

REPORT ON OIL ENGINE MACHINERY.

No. 8242.

Received at London Office 12 MAY 1930

Date of writing Report 8th May 1930 When handed in at Local Office 10th May 1930 Port of Copenhagen
 No. in Survey held at Copenhagen Date, First Survey 4th January Last Survey 5th May 1930
 Reg. Book. Number of Visits 57

on the Single Twin Triple Quadruple Motor Screw vessel "SIR JAMES CLARK ROSS" Tons Gross Net
 Built at Middlesbrough By whom built Messrs Furness Shipbuilding Co. Ltd. Yard No. 158 When built 1833
 Engines made at Copenhagen By whom made Messrs A.P. Burmeister & Wain Engine No. 1834 When made 1930
 Donkey Boilers made at Copenhagen By whom made Messrs A.P. Burmeister & Wain Designated FURNESS Boiler No. 1 When made 1930
 Brake Horse Power 3800 Owners Copenhagen Port belonging to Copenhagen
 Nom. Horse Power as per Rule 709 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes
 Trade for which vessel is intended General cargo

OIL ENGINES, &c. Type of Engines Vertical Diesel Oil Engines Crosshead type Solid injection 2 or 4 stroke cycle 4 Single or double acting Single
 Maximum pressure in cylinders 39 kg/cm² Diameter of cylinders 630 mm = 24 3/16" Length of stroke 300 mm = 11 7/8" No. of cylinders 2 x 6 No. of cranks 2 x 6
 Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 892 mm Is there a bearing between each crank Yes
 Revolutions per minute 125 Flywheel dia. 1902 mm Weight 1120 kg Means of ignition Air compression Kind of fuel used Crude oil flash point
 Crank Shaft, dia. of journals 404 mm as fitted 404 mm Crank pin dia. 404 mm Crank Webs 660 mm Mid. length breadth 246 mm shrunk Thickness parallel to axis 266 mm
 Flywheel Shaft, diameter as per Rule 11.1 mm Intermediate Shafts, diameter as per Rule 12.22 mm Thrust Shaft, diameter at collars as per Rule 11.65 mm
 Tube Shaft, diameter as per Rule 15 1/2 mm as fitted 15 1/2 mm Is the shaft fitted with a continuous liner Yes
 Bronze Liners, thickness in way of bushes as per Rule 0.774 mm Thickness between bushes as per Rule 0.6 mm 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 in one length
 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 Yes
 If two liners are fitted, is the shaft lapped or protected between the liners Yes Is an approved Oil Gland or other appliance fitted at the after end of the tube
 shaft Yes If so, state type Oil Gland Length of Bearing in Stern Bush next to and supporting propeller 7.9"
 Propeller, dia. 13.6" Pitch 10.6" No. of blades 3 off Material Nickel steel whether Moveable no Total Developed Surface 43 sq. feet
 Method of reversing Engines Direct reversible Is a governor or other arrangement fitted to prevent racing of the engine when disengaged Yes Means of lubrication
 Forced lubrication Thickness of cylinder liners 46 mm 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 Yes
 Cooling Water Pumps, No. 2 off Centrifugal, 200 tons each 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. 2 off 127 mm Stroke 230 mm Can one be overhauled while the other is at work Yes
 Pumps connected to the Main Bilge Line { No. and Size 1 off 150 tons How driven Hand
 Ballast Pumps, No. and size 1 off Rotary pump, 150 tons Lubricating Oil Pumps, including Spare Pump, No. and size 2 off Log wheel pumps, 10 tons 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 Yes In Pump Room Yes
 In Holds, &c. Yes
 Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size Yes
 Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Yes 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 Yes
 Are all Sea Connections fitted direct on the skin of the ship Yes Are they fitted with Valves or Cocks Yes
 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 Yes
 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 Yes How are they protected Yes
 What pipes pass through the deep tanks Yes Have they been tested as per Rule Yes
 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 Yes
 If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork Yes
 Main Air Compressors, No. 1 off No. of stages 2 Diameters A. 320 mm B. 280 mm Stroke 170 mm Driven by Hand
 Auxiliary Air Compressors, No. 2 off No. of stages 2 Diameters 100 mm - 45 mm Stroke 100 mm Driven by Hand 2nd stage
 Small Auxiliary Air Compressors, No. 1 off No. of stages 2 Diameters 100 mm - 45 mm Stroke 100 mm Driven by Hand
 Scavenging Air Pumps, No. 1 off Diameter 161.8 mm Stroke 170 mm Driven by Hand
 Auxiliary Engines crank shafts, diameter as per Rule 161.8 mm Auxiliary Diesel engines: 2 off 45 C.S.A. 3 cylinders: 150 BHP each. Cyl. diam: 310 mm, stroke 350 mm
400 revolutions per M. Each working a direct coupled 100 KW. Compound wound generator.

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
 Starting Air Receivers, No. 1 off Cubic capacity of each 250 Litres Internal diameter 380 mm thickness 11 mm
 Seamless, lap welded or riveted longitudinal joint Lap welded Material S.M. Steel Range of tensile strength 37.7 kg/mm² Working pressure 25 ATM.
 Starting Air Receivers, No. 2 off Total cubic capacity 1440 cubic feet Internal diameter 6.0" and 6.1 1/8" thickness 1 1/2" and 1 3/16"
 Seamless, lap welded or riveted longitudinal joint Double butt straps Material S.M. Steel Range of tensile strength 45.8-49.2 kg/mm² Working pressure 25 ATM.

