

REPORT ON OIL ENGINE MACHINERY.

No. 211

19 JUN 1950

Received at London Office

of writing Report 11-4-1950 When handed in at Local Office 11-4-1950 Port of Yokohama

Survey held at Yokohama Date, First Survey 20-2 Last Survey 6-4-1950 Number of Visits 8

on the TWIN Triple Quadruple Screw vessel Motor Vessel "SANTO MARU" Tons Gross 3266 Net 1872

built at Tama By whom built Mitsui Bussan Kaisha Yard No. 184 When built May 1931

Engines made at Yokohama By whom made Yokohama Shipyard & Eng. Engine No. DK16032 When made Jan 1948

Boilers made at Selffield By whom made Davy Bros. Ltd. Boiler No. 3541 When made Nov 1930

Net Horse Power 1,500 H.P. Owners Toho Kaiun K.K. Port belonging to Tokyo

Net Horse Power as per Rule 306 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

Use for which Vessel is intended MN=342

MAIN ENGINES, &c.—Type of Engines G 10V 45/60 2 or 4 stroke cycle 4 Single or double acting Single

Maximum pressure in cylinders 49 kg/cm² 17 1/2" 23 1/2" Diameter of cylinders 450 mm Length of stroke 600 mm No. of cylinders 10 No. of cranks 10

Indicated Pressure 7.96 kg/cm² 7.10

of bearings, adjacent to the Crank, measured from inner edge to inner edge 556 mm Is there a bearing between each crank Yes

Revolutions per minute 250 Flywheel dia. 1,280 mm Weight 415 kg Means of ignition Compression Kind of fuel used Heavy oil fuel

Crank (Solid forged as per Rule 267 mm Semi-built dia. of journals as fitted 290 mm Crank pin dia. 285 mm Crank Webs Mid length breadth 500 mm Thickness parallel to axis

Shaft, All built - as fitted 290 mm Mid length thickness 135 mm Thickness around eyehole

Wheel Shaft, diameter as per Rule 194 mm as fitted 241.3 mm Thrust Shaft, diameter at collars as per Rule 204 mm as fitted 215 mm

Propeller Shaft, diameter as per Rule 213 mm as fitted 254 mm Is the tube screw shaft fitted with a continuous liner Yes

Cylinder Liners, thickness in way of bushes as per Rule 14 mm as fitted 19.8 mm Thickness between bushes as per Rule 10.5 mm as fitted 15 mm Is the after end of the liner made watertight in the

eller boss Yes If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner -

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

no 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

- If so, state type - Length of Bearing in Stern Bush next to and supporting propeller 3'-10"

Propeller, dia. 2,700 mm Pitch 1,550 mm No. of blades 4 Material MnBC whether Moveable No Total Developed Surface 29.0 sq. feet

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

used Thickness of cylinder liners 25 mm Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled or lagged with

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 -

Working Water Pumps, No. 1 @ 80 tons/hr 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. Diameter Stroke Can one be overhauled while the other is at work

Pumps connected to the Main Bilge Line { No. and Size 2 @ 20 tons; 1 @ 150 tons How driven Motor driven

Is 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

Booster Pumps, No. and size 1 @ 150 tons Power Driven Lubricating Oil Pumps including Spare Pump, No. and size 2 @ 30 tons/hr

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 1 @ 6" ; 1 @ 4 1/2" ; 2 @ 3 1/2" ; 5 @ 3" In Pump Room

Holds, &c. No. 1 hold 2 @ 3", No. 2 hold 2 @ 3", No. 3 hold 2 @ 3"; Tunnel well 1 @ 3"

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size One @ 6", one @ 4 1/2"

Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Yes Are the Bilge Suctions in the Machinery Spaces

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 above

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

Do the pipes pass through the bunkers - How are they protected -

Do the 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 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 Engine room upper deck

Is the vessel a good vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork -

Air Compressors, No. - No. of Stages - Diameters HP LP Stroke - Driven by -

Auxiliary Air Compressors, No. Three on each Aux. Diesel Engine No. of Stages 2 Diameters 280 / 320 Stroke 170 mm Driven by diesel eng.

Auxiliary Air Compressors, No. 1 No. of Stages 2 Diameters 15 1/2 2 1/2 Stroke 5" Driven by Hand driven

Is provision made for first Charging the Air Receivers

Working Air Pumps, No. - Diameter - Stroke - Driven by -

Auxiliary Engines crank shafts, diameter as per Rule - as fitted 170 mm Position No. 1 & 3 Eng. room star'd No. 2 port side

Have the Auxiliary Engines been constructed under special survey Yes Is a report sent herewith

© 2020

Lloyd's Register
Foundation

AIR RECEIVERS:—Have they been made under survey. Yes
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 by Rules Actual
Starting Air Receivers, No. Total cubic capacity Internal diameter thickness
Seamless, lap welded or riveted longitudinal joint Material Range of tensile strength Working pressure by Rules Actual

IS A DONKEY BOILER FITTED? Yes
Is the donkey boiler intended to be used for domestic purposes only Yes
PLANS. Are approved plans forwarded herewith for Shafting Receivers Separate Fuel Tanks
(If not, state date of approval)
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
State the principal additional spare gear supplied

The foregoing is a correct description

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 25-2-50 Covers 25-2-50 Pistons 25-2-50 Rods 25-2-50 Connecting rods 25-2-50
Crank shaft 25-2-50 Flywheel shaft 25-2-50 Thrust shaft 25-2-50 Intermediate shafts 18-2-50 Tube shaft
Screw shaft 18-2-50 Propeller 18-2-50 Stern tube Engine seatings 25-2-50 Engines holding down bolts 25-2-50
Completion of fitting sea connections Completion of pumping arrangements Engines tried under working conditions 27-3-50
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

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
Is the vessel (not being an oil tanker) fitted for carrying oil as cargo No 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.)
This vessel was built under the supervision of the Society's Surveyors in May 1931 and withdrawn from class in 1935.
The above engine was installed in 1948, the intermediate and screw shaft are as originally fitted, the engine has been opened up and examined in entirety and found to be in good order, and in accordance with approved plans, the workmanship and materials were found to be satisfactory.
On completion of survey the main and auxiliary machinery were tried under working conditions and found satisfactory.
It is submitted that this engine is eligible to be classed with this Society in accordance with the Rules for machinery not built under survey.

The amount of Entry Fee ... £ : : When applied for,
Special ... £ : : 19
Donkey Boiler Fee ... £ : : When received,
Travelling Expenses (if any) £ : : 19

Committee's Minute
Assigned See YKa 231

Engineer Surveyor to Lloyd's Register of Shipping
© 2020
Lloyd's Register Foundation