

REPORT ON OIL ENGINE MACHINERY.

No. 4694

Received at London Office 1 JUN 1931

Date of writing Report 11th May 1931 When handed in at Local Office

11/5/31 Port of **YOKOHAMA**

No. in Survey held at **YOKOHAMA**

Date, First Survey 18th February 1930 Last Survey 4th May 1931

Reg. Book:

Number of Visits 88

on the ^{Single} ~~Twin~~ ~~Triple~~ ~~Quadruple~~ Screw vessel "TEIYO MARU"

Tons } Gross 9849.86
Net 5722

Built at **Yokohama** By whom built **Yokohama Dock Co. Ltd** Yard No. 181 When built 1931
 Engines made at **Yokohama** By whom made **Yokohama Dock Co. Ltd** Engine No. 181 When made 1931
 Donkey Boilers made at **Yokohama** By whom made **Yokohama Dock Co. Ltd** Boiler No. 181 When made 1931
 Brake Horse Power 2 at 3,600 Owners **NIPPON TANKER KABUSHIKI KAISHA** Port belonging to **Yokohama**
 Nom. Horse Power as per Rule 2340 Is Refrigerating Machinery fitted for cargo purposes **no** Is Electric Light fitted **yes**
 Trade for which vessel is intended **Ocean going** **Laurel** **357/16**

OIL ENGINES, &c.—Type of Engines **Yokohama M.A.N.** 2 stroke cycle 2 ~~Single~~ or double acting **double**

Maximum pressure in cylinders **45 atm** Diameter of cylinders **600 mm** Length of stroke **900 mm** No. of cylinders **2 x 6** No. of cranks **2 x 6**

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge **885 mm** Is there a bearing between each crank **yes**

Revolutions per minute **125** Flywheel dia. **2100 mm** Weight **3400 kgs** Means of ignition **Solid injection** Kind of fuel used

Crank Shaft, dia. of journals as per Rule **391 mm** as fitted **420 mm** Crank pin dia. **420 mm** Crank Webs Mid. length breadth **560 mm** Mid. length thickness **235 mm** Thickness parallel to axis **shrunk** Thickness around eye-hole

Flywheel Shaft, diameter as per Rule **317.5 mm** as fitted **362 mm** Intermediate Shafts, diameter as per Rule **317.5 mm** as fitted **362 mm** Thrust Shaft, diameter at collars as per Rule **333.3 mm** as fitted **380 mm**

Tube Shaft, diameter as per Rule **358.3 mm** as fitted **410 mm** Screw Shaft, diameter as per Rule **358.3 mm** as fitted **410 mm** Is the ~~tube~~ shaft fitted with a continuous liner **yes**

Bronze Liners, thickness in way of bushes as per Rule **20 mm** as fitted **21 mm** Thickness between bushes as per rule **15 mm** as fitted **17.5 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**

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 **yes** Is an approved Oil Gland or other appliance fitted at the after end of the tube **yes**

shaft **no** If so, state type **yes** Length of Bearing in Stern Bush next to and supporting propeller **6'-5"**

Propeller, dia. **14'-3"** Pitch **13'-6"** No. of blades **4** Material **Brass** whether Moveable **yes** Total Developed Surface **63** sq. feet

Method of reversing Engines **Direct** Is a governor or other arrangement fitted to prevent racing of the engine when declutched **yes** Means of lubrication **forced**

Thickness of cylinder liners **40 mm** Are the cylinders fitted with safety valves **yes** Are the exhaust pipes and silencers water cooled **logged with non-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 **yes**

Cooling Water Pumps, No. **two** 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. **yes** Diameter **yes** Stroke **yes** Can one be overhauled while the other is at work **yes**

Pumps connected to the Main Bilge Line No. and Size **1-5'x5'x6"=20 T/hr** **2-12'x8'x10"=70 T/hr each** How driven **Steam Engines**

Ballast Pumps, No. and size **One 12'x8'x10"=70 T/hr** Lubricating Oil Pumps, including Spare Pump, No. and size **3-9'x8'x20"=40 T/hr each**

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 **3-3'x3" dia, 2-3" dia, 2-2'x3" dia** In Pump Room **2-4" dia**

In Holds, &c. **Fore hold 4-3" dia**

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size **One - 5'x2" dia**

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 **Both**

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 **no** Is it fitted with a watertight door **no** worked from **yes**

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. **One Duplex** No. of stages **Two** Diameters **H.P. 7, L.P. 15"** Stroke **6 1/2"** Driven by **steam**

Auxiliary Air Compressors, No. **yes** No. of stages **yes** Diameters **yes** Stroke **yes** Driven by **yes**

Small Auxiliary Air Compressors, No. **yes** No. of stages **yes** Diameters **yes** Stroke **yes** Driven by **yes**

Scavenging Air Pumps, No. **Two** Diameter **1380 mm** Stroke **700 mm** Driven by **on Main Engines**

Auxiliary Engines crank shafts, diameter as per Rule **yes** as fitted **yes**

LIR 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**

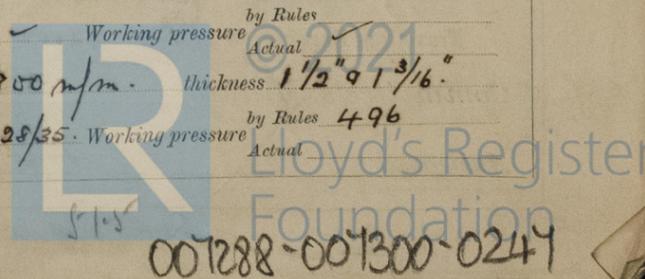
High Pressure Air Receivers, No. **yes** Cubic capacity of each **yes** Internal diameter **yes** thickness **yes**

