

## REPORT ON OIL ENGINE MACHINERY.

No. Kobe

YKA. 17232

Kobe

Received at London Office

Date of writing Report 30th July 1955

When handed in at Local Office

JUN 20 1955

19

Port of

Kobe &amp;

17 AUG 1955

No. in Survey held at Kobe, Osaka &amp; Shimizu

Date, First Survey

4th May 1955

Last Survey

Kobe: 9th May 1955

23rd July 1955

Reg. Book.

Number of Visits

46 (Kobe)

16 (Yokohama)

Single  
on the Deck  
Type  
Screw vessel

M.V. "NISSHUN MARU"

Tons

Gross 9998.74

Net 6235.42

Built at Shimizu, Japan

By whom built Nippon Kokan K.K. Shimizu Shipyard

Yard No. 120

When built 7-55

Engines made at Osaka, Japan

By whom made Hitachi Shipbuilding &amp; Eng., Co., Ltd.

Engine No. 2021

When made Apr. 1955

Donkey Boilers made at Yokohama, Japan

By whom made Nippon Kokan K.K. Tsurumi Shipyard

Boiler No. 8185, 8186

When made 4-55

Brake Horse Power 5,530

Owners

Nissan Kisen K.K.

Port belonging to Tokyo

M.N. Power as per Rule 1,106

Is Refrigerating Machinery fitted for cargo purposes No

Is Electric Light fitted yes

Trade for which vessel is intended Ocean going

OIL ENGINES, &amp;c. — Type of Engines B &amp; W 674VTF160

2 or 4 stroke cycle 2 Single or double acting Single

Maximum pressure in cylinders 49kg/cm<sup>2</sup>

Diameter of cylinders 740mm

Length of stroke 1,600mm

No. of cylinders 6

No. of cranks 6

Mean Indicated Pressure 6.5kg/cm<sup>2</sup>

Ahead Firing Order in Cylinders 1-5-3-4-2-6

Span of bearings, adjacent to the crank, measured

from inner edge to inner edge 972.6mm

Is there a bearing between each crank Yes

Revolutions per minute 115

Flywheel dia 1,903mm

Weight 2,198kgs

Moment of inertia of flywheel (lbs. in<sup>2</sup> or Kg. cm<sup>2</sup>) 44x10<sup>6</sup>

Means of ignition Compression

Kind of fuel used Diesel oil

Crank

Shaft, dia. of journals

as per Rule 486.16mm

as fitted 550mm

Crank pin dia 550mm

Crank webs

Mid. length breadth 1,160mm

Thickness parallel to axis 335mm

All built

Mid. length thickness 280mm

Thickness around eye hole 320mm

Flywheel Shaft, diameter

as per Rule

Intermediate Shaft, diameter

as per Rule

356.48mm

Thrust Shaft, diameter at collars

as fitted

392.14mm

Tube Shaft, diameter

as per Rule

Screw Shaft, diameter

as per Rule

411.8mm

Is the

tube screw shaft fitted with a continuous liner

yes

Bronze Liners, thickness in way of bushes

as per Rule

20.2mm

as fitted

25mm

Thickness between bushes

as per Rule

15.15mm

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

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 tube shaft If so, state type

Propeller, dia. 5400mm Pitch 3750mm No. of blades 4 Material Blade: Mn. Bronze Boss: Cast iron whether moveable No Total developed surface 106.2 sq. feet

Moment of inertia of propeller (lbs. in<sup>2</sup> or Kg. cm<sup>2</sup>) 19,000 x 480 Kind of damper, if fitted

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 52mm 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. S.W. 1 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. 1 Diameter 150mm Stroke 200mm Can one be overhauled while the other is at work No

Pumps connected to the Main Bilge Line No. and size 1 x Fire + Bilge Pump 89 m<sup>3</sup>/h x 60 m 1 x General Service Pump 89 m<sup>3</sup>/h x 60 m

How driven (Steam driven working type) TIME

Is the 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

Ballast Pumps, No. and size 1 x 500 m<sup>3</sup>/h x 10 m (Centrifugal type) Power Driven Lubricating Oil Pumps, including spare pump, No. and size 2 x 210 m<sup>3</sup>/h x 40 m

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 100 mm x 5, 50 mm x 1, Cofferdam 50 mm x 1, In pump room

In holds, &amp;c. 80 mm x 12 (80 mm x 2 per each hold), 50 mm x 3 in pipe tunnel emergency bilge suction

Independent Power Pump Direct Suctions to the engine room bilges, No. and size 160 mm x 1, 100 mm x 1, 300 mm x 1

Are all the bilge suction pipes in holds and tunnel well fitted with strum-boxes yes Are the bilge suction 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 below

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

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 Is it fitted with a watertight door worked from

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. No. of stages diameters stroke driven by

Auxiliary Air Compressors, No. 2 No. of stages 2 diameters 4" 7" stroke 5" driven by steam reciprocating engine

Small Auxiliary Air Compressors, No. No. of stages diameters stroke driven by

What provision is made for first charging the air receivers Aux. air compressors were driven by steam reciprocating engine

Scavenging Air Pumps, No. 2 Roots Blowers diameter 818.6mm dia. x 1498mm long. driven by Main engine

Auxiliary Engines crank shafts, diameter as per Rule 97mm r.p.m. 393 No. 2 Position Port inboard and outboard of the main engine platform