If so, is a report now forwarded?

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Receivers. *Starting air receivers* Separate Tanks. *Yes*

Oil Fuel Burning Arrangements

SPARE GEAR.

Has the spare gear required by the Rules been supplied *Spare gear supplied as per accompanying list, - to be checked when placed on board.*
 State the principal additional spare gear supplied *✓*

The following plans have been forwarded per commercial paper's post:

- 1 plan of the Crank shafts for main engines.
- 1 " " " Crank shaft for auxiliary engines.
- 1 " " " Thrust, Intermediate and Screw shafts.
- 1 " " " Starting air receivers.
- 1 " " " Daily service oil fuel tanks.

The foregoing is a correct description,

AKTIESELSKABET
BURMEISTER & WANS MASKIN- OG SKIBSDYCCERI

Manufacturer.

Dates of Survey while building	{	During progress of work in shops--	Jan. 4, 11, 13, 20, 27, 29, 31. - Feb. 1, 3, 5, 6, 7, 12, 14, 21, 22, 28. - March 3, 4, 5, 7, 11, 13, 14, 15, 17, 18, 19, 20, 21, 22, 24, 25, 26, 27, 28, 31.
		During erection on board vessel--	April 1, 2, 3, 4, 8, 9, 10, 12, 14, 15, 16, 22, 23, 24, 25, 26, 30. - May 2, 3, 5, - 1930.
		Total No. of visits	57.

Dates of Examination of principal parts—Cylinders *and* Covers ^{2/2, 12/2, 28/2, 4/3, 27/3} Pistons ^{12/2, 4/3, 15/3, 21/3, 23/3, 30} Rods ^{29/1, 15/2, 21/3, 30} Connecting rods ^{11/1, 13/2, 27/3, 2/2, 14/3, 24/3, 30}

Crank shafts ^{11/3, 13/3, 2/3, 30} Flywheel shaft ✓ Thrust shaft ^{7/2, 22/2, 14/3, 26/3} Intermediate shafts ^{12/2, 18/3, 14/3, 30} Tube shaft ✓

Screw shaft ^{17/3, 3/3, 15/3, 30} Propeller ^{31/3, 30} Stern tube ^{2/2, 18/3, 26/3, 30} Engine seatings ✓ Engines holding down bolts ✓

Completion of fitting sea connections ✓ Completion of pumping arrangements ✓ Engines tried under working conditions ^{14/1, 15/1, 16/4, 22/4, 14/4, 24/4, 25/4, 26/4, 30}

Crank shafts Material *S.M.I. steel* Identification Mark *N6724673* ^{11/3, 30} Flywheel shaft, Material ✓ Identification Mark *N6824683* ^{13/3, 30}

Thrust shafts Material *S.M.I. steel* Identification Mark *N27374733* ^{26/4, 30} Intermediate shafts, Material *S.M.I. steel* Identification Marks *N7142715* ^{4, 14/4, 30}

Tube shaft, Material ✓ Identification Mark *N27374733* ^{26/4, 30} Intermediate shafts, Material *S.M.I. steel* Identification Marks *N6962697* ^{4, 31/3, 30}

Is the flash point of the oil to be used over 150° F. *yes* Spare " " " " " " " " " " *N7524753* ^{2, 5/30}

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 ☒ If so, state name of vessel

General Remarks

(State quality of workmanship, opinions as to class, &c. in accordance with the City R. R. L. & S. 1884)

material and the workmanship from the commencement of construction of the main and auxiliary engines with their accessories until the final running test of the engines under full power working condition in the shop and found it good and efficient, and found the engines to work satisfactorily. — The steel plate proposed to be fitted on the foremost column of the port main engine as shown on the plan forwarded with our letter of the 29th April and approved by the Committee as per Secretary's letter E dated the 1st May, has been fitted on the front wall of the foremost column of the port main engine and the work carried out to our satisfaction.

The material used in the construction of the engines and their receivers has been tested as required by the Rules, either by us or as per test certificates produced, - issued by Surveyors to this Society. — The dimensions are as specified and in accordance with the Rules, the approved plans and the requirements contained in the Secretary's letter E dated the 30th April & 4th June 29. 8th Feb & 1st May 1930.

Recommend the vessel to have notation in the Register Book of  LMC - with date, and OIL ENGINES. O.L. when the machinery has been fitted on board the vessel under the supervision of and tested to the satisfaction of the local Surveyors to this Society. —

The amount of Entry Fee .. $\frac{4}{5}$ ~~1/4~~ 87.36

When applied for,

⁴/₆ Special ⁴/₆ 1608.15

10. 5. 19

Donkey Boiler Fee	...	£	152.88
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When received,

Travelling Expenses (if any) ~~Rs~~ 5.50

30.6.30

Committee's Minute

TUE. 19 AUG 1930

Assigned

See Mab 3E. 14181

A. O. French, J. F. Langkafsky, Secy.
Engineer Surveyor to Lloyd's Register of Shipping.

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Foundation