

## REPORT ON OIL ENGINE MACHINERY.

No. 22467

Received at London Office 19 APR 1950

Date of writing Report 6<sup>th</sup> February 1950. When handed in at Local Office 7<sup>th</sup> February 1950. Port of Leith.

No. in Survey held at Leith. Date, First Survey 13<sup>th</sup> April 1949. Last Survey January 29<sup>th</sup> 1950.

Reg. Book. Number of Visits 36.

40524 on the Twin Screw vessel T.M.V. "MOMBASA" Tons Gross 2213 Net 1090.

Built at Leith By whom built Henry Robt & Co. Yard No. 379. When built 1.50.

Engines made at Glasgow. By whom made British Polar Engines Ltd. Engine Nos. 739/40. When made 1.50.

Donkey Boilers made at Annan. By whom made Cochran & Co. (Annan) Ltd. Boiler No. 1762. When made 1.50.

Brake Horse Power 1600. Total Owners British India Steam Navigation Co. Ltd. Port belonging to London.

M.N. Power as per Rule 367. NHP 315 Is Refrigerating Machinery fitted for cargo purposes Yes. Is Electric Light fitted Yes.

Trade for which vessel is intended Passenger and Cargo.

OIL 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

Mean Indicated Pressure Ahead Firing Order in Cylinders

from inner edge to inner edge Is there a bearing between each crank

Revolutions per minute

Flywheel dia. Weight Moment of inertia of flywheel 16lbs. in<sup>2</sup> or Kg.cm.<sup>2</sup> Means of ignition Kind of fuel used

Crank Shaft, Solid forged dia. of journals as per Rule. Crank webs Mid. length breadth shrunk Thickness parallel to axis. All built as fitted. Crank webs Mid. length thickness Thickness around eyehole.

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

Tube Shaft, diameter as per Rule. Screw Shaft, diameter as fitted. Is the screw shaft fitted with a continuous liner Yes.

Bronze 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. 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 tube shaft. No. If so, state type. Length of bearing in Stern Bush next to and supporting propeller 2'-6" ✓

Propellers, dia. 4'-3" Pitch 5'-9" No. of blades 4 Material Bronze whether moveable Solid Total developed surface 19.9 sq. feet

Moment of inertia of propeller (16lbs. in<sup>2</sup> or Kg.cm.<sup>2</sup>) Kind of propeller if fitted

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 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. 2 S.W. 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. Bilge Pump 60 lph. General Service Pump 60 lph. Emergency Bilge Pump 50 lph. Draining Pump. How driven. Electric Motor Electric Motor Electric Motor Hand.

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. Power Driven Lubricating Oil Pumps, including spare pump, No. and size. 2-train Engine Driven 1 Stand By - 4G20 gallons/hr.

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. 4 @ 2½", 2 @ 2½" Oil gutterway & 2 @ 2" Cofferdams. In pump room. Summit Well 2 @ 2½"

In holds, &c. No. 1 Hold 2 @ 2½", No. 2 Hold 2 @ 2½", 2 @ 2½" Hold Oil gutterway, 1 @ 2" 3rd Cofferdam, Aft Hold 2 @ 2½", aft cofferdam 1 @ 2" Drain from Ref. 102

Independent Power Pump Direct Suctions to the engine room bilges, No. and size. Bilge Pump 3½", General Service Pump 3½", Emergency Bilge Pump 3½"

Are all the bilge suction pipes in holds and tunnel well fitted with strum-boxes. Yes. Are the bilge suction 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. Yes.

Are all Sea Connections fitted direct on the skin of the Ship. Yes. Are they fitted with valves or cocks. Valves & cocks down. Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates. Yes. Are the overboard discharges above or below the deep water line. Below.

Are they each fitted with a discharge valve always accessible on the plating of the vessel. Yes. Are the blow off cocks fitted with a spigot and brass covering plate. Yes.

What pipes pass through the bunkers. none. How are they protected.

What pipes pass through the deep tanks. none. 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. Yes.

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. Yes. Is the shaft tunnel watertight. Yes. Is it fitted with a watertight door. Yes. worked from upper deck.