Seamless, lap welded or riveted longitudinal joint **yes** Material **yes** Range of tensile strength **yes** Working pressure **yes**

Starting Air Receivers, No. **Two** Total cubic capacity **15 cu metres** Internal diameter **1800 mm** thickness **1 1/2" & 1 3/8"**

Seamless, lap welded or riveted longitudinal joint **Riveted** Material **Steel** Range of tensile strength **26/30, 28/35** Working pressure **by Rules 496** Actual

Visits **87**



007288-007300-0249

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. all auxiliary machinery, steering engine & winches steam driven

PLANS. Are approved plans forwarded herewith for Shafting Kobe. 8/2/29, 17/2/30 Receivers 22-10-29 Separate Tanks 31-8-30
 (If not, state date of approval)
 Donkey Boilers 11/7/30, 5/9/30 General Pumping Arrangements 12/5/30, 10/7/30 Oil Fuel Burning Arrangements 21/4/30, 24/10/30

SPARE GEAR.

Has the spare gear required by the Rules been supplied yes.

State the principal additional spare gear supplied The following items are extra to those required by the Rules:
 1 Top & 1 Bottom cylinder cover complete, 6 fuel nozzles & valves, 1 piston complete & 2 piston rods, 1 set of telescopic cooling pipes, 1 set of cam shaft driving wheels, 2 crosshead brasses & 1 set of bolts & nuts, One crank pin brass (1 set), 1 set of coupling bolts for crank shaft & 1 set for intermediate shaft, 1 top & 1 bottom cylinder liner, 1 set of thrust shaft bearings with bolts & nuts, 2 Fuel pumps complete for both top & bottom cylinders. One set of suction & delivery valves ready to fit for scavenging pumps.

The foregoing is a correct description,

J. Neuchiga Manufacturer.

Dates of Survey while building
 During progress of work in shops -- Feb. 18th, April 17, 21, May 2, 14, 15, 24, 22, 28, 29, June 5, 11, 24, 27, July 28, Aug 13, 20, 25, Sept. 5, 16, 19, 25, 29, Oct. 6, 10, 14, 18, 24, 30, Nov. 4, 10, 14, 19, Dec. 8, 12, 17, 18, 24, 27, 1930. Jan. 9, 21, 28, 29, 31, Feb. 4, 5, 6, 2, 16, 17, 24, 25, 28, March 2, 12, 13, 16, 20, 28, 30. April 9, 14, 23, 27, 28, 30. May 4th 1931.
 During erection on board vessel -- Aug 20, Sept 5th 1930, Jan 9, 15, 16, 19th, Feb 12, March 6, 9, 21, 26, 28, April 4, 7, 16, 20, 28, 30.
 Total No. of visits 88

Dates of Examination of principal parts—Cylinders 18-2-30 to 30/4/31. Spare 79 visits Covers 4/10, 14/1/30, 7/2/31 Pistons GERMANY Rods GERMANY Connecting rods 5, 25/9, 25/9, 10/11, 17/3, 21/3, 9/14, 15/21, 5/11, 24/6, 20/7, 15/2
 Crank shaft Kobe Flywheel shaft 18-2-30 to 30/4/31. Spare 79 visits Thrust shaft 5, 16, 25/9, 6, 10, 10, 4/10, 6/12/30 Intermediate shafts 4/11, 8/12, 27/2, 3/3/31 Tube shaft ✓
 Screw shaft 24, 27, 12, 16, 1/31 Propeller 6, 21, 30/10, 4/11, 27/12/31 Engine tube 27/10, 4/11, 13/1/31 Engine seatings 15/11, 16/1/31 Engines holding down bolts 6/3, 9/13, 26/2, 4/4, 20-4-31

Completion of fitting sea connections 15-1-31 Completion of pumping arrangements 16-4-31 Engines tried under working conditions ✓
 Crank shaft, Material Steel (Kobe) Identification Mark LLOYD'S 2548 1-9-30 ADM. LR. Flywheel shaft, Material ✓ Identification Mark LLOYD'S 2505 2-2-31 J.F.N. LR.
 Thrust shaft, Material Steel Identification Mark LLOYD'S 2392 10-11-30 J.F.N. LR. Intermediate shafts, Material Steel Identification Marks 4000 ADM. LR. 200 ADM. LR.
 Tube shaft, Material Steel Identification Mark LLOYD'S 2811 28-8-30 ADM. LR. Screw shaft, Material Steel Identification Mark LLOYD'S 2835 19-9-30 ADM. LR.

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 Oil tanker 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.)

The machinery of this vessel has been built and fitted onboard the vessel under special survey in accordance with the Rules, materials & workmanship good. The machinery was examined running on shop tested and examined when opened up after shop trials. On completion of fitting out onboard, all machinery tried under full working conditions with satisfactory results. Manoeuvring trials carried out & found in order.

The machinery of this vessel is eligible in my opinion to have the record of ✓ H.M.C. 5-31 in the Register Book.

Note: A fee of £33-0-0 for the testing of various parts of the machinery which were made in Germany and charged for by the Bremen Surveyors, has been deducted from the special survey fee. See shown below is the amount charged at Yokohama.

The amount of Entry Fee	YEN 460.00	When applied for,	9-5-1931.
Special	YEN 2173.00		
Donkey Boilers Fee	YEN 922.00	When received,	7-7-1931.
Travelling Expenses (if any)	YEN 42.00		

J. Micholas
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 5 JUN 1931
 Assigned + L.M.C. 5,31 C.L.
Oil Eng. 20B. 180 lb. D.H. (C) 120 lb.



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