

# REPORT ON OIL ENGINE MACHINERY.

No. 7150

Received at London Office 29 DEC 1930

Surveying Report 29-11-30 19 When handed in at Local Office 9-12-30 19 Port of Kobe  
Survey held at Osaka Date, First Survey 24-10-29 Last Survey 28-11-30 19  
Number of Visits 73

on the <sup>Single</sup> Twin <sup>Triple</sup> Screw vessel "HEIAN MARU"  
at Osaka By whom built Osaka Iron Works Yard No. 1128 When built 1930  
Engines made at Copenhagen By whom made Burmeister & Wain Engine No. 1628 When made 1930  
Boilers made at Osaka By whom made Osaka Iron Works Boiler No. 1128 When made 1930  
Horse Power 11,000 Owners Nippon Yusen Kaisha Port belonging to Tokio  
Horse Power as per Rule 2190 Is Refrigerating Machinery fitted for cargo purposes *yes* Is Electric Light fitted *yes*  
for which vessel is intended Ocean Going

ENGINES, &c. Type of Engines Vertical Diesel Inboard type 2 or 4 stroke cycle 4 Single or double acting D A  
Mean pressure in cylinders 35 kg/cm<sup>2</sup> Diameter of cylinders 680 mm Length of stroke 1600 mm No. of cylinders 2x8 No. of cranks 2x8  
Pitch of bearings, adjacent to the Crank, measured from inner edge to inner edge - Is there a bearing between each crank -  
Revolutions per minute 110 Flywheel dia. - Weight - Means of ignition - Kind of fuel used Diesel Oil  
Crank Shaft, dia. of journals as per Rule - Crank pin dia. - Crank Webs Mid. length breadth - Thickness parallel to axis -  
as fitted - M. d. length thickness - shrunk Thickness around eye-hole -  
Intermediate Shafts, diameter as per Rule 402 mm Thrust Shaft, diameter at collars as per Rule -  
as fitted 420 mm as fitted -  
Screw Shaft, diameter as per Rule 426 mm Is the <sup>tube</sup> shaft fitted with a continuous liner *yes*  
as fitted 460 mm as fitted - screw -

Liner thickness in way of bushes as per Rule - Thickness between bushes as per rule - Is the after end of the liner made watertight in the  
as fitted 25 mm as fitted 20 mm  
If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner One length  
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*  
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  
No If so, state type - Length of Bearing in Stern Bush next to and supporting propeller 6'-10" ✓  
Pitch 17'-5" No. of blades 4 Material Bronze whether Moveable *yes* Total Developed Surface 62 sq. feet  
Kind of reversing Engines Direct Is a governor or other arrangement fitted to prevent racing of the engine when declutched *yes, Governor* Means of lubrication  
Thickness of cylinder liners - Are the cylinders fitted with safety valves *yes* Are the exhaust pipes and silencers water cooled or lagged with  
conducting material <sup>lagged</sup> *water cooled* of the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine -  
Suction Water Pumps, No. 4 Centrifugal Is the sea suction provided with an efficient strainer which can be cleared within the vessel *yes*  
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 3 @ 6" One 3"  
How driven Electric Motor  
Fast Pumps, No. and size One 7" Lubricating Oil Pumps, including Spare Pump, No. and size 4 Rotary 9" 200 tons  
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 3 1/2; 7-2 1/2; 2-2 1/2 (oil) 2-6" direct One 4" direct  
Holds, &c. Chain locker 1-3 1/2; N Hold 2-3 1/2; N 2 Hold 2-3 1/2; N 3 Hold 2-3 1/2; N 4 Hold 2-3 1/2; E Hold 2-2 1/2; F Hold 2-2 1/2; N 5 Hold 2-3; N 6 Hold 2-3  
Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 2-6" One 4" ✓ Tunnel well 1-3"

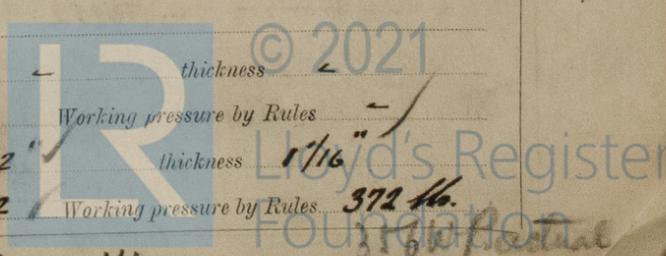
All the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes *yes* Are the Bilge Suctions in the Machinery Spaces  
from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges *yes*  
All Sea Connections fitted direct on the skin of the ship *yes* Are they fitted with Valves or Cocks Both  
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  
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*  
All pipes pass through the bunkers - How are they protected -  
All pipes pass through the deep tanks Air pipes & D.B. sounding pipes Have they been tested as per Rule *yes*

All Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times *yes*  
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  
department to another *yes* Is the Shaft Tunnel watertight *yes* Is it fitted with a watertight door *yes* worked from *main deck*  
wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork *yes* by *electric motor*