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. none. No. of stages. diameters 5¾" - 2¾" stroke 4" driven by Oil Engine.

Auxiliary Air Compressors, No. one. No. of stages. Two. diameters 5¾" - 2¾" stroke 4" driven by Electric Motor.

Small Auxiliary Air Compressors, No. No. of stages. diameters. stroke. driven by.

What provision is made for first charging the air receivers. Oil Engine driven Compressor is hand starting.

Scavenging Air Pumps, No. Glasgow REPORT No. 74179. diameter. stroke. driven by.

Auxiliary Engines crank shafts, diameter as per Rule. Nottingham REPORT No. 561. No. Position 2 on port side 4 on starboard side of Engine Room Platform.

Have the auxiliary engines been constructed under special survey. Yes. Is a report sent herewith. Yes.

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AIR RECEIVERS:—Have they been made under survey. **REPORT** No 74179. State No. of report or certificate.

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.

Injection Air Receivers, No. Cubic capacity of each. Internal diameter. thickness.

Seamless, welded or riveted longitudinal joint. Material. Range of tensile strength. Working pressure.

Starting Air Receivers, No. Total cubic capacity. Internal diameter. thickness.

Seamless, welded or riveted longitudinal joint. Material. Range of tensile strength. Working pressure.

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. Receivers. Separate fuel tanks.

Donkey boilers. General pumping arrangements. Pumping arrangements in machinery space.

Oil fuel burning arrangements.

Have Torsional Vibration characteristics been approved. Date of approval.

### SPARE GEAR.

Has the spare gear required by the Rules been supplied.

State the principal additional spare gear supplied. One screw shaft, two cast iron propellers, one cylinder cover complete with valves, one cylinder liner, one main bearing complete, one piston with gudgeon pin and rings, one fuel valve complete, one starting valve complete.

The foregoing is a correct description, **RY ROBB LIMITED** Manufacturer.

Dates of Survey while building. During progress of work in shops. During erection on board vessel. Total No. of visits.

Dates of examination of principal parts—Cylinders. Covers. Pistons. Rods. Connecting rods.

Crank shaft. Flywheel shaft. Thrust shaft. Intermediate shafts. Tube shaft.

Screw shafts. Propellers. Stern tubes. Engine seatings. Engine holding down bolts.

Completion of fitting sea connections. Completion of pumping arrangements. Engines tried under working conditions.

Crank shaft, material. Identification mark. Flywheel shaft, material. Identification mark.

Thrust shaft, material. Identification mark. Intermediate shafts, material. Identification marks.

Tube shaft, material. Identification mark. Screw shaft, material. Identification mark.

Identification marks on air receivers.

Welded receivers, state Makers' Name.

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. 1-34 gallon "Dixform" fire engine, 2-2 gallon "Dixform" extinguishers, 2 hoses with spray nozzles, 2 boxes of sand.

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. If so, state name of vessel.

General Remarks (State quality of workmanship, opinions as to class, &c. The machinery of this vessel has been built under

Special Survey and in accordance with the Rules and Approved Plans. The workmanship and materials have been found good. Upon completion it was examined under full working conditions and found satisfactory.

It is recommended that the machinery of this vessel be classed in the Register Book of LMC 150, provided (that the records taken from the completed installation on January 29, 1950 confirm that the damper effectively limits the vibration stresses in the crankshaft to more than  $\pm 3,700 \text{ lbs./sq. in.}$  as stated in Secretary's letter E, dated 28.4.48 and to have the notation Oil Engines, TSCL, DB 100 lbs./sq. in.

finally app'd 6/4/50 for 250-hp.

The amount of Entry Fee. LMC. £ 54 : 2

Special. Charged to Glasgow. Paid. 16-9-49

Donkey Boiler Fee. £

Travelling Expenses (if any) £

When applied for. 19

When received. 19

Ab ampbell Engineer Surveyor to Lloyd's Register of Shipping.

(The Committee's Minute. GLASGOW. 18 APR 1950

Assigned

+ LMC 50

Oil Engine

D.B. 100 lb.