

Report on Steam Turbine Machinery. No. 1693

Received at London Office 16 Nov 1953

Date of writing Report 19... When landed in at Local Office 19... Port of Kobe, Japan
 No. in Survey held at... Date, First Survey 22th Aug. 52 Last Survey 28th Aug. 1953
 Reg. Book... (Number of Visits 1.1.8)
 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 (Carring 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 Direct Current Generator 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	No. of rows	10	-	8	3
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. 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 H.P. 385 L.P. 390
 2nd pinion H.P. 670 L.P. 680 main wheel 790
 diameter at bottom of pinion teeth 1st L.P. 210.2316 2nd L.P. 372.5146
 HP 160 L.P. 180 ✓ 2nd HP 320 L.P. 340 diameter at bottom of pinion teeth HP 482.6576 L.P. 512.6080
 HP 1765.1446 L.P. 220 Generator Shaft, diameter at bearings -

Wheel Shafts, diameter at bearings 1st L.P. 230 ✓ diameter at wheel shroud, main 500 ✓
 Intermediate Shafts, diameter as per rule - As approved 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 - As approved 485 mm ✓
 Is the tube screw shaft fitted with a continuous liner Yes ✓

Bronze Liners, thickness in way of bushes as per rule - as fitted 26 mm Thickness between bushes as per rule - as fitted 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 2-50M³/H 380M 5000R.P.M., 1-30M³/H 380M
 How driven Steam turbine, Weir's ✓
 Pumps connected to the Main Bilge Line No. and size 1-Fire & Bilge Pump 100 M³/H 140M, 1-Bilge Pump 30 M³/H 25M, 1-Fire & G.S. Pump 100 M³/H 70M
 How driven Worthington type Electric Motor
 Ballast Pumps, No. and size 1-G.S. Pump 100 M³/H 70 M Lubricating Oil Pumps, including Spare Pump, No. and size 2-100 M³/H 30 M

Are two independent means arranged for circulating water through the Oil Cooler Yes ✓ Suctions, connected both to Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size:—In Engine and Boiler Room 2-5 1/2" (Beside feed water pump & G.S. Pump) well 1-4" (P.R. Center)
 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 Superheaters 95.5M² Economizers 575M²
 Is Forced Draft fitted Yes No. and Description of Boilers 2x Two Drum Dry type water tube Boiler Working Pressure 32 Kg/cm²
 Is a Report on Main Boilers now forwarded? Yes ✓

Is a Donkey an Auxiliary Boiler fitted? None If so, is a report now forwarded? -
 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 situated aft. Have torsional vibration characteristics of system been approved. Yes Date of approval. Nov. 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, 23, 27, 29, June 1, 3, 4, 5, 8, 10, 17, 19, 26, 29, July 1, 3, 8, 10, 15, Aug. 17, 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 H.P. 27-5-1953 L.P. 18-2-1953 Rotors L.P. 25-3-1953 Blading L.P. 25-3-1953 Gearing 2nd L.P. 18-5-1953 15-5-1953

Wheel shaft. 2nd 1st H.P. 27-5-1953 L.P. 18-5-1953 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 (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-1636 KT R 2nd L.P. KWF-1637 KT R

2nd L.P. KWF-1647 KT R ; Chemical analysis. 1st H.P. C Si Mn P S Ni Cr Mo L.P. .33 .23 .33 .016 .006 3.35 .60 .32 2nd H.P. C Si Mn P S Ni Cr Mo L.P. .34 .28 .50 .010 .006 3.54 .46 .36 26-11-52

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 KW-F1478 YK R No. 2 KW-F1507 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.

Special ... £ : : 19

Donkey Boiler Fee ... £ : : When received.

Travelling Expenses (if any) £ : : 19

Committee's Minute. FRIDAY - 4 DEC 1953

Assigned. + L.M.C. 8.53

Sturms K. Zabusche
 Engineer Surveyor to Lloyd's Register of Shipping.



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