

# REPORT ON OIL ENGINE MACHINERY.

No. 569-605  
265

RECEIVED  
9 MAR 1952  
of writing Report  
in Survey held at  
Book.

Received at London Office 18 MAR 1952

When handed in at Local Office 19 Port of KOBE  
Date, First Survey 23rd January, 1950 Last Survey 19th September 1951  
Number of Visits 122

on the Single Screw vessel M. V. "KENRYU MARU" Tons Gross 4978.61  
Triple  
Quadruple Net 3284.36  
at Osaka, Japan By whom built Fujinagata Shipbuilding Co., Ltd. Yard No. S 25 When built Sept. 1951  
made at Tamano, Japan By whom made Mitsui Shipbuilding & Engineering Co., Ltd. Engine No. 384 When made Feb. 1951  
Boilers made at Osaka, Japan By whom made Fujinagata Shipbuilding Co., Ltd. Boiler No. 112 When made Sept. 1951  
Horse Power 3150, 2800 124 r/m Owners Inui Kisen Kabushiki Kaisha Port belonging to K O B E  
Power as per Rule 675 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes  
for which vessel is intended Ocean Going

**ENGINES, &c.** — Type of Engines Solid Injection Diesel 2 or 4 stroke cycle 2 Single or double acting Single  
Cylinder pressure in cylinders 49 kg/cm<sup>2</sup> Diameter of cylinders 620 mm Length of stroke 1,150 mm No. of cylinders 6 No. of cranks 6  
Indicated Pressure 6.5 kg/cm<sup>2</sup> Ahead Firing Order in Cylinders 1-5-3-4-2-6 Span of bearings, adjacent to the crank, measured inner edge to inner edge 813.6 mm Is there a bearing between each crank Yes Revolutions per minute 129  
Cylinder dia 2,136 mm Weight 2,097 kg Moment of inertia of flywheel (lbs. in<sup>2</sup> or Kg. cm.<sup>2</sup>) 1050x10<sup>4</sup> Means of ignition Compression Kind of fuel used Diesel oil  
Crank dia. of journals 394.76 mm as per Rule 394.76 mm as fitted 435 mm Crank pin dia 435 mm Crank webs Mid. length breadth 1020 mm Thickness parallel to axis 270 mm  
Mid. length thickness 230 mm shrunk Thickness around eye-hole 257.5 mm  
Main Shaft, diameter as per Rule --- as fitted --- Intermediate Shaft, diameter as per Rule 299.19 mm as fitted 315 mm Thrust Shaft, diameter at collars as per Rule --- as fitted 400 mm  
Screw Shaft, diameter as per Rule --- as fitted --- as per Rule 330.44 mm as fitted 349 mm Is the {tube} shaft fitted with a continuous liner {screw} Yes

Liner thickness in way of bushes as per Rule 17.67 mm as fitted 25 mm Thickness between bushes as per Rule 13.25 mm as fitted 21 mm Is the after end of the liner made watertight in the stern tube 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 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-conducting Yes  
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 shaft No If so, state type ---  
Length of bearing in Stern Bush next to and supporting propeller 1540 mm  
Blade: Mn-Br Boss: Cast Iron whether moveable Moveable Total developed surface 69.7 sq. feet  
Pitch 3170 mm No. of blades 4 Kind of damper, if fitted ---

Kind of reversing Engines Direct Is a governor or other arrangement fitted to prevent racing of the engine when disengaged Yes Means of governing ---  
Thickness of cylinder liners 42 mm Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled ---  
Are they lined with non-conducting material Lagged If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned into the engine ---  
Cooling Water Pumps, No. 3 Is the sea suction provided with an efficient strainer which can be cleared within the vessel Yes

Pumps worked from the Main Engines, No. 2 Diameter 150 mm Stroke 200 mm Can one be overhauled while the other is at work Yes  
connected to the Main Bilge Line { No. and size 1-Fire & General Service Pump 100 M<sup>3</sup>/h, 1-Ballast pump 150 M<sup>3</sup>/h  
{ How driven By Electric Motor By Electric Motor  
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 ---

Pumps, No. and size 1 - 150 M<sup>3</sup>/h Power Driven Lubricating Oil Pumps, including spare pump, No. and size 2 - 130 M<sup>3</sup>/h  
Independent means arranged for circulating water through the Oil Cooler Yes Suctions, connected to both main bilge pumps and auxiliary pumps, No. and size ---  
No. 1 Hold 2-2 1/2", No. 2 Hold 4-2 1/2", No. 3 Hold 2-2 1/2", No. 4 Hold 2-2 1/2", In pump room ---  
&c. (Fr. 57-58), Shaft Tunnel 1-3 1/2"

Independent Power Pump Direct Suctions to the engine room bilges, No. and size 1 - 5", 1 - 6", 1 - 7"  
Are the bilge suction pipes in holds and tunnel well fitted with strum-boxes Yes Are the bilge suction pipes 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  
Sea Connections fitted direct on the skin of the Ship Yes Are they fitted with valves or cocks Valves Are they fixed 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 Yes

Are pipes pass through the bunkers --- How are they protected ---  
Are pipes pass through the deep tanks --- Have they been tested as per Rule ---  
Are 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 Upper Deck

Is the vessel a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork ---  
Air Compressors, No. --- No. of stages --- diameters --- stroke --- driven by ---  
Auxiliary Air Compressors, No. 2 No. of stages 2 diameters 1st 190 mm, 2nd 170 mm stroke 100 mm driven by D.C. Motor  
Auxiliary Air Compressors, No. 1 No. of stages 2 diameters 1st 70 mm, 2nd 35 mm stroke 50 mm driven by Oil Engine

Provision is made for first charging the air receivers Oil engine driven small aux. air compressor by manual starting  
Air Pumps, No. 2 (Root Blower) diameter of Rotor 700 mm Length of rotor --- stroke 1200 mm driven by Main Engine  
Auxiliary Engines crank shafts, diameter as per Rule 152.8 mm as fitted 190 mm No. 3 Position All in Port Side

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

00773-008777-0086

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**AIR RECEIVERS:**—Have they been made under survey

Yes

State No. of report or certificate

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 ---

by Rules ---

Seamless, welded or riveted longitudinal joint ---

Material ---

Range of tensile strength ---

Working pressure ---

Actual ---

Starting Air Receivers, No. 2

Total cubic capacity 6 M<sup>3</sup> x 2

Internal diameter 1556 mm (max)  
1500 mm (min)

thickness 28 mm

by Rules 28.1

Seamless, welded or riveted longitudinal joint Riveted

Material O.H. Steel

Range of tensile strength 27.5-31.1 T/cm<sup>2</sup>

Working pressure Actual 25 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

Yes

PLANS: Are approved plans forwarded herewith for shafting 28th May, 1951

Receivers 3rd Sept. 1950 (Kote) Separate fuel tanks 1st

Donkey boilers 24th May, 1951

General pumping arrangements 2nd Oct., 1951 Pumping arrangements in machinery space 2nd Oct., 19

Oil fuel burning arrangements 2nd Oct., 1951

Yes

Date of approval

3rd Aug., 1951

Have Torsional Vibration characteristics been approved

**SPARE GEAR.**

Yes

Has the spare gear required by the Rules been supplied

State the principal additional spare gear supplied 1 piston rod, 3 sets scraper ring for piston rod, 2 sets piston ring  
2 sets telescopic pipes with bushes for piston cooling, 8 fuel valves complete, 12 springs for fu  
valve 4 exhaust valves complete, 2 spindles for exhaust valves, 12 springs of each size for exha  
valves, 1 set roller & needle bearings for exhaust cam, 1 set push rod for exhaust valve, 1 indica  
valve complete, 1 set blower chain complete, 1 fuel pump complete.

Fujinagata Shipbuilding Co., Osaka, Japan

Managing Director

The foregoing is a correct description.

MITSUBISHI SHIPBUILDING & ENGINEERING CO., LTD. TAMANO WORKS.

K. SAKAMAKI Manufacturer.

Dates of Survey while building

During progress of work in shops ---  
During erection on board vessel ---  
Total No. of visits

1950-JAN. 23, 30 FEB. 14 MAR. 6, 10, 19, 23 APR. 6, 13, 18 JUN. 20 JUL. 20, 26 AUG. 2, 4, 8, 11, 2  
28 SEP. 2, 3, 4, 8, 11, 12, 18, 19, 20, 21, 24, 26, 27, 29 OCT. 4, 6, 7, 12, 13, 16, 18, 19, 23  
1951-JAN. 16, 20, 22, 23 FEB. 19, 26 MAR. 3, 23 APR. 10, 21, 24, 27 MAY. 7, 14, 16, 19, 21, 22, 25  
7, 11, 12, 13, 15, 18, 20, 21, 23, 30 JUL. 2, 3, 4, 5, 6, 7, 18, 19, 20, 24, 27, 29, 30, 31 AUG. 1  
10, 14, 17, 24, 27, 28, 30 SEP. 1, 3, 5, 7, 8, 11  
1951-SEP. 12, 13, 16, 18, 19 122

Dates of examination of principal parts—Cylinders 26th Feb. 1951 Covers 29th Dec. 1950 pistons 20th Jan. 1951 Rods 3rd Jan. 1951 Connecting rods 20th Jan. 1  
Crank shaft 23rd Dec. 1950 Flywheel shaft --- Thrust shaft 19th Dec. 1951 Intermediate shafts 18th Jun. 1951 Tube shaft ---  
Screw shaft 30th Jun. 1951 Propeller 4th Jul. 1951 Stern tube 2nd Jul. 1951 Engine seatings 7th Jul. 1951 Engine holding down bolts 7th Jul. 1  
Completion of fitting sea connections 6th Jul. 1951 Completion of pumping arrangements 16th Sept. 1951 Engines tried under working conditions 16th Sept. 1  
Crank shaft, material O.H. Steel & Elect. F.S. Identification mark K-CK 151 Flywheel shaft, material --- Identification mark ---  
Thrust shaft, material O.H. Steel Identification mark K-F 664 Intermediate shafts, material O.H. Steel Identification marks FN-F302-1  
Tube shaft, material O.H. Steel Identification mark --- Screw shaft, material O.H. Steel Identification mark FN-F301-1  
Identification marks on air receivers LLOYD'S NO. AR 243 W.P. 25 kg/cm<sup>2</sup> W.T.P. 37.5 kg/cm<sup>2</sup> JN R 14 - 8 - 5  
LLOYD'S NO. AR 244 W.P. 25 kg/cm<sup>2</sup> W.T.P. 37.5 kg/cm<sup>2</sup> JN R 14 - 8 - 5

Welded receivers, state Makers' Name

No

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

Description of fire extinguishing apparatus fitted CO<sub>2</sub> Lux-Rich system in hold 1-150 litre foam extenguisher, in Boiler space

portable foam extinguisher & 3-Sea water service & hoses in engine room.  
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

If so, state name of vessel

Is this machinery duplicate of a previous case

**General Remarks**

(State quality of workmanship, opinions as to class, &c.)

The machinery of this vessel has been constructed under Special Survey according with the Rules, Approved plans and Secretary's letter. The workmanship and materials are sound and good. The machinery of this vessel has been examined during comprehensive deck and sea trials and found satisfactory. In our opinion the machinery of this vessel is eligible to have record of + L.M.C. 9-51. T.S.(C.L) 9-51. D.B. W.P. 7 kg/cm<sup>2</sup> 9-51.

The amount of Entry Fee ... £ 529,200  
Air Receivers ... £ 30,000  
Special ... £ :  
Donkey Boiler Fee ... £ :  
Travelling Expenses (if any) £ 26,000

When applied for 19  
When received 19

S. Burris, Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute

Assigned + LMC 9.51 Oil Eng. (with torsional endorsement)

C.L. DB100lb

FRI. 30 MAY 1952



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