

REPORT ON MACHINERY

No. 1264

MON 2 FEB 1920

Received at London Office

Date of writing Report 1st Dec. 1919 When handed in at Local Office 1st Dec. 1919 Port of

NAGASAKI.

Name of vessel in Survey held at **NAGASAKI.**

Date, First Survey 13th Dec. 1917 Last Survey 10th Nov. 1919

Name of vessel on the *Steel s.s. "Murooran Maru"*

(Number of Visits 122)

Tons } Gross 5357
Net 3257

Master *H. Yamamoto* Built at *Nagasaki* By whom built *Mitsubishi Zosen Kaisha* When built *1919*

Engines made at *Nagasaki* By whom made *Mitsubishi Zosen Kaisha* when made *1919*

Boilers made at *Nagasaki* By whom made *Mitsubishi Zosen Kaisha* when made *1919*

Registered Horse Power Owners *Nippon Yusen Kaisha* Port belonging to *Tokio*

Net Horse Power as per Section 28 *495* Is Refrigerating Machinery fitted for cargo purposes *No.* Is Electric Light fitted *Yes.*

GINES, &c.—Description of Engines *Triple Expansion* No. of Cylinders *3* No. of Cranks *3*

No. of Cylinders *26 1/2, 44 1/2, 75* Length of Stroke *48* Revs. per minute *81* Dia. of Screw shaft as per rule *15.98* Material of screw shaft *Steel*
as fitted *16 1/2*

Is the screw shaft fitted with a continuous liner the whole length of the stern tube *No liner fitted.* Is the after end of the liner made water tight

the propeller boss *Yes.* If the liner is in more than one length are the joints burned *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

shafts are fitted, is the shaft lapped or protected between the liners *Yes.* Length of stern bush *5.65*

Dia. of Tunnel shaft as per rule *13.74* Dia. of Crank shaft journals as per rule *14.427* Dia. of Crank pin *15* Size of Crank webs *22 7/8 x 9 1/2* Dia. of thrust shaft under

bars *14 3/4* Dia. of screw *18.3* Pitch of Screw *19.9* No. of Blades *4* State whether moveable *Yes.* Total surface *96.8 sq. ft.*

No. of Feed pumps *2* Diameter of ditto *5 1/2* Stroke *24* Can one be overhauled while the other is at work *Yes.*

No. of Bilge pumps *2* Diameter of ditto *5 1/2* Stroke *24* Can one be overhauled while the other is at work *Yes.*

No. of Donkey Engines *4* Sizes of Pumps *1 General Service Duplex 7" x 5" x 7"* No. and size of Suctions connected to both Bilge and Donkey pumps

Engine Room *3* *2 Feed Simplex 9 1/2 x 2 1/2 x 7"* In Holds, &c. *No. 1 Hold 2 e 3 1/2", No. 2 Hold 2 e 3 1/2", Spare*

Bunker *2 e 3 1/2"* Cross Bunker *2 e 3 1/2"* No. 3 Hold *2 e 3 1/2"* No. 4 Hold *2 e 3 1/2"* Tunnel well *1 e 2 1/2"*

No. of Bilge Injections *1* sizes *8"* Connected to condenser and circulating pump. Is a separate Donkey Suction fitted in Engine room & size *Yes 3 1/2"*

Are all the bilge suction pipes fitted with roses *Yes.* Are the roses in Engine room always accessible *Yes.* Are the sluices on Engine room bulkheads always accessible *None.*

Are all connections with the sea direct on the skin of the ship *Yes.* Are they Valves or Cocks *Both.*

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates *Yes.* Are the Discharge Pipes 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.*

Are all pipes carried through the bunkers *None.* How are they protected *Yes.*

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times *Yes.*

Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges *Yes.*

Is the Screw Shaft Tunnel watertight *Yes.* Is it fitted with a watertight door *Yes.* worked from *Bridge deck.*

MANUFACTURERS, &c.—(Letter for record *S*) Manufacturers of Steel *Midvale Steel Ordnance Coy.*

Heating Surface of Boilers *6591 sq. ft.* Is Forced Draft fitted *Yes.* No. and Description of Boilers *3 Cylindrical single ended*

Working Pressure *200 lbs.* Tested by hydraulic pressure to *400 lbs.* Date of test *1st Oct. 1919* No. of Certificate *97.*

