

Report on Steam Turbine Machinery. No. 1693

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Date of writing Report 19 When landed in at Local Office 19 Port of Kobe, Japan
No. in Survey held at Kobe Date, First Survey 22th Aug. 52 Last Survey 28th Aug. 1953
Reg. Book (Number of Visits 118)
on the Steel Single Screw Steam Ship "MEITAI MARU" Tons (Gross 12982.28 Net 9558.53)
Built at Kobe, Japan By whom built Kawasaki Dockyard Co., Ltd. Yard No. 923 When built 8-1953
Engines made at Kobe, Japan By whom made Kawasaki Dockyard Co., Ltd. Engine No. T-333 When made 8-1953
Boilers made at By whom made Kawasaki Dockyard Co., Ltd. Boiler No. 2165 When made 8-1953
Shaft Horse Power at Full Power 8000 Owners Meiji Kaiun Co., Ltd. Port belonging to Kobe
Nom. Horse Power as per Rule 1600 Is Refrigerating Machinery fitted for cargo purposes None Is Electric Light fitted Yes
Trade for which Vessel is intended Ocean going (Carrying petroleum in bulk)

STEAM TURBINE ENGINES, &c.—Description of Engines Whole impulse type with H.P. & L.P. turbine
No. of Turbines Ahead 1-H.P., 1-L.P. Direct coupled, single reduction geared to One propelling shafts. No. of primary pinions to each set of reduction gearing 1-H.P., 1-L.P.
direct coupled to Alternating Current Generator phase periods per second rated Kilowatts Volts at revolutions per minute;
for supplying power for driving Propelling Motors, Type rated Kilowatts Volts at revolutions per minute. Direct coupled, single or double reduction geared to propelling shafts.

TURBINE
BLADING.

	H. P.	I. P.	L. P.	ASTERN.
Impulse Blading	10	-	8	3
No. of rows				
Reaction Blading				
No. of stages				
No. of rows in each stage				

Shaft Horse Power at each turbine H.P. 3,780 ✓ I.P. - L.P. 4,220 ✓
Revolutions per minute, at full power, of each Turbine Shaft H.P. 735 ✓ I.P. - L.P. 683 ✓
1st reduction wheel 105 ✓ main shaft

Rotor Shaft diameter at journals H.P. Fore 100 After 110 ✓ I.P. - L.P. 180 ✓
Pitch Circle Diameter 1st pinion L.P. 294.4486 1st reduction wheel L.P. 1708.9566
2nd pinion L.P. 545.0186 main wheel 3547.2399 Width of Face 1st reduction wheel 2 x 230
main wheel 2 x 450

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion H.P. & L.P. 380 1st reduction wheel L.P. 380
2nd pinion H.P. 670 L.P. 680 main wheel 790
HP 160 ✓ LP 180 ✓ HP 320 ✓ LP 340 ✓
HP 1765.1446 LP 220 ✓ diameter at bottom of pinion teeth HP 210.2316 LP 372.5146
HP 482.6576 LP 512.6080

Flexible Pinion Shafts, diameter 1st H.P. 180 ✓ 2nd L.P. 195 ✓
Pinion Shafts, diameter at bearings 1st L.P. 230 ✓
Wheel Shafts, diameter at bearings main 500 ✓ diameter at wheel shroud, main 3563.2309 Propelling Motor Shaft, diameter at bearings -

Intermediate Shafts, diameter as per rule As approved as fitted 440 mm ✓
Thrust Shaft, diameter at collars as per rule - as fitted -

Tube Shaft, diameter as per rule - as fitted -
Screw Shaft, diameter as per rule 485 mm ✓ as fitted 465 mm ✓
Is the tube screw shaft fitted with a continuous liner Yes ✓

Bronze Liners, thickness in way of bushes as per rule 26 mm ✓ Thickness between bushes as per rule 22 mm ✓
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 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 tube shaft -

If so, state type - Length of Bearing in Stern Bush next to and supporting propeller 2000 mm ✓
Propeller, diameter 6000 mm ✓ Pitch 4260 mm No. of Blades 4 State whether Moveable Moveable Total Developed Surface 12,112 square feet

If Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine Yes ✓ Can the H.P. or L.P. Turbines exhaust direct to the Condenser Yes ✓ No. of Turbines fitted with astern wheels 1 ✓

Feed Pumps No. and size 1- Fire & Bilge Pump 100 M³/H. 140M, 1-Bilge Pump 30 M³/H. 25M, 1-Fire & S. Pump 100 M³/H. 70M
How driven Worthington type Electric Motor Weir's ✓

