

4 AUG 1959

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27th June, 1959.
4th March, 1959.

Field at Tamashima and Nagoya

Received London

In shops 23
On vessel 11

Port KOBE

5th July, 1958

First date 3rd March, '59

No. FE-6496

3rd March, 1959.

Last date 25th June, 1959.

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

Name **m.v. "NIKKO MARU"** Gross tons **13,689.52**
R.B. **Nissan Shipping Co., Ltd.** Managers **Nagoya S.B. Co., Ltd.** Port of Registry **Tokyo**
built at **Nagoya** By **Nagoya S.B. Co., Ltd.** Yard No. **146** Year Month
Engines made at **Tamashima** By **Uraga Tamashima Diesel Kogyo K.K.** Eng. No. **323** When **1959 July**
ing made at **Osaka** By **Hirano Iron Works Co., Ltd.** Blr. Nos. **H 752** When **1959 Feb.**
ey boilers made at **Nagoya** By **Nagoya Shipbuilding Co., Ltd.** When **1959 July**
inery installed at **Nagoya** By **Nagoya Shipbuilding Co., Ltd.**

ulars of restricted service of ship, if limited for classification

ulars of vegetable or similar cargo oil notation, if required

ip to be classed for navigation in ice? **No**Is ship intended to carry petroleum in bulk? **No**frigerating machinery fitted? **Yes**If so, is it for cargo purposes? **No**Type of refrigerant **Freon direct expansion type**e refrigerating machinery compartment isolated from the propelling machinery space? **Yes**Is the refrigerated cargo installation intended to be classed? **No**

following particulars should be given as fully and as clearly as possible. Where the answer is "No" or "None", say so! Ticks and other, signs of doubtful meaning are not to be
Where the wording is not applicable to the installation, a black line may be inserted. If the main engines have been constructed at another port and are covered by a separate
rt, the particulars given in that report need not be repeated below, but the port and report number should be stated.

of main engines **1** No. of propellers **1** Brief description of propulsion system **Reciprocating engine directly coupled to line shafting.**IN RECIPROCATING ENGINES. Licence Name and Type No. **Uraga Sulzer 6RSAD76**of cylinders per engine **6** Dia. of cylinders **760mm** stroke(s) **1550mm** 2 or 4 stroke cycle **2** Single or double acting **Single**imum approved BHP per engine **7,800** at **119** RPM of engine and **119** RPM of propeller. **1560**esponding MIP **7.95 kgs/cm²** (For DA engines give MIP top & bottom) Maximum cylinder pressure **60 kgs/cm²** Machinery numeral **-**the cylinders arranged in Vee or other special formation? **No** If so, number of crankshafts per engine **-**O STROKE ENGINES. Is the engine of opposed piston type? **No** If so, how are upper pistons connected to crankshaft? **-**he exhaust discharge through ports in the cylinders or through valve(s) in the cylinder covers? **Ports** No. and type of mechanically driven scavenge pumps or blowers perine and how driven **None**of exhaust gas driven scavenge blowers per engine **2** Where exhaust gas driven blowers only are fitted, can the engine operate with one blower out of action? **Yes**a stand-by or emergency pump or blower is fitted, state how driven **None** No. of scavenge air coolers **2** Scavenge air pressure at fullwer **0.43 kgs/cm²** Are scavenge manifold explosion relief valves fitted? **Yes**OUR STROKE ENGINES. Is the engine supercharged? **No** Are the undersides of the pistons arranged as supercharge pumps? **No** No. of exhaust gas driven blowers perine **No** No. of supercharge air coolers per engine **-** Supercharge air pressure **-** Can engine operate without supercharger? **-**VO & FOUR STROKE ENGINES—GENERAL. No. of valves per cylinder: Fuel **1** Inlet **-** Exhaust **1** Starting **1** Safety **1**aterial of cylinder covers **Cast Steel** Material of piston crowns **Forged Steel** Is the engine equipped to operate on heavy fuel oil? **Yes**ooling medium for:—Cylinders **Fresh Water** Pistons **Lub. Oil** Fuel valves **Fresh Water** Overall diameter of piston rod for double acting engines **-**the rod fitted with a sleeve? **No** Is welded construction employed for: Bedplate? **Yes** Frames? **Yes** Entablature? **Yes** Is the crankcase separated from thederside of pistons? **Yes** Is the engine of crosshead or trunk piston type? **Crosshead** Total internal volume of crankcase **87.3 M³** No. and total area of explosion reliefvices **6, 9,900 cm²** Are flame guards or traps fitted to relief devices? **No** Is the crankcase readily accessible? **Yes** If not, must the engine be removed forerhaul of bearings, etc? **-** Is the engine secured directly to the tank top or to a built-up seating? **directly** How is the engine started? **By compressed air**an the engine be directly reversed? **Yes** If not, how is reversing obtained? **-**as the engine been tested working in the shop? **Yes** How long at full power? **3 Hr.**RANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system **9-4-59** State barred speed range(s), if imposedor working propeller **48-60 r.p.m., See London letter of 9-4-59** Is a governor fitted? **Yes** Is a torsional vibration damper or detuner fitted to the shafting? **No**Where positioned? **-** Type **-** No. of main bearings **7** Are main bearings of ball or rollerype? **No** Distance between inner edges of bearings in way of crank(s) **410mm** Distance between centre lines of side cranks or eccentrics of opposed piston engines **-**Crankshaft type: Built, semi-built, solid, (State which) **Semi-built**Diameter of journals **550mm** Diameter of crankpins **550mm** Breadth of webs at mid-throw **897mm** Axial thickness of webs **340mm**If shrunk, radial thickness around eyeholes **252.5mm** Are dowel pins fitted? **No** Crankshaft material Journals **Forged Steel** Minimum **53 kg/mm²**Webs **Forged Steel** Tensile strength **53 "**Diameter of flywheel **2, 364.3mm** Weight **1,552.8 kgs** Are balance weights fitted? **No** Total weight **1,552.8 kgs** Radius of gyration **907**Diameter of flywheel shaft **550mm** Material **Forged Steel** Minimum approved tensile strength **53 kg/mm²**Flywheel shaft: separate, integral with crankshaft, integral with thrustshaft. (State which) **integral with thrustshaft.**

