

No. 684 530
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Rpt. 4b.

REPORT ON OIL ENGINE MACHINERY.

No. 168.

13 MAY 1937

Received at London Office

Date of writing Report 3.5. 1937. When handed in at Local Office 5.5. 1937. Port of Düsseldorf.

No. in Survey held at Cologne Date, First Survey 26.10. 1936. Last Survey 26.4. 1937.
Reg. Book. Number of Visits 10

on the ^{Single} Twin ^{Triple} ^{Quadruple} Screw vessel "Joseph Flint".

Tons { Gross
Net

Built at Leith By whom built Hy. Robb, (Ld.) (Incorporating Ramage & Ferguson (Ld.) Yard No. 243 419558/63 When built 1937

Engines made at Cologne By whom made Humboldt-Deutzmotoren A.G. Engine No. 419564/69 When made 1937

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

Brake Horse Power 2 x 180 Owners 108 MN 14 Is Refrigerating Machinery fitted for cargo purposes Port belonging to

Nom. Horse Power as per Rule 104 Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted

Trade for which vessel is intended 9 14 3/16

ENGINES, &c. Type of Engines Heavy Oil Engines R.V. 6 M 436 2 or 4 stroke cycle 4 Single or double acting single

Maximum pressure in cylinders 50 kgs/cm² Diameter of cylinders 240 mm Length of stroke 360 mm No. of cylinders 6 No. of cranks 6

Mean Indicated Pressure 6.6 kgs/cm² Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 257 mm Is there a bearing between each crank yes

Revolutions per minute 300 Flywheel dia. 1000 mm Weight 1050 kgs. Means of ignition solid inj Kind of fuel used on test bed gas oil

Crank Shaft, dia. of journals as per Rule 150 mm Crank pin dia. 145 mm Crank Webs Mid. length breadth 260 mm Thickness parallel to axis shrunk Thickness around eyehole

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

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 If so, state type Length of Bearing in Stern Bush next to and supporting propeller

Propeller, dia. Pitch No. of blades Material whether Moveable Total Developed Surface sq. feet

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

Thickness of cylinder liners 18 mm Are the cylinders fitted with safety valves none Are the exhaust pipes ~~and overboard~~ water cooled or lagged with non-conducting material water cooled

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. one Is the sea suction provided with an efficient strainer which can be cleared within the vessel

Bilge Pumps worked from the Main Engines, No. 1 Diameter 100 mm Stroke 60 mm Can ~~not~~ be overhauled while ~~at work~~ is at work yes

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

Capacity 36 lts/2 1/2 min at 840 rev. per minute

Ballast Pumps, No. and size 1 tooth wheel pump & 1 spare of same type

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-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 145/60 mm Stroke 60 mm Driven by main engine

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 No. Position



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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. **three** **Total cubic capacity** **3 x 500 lts.** **Internal diameter** **450 mm** **thickness** **12 mm**

Seamless, lap welded or riveted longitudinal joint **lap welded** **Material** **S.M. Steel** **Range of tensile strength** **38-44 kg/cm²** **Working pressure** by Rules Actual **30 kgs/cm²**

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 **219409 7.2.36.** Receivers **G.O.244 21.7.32** Separate Fuel Tanks

Donkey Boilers General Pumping Arrangements Pumping Arrangements in Machinery Space

Oil Fuel Burning Arrangements

SPARE GEAR.

Has the spare gear required by the Rules been supplied **yes**

State the principal additional spare gear supplied

The foregoing is a correct description,
Humboldt Deutzmotoren

H. H. H. Aktiengesellschaft Manufacturer.

Dates of Survey while building { During progress of work in shops - - } **26.10.36., 13.1.37., 25.1.37., 18.3.37., 25.3.37., 27.3.37., 1.4.37., 5.4.37., 26.4.37.**
{ During erection on board vessel - - }
Total No. of visits **Liners: 1.4., 5.4., 26.4.37.**

Dates of Examination of principal parts—Cylinders **27.3., 5.4.37.** Covers **18.3., 25.3., 26.4.37.** Pistons **26.4.37.** Rods Connecting rods **26.10.36., 13.1.37., 25.1.37., 26.4.37.**
Crank shaft **13.3., 5.4., 26.4.37.** Flywheel shaft Thrust shaft 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 **on test bed 26.4.37.**
Crank shaft, Material **S.M. Steel** Identification Mark **LLOYD'S 2278) H.B. 2279) 13.3.37.** 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

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, &c.)

These heavy oil engines have been constructed under special survey in accordance with the Society's Rules and Regulations as well as in accordance with the approved plans and instructions thereto. The material used in the construction is good and the workmanship is satisfactory. The engines have been tested on the maker's test bed in the presence of the undersigned during 10 hours consecutively running under full load and 10 % overload and was found to be in safe working condition during these trials. After the trials all working parts of the engines have been opened out for inspection and were found in good condition. In my opinion the vessel for which these engines are intended will be eligible for the notation of + L.M.C. (with date) when the whole machinery has been fitted satisfactorily on board and tried under full working conditions. It has been recommended that safety valves are to be fitted to the cylinder heads. The copy of this report has been sent to Leith Surveyors.

The amount of Entry Fee .. **RM 80.-** When applied for, **Dismissed**
Special **RM 520.-** **11.5.1937** **RM 120 due to Leith.**
Donkey Boiler Fee £ :
Travelling Expenses (if any) **RM 100.-** **17/7/37**

H. H. H.
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI 1 OCT 1937

Assigned

See Lth JE 19419



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