

RECEIVED Rpt. 4b. 3 OCT 1947

REPORT ON OIL ENGINE MACHINERY.

No 23562.

IN D.O.

Received at London Office

22 OCT 1947

Date of writing Report 15th OCT. 1947. When handed in at Local Office 16th OCT 1947. Port of GREENOCK Date, First Survey 13th JANUARY '47. Last Survey 15 Oct 1947. Number of Visits 32.

No. in Survey held at Reg. Book. GREENOCK on the M/V "FERNLAND". Single Triple Screw vessel. Tons Gross 5564 Net 3140

Built at SUNDERLAND. By whom built BARTRAM & SONS L^{td}. Yard No. 325 When built 1947. Engines made at GREENOCK. By whom made JOHN G. KINCAID & CO^{ltd}. Engine No. 1193 When made 1947. Donkey Boilers made at ANNAN. By whom made COCHRAN & CO. Boiler No. 17185 When made 1947. Brake Horse Power 4550. Owners FEARNLEY & EGER. Port belonging to OSLO. Nom. Horse Power as per Rule 892 MN. Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted Yes. Trade for which vessel is intended OPEN SEA SERVICE.

OIL ENGINES, &c. Type of Engines Heavy Oil B/W L^{td} Sup^{rs}. 4 stroke cycle Single or double acting SINGLE. Maximum pressure in cylinders 650 lb/sq in. Diameter of cylinders 740. Length of stroke 1800. No. of cylinders 8. No. of cranks 8. Mean Indicated Pressure 8.65 kg/cm². Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 988.7. Is there a bearing between each crank Yes. Revolutions per minute 115. Flywheel dia. 2489.7. Weight 2.5 tons. Means of ignition Compression. Kind of fuel used Diesel Oil. Crank Shaft, dia. of journals as per Rule 525. Crank pin dia. 525. Crank Webs Mid. length breadth 980.7. Thickness parallel to axis 310.7. Mid. length thickness 310.7. Thickness around eye-hole 277.5. Flywheel Shaft, diameter as per Rule fitted on Thrust Shaft aft coupling. Intermediate Shafts, diameter as per Rule fitted 14 1/8. Thrust Shaft, diameter at collars as per Rule 460.7. Tube Shaft, diameter as per Rule as fitted. Screw Shaft, diameter as per Rule as fitted 15.75. Is the tube shaft fitted with a continuous liner Yes.

Bronze Liners, thickness in way of bushes as per Rule as fitted 13/16. Thickness between bushes as per Rule as fitted 19/32. Is the after end of the liner made watertight in the propeller boss Yes. 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 No. Length of Bearing in Stern Bush next to and supporting propeller 5.3.

Propeller, dia. 16.9. Pitch 13.9. No. of blades 4. Material M.B. whether Moreable No. Total Developed Surface 92 sq. feet. Method of reversing Engines Semi Air Motor Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes. Means of lubrication Forced. Thickness of cylinder liners Bot. 41.7. Are the cylinders fitted with safety valves Yes. Are the exhaust pipes and silencers water cooled or lagged with non-conducting 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.

Cooling Water Pumps, No. Two. Is the sea suction provided with an efficient strainer which can be cleared within the vessel Yes. Bilge Pumps worked from the Main Engines, No. None. Diameter. Stroke. Can one be overhauled while the other is at work. Pumps connected to the Main Bilge Line No. and Size One 100 tons/hr & One 170 tons/hr. How driven ELECTRIC MOTOR.

Is the cooling water led to the bilges No. 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 One 170 tons/hr. Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size Two 130 tons/hr each. Are two independent means arranged for circulating water through the Oil Cooler Yes. 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-boxes. Are the Bilge Suctions in the Machinery Spaces led 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. 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. No. of stages. Diameters. Stroke. Driven by. Auxiliary Air Compressors, No. One. No. of stages Two. Diameters 11" & 4 1/2". Stroke 8". Driven by E.L. MOTOR. Small Auxiliary Air Compressors, No. One. No. of stages SEE SUPPLEMENT. Diameters. Stroke. Driven by EMERGENCY DYN. CLUTCH. What provision is made for first Charging the Air Receivers CLUTCH COUPLED TO EMERGENCY DYNAMO DIESEL ENGINE.

