

# REPORT ON OIL ENGINE MACHINERY.

No. 7609.

29 JAN 1932

Received at London Office

Date of writing Report 15-12-31 19 When handed in at Local Office 13-1-32 19 Port of Kobe

No. in Survey held at Tama Reg. Book. Date, First Survey 11-12-30 Last Survey 15-12-31 19 Number of Visits 36

Single on the Tama Triple Screw vessel **Motor Vessel "NACHISAN MARK"** Tons <sup>Gross</sup> <sub>Net</sub>

Built at Tama By whom built **Mitsui Bussan Kaisha** Yard No. 183 When built 1931

Engines made at Tama By whom made **Mitsui Bussan Kaisha** Engine No. 183 When made 1931

Donkey Boilers made at Tama By whom made **Mitsui Bussan Kaisha** Boiler No. 183 When made 1931

Brake Horse Power 2180 Owners **Mitsui Bussan Kaisha** Port belonging to **Kobe**

Nom. Horse Power as per Rule 362 Is Refrigerating Machinery fitted for cargo purposes **No** Is Electric Light fitted **Yes**

Trade for which vessel is intended **Ocean Going** 21578 Supercharge 39318

**L ENGINES, &c.**—Type of Engines **Mitsui B-W Airley Injection Turbo Piston** of 4 stroke cycle **4** Single or double acting **Single**

Maximum pressure in cylinders **45 kg/cm<sup>2</sup>** Diameter of cylinders **550 mm** Length of stroke **1000 mm** No. of cylinders **8** No. of cranks **8**

Position of bearings, adjacent to the Crank, measured from inner edge to inner edge **730 mm** Is there a bearing between each crank **Yes**

Revolutions per minute **145** Flywheel dia **1845** Weight **900 kg.** Means of ignition **Californian** Kind of fuel used **Californian**

Crank Shaft, dia. of journals as per Rule **360 mm** as fitted **360 mm** Crank pin dia. **360 mm** Crank Webs Mid. length breadth **730** Thickness parallel to axis **219 mm** M. d. length thickness **219 mm** shrunk Thickness around eye hole **176 mm**

Flywheel Shaft, diameter as per Rule **615 mm** as fitted **615 mm** Intermediate Shafts, diameter as per Rule **105 mm** as fitted **105 mm** Thrust Shaft, diameter at collars as per Rule **107 mm** as fitted **107 mm**

Propeller Shaft, diameter as per Rule **113 mm** as fitted **113 mm** Is the <sup>tube</sup> screw shaft fitted with a continuous liner **Yes**

Bronze Liners, thickness in way of bushes as per Rule **0.646** as fitted **11/16** Thickness between bushes as per rule **0.485** as fitted **17/32** 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 **No**

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 **No**

If two liners are fitted, is the shaft lapped or protected between the liners **No** Is an approved Oil Gland or other appliance fitted at the after end of the tube **No**

If so, state type **None** Length of Bearing in Stern Bush next to and supporting propeller **40** sq. feet

Propeller, dia. **12-11** Pitch **10-7/8** No. of blades **3** Material **Brass** whether Moveable **No** Total Developed Surface **40** sq. feet

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

Exhaust Thickness of cylinder liners **34 mm** Are the cylinders fitted with safety valves **Yes** Are the exhaust pipes and silencers water cooled or lagged with 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 **No**

Boiling Water Pumps, No. **2** centrifugal **120 ltr/hr each** Is the sea suction provided with an efficient strainer which can be cleared within the vessel **Yes**

Large Pumps worked from the Main Engines, No. **2** Diameter **150 mm** Stroke **175 mm** Can one be overhauled while the other is at work **Yes**

Pumps connected to the Main Bilge Line { No. and Size **1 x 150 to Ballast pump 2 x 20 to Bilge pump attached main direct engine** How driven **Independent motor driven**

Ballast Pumps, No. and size **1 x 150 to the bottom Drydock** Lubricating Oil Pumps, including Spare Pump, No. and size **2 Gear pumps 50 ltr/hr each**

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 x 2 1/2 Ballast direct 1 x 4 1/2 Bilge direct 2 x 2 1/2 Effluent 1 x 3 1/2 Tunnel Well**

Holds, &c. **N<sup>o</sup> 1 Hold 2 x 3 1/2 N<sup>o</sup> 2 Hold 2 x 3 1/2 N<sup>o</sup> 3 Hold 2 x 3 N<sup>o</sup> 4 Hold 2 x 3**

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size **2 x 20 mm Dia 165 mm Stroke 230 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 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**

Do all pipes pass through the bunkers **Yes** How are they protected **None**

Do all 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 there an 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**

On a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork **None**

Air Compressors, No. **3** No. of stages **two** Diameters **320 x 250 mm** Stroke **190 mm** Driven by **Direct coupled to Aux Diesel Engines**

High Air Compressors, No. **1** No. of stages **one** Diameters **2 1/2** Stroke **5** Driven by **Hand**

Low Auxiliary Air Compressors, No. **one** No. of stages **one** Diameters **188 mm dia** Stroke **188 mm** Driven by **Exhaust Gas**

Engining Air Pumps, No. **1 Blower** **1 combined blower** **188 mm dia** Diameter **188 mm** Stroke **188 mm** Driven by **Exhaust Gas** Stamped **W.F. 27-6-31**

Auxiliary Engines crank shafts, diameter as per Rule **170 mm** as fitted **170 mm**

**RECEIVERS:**—Is each receiver, which can be isolated, fitted with a safety valve as per Rule **Yes**

Are the internal surfaces of the receivers be examined **Yes** What means are provided for cleaning their inner surfaces **None**