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Lloyd's Register
Foundation

MAIN GAS TURBINES. Name and Type No.

No. of sets of turbines..... Open or closed cycle..... BHP per set..... at..... RPM of output shaft.....

How is drive transmitted to propeller shaft?.....

ARRANGEMENT OF TURBINES. HP drives..... at..... RPM HP gas inlet temperature..... pressure.....
(A small diagram should be attached showing gas cycle.)

IP drives..... at..... RPM IP gas inlet temperature..... pressure.....

LP drives..... at..... RPM LP gas inlet temperature..... pressure.....

No. of air compressors per set.....

Centrifugal or axial flow type?.....

Material of turbine blades.....

compressor blades.....

No. of air coolers per set.....

No. of heat exchangers per set.....

How are turbines started?.....

How is reversing effected?.....

Are the turbines operated in conjunction with free piston gas generators?.....

Total No. of free piston gas generators.....

Diameter of working pistons.....

Diameter of compressor pistons.....

No. of double stroke.....

minute at full power.....

Gas delivery pressure.....

Gas delivery temperature.....

Have the turbines and attached equipment been tested.....

in the shop?.....

How long at full power?.....

ELECTRIC PROPULSION

(Reciprocating engines or gas turbines. Electrical particulars to be reported on Form 4d.)

No. of generators.....

KW per generator.....

at.....

RPM

AC or DC?

Position.....

No. of propulsion motors.....

SHP per motor.....

at.....

RPM

Position.....

How is power obtained for excitation of generators?.....

Motors?.....

REDUCTION GEARING

(Reciprocating engines or gas turbines. A small line sketch should be attached showing arrangement of gearing.)

Is gearing of single or double helical type?.....

If single, position of gear thrust bearing.....

Is gearing of epicyclic type?.....

PCD of pinions: First reduction.....

Second reduction.....

PCD of wheels: First reduction.....

Main.....

Material of pinions.....

Tensile strength.....

Material of wheel rims.....

Tensile strength.....

Are gear teeth surface hardened?.....

How are teeth finished?.....

Diameter of pinion journals.....

Wheel.....

journals.....

Are the wheels of welded construction?.....

Is gearcase of welded construction?.....

Has the wheel/gearcase been heat treated on completion?.....

of welding?.....

Where is the propeller thrust bearing located?.....

Are gear bearings of ball or roller type?.....

CLUTCHES, FLEXIBLE COUPLINGS, ETC.

If a clutch or other flexible connection is fitted between engine/turbine and gearing or between engine and line shafting give description and, for clutches, state how operated.....

Can the main engine be used for purposes other than propulsion when declutched?.....

If so, what?.....

STRAIGHT SHAFTING. Diameter of thrustshaft.....

Material.....

Minimum approved tensile strength.....

53 kg/cm²

Shaft separate or integral with crank or wheel shaft?.....

Integral with wheelshaft

Diameter of intermediate shaft.....

402 mm

Material.....

Forged Steel

Minimum approved tensile strength.....

42 kg/cm²

Diameter of screwshaft cone at large end.....

464 mm

Is screwshaft fitted with a continuous liner?.....

Yes

Diameter of tube shaft. (If these are separate shafts).....

Is tube shaft fitted with a continuous liner in way of stern tube.....

Thickness of screwshaft.....

bearings.....

25 mm

Thickness between bearings.....

19 mm

Material of screwshaft.....

Forged Steel

Minimum approved tensile strength.....

Is an approved oil gland fitted?.....

No

If so, state type.....

Length of bearing next to and supporting propeller.....

1960 mm

Material of bearing.....

Lignum vitae

In multiple screw vessels is the liner between stern tube and A bracket continuous?.....

If not, is the exposed length of shafting between liners readily visible in dry dock?.....

PROPELLER. Diameter of propeller.....

5,700 mm

Pitch.....

3,720 mm

Built up or solid.....

Built up

Total developed surface.....

11.170 m²

No. of blades.....

4

Blade thickness at top of root fillet.....

245 mm at 25% radius

Blade material.....

Mn. Br.

Moment of inertia of dry propeller.....

206000 Kg

If propeller is of special design, state type.....

Is propeller of reversible pitch type?.....

No

If so, is it of approved design?.....

-

State method of control.....

Material of spare propeller.....

Moment of inertia.....

AIR COMPRESSORS & RECEIVERS. No. of main engine driven compressors per engine.....

None

Can they be declutched?.....

No. of independently driven air compressors. (State capacity, prime mover, position in ship, and Port and No. of certificate).....

2-200 M³/H x 30 kg/cm² steam receivers

cating engine, inboard & outboard in E.R. port platform deck (2nd deck), Kobe No.M-55271 & M-55240.

No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate).....

Main: 2 x 7.5 M³ inboard & outboard

in E.R. port platform deck (2nd deck), Kobe No.AB-55179, Aux: 1-200 l. port in E.R. working platform, Kobe No.AB-55179

How are receivers first charged?.....

by air compressor

Maximum working pressure of starting air system.....

30 Kg/cm²

Are the safety devices.....

accordance with the Rules?.....

Yes

Has the starting of the main engines been tested and found satisfactory?.....

Yes

COOLERS. No. of main engine fresh water coolers.....

2

No. of main engine lubricating oil coolers.....

2

OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure.....

1-F.O. settling tank & 1-F.O. service tank

on platform deck (2nd deck) port, 2-F.O. settling tanks (DB) on boiler platform deck port.

MAIN ENGINE DRIVEN PUMPS (No. and Purpose).....

Chain driven combined L.O., Fresh water & Sea water cooling pumps for

pistons, bearings, journals, jackets, air coolers, L.O. coolers and Fresh water coolers.

INDEPENDENT PUMPS

Below essential pumps, state position and how driven. Give capacity of bilge pumps.

ling fresh water P.(S.S.) steam

, piston cooling L.O.P. (s.s.) steam

1 valve cool. fresh W.P. (s.s.) steam

M. booster P. (p.s. in platform deck) (motor)

re & Bilge P.(s.s.), steam

20/210 M³/H x 60/20 M

S. pump(s.s.), steam

20/319 M³/H x 60/20 M

last pump (s.s.), steam

lge P.(p.s.), steam

ed pump (s.s.)

30 M³/H x 35 M

ed pump (s.s.)

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Service for which each pump is connected to be marked thus X

SUCTION

DELIVERY

Bilge Main

Bilge Direct

Ballast Main

Oil Fuel

Fresh Water Cooling

Sea

Feed Tanks

Lub. Oil

Boiler Feed

Salt Water Cooling

Fresh Water Cooling

Oil Fuel Tanks

Fire Main

Lub. Oil

Piston Cooling

ling fresh water P.(S.S.) steam

, piston cooling L.O.P. (s.s.) steam

1 valve cool. fresh W.P. (s.s.) steam

M. booster P. (p.s. in platform deck) (motor)

re & Bilge P.(s.s.), steam

20/210 M³/H x 60/20 M

S. pump(s.s.), steam

20/319 M³/H x 60/20 M

last pump (s.s.), steam

lge P.(p.s.), steam

ed pump (s.s.)

30 M³/H x 35 M

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E SUCTIONS. No. and size in each hold, ~~2-90mm dia. in each hold (No.1 hold to No.8 hold),~~

10mm dia. in pipe passage, 3 x 50mm dia. in cofferdams (Fr.43-44, Fr.28-29 & Fr.18-19)

4 x 90 mm

In tunnel

Size and position of direct bilge suction in machinery spaces

1 x 100mm (s.s.)

Size and position of emergency bilge suction in machinery spaces

300 mm (s.s.)

160mm (p.s.)

160mm (p.s.)

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160mm (p.s.)

160mm (p.s.)

State if the machinery has been constructed and/or installed under special survey in accordance with the Rules, approved plans and Secretary's letters. State quality of and workmanship and give recommendations, for classification, including any special notation to be assigned. Where existing machinery is submitted for classification, circumstances should be explained as fully as possible.

The material and workmanship are sound and good.

In our opinion, the machinery of this vessel is eligible to have a record of +LMC 7.59.

A notice board has been fitted at the control platform stating that the engine is not to be operated continuously between 48 and 60 r.p.m. and the engine tachometer was marked accordingly.

Engineer Surveyor to Lloyd's Register of Shipping Descrip

Piston rods: Y.11863A-F ST LR 4-12-57, Y11572-A RS LR 14-1-58 (Spare)

CRANKSHAFT OR ROTORSHAFT KT-CK 378 EI LR 30-9-58

THRUSTSHAFT

INTERMEDIATE SHAFTS HC-F 840 & HC-F 842 FM 23-12-58

PROPELLERS Blades 2017, 2020, 2023 SH 5-2-59 & 102 SH 11-5-59 Spare: 137 SH 4-6-59

OTHER IMPORTANT ITEMS. Cylinder covers: Nos. 6815-1-4, 6, 7 & 8 KOI LR 5-7-58 (Spare)

Pistons:- Nos. SF2845-A-F KT LR 1-12-58 SF 2730 KT LR 25-4-58 (Spare)

Crosshead Pins:- Nos. Y12240-A-F, ST LR 4-4-58

Is the installation a duplicate of a previous case?.....No..... If so, state name of vessel

Date of approval of plans for crankshaft 1-11-1957..... Straight shafting 1-11-57..... Gearing..... Clutch.....

Separate oil fuel tanks.....28-11-58 Pumping arrangements.....18-10-58 Oil fuel arrangements.....5-1-59

Cargo oil pumping arrangements	Air receivers	6-12-58	Donkey boilers	17-6-59
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Dates of examination of principal parts:—

Fitting of stern tube 20-3-59 Fitting of propeller 23-3-59 Completion of sea connections 23-3-59 Alignment of crankshaft in main bearings 8-5-59

Engine checks & bolts 8-5-59 Alignment of gearing - Alignment of straight shafting 8-5-59 Testing of pumping arrangements 1-6

Oil fuel lines.....	18-5-59	Donkey boiler supports.....	8-5-59	Steering machinery.....	22-6-59	Windlass.....	22-6-59
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Date of Committee FRIDAY 11 SEP 1959

Decision See Rpt. 1.

Special Survey Fee
CONSTRUCTION: 17,532.00
INSTALLATION: 280.27

Expenses

Date when A/c rendered MAY 23, 1959