

## REPORT ON OIL ENGINE MACHINERY.

No. 5350.

Received at London Office 4 OCT 1934

Date of writing Report 1<sup>st</sup> September 1934 When handed in at Local Office

1/9/1934 Port of Yokohama

No. in Survey held at Yokohama  
Reg. Book.Date, First Survey 11<sup>th</sup> April 1933 Last Survey 27<sup>th</sup> August 1934

Number of Visits 187

81654 on the Single M/V NAGARA MARU  
Triple Screw vessel  
QuadrupleTons { Gross 7142  
Net 4246

Built at Yokohama By whom built Yokohama Dock Co Ltd Yard No. 220 When built 1934-8  
Engines made at Yokohama By whom made do Engine No. 4702 When made 1934  
Donkey Boilers made at Uraga By whom made Uraga Dock Co Ltd Boiler No. When made 1934  
Brake Horse Power 6700 Owners Nippon Yusen K. K. Port belonging to Tokyo.  
Nom. Horse Power as per Rule 1857 Is Refrigerating Machinery fitted for cargo purposes Yes. Is Electric Light fitted Yes.  
Trade for which vessel is intended all Seas.

**ENGINES, &c.**—Type of Engines M.A.N. Airless Injection 2 or 4 stroke cycle 2 Single or double acting double  
Maximum pressure in cylinders 45 kg/cm<sup>2</sup> Diameter of cylinders 700 mm Length of stroke 1200 mm No. of cylinders 7 No. of cranks 7  
Arrangement of bearings, adjacent to the Crank, measured from inner edge to inner edge 1090 mm Is there a bearing between each crank Yes.  
Revolutions per minute 105 Flywheel dia. 2300 mm Weight 8670 kg Means of ignition Airless Kind of fuel used Heavy oil.  
Crank Shaft, dia. of journals as per Rule app<sup>d</sup> 500 mm Crank pin dia. 500 mm Crank Webs Mid. length breadth 790 mm Thickness parallel to axis 320 mm  
Flywheel Shaft, diameter as per Rule app<sup>d</sup> 500 mm Intermediate Shafts, diameter as per Rule app<sup>d</sup> 430 mm Thrust Shaft, diameter at collars as per Rule app<sup>d</sup> 455 mm  
Main Shaft, diameter as per Rule app<sup>d</sup> 470 mm Is the tube screw shaft fitted with a continuous liner Yes.  
Copper Liners, thickness in way of bushes as per Rule app<sup>d</sup> 25 mm Thickness between bushes as per Rule app<sup>d</sup> 25 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 Yes.  
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.  
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  
aft If so, state type Yes Length of Bearing in Stern Bush next to and supporting propeller 2080 mm  
Propeller, dia. 5500 mm Pitch 5171 mm No. of blades 4 Material Bronze whether Moveable No. Total Developed Surface 9.28 sq. feet  
Method of reversing Engines Direct, Air Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes. Means of lubrication  
forced Thickness of cylinder liners 45 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. Two Rotary 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 1-1 x 12.5 x 150 mm, 15 T/hr; 1-2 x 210 x 210 mm, 100 T/hr (Cargo p.p.); 1-110 T/hr Rotary (Ballast p.p.)  
Ballast Pumps, No. and size 1-110 T/hr Rotary Lubricating Oil Pumps, including Spare Pump, No. and size 2 x 6.5 T/hr Rotary  
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 3-90 mm, 2-50 mm Tunnel Well 1-75 mm In Pump Room  
In Holds, &c. No. 1, 2, 3 & 5 Holds, 2-90 mm each; No. 6 Hold 1-90 mm; A, B, C & D Deep Tanks 1-65 mm each.  
Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1-140 mm, 1-200 mm  
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 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  
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 Engine Room Top  
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. Nil No. of stages Diameters 105 mm Stroke Driven by  
Auxiliary Air Compressors, No. 2 No. of stages 3 Diameters 360-305 mm Stroke 250 mm Driven by Ann Diesel Engine  
Small Auxiliary Air Compressors, No. No. of stages Diameters Stroke Driven by  
Scavenging Air Pumps, No. One Diameter Stroke Driven by electric Motor  
Auxiliary Engines crank shafts, diameter as per Rule 166.5 mm as fitted 170 mm