Scavenging Air Pumps, No. Diameter. Stroke. Driven by. Auxiliary Engines crank shafts, diameter as per Rule as fitted. No. Position. Have the Auxiliary Engines been constructed under special survey. Is a report sent herewith.



AIR RECEIVERS: - Have they been made under survey *Yes* State No. of Report or Certificate
 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*
Injection Air Receivers, No. *✓* Cubic capacity of each *✓* Internal diameter *✓* thickness *✓*
 Seamless, lap welded or riveted longitudinal joint *✓* Material *✓* Range of tensile strength *✓* Working pressure *✓*
Starting Air Receivers, No. *Two* Total cubic capacity *900 cu ft* Internal diameter *6'-0 1/8"* thickness *3/32"*
 Seamless, lap welded or riveted longitudinal joint *77.085* Material *SMS* Range of tensile strength *29/32 ton* Working pressure *by Rules 364 lb Actual 356 lb*

IS A DONKEY BOILER FITTED? If so, is a report now forwarded?
 Is the donkey boiler intended to be used for domestic purposes only
PLANS. Are approved plans forwarded herewith for Shafting *22-11-46* Receivers *10-12-46* Separate Fuel Tanks *20-2-47 7-3-47*
 (If not, state date of approval)
 Donkey Boilers General Pumping Arrangements Pumping Arrangements in Machinery Space *12-2-47*
 Oil Fuel Burning Arrangements *12-2-47*

SPARE GEAR.

Has the spare gear required by the Rules been supplied *Yes*
 State the principal additional spare gear supplied *SEE SEPARATE LIST*

Operational characteristics approved 22 Nov 1946 for a service rpm of 115. provided a notice board is fitted at the control station stating that the engine is not to run continuously between 35 and 45 rpm.

The foregoing is a correct description,
J. Conway
 for JOHN G. KINCAID & CO. LIMITED. Manufacturer.

Dates of Survey while building
 During progress of work in shops - (1947) JAN. 13-24 APRIL 3-22 MAY 2-5 7-8 23-26 JUNE 11-23 JULY 1-21 30. AUG. 8-11 13-18 22-25 SEPT. 11-16 19-22 23-26 29 OCT. 5-9-15
 During erection on board vessel - - -
 Total No. of visits *32*

Dates of Examination of principal parts - Cylinders *3-2-47 6-7-47* Covers *3-2-47 7-5-47* Pistons *3-4-47* Rods *26-9-47* Connecting rods *26-9-47*
 Crank shaft *26-9-47* Flywheel shaft *✓* Thrust shaft *26-9-47* Intermediate shafts *19-9-47* Tube shaft *✓*
 Screw shaft *19-9-47* Propeller *19-9-47* Stern tube *19-9-47* Engine seatings Engines holding down bolts
 Completion of fitting sea connections Completion of pumping arrangements Engines tried under working conditions
 Crank shaft, Material *SMS* Identification Mark *4915499 CMH* Flywheel shaft, Material *✓* Identification Mark *✓*
 Thrust shaft, Material *SMS* Identification Mark *4915499 CMH* Intermediate shafts, Material *SMS* Identification Marks *4915499 CMH 19-9-47*
 Tube shaft, Material *✓* Identification Mark *✓* Screw shaft, Material *SMS* Identification Mark *4915499 CMH 19-9-47*
 Identification Marks on Air Receivers *2 off. 24040S N° 2462 575 lb wt 356 NR CMH. 29/9/47*

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
 Description of fire extinguishing apparatus fitted
 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, &c.)
This engine has been constructed under special survey in accordance with the Rules and approved plans, the materials & workmanship are sound & good. It has been tested on the test bed on full load with satisfactory results. The engine has now been despatched to Messrs Bostons & Sons Ltd Sunderland to be fitted into their yard N° 325 & will be eligible in my opinion for classification and record + L.M.C. with date when satisfactorily installed & tested.

The amount of Entry Fee .. £ : : When applied for,
329 1/4-4: Special ... £ *109* : *9* : *16th OCTOBER 47*
 Donkey Boiler Fee ... £ *10* : - : When received,
 Travelling Expenses (if any) £ : : *19*

Charles J. Hunter
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *GLASGOW 21 OCT 1947*
 Assigned *Deferred for completion*

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



See F.E. Welch. sp

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