Pumps connected to the Main Bilge Line 1-G.S. Pump 100 M³/H. 70 M ✓ Lubricating Oil Pumps, including Spare Pump, No. and size 2-100 M³/H. 30 M

Ballast Pumps, No. and size 1-G.S. Pump 100 M³/H. 70 M ✓ Oil Cooler Yes ✓ Suctions, connected both to Main Bilge Pumps and Auxiliary

Are two independent means arranged for circulating water through the Oil Cooler 2-5 1/2" (Beside feed water pump & G.S. Pump) well 1-4" (P.R. Center)

Bilge Pumps, No. and size: In Engine and Boiler Room 2-5 1/2" (E.R. P. & S. Fore & After), 2-4" (P & S Frame No. 54-55) 1-4" (Frame No. 95)

In Holds, &c. 2-2 1/2" (E.R. Coff. Fore & After), 2-4" (P & S Frame No. 54-55) 1-4" (Frame No. 95)

Main Water Circulating Pump Direct Bilge Suctions, No. and size 1-400 mm ✓ Independent Power Pump Direct Suctions to the Engine Room

Bilges, No. and size 1-400 mm, 2-5 1/2" Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Yes ✓

Are the Bilge Suctions in the Machinery Space 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 stokehold 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 ✓

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 -

BOILERS, &c.—(Letter for record) Total Heating Surface of Boilers Boiler's 475M² Superheater's 955M² 1/2 Economizer's 575M²
Is Forced Draft fitted Yes No. and Description of Boilers 2x Two Drum Dry type water tube Working Pressure 32 Kg/cm²
Is a Report on Main Boilers now forwarded? Yes ✓

Is { a Donkey Boiler fitted? None If so, is a report now forwarded? -
{ an Auxiliary }
Is the donkey boiler intended to be used for domestic purposes only -
Plans. Are approved plans forwarded herewith for Shafting FEB. 10, 53 Main Boilers JUL. 8, 52 Auxiliary Boilers. - Donkey Boilers. -
(If not, state date of approval) FEB. 11, 53
Superheaters. June 10, 53 (Kobe) General Pumping Arrangements. Nov. 11, 52 Oil Fuel Burning Arrangements. Nov. 11, 52
Geared turbines { Have torsional vibration characteristics of system been approved. Yes Date of approval. Nov. 11, 52
situated aft. } 28/11/52 ✓

SPARE GEAR.

Has the spare gear required by the Rules been supplied. Yes

State the principal additional spare gear supplied. 2 - Propeller blades, 1 set - Main circulating pump impeller & shaft
1 set - Main condensate pump impeller & shaft, 1 set - Lubricating oil pump rotor, 1 set - Aux. circulating pump
impeller & shaft, 1 set - Fuel oil burning pump rotor, 1 - Forced draft fan shaft, 1 set - Main feed water pump
impeller & shaft,
76 - water tubes for boiler (I.D. 41.8 mm t=4.5 mm) 120 - Water tubes for boiler (I.D. 25 mm t=3.5 mm)
20 set - Superheater tubes for boiler (O.D. 32 mm t=3.5 mm)

The foregoing is a correct description.

Standing Director of Kawasaki Dockyard, Kobe Japan.

Takeo. Morimoto

Manufacturer.

Dates of Survey while building
During progress of work in shops - 1952 Aug 22, Sept. 3, 5, 17, 19, 22, 24, 29, Oct. 3, 6, 8, 10, 17, 22, 24, 29, 30, 31, Nov. 1, 5, 7, 10, 12, 14, 17, 19, 21, 24, 26, 28, Dec. 3, 6, 11, 12, 15, 17, 20, 24, 1953 Jan. 7, 12, 14, 17, 21, 22, 24, 26, 28, 31, Feb. 2, 4, 7, 11, 14, 16, 18, 19, 23, 25, 28, Mar. 2, 4, 11, 12, 13, 16, 20, 23, 25, 30, Apr. 1, 3, 10, 13, 1953 15, 17, 20, 22, 24, 27, 28, 30, May 2, 4, 6, 8, 12, 13, 15, 18, 20, 22, 25, 27, 29, June 1, 3, 4, 5, 8, 10, 17, 19, 26, 29, July 1, 3, 8, 10, 15, Aug. 17.
During erection on board vessel - May 13, '53 June 17, 19, 26, 29 July 3, 8, 10, 15, 30 Aug. 3, 7, 10, 15, 17, 22, 27, 28
Total No. of visits 118