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

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. 2 Total cubic capacity 2118 cubic ft Internal diameter 1800 mm thickness 30 mm

Seamless, lap welded or riveted longitudinal joint T.R.D.B.S Material Steel Range of tensile strength 44/55, 41/47 kg Working pressure by Rules Actual 30.97 kg/cm<sup>2</sup> 30 kg/cm<sup>2</sup>



IS A DONKEY BOILER FITTED?

Yes.

If so, is a report now forwarded?

Yes.

Is the donkey boiler intended to be used for domestic purposes only

yes and for Heating Coils in O.F. Tanks.

PLANS. Are approved plans forwarded herewith for Shafting

22/2/33, 20/3/33

Receivers

17/1/34

Separate Tanks. 11/7/33, 13/10/33, 19/10/33, 21/10/33

Donkey Boilers

24/5/33

General Pumping Arrangements

30/4/34, 22/8/33

Oil Fuel Burning Arrangements

22/8/33

### SPARE GEAR.

Has the spare gear required by the Rules been supplied

yes, see separate list

State the principal additional spare gear supplied

Spare Screw Shaft marks

LLOYD'S  
N° 3791  
H.A.G. 14.12.33

The foregoing is a correct description,

*S. Tsunematsu*

Manufacturer.

Dates of Survey while building  
During progress of work in shops -  
During erection on board vessel -  
Total No. of visits 187

Dates of Examination of principal parts—Cylinders 16/8/33 to 11/1/34 Covers 24/3/34 Pistons 11/4/33 to 26/1/34 Rods 30/3/34 Connecting rods 13/2/34

Crank shaft 13/2/34 Flywheel shaft 13/2/34 Thrust shaft 29/5/34 Intermediate shafts 29/5/34, 7/6/34 Tube shaft 5/2/34

Screw shaft 23/4, 29/5/34 Propeller 6, 11, 26/4/34 Stern tube 26/2/34, 8/3, 11, 23/4/34 Engine seatings 25/5/34 Engines holding down bolts 20/5, 4, 7, 13, 19/6

Completion of fitting sea connections 26/4/34 Completion of pumping arrangements 3/8/34 Engines tried under working conditions 13/8/34

Crank shaft, Material Steel Identification Mark F.S. 1748 B N° 3856 Flywheel shaft, Material Steel Identification Mark K.K. 1.11.33 B N° 3856

Thrust shaft, Material Steel Identification Mark K.K. 6.2.34 Intermediate shafts, Material Steel Identification Marks K.K. 6.2.34 B N° 3792

Tube shaft, Material Steel Identification Mark H.A.G. 14.12.33 Screw shaft, Material Steel Identification Mark H.A.G. 14.12.33

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

Is the vessel (not being an oil tanker) fitted for carrying oil as cargo Yes If so, have the requirements of the Rules been complied with Yes

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. The machinery of this Vessel has been built and fitted on board the Vessel under Special Survey in accordance with the Rules, approved plans, material, and workmanship good. The machinery was examined running on shop trials and afterwards under full working conditions on board, with satisfactory results. The machinery of this Vessel is eligible in my opinion to have the record of +L.M.C. 8.34 in the Register Book.

The amount of Entry Fee .. £ 6-0-0

Special ... .. £ 183-0-0

Donkey Boiler Fee ... .. £ 5-5-0

3 Air Receivers ... .. £ 13-2-6

Travelling Expenses (if any) ... .. £ 84 50

Telephones ... .. £ 6 00

Committee's Minute ... .. £ 12

Assigned

+ L.M.C. 8.34  
Oil Eng.  
D-B-10016

CERTIFICATE WRITTEN.

B.H. Macdonald

Engineer Surveyor to Lloyd's Register of Shipping.



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