Have the auxiliary engines been constructed under special survey yes Is a report sent herewith yes

012610-012612-0099



**AIR RECEIVERS:**—Have they been made under survey yes State No. of report or certificate YAR-39, YAR-40

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, welded or riveted longitudinal joint — Material — Range of tensile strength — Working pressure —

**Starting Air Receivers, No.** 2 Total cubic capacity 8 m<sup>3</sup> x 2 Internal diameter 1340 mm thickness Shell 23 mm, end pl. 31 mm

Seamless, welded or riveted longitudinal joint welded Material O.H. Steel Range of tensile strength Shell 47.1-49.6 kg/mm<sup>2</sup>, end pl. 47.6-53.2 Working pressure by Rules 35.5 kg/cm<sup>2</sup>, Actual 25 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 No

**PLANS.** Are approved plans forwarded herewith for shafting App. date 28-2-55 Receivers 22-12-54 Separate fuel tanks 22-12-54

Donkey boilers 26-1-55 (donkey boiler) General pumping arrangements 15-3-55 Pumping arrangements in machinery space 2-4-55

Oil fuel burning arrangements 16-2-55

Have Torsional Vibration characteristics been approved Yes Date of approval 28-2-55

**SPARE GEAR.**

Has the spare gear required by the Rules been supplied Yes

State the principal additional spare gear supplied 6-Fuel valves complete 1-Exhaust valve complete,

1-starting air valve complete, 1-Cylinder safety valve complete, 5 set Piston rings,

1-Piston rod, 1 set O.F. pump complete.

The foregoing is a correct description, Y. Igaki Manufacturer. Shimada

Dates of Survey while building

During progress of work in shops -- 1954: Nov. 4, 9, 30, Dec. 4, 11, 14, 23, 24, 27 1955: Jan. 10, 14, 21, 24, 28, 29, 31 Feb. 4, 9, 14, 15, 21, 25, 28, Mar. 2, 4, 5, 11, 14, 17, 19, 22, 23, 24, 29, 30, 31 Apr. 9, 12, 13, 14, 23, 28 May, 4, 6, 7, 9

During erection on board vessel -- 1955: MAY 9, 12, 17 JUN 1, 4, 15, 20, 25 JUL 5, 9, 13, 14, 17, 18, 21, 23

Total No. of visits 46 (Kobe) 16 (Yokohama)

Dates of examination of principal parts — Cylinders 2-3-55 Covers 31-3-55 pistons 11-3-55 Rods 11-3-55 Connecting rods 4-3-55

Crank shaft 21-1-55 Flywheel shaft — Thrust shaft 21-1-55 Intermediate shafts 13-4-55 Tube shaft —

Screw shaft 30-4-55 Propeller 24-3-55 Stern tube 26-2-55 Engine seatings 9-5-55 Engine holding down bolts 25-6-55

Completion of fitting sea connections 20-3-55 Completion of pumping arrangements 9-7-55 Engines tried under working conditions Shop trial 23-4-55, 14-7-55, 21-7-55

Crank shaft, material Forged and Cast Steel Identification mark No. K-CK 428 HI LR 21-1-55 Flywheel shaft, material, — Identification mark LLOYD'S KOB

Thrust shaft, material E.F. Forged Identification mark No. HC-F502 HI LR 21-1-55 Intermediate shafts, material O.H. steel Identification mark No. KF 1814 M.S.R. 13-4, No. KF 1815 M.S.R. 15-4, LLOYD'S KOB

Tube shaft, material — Identification mark — Screw shaft, material O.H. steel Identification mark No. KF 1857 H.I.R. 30-4-55

Identification marks on air receivers NO. YAR 39 LLOYD'S TEST YKA 41KG W.P. 25KG R.T. 2-4-55 NO. YAR 40 LLOYD'S TEST YKA 41KG W.P. 25KG R.T. 30-3-55

Welded receivers, state Makers' Name Nippon Kokan K.K. Tsurumi Shipyard.

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

Description of fire extinguishing apparatus fitted Steam smothering system, 45 l x 2 foam type, portable foam type x 10, Hydrant x 5

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 No

Is this machinery duplicate of a previous case Yes If so, state name of vessel M.V. "NIKKEI MARU" & M.V. "NICHIRYU"

**General Remarks** (State quality of workmanship, opinions as to class, &c.) The Machinery has been constructed under the supervision of the Society's Surveyors in accordance with the Rules, approved Plans and Secretary's letters.

The materials were found to be sound and free from defects and the workmanship is good.

The Machinery was examined during shop trials under full and overload conditions and found good.

It is submitted that this machinery will be eligible for a Notation of +LMC when it has been installed to the satisfaction of the Society's Surveyors. with date on board the vessel

Crank case explosion relief device fitted as per plan in accordance with cir. NO. 2045.

The machinery has been satisfactorily installed in the vessel and tried under working condition.

It is submitted that the machinery of this vessel is eligible to be classed with this Society with the notation of +LMC 7.55, DBS 7.55 & TSC 7.55.

The amount of Entry Fee during installation (YKA) ¥252,000 Special — Donkey Boiler Fee — Travelling Expenses (if any) ¥15,000

When applied for JUN - 8, 1955 When received 19

Committee's Minute FRIDAY 30 SEP 1955

Assigned +LMC 7.55 2WD B 135 lb. cl.

Rpt. 4

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