Dates of Examination of principal parts - Casings. H.P. 23-3-1953 H.P. 12-3-1953 H.P. 12-3-1953 1st L.P. 27-5-1953
1st L.P. 18-5-1953 2nd L.P. 18-5-1953 Rotors L.P. 25-3-1953 Blading L.P. 25-3-1953 Gearing 2nd L.P. 18-5-1953 30-7-53 15-5-1953

Wheel shaft. 2nd 1st H.P. 27-5-1953 Thrust shaft. - Intermediate shafts. 4-5-53 Tube shaft. - Screw shaft. 4-5-53

Propeller. 4-5-53 Stern tube. 2-5-53 Engine and boiler seatings. 3-7-53 Engine holding down bolts. 8-7-53

Completion of fitting sea connections. 13-5-53 Completion of pumping arrangements. 10-8-53 Boilers fixed. 10-7-53 Engines tried under steam. 8-6-53 (in Shop) 30-7-53 10-8-53 (Sea trial)

Main boiler safety valves adjusted. 10-7-53 Thickness of adjusting washers. -

Rotor shaft, Material and tensile strength. Forged steel H.P. Top 37.8% Bot. 39.5% L.P. Top 39.2% Bot. 39.7% Identification Mark. H.P. Y-3222 KT R L.P. Y-3223 KT R

Flexible Pinion Shaft, Material and tensile strength. Forged Steel H.P. Top 35.5% Bot. 34.7% L.P. Top 34.4% Bot. 34.6% Identification Mark. H.P. KWF-1521-1 KT R L.P. KWF-1661 KT R

Pinion shaft, Material and tensile strength. Nickel steel 1st H.P. 62.6% 59.7% 2nd H.P. 60.5% 60.5% Identification Mark. 1st L.P. KWF-1647 KT R 2nd L.P. KWF-1719 KT R

2nd L.P. KWF-1719 KT R; Chemical analysis. 1st H.P. C Si Mn P S Ni Cr. Mo L.P. 32 23 33 016 006 335 60 32 2nd H.P. C Si Mn P S Ni Cr. Mo L.P. 34 28 50 010 006 354 46 36

If Pinion Shafts are made of special steel state date of approval of chemical analyses, physical properties and heat treatment. H.P. KWF-1521-1 KT R L.P. KWF-1661 KT R

1st Reduction Wheel Shaft, Material and tensile strength. Forged steel H.P. Top 35.5% Bot. 34.7% L.P. Top 34.4% Bot. 34.6% Identification Mark. H.P. KWF-1521-1 KT R L.P. KWF-1661 KT R

Wheel shaft, Material. Forged steel Identification Mark. Y-3405 KT R Thrust shaft, Material. - Identification Mark. -

Intermediate shafts, Material. Forged steel Identification Marks. No. 1 KWF-1478 YK R No. 2 KWF-1507 YK R Tube shaft, Material. - Identification Marks. -

Screw shaft, Material. Forged steel Identification Marks. KWF-1535 YK R Steam Pipes, Material. Steel pipe Test pressure. 60 Kg/cm²

Date of test. 26-6-53, 27-5-53, 3-7-53, 17-8-53 Is an installation fitted for burning oil fuel. Yes ✓

Is the flash point of the oil to be used over 150°F. Yes ✓ Have the requirements of the Rules for the use of oil as fuel been complied with. ✓ Yes

Is the vessel (not being an oil tanker) fitted for carrying oil as cargo. - 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. -

Is this machinery a duplicate of a previous case. Yes If so, state name of vessel. "ALLIANCE", "SAKURA"

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

The turbines have been constructed under the supervision of the Society's Surveyor in accordance with the Rules, Approved Plans and Secretary's letter.

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

The machinery was examined under working condition during shop trial and comprehensive sea trial and found satisfactory.

In our opinion the Machinery of this vessel is worthy of a record of +LMC 8,53, BS. 8,53 and TS(CL) 8,53.

The running condition of the gearing on trial was reasonably smooth at all revolutions.

The amount of Entry Fee ... £592,000: When applied for. 19
Special ... £: : When received.
Donkey Boiler Fee ... £: :
Travelling Expenses (if any) £FRIDAY - 4 DEC 1953

Committee's Minute. + LMC 8.53
Assigned.

Shunji K. Takushe
Engineer Surveyor to Lloyd's Register of Shipping.

Lloyd's Register Foundation