Can each boiler be worked separately *Yes.* Area of fire grate in each boiler *54.31 sq. ft.* No. and Description of Safety Valves to

each boiler *2 Spring loaded* Area of each valve *9.6 sq. ins.* Pressure to which they are adjusted *205 lbs.* Are they fitted with easing gear *Yes.*

Least distance between boilers or uptakes and bunkers or woodwork *2.9"* Mean dia. of boilers *14.0"* Length *11.6"* Material of shell plates *Steel*

Thickness *1 5/16"* Range of tensile strength *28 to 32 tons* Are the shell plates welded or flanged *No.* Descrip. of riveting: cir. seams *Double lap.*

seams *2 Straps* Diameter of rivet holes in long. seams *1 3/8"* Pitch of rivets *9 1/2" x 4 3/4"* Lap of plates or width of butt straps *20 1/2"*

Percentage of strength of longitudinal joint rivets *88.6* Working pressure of shell by rules *212 lbs.* Size of manhole in shell *16" x 12"*

No. of compensating ring *37 x 33 x 1 5/16"* No. and Description of Furnaces in each boiler *3 Morrison's suspension* Material *Steel* Outside diameter *3.7 3/4"*

Thickness of plain part top *5"* crown *5"* bottom *8"* Description of longitudinal joint *Welded* No. of strengthening rings *Yes.*

Working pressure of furnace by the rules *230 lbs.* Combustion chamber plates: Material *Steel* Thickness: Sides *3/4"* Back *3/4"* Top *3/4"* Bottom *1 5/16"*

No. of stays to ditto: Sides *11 1/2" x 8"* Back *9" x 10 1/2"* Top *7" x 11 1/2"* If stays are fitted with nuts or riveted heads *Nuts* Working pressure by rules *211 lbs.*

Material of stays *Steel* Area at smallest part *2.03 sq. ins.* Area supported by each stay *79 sq. ins.* Working pressure by rules *231 lbs.* End plates in steam space:

Material *Steel* Thickness *1 5/16"* Pitch of stays *18" x 20"* How are stays secured *Double nuts and washers* Working pressure by rules *225 lbs.* Material of stays *Steel*

Area supported by each stay *351 sq. ins.* Working pressure by rules *227 lbs.* Material of Front plates at bottom *Steel*

Material of Lower back plate *Steel* Thickness *1"* Greatest pitch of stays *13 3/4"* Working pressure of plate by rules *212 lbs.*

No. of tubes *3 1/2"* Pitch of tubes *4 1/2" x 4 3/8"* Material of tube plates *Steel* Thickness: Front *1 e 3/4"* Back *7/8"* Mean pitch of stays *11 1/8"*

Working pressures by rules *221 lbs.* Girders to Chamber tops: Material *Steel* Depth and

Position of girder at centre *10 1/2" x 7 1/8"* Length as per rule *2.7 1/8"* Distance apart *11 1/2" x 9 3/4"* Number and pitch of stays in each *3 e 7"*

Working pressure by rules *214 lbs.* Steam dome: description of joint to shell *Yes.* % of strength of joint *Yes.*

Material *Yes.* Thickness of shell plates *Yes.* Material *Yes.* Description of longitudinal joint *Yes.* Diam. of rivet holes *Yes.*

Pitch of rivets *Yes.* Working pressure of shell by rules *Yes.* Crown plates *Yes.* Thickness *Yes.* How stayed *Yes.*

SUPERHEATER. Type *Yes.* Date of Approval of Plan *Yes.* Tested by Hydraulic Pressure to *Yes.*

Date of Test *Yes.* Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler *Yes.*

Diameter of Safety Valve *Yes.* Pressure to which each is adjusted *Yes.* Is Easing Gear fitted *Yes.*



IS A DONKEY BOILER FITTED? No. ✓

If so, is a report now forwarded? ✓

SPARE GEAR. State the articles supplied: - 20 per Rule ✓ and in addition - 1 Tail shaft, 1 H.P. valve spindle, 1 L.P. valve spindle, 2 eccentric rods, 1 air pump rod, 1 set each of H.P. I.P. & L.P. piston packing rings, 1 set each of top & bottom brasses for one connecting rod, 13 junk ring bolts, 1 set of air pump valves, 1 impeller spindle for circulating pump, 33 condenser tubes & 160 ferrules, 1 complete set of valves & seats for main & donkey, feed checks, 3 cylinder escape valves & springs, 1 safety valve spindle

The foregoing is a correct description, NAGASAKI WORKS, MITSUBISHI ZOSEN KAISHA, LTD.

