

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 } Single } Screw vessel Motor Vessel "SANTO MARU" Tons { Gross 3266
 Triple } Net 1872
 Quadruple }

built at Tama By whom built Mitsui Bussan Kaisha Yard No. 194 When built May 1931
 By whom made Mitsubishi Heavy Industry
 Yokohama Shipyard & Eng. Engine No. DK16032 When made Jan 1948
 Wks.

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

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

Indicated 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 1/8" ✓ 23 5/8" ✓

Indicated Pressure 7.96 kg/cm² ✓ Diameter of cylinders 450 mm ✓ Length of stroke 600 mm ✓ No. of cylinders 10 ✓ No. of cranks 10 ✓

Distance 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 shaft, { Solid forged } as per Rule 267 mm Mid length breadth 500 mm ✓ Thickness parallel to axis
 { Semi-built } dia. of journals as fitted 290 mm Crank pin dia. 285 mm ✓ Crank Webs Mid length thickness 135 mm ✓ Thickness around eye-hole
 { All built - } as fitted 290 mm

Wheel Shaft, diameter as per Rule 194 mm as per Rule 204 mm
 as fitted 216 mm Intermediate Shafts, diameter as fitted 241.3 mm Thrust Shaft, diameter at collars as fitted 215 mm

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

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

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
 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 Direct 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

Other 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

Other Pumps, No. and size 1 @ 150 tons Power Driven Lubricating Oil Pumps including Spare Pump, No. and size 2 @ 30 tons/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 1 @ 6" ; 1 @ 4 1/2" ; 2 @ 3 1/2" ; 5 @ 3" In Pump Room

Other Suctions, &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
 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 pipes pass through the bunkers - How are they protected -

Do 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

On a wood 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.

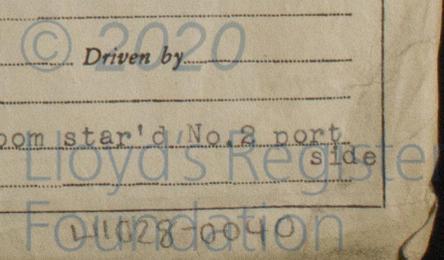
Other Auxiliary Air Compressors, No. 1 No. of Stages 2 Diameters 1 5/8" 2 1/2" Stroke 5" Driven by Hand driven

Is provision made for first Charging the Air Receivers

Other Charging Air Pumps, No. - Diameter - Stroke - Driven by -

Are Auxiliary Engines crank shafts, diameter as per Rule 3 set
 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



AIR RECEIVERS:—Have they been made under survey. Yes State No. of Report 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 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 If so, is a report now forwarded?

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, &
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	... £	:	:	
Donkey Boiler Fee	... £	:	:	When received,
Travelling Expenses (if any)	£	:	:	

 &
Engineer Surveyors to Lloyd's Register of Shipping



Committee's Minute

Assigned See Yka 231

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