

## REPORT ON OIL ENGINE MACHINERY.

No. 5415  
25 JAN 1935

Received at London Office

Date of writing Report 18<sup>th</sup> December 1934 When handed in at Local Office 18/12/1934 Port of Yokohama  
No. in Survey held at Reg. Book. 8734 on the Single Twin Triple Quadruple Screw vessel M/V "NARUTO MARU"  
Date, First Survey 11<sup>th</sup> April 1934 Last Survey 15<sup>th</sup> December 1934  
Number of Visits 172

Built at Yokohama By whom built Yokohama Dock Co. Ltd Yard No. 222 When built 1934-12  
Engines made at do. By whom made do Engine No. 4704 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 Tokio  
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. Airlens 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  
Span 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 Airlens Kind of fuel used Heavy oil  
Crank Shaft, dia. of journals as per Rule app<sup>d</sup> London Crank pin dia. 500 mm Crank Webs Mid. length breadth 790 mm Thickness parallel to axis 320 mm  
as fitted 500 mm Mid. length thickness 320 mm shrunk Thickness around eye hole 222.5 mm  
Flywheel Shaft, diameter as per Rule app<sup>d</sup> 1 m Intermediate Shafts, diameter as per Rule app<sup>d</sup> 1 m Thrust Shaft, diameter at collars as per Rule app<sup>d</sup> 1 m  
as fitted 500 mm as fitted 430 mm as fitted 455 mm  
Tube Shaft, diameter as per Rule as fitted Screw Shaft, diameter as per Rule app<sup>d</sup> 1 m Is the {tube screw} shaft fitted with a continuous liner { Yes  
as fitted as fitted 470 mm  
Bronze Liners, thickness in way of bushes as per Rule app<sup>d</sup> 1 m Thickness between bushes as per rule app<sup>d</sup> 1 m Is the after end of the liner made watertight in the  
as fitted 25 mm as fitted 25 mm  
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 ✓  
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 ✓  
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  
Shaft ✓ If so, state type ✓ 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 ✓  
Cooling Water Pumps, No. 2 - 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 125 mm x 150 mm x 15 T/h; 1-2 x 210 mm x 210 mm x 100 T/h (Cargo & pp); 1-110 T/h Rotary (Ballast & pp)  
How driven electric Motor  
Ballast Pumps, No. and size 1-110 T/h Rotary Lubricating Oil Pumps, including Spare Pump, No. and size 2 x 65 T/h 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 Hold 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 ✓ How are they protected ✓  
What 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 Top  
If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork ✓

Main Air Compressors, No. Nil No. of stages Diameters HP 105 mm Stroke Driven by  
Auxiliary Air Compressors, No. 2 No. of stages 3 Diameters MP 360-305 mm Stroke 250 mm Driven by Aux Diesel Engine  
Small Auxiliary Air Compressors, No. One No. of stages 2 Diameters LP 360-105 mm Stroke 95 mm Driven by Hand  
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  
Starting Air Receivers, No. 2 Total cubic capacity 1059 cu 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 kg/cm<sup>2</sup> Working pressure by Rules 30.97 kg/cm<sup>2</sup> Actual 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

Donkey Boilers. 24/5/33 General Pumping Arrangements 20/4/34, 22/8/33 Oil Fuel Burning Arrangements 21/8/33

### 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 marked

LLOYD'S  
NO 3753  
H.A.G. 20/12/33

The foregoing is a correct description,

S. Tsumetsu

Manufacturer.

Dates of Survey while building  
During progress of work in shops - 11, 26/4, 2, 8, 17, 26/5, 8, 26, 29/6, 4, 11, 26/7, 2, 15, 28/8, 4, 11, 16, 18, 21, 26/9, 4, 7, 20, 21/10, 13, 15, 20, 21, 24/11, 4, 13, 18, 19, 26, 27/12, 1933  
During erection on board vessel - 2, 4, 5, 11, 12, 13, 16, 17, 18, 19, 20, 21, 23, 24, 25, 27, 28, 30, 31/1, 1, 2, 3, 4, 7, 8, 9, 11, 13, 15, 16, 17, 18, 20, 21, 23, 25, 27, 28, 29, 30, 31/8, 1, 2, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 17, 18, 23, 25, 26, 27, 29, 31/10  
Total No. of visits 172

Dates of Examination of principal parts—Cylinders 29/9/34 Covers 3/10/34 Pistons 11/4/34 Rods 6/3/34 Connecting rods 8/8/34

Crank shaft 8/8/34 Flywheel shaft 12/10/34 Thrust shaft 12/10/34 Intermediate shafts 12/10/34 Tube shaft 16/6/34

Screw shaft 16/8/34 Propeller 6, 8, 16/8/34 Stern tube 26, 27/12/33 Engine seatings 28/9/34 Engines holding down bolts 12, 16, 18, 23/10/1934

Completion of fitting sea connections 29/8/34 Completion of pumping arrangements 16/11/34 Engines tried under working conditions 24/11/34

Crank shaft, Material Steel Identification Mark H.D.B. 10/5/34 Flywheel shaft, Material Steel Identification Mark K.K. 7/3/34

Thrust shaft, Material Steel Identification Mark K.K. 26/11/34 Intermediate shafts, Material Steel Identification Marks B.N. 3739 K.K. 15/24/34 K.K. 27/12/34

Tube shaft, Material Steel Identification Mark K.K. 26/11/34 Screw shaft, Material Steel Identification Mark B.N. 3754 H.A.G. 20/12/33

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 Yes. If so, state name of vessel NAGARA MARU & NAKO MARU.

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 and approved plans, material, and workmanship good. The machinery was examined running on Shop Trials and subsequently 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 12.34 in the Register Book.

The amount of Entry Fee .. £ 6-0-0 When applied for,

Special ... £ 183-0-0 20-12-1934

Donkey Boiler Fee ... £ 5-5-0 When received,

Travelling Expenses (if any) Yen 91.00 25.4.35

3 Air Receivers £ 13-2-6 25/4

Committee's Minute TUE 29 JAN 1935

Assigned + L.M.C 12.34

oil inf. C.K.

B.H. Macdonald

Engineer Surveyor to Lloyd's Register of Shipping.



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