W. Williams

GENERAL MANAGER

Manufacturer.

1917 Dec. 13. 1918 Jan. 15, 30, Feb. 20, Mar. 1, 14, 19, 20, 25, Apr. 2, 9, 10, 16, 20, May 3, 6, 9, 28, 29, 31, June 4, 12, 13, 26, 28, July 13, 31, Aug. 21, 23, Oct. 12, 1919 Feb. 6, 7, 17, 27, 28, Mar. 1, 7, 14, 20, 26, Apr. 14, 18, 19, 22, 23, 24, 29, May 8, 9, 10, 14, 15, 20, 23, 26, 28, 30, June 2, 4, 6, 9, 10, 11, 14, 25, 26, 28, 30, July 4, 8, 11, 12, 17, 21, 22, Aug. 1, 7, 8, 13, 22, Sept. 2, 3, 10, 17, 22, 23, 27, 29, 30, Oct. 1, 2, 3, 4, 10, 13, 14, 15, 16, 18, 20, 21, 22, 23, 24, 25, 27, 29, Nov. 3, 7, 10.

Dates of Survey while building

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

122

Is the approved plan of main boiler forwarded herewith Yes

Is the approved plan of main boiler forwarded herewith donkey Yes

Dates of Examination of principal parts - Cylinders 23.9.19, Slides 16.10.19, Covers 1.10.19, Pistons 16.10.19, Rods 16.10.19, Connecting rods 16.10.19, Crank shaft 2.9.19, Thrust shaft 9.6.19, Tunnel shafts 1.10.19, Screw shaft 4.10.19, Propeller 1.10.19, Stern tube 2.10.19, Steam pipes tested 14.10.19, Engine and boiler seatings 13.10.19, Engines holding down bolts 21.10.19, Completion of pumping arrangements 27.10.19, Boilers fixed 18.10.19, Engines tried under steam 29.10.19, Completion of fitting sea connections 14.10.19, Stern tube 10.10.19, Screw shaft and propeller 13.10.19, Main boiler safety valves adjusted 27.10.19, Thickness of adjusting washers jamb nuts No. 152, Material of Crank shaft Steel, Identification Mark on Do. A.S.W., Material of Thrust shaft Steel, Identification Mark on Do. No. 152, Material of Tunnel shafts Steel, Identification Marks on Do. A.S.W., Material of Screw shafts Steel, Identification Marks on Do. No. 152, Material of Steam Pipes Solid drawn Steel & Copper, Test pressure Steel 600lb. & Copper 400lb. per sq. in.

Is an installation fitted for burning oil fuel? ✓ Is the flash point of the oil to be used over 150°F? ✓

Have the requirements of Section 49 of the Rules been complied with? ✓

Is this machinery duplicate of a previous case? Yes. If so, state name of vessel "Karian Maru"

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

These Engines and Boilers have been constructed under Special Survey, in accordance with the Rules, and of good materials and workmanship. They have been securely fitted on board, and have been satisfactorily tried under steam.

The machinery of this vessel is eligible, in my opinion, for the record of L.M.C. 11.19 in the Register Book.

Mean speed on trial when 1/3 loaded = 14.765 knots.

It is submitted that this vessel is eligible for THE RECORD + L.M.C. 11.19. F.D.

Handwritten signatures and dates: J.W.D. 2/2/20, A.P.R.

The amount of Entry Fee ... 30.00, Special ... 783.10, Donkey Boiler Fee ... £, Travelling Expenses (if any) £

a.s. Williamson, Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute Assigned + L.M.C. 11.19 J.W.D.



Certificate (if required) to be sent to Nagasaki Office

RE, Port of N, No. in Reg. Book, Owners, Yard No. 27, DESCRIPTION OF, Capacity of Dynam, Where is Dynam, Position of Main, Positions of auxili, one in aft, If cut outs are fitted, circuits, If vessel is wired, Are the cut outs of, Are all cut outs fitted, are permanent, Are all switches and, Total number of li, A Four Circ, B Midship, C aft, D Engine room, E, Two Mast head, One Stern light, Two Side, One Morse code, Ten, Two, If are lights, what, Where are the swi, DESCRIPTION OF, Main cable carrying, Branch cables carry, Branch cables carry, Leads to lamps carry, Cargo light cables car, DESCRIPTION OF, wires & cables a, outed tape, a, armoured, Joints in cables, how, in submarine, some joints in, Are all the joints of, made in bunker, Are there any joints, How are the cables, protected by