

Report on Steam Turbine Machinery.

No. 21

t. 4a.

Date of writing Report 16 Oct 1952 When handed in at Local Office 19 Port of Yokohama
 Date, First Survey 3rd March 52 Last Survey 2nd Sept. 1952
 Date of Survey held at Tokyo (Number of Visits 36)
 Name of Vessel S.S. KIRISHIMA MARU
 Name of Engineer Tokuyasu
 Name of Shipyard Ishikawajima Heavy Industries Co. Ltd.
 Name of Owners Tenryu Kisen K.K.
 Name of Port belonging to
 Name of Vessel intended for

STEAM TURBINE ENGINES, &c.—Description of Engines Impulse type with HP & LP turbine
 No. of Turbines 2 Direct coupled, single reduction geared to Main propelling shafts. No. of primary pinions to each set of reduction gearing 2
 Direct coupled to Alternating Current Generator phase periods per second rated Kilowatts Volts at revolutions per minute
 Factor 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	H. P.	I. P.	L. P.	ASTERN.
LOADING.				
No. of rows	<u>7 stages 8 rows</u>		<u>6 stages 6 rows</u>	<u>HP 1 stage 2 rows</u>
No. of stages				
No. of rows in each stage				

Shaft Horse Power at each turbine HP 4,000
 I.P. Revolutions per minute, at full power, of each Turbine Shaft
 LP 4,000
 Motor Shaft diameter at journals HP 170 Pitch Circle Diameter HP 243.71
 I.P. 1st pinion LP 314.20 1st reduction wheel HP 1536.29
 LP 200 HP 508.73 2nd pinion LP 521.95 main wheel 3171.27
 Distance between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion 915 820 (HP)
 1st reduction wheel HP 900 LP 900
 2nd pinion HP 1840 LP 1846.61 1610 (HP)
 main wheel 1,700
 Flexible Pinion 1st HP 165 Pinion Shafts, diameter at bearings External HP 160
 Shafts, diameter 2nd LP 165 Internal LP 160 2nd 300 (HP)
 Wheel Shafts, diameter at bearings 1st HP 300 LP 300 diameter at bottom of pinion teeth 1st HP 233.0 LP 303.5
main 165 diameter at wheel shroud, 1st HP 1500 LP 1440 2nd HP 494.74 LP 507.96
 Intermediate Shafts, diameter as per rule Generator Shaft, diameter at bearings
 as fitted Thrust Shaft, diameter at collars
 as fitted 427.77
 Tube Shaft, diameter as per rule Screw Shaft, diameter
 as fitted as fitted Is the tube screw shaft fitted with a continuous liner

Brass Liners, thickness in way of bushes as per rule Thickness between bushes as per rule Is the after end of the liner made watertight in the
 propeller boss. If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner
 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.
 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
 aft. If so, state type Length of Bearing in Stern Bush next to and supporting propeller.

Propeller, diameter Pitch No. of Blades State whether Moveable Total Developed Surface square feet
 Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine Yes Can the H.P. or I.P. Turbines exhaust direct to the
 Condenser Yes No. of Turbines fitted with astern wheels 2 Feed Pumps No. and size
How driven

Pumps connected to the Main Bilge Line No. and size
How driven
 Bilge Pumps, No. and size Lubricating Oil Pumps, including Spare Pump, No. and size
 Are two independent means arranged for circulating water through the Oil Cooler Suctions, connected both to Main Bilge Pumps and Auxiliary
 Bilge Pumps, No. and size:—In Engine and Boiler Room In Pump Room

Holds, &c. Main Water Circulating Pump Direct Bilge Suctions, No. and size Independent Power Pump Direct Suctions to the Engine Room
 Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes
 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.
 all Sea Connections fitted direct on the skin of the ship. Are they fitted with Valves or Cocks.
 they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates. Are the Overboard Discharges above or below the deep water
 Are they each fitted with a Discharge Valve always accessible on the plating of the vessel. Are the Blow Off Cocks fitted with a spigot and brass
 covering plate. What pipes pass through the bunkers. How are they protected.
 at pipes pass through the deep tanks. Have they been tested as per rule.

all Pipes, Cocks, Valves and Pumps in connection with the machinery and all boiler mountings accessible at all times.
 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. Is the Shaft Tunnel watertight. Is it fitted with a watertight door. worked from

Boilers, &c.—(Letter for record) Total Heating Surface of Boilers. Working Pressure.
 Forced Draft fitted. No. and Description of Boilers.
 Report on Main Boilers now forwarded?

Is { a Donkey } { an