Are there a drain arrangement fitted at the lowest part of each receiver **Yes**

Pressure Air Receivers, No. **one** Cubic capacity of each **460 cu. ft.** Internal diameter **4'-8 3/4** thickness **3/8**

Seamless, lap welded or riveted longitudinal joint **Seamless** Material **Steel** Range of tensile strength **28-32** Working pressure by Rules **355 lb**

Starting Air Receivers, No. **2** Total cubic capacity **460 cu. ft.** Internal diameter **4'-8 3/4** thickness **3/8** Working pressure by Rules **355 lb**

Seamless, lap welded or riveted longitudinal joint **Seamless** Material **Steel** Range of tensile strength **28-32** Working pressure by Rules **355 lb**



IS A DONKEY BOILER FITTED? *Yes*

If so, is a report now forwarded? *Yes*

PLANS. Are approved plans forwarded herewith for Shafting *22-4-31 29-6-31* Receivers *10-7-30* Separate Tanks *15-9-3, 14-9-31*

Donkey Boilers *8-8-30* General Pumping Arrangements *25-6-31 29-7-30* Oil Fuel Burning Arrangements *25-7-31*

SPARE GEAR. 1 Cylinder head, 1 cylinder lining, 1 set of studs & nuts for one cyl. cover, 1 fuel valve complete, 1 fuel spindle, 1 valve bush with stem, 8 atomizers, 1 stem for overflow valve, 8 springs, 1 inlet valve complete, 1 stem, 8 springs, 1 roller with pin, 8 exhaust valve complete, 4 seats with nuts for stem, 4 stems, 8 springs, 1 roller with pin, 1 steering valve complete, 1 stem, 2 sets of packing rings on 1 seat, 8 springs for stem, 8 springs for piston, 1 roller with pin, 8 safety caps, safety valve, 1 safety valve complete, 2 stems, 2 seats, 8 springs, 1 piston complete with rings & pin, 8 sets piston rings, 8 sets of scraper rings, 2 sets of telescopic pipes with packing, 1 pair of crank pin beams, 2 bolts with nuts for crank pin beams, 1 pair of guide pin beams, 1 pair of main bearing beams of each size, 2 studs with nuts, 1 set of coupling bolts, 10 chain links, 1 fuel pump complete, 14 pistons with bushes, 8 pipes from fuel pump to fuel valve, 8 injection valves, 1 roller with pin, 14 pipes for return, 8 filters for fuel oil strainer, 2 sets of each size spring, 1 discharge valve complete, 1 injection valve complete, assorted number of rubber rings for coils, cooling water jacket etc., 1 length of pipe for starting air of each size with unions & flanges, 2 meters pantegon & palmette, packing of each size, 3 three-manometer pipes for cooling water on exhaust valves, 1 set of coupling bolts tunnel shafting, assorted nuts & bolts; also spare gear for auxiliary pump.

The foregoing is a correct description,

*J. Ukas*

Manufacturer.

Dates of Survey while building: During progress of work in shops -- 1930 Dec. 11-22, Jan 21, Feb. 23, March 13, June 29, July 27, 28, Aug. 19-20, 25, 27, 31, Oct. 2, 13, 15, 21, 26, 30, Nov. 4, 9, 11; During erection on board vessel -- 1931 Nov. 18-21, 25, 27, 30, Dec. 8, 10, 12, 15; Total No. of visits 36

Dates of Examination of principal parts: Cylinders 15-10-31, Covers 27-8-31, Pistons 27-8-31, Rods -, Connecting rods 5-10-31, Crank shaft 27-8-31, Flywheel shaft -, Thrust shaft 26-6-31, Intermediate shafts 21-6-31, Tube shaft -, Screw shaft 21-10-31, Propeller 21-10-31, Stern tube 19-10-31, Engine seatings 2-9-31, Engines holding down bolts 21-11-31, Completion of fitting sea connections 19-10-31, Completion of pumping arrangements 8-12-31, Engines tried under working conditions 8-12-31

Crank shaft, Material *Steel*, Identification Mark *LLOYD N° 8756 K.K.*, Flywheel shaft, Material -, Identification Mark -, Thrust shaft, Material *Steel*, Identification Mark *LLOYD N° 758 21-6-31 M.K.*, Intermediate shafts, Material *Steel*, Identification Marks *761, 762, 21-6-31*, Tube shaft, Material -, Identification Mark -, Screw shaft, Material *Steel*, Identification Mark *LLOYD N° 765 4-7-31 M.K.*

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 *No*, If so, have the requirements of the Rules been complied with -, Is this machinery duplicate of a previous case *No*, If so, state name of vessel -

General Remarks (State quality of workmanship, opinions as to class, &c.) This machinery has been constructed under Special Survey in accordance with the Rules and approved plans; the materials and workmanship are good and on completion the machinery has been efficiently installed in the vessel and tested under full working conditions and eligible in an opinion for classification with the vessel of T.L.M.C 12. oil engine, T.S. 12.31 P.L. and D.B. 100 lb.

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

The amount of Entry Fee ... \$50- : When applied for, Special ... \$1189 : 50 : 12/3/32, Donkey Boiler Fee ... \$63- : When received, Travelling Expenses (if any) ... \$126- : 18/3/32

Committee's Minute FRI. 5 FEB 1932, Assigned T.L.M.C. 12.31 C.L. Oil Eng. 100 lb.

G. Pickering & Self A.D. Morris, Engineer Surveyor to Lloyd's Register of Shipping.