Auxiliary Air Compressors, No. Two each engine No. of stages 3 Diameters - Stroke - Driven by Main Engines  
Auxiliary Air Compressors, No. 3 No. of stages 3 Diameters - Stroke - Driven by Auxiliary Engines  
Small Auxiliary Air Compressors, No. 1 No. of stages 2 Diameters - Stroke - Driven by Electric Motor  
Sounding Air Compressors, No. 1 No. of stages 3 Diameters - Stroke - Driven by Electric Motor

Auxiliary Engines crank shafts, diameter as per Rule 192 mm  
as fitted 204 mm  
RECEIVERS: - Is each receiver, which can be isolated, fitted with a safety valve as per Rule *yes*  
The internal surfaces of the receivers be examined - What means are provided for cleaning their inner surfaces -  
Is there a drain arrangement fitted at the lowest part of each receiver *yes*

High Pressure Air Receivers, No. 2 Working Cubic capacity of each - Internal diameter - thickness -  
Seamless, lap welded or riveted longitudinal joint Seamless Material - Range of tensile strength - Working pressure by Rules -  
Working Air Receivers, No. Four Total cubic capacity 2800 Cub. ft Internal diameter 6'-2" thickness 1 1/16"  
Seamless, lap welded or riveted longitudinal joint Riveted long Material Steel Range of tensile strength 28-32 Working pressure by Rules 372 lbs.

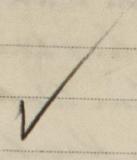


IS A DONKEY BOILER FITTED? *Yes*

If so, is a report now forwarded? *Yes*

PLANS. Are approved plans forwarded herewith for Shafting *26-3-29, 6-6-29* Receivers *5-9-29* Separate Tanks *14-3-30*  
(If not, state date of approval)  
Donkey Boilers *9-5-29* General Pumping Arrangements *3-3-30* Oil Fuel Burning Arrangements *22-1-30*

SPARE GEAR *As required by the Rules; checked & found in order*



The foregoing is a correct description,  
OSAKA IRON WORKS, LTD.

*S. Kaneko* Manufacturer.

Dates of Survey while building  
During progress of work in shops - -  
During erection on board vessel - -  
Total No. of visits  
*1929 Oct. 24, 28, Nov. 7, 14, 20, Dec. 3, 9, 10, 11, 13, 14, 17, 18, 24, 26, 27, 1930 Jan. 7, 10, 13, 21, 22, 23, 29, 30, Feb. 3, March 3, 8, April 11, 14, 17, 18, 23, May 1, 10, 23, June 5, 9, 11, 13, July 1, 4, 7, 14, 31, Aug. 1, 4, 7, 11, 14, 16, 20, 22, 28, Sept. 2, 11, 22, 30, Oct. 7, Nov. 5, 8, 18, 21, 28.*

Dates of Examination of principal parts—Cylinders ✓ Covers ✓ Pistons ✓ Rods ✓ Connecting rods ✓  
Crank shaft ✓ Flywheel shaft ✓ Thrust shaft ✓ Intermediate shafts *29-5-30 fitted* ✓  
Screw shaft *20-3-30, 4-4-30* Propeller *9-4-30* Stern tube *8-3-30, 26-3-30* Engine seatings *9-4-30* Engines holding down bolts *17-7-30, 6-10-30*  
Completion of fitting sea connections *4-4-30* Completion of pumping arrangements *7-10-30* Engines tried under working conditions *7-10-30*

Crank shaft, Material ✓ Identification Mark ✓ Flywheel shaft, Material ✓ Identification Mark ✓  
Thrust shaft, Material ✓ Identification Mark ✓ Intermediate shafts, Material *S.M. Steel* Identification Marks ✓  
Tube shaft, Material ✓ Identification Mark ✓ Screw shaft, Material *S.M. Steel* Identification Mark ✓  
*Spec T. S. LLOYDS N° 2506 A.D.M.R. 21-5-30* *LLOYDS N° 2254 A.W.R. 18-11-29* *LLOYDS N° 2254 A.W.R. 17-11-29* *LLOYDS N° 2216 A.W.R. 18-10-29*

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 *Yes*  
If so, have the requirements of the Rules been complied with *Yes*

Is the vessel (not being an oil tanker) fitted for carrying oil as cargo *Yes*  
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.)  
*The machinery has been installed under special survey in accordance with the Rules and approved plans. The materials and workmanship are good. The main and auxiliary machinery was tested under full working conditions and found to be efficient and eligible in my opinion to have record of +L.M.C. 11.30, oil engines, T.S. 11.30 C.L. and 2 D.B. 120 lbs.*

The amount of Entry Fee...  
Installation of machinery...  
Special...  
Air Receivers...  
Donkey Boiler Fee...  
Travelling Expenses (if any) £  
See Hull Rpt.  
Committee's Minute  
Assigned

The amount of Entry Fee ... *£460:00*  
Installation of machinery ... *£464:00*  
Special ...  
Air Receivers ...  
Donkey Boiler Fee ... *£252:00*  
Travelling Expenses (if any) £  
See Hull Rpt.  
Committee's Minute  
Assigned

TUE, 13 JAN 1931

*+ L.M.C. 11.30 oil Eng, C.L.  
2 D.B. 120 lbs*

*A. D. Morrison*

Engineer Surveyor to Lloyd's Register of Shipping.



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