5.12.29* Receivers *Approved 7.11.34* 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. *yes*

State the principal additional spare gear supplied. *List of spare gear herewith.*

The foregoing is a correct description,

W.H. ALLEN, SONS & Co., Ltd., Manufacturer. *H. H. Clarke*

Dates of Survey while building: During progress of work in shops - *1936 MAY 15. 25. 28. 29 JUNE 5. 12. 16. 19. 23. 25. 30 JULY 1. 2. 3. 8. 11. 14. 15. 22. 27 AUG 17. 31 Sept 2*

Dates of Examination of principal parts: Cylinders *MAY 15. 22. 30 JUNE 16. 23. 30* Covers *MAY 22. 28 JUNE 16. 30* Pistons *1. 7. 36* Rods *19. 6. 36* Connecting rods *25. 6. 36*

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. *yes* If so, have the requirements of the Rules been complied with. *yes*

If the notation for Ice Strengthening is desired, state whether the requirements in this respect have been complied with. *yes*

Is this machinery duplicate of a previous case. *yes* If so, state name of vessel. *Swan Hunter N° 14954c*

General Remarks (State quality of workmanship, opinions as to class, &c. *These generator sets have been constructed under special survey in accordance with approved plans and rule requirements. The materials made at works approved by the Society and tested in accordance with Rules. The workmanship is good.*

On completion Engines N° K1/56979 A, B & C were directly coupled to generators N° 1/56980/1, 1/56980/3 and 1/56980/2 respectively and run on test bench at full load and 10% overload with satisfactory results. Engine governors tested and found efficient.

Eligible in my opinion for service in a classed vessel.

Certificates as herewith. Crank shaft forged by Roberts N° 2427 Birmingham & N° F1605 Manchester. Make's Bench test sheets & electrical test sheets. Note Surveys for stock. Sprinkler Cert N° 2777. Recover N° E 594. 595 & 596.

The amount of Entry Fee .. £ : : When applied for, *29 SEP 1936*
Special ... £ *47 : 8*
Donkey Boiler Fee ... £ : :
Travelling Expenses (if any) £ *4 : 3 : 6* When received, *after 19/36*

Committee's Minute *FRI 12 FEB 1937*
Assigned *See Nuv. J.E. 94656*

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

H. H. Clarke
Engineer Surveyor to Lloyd's Register of Shipping.
These 3 Sets of Auxiliary Oil Engines have been satisfactorily installed on M/S PORT JACKSON. A. Watt Newcastle on Tyne
Lloyd's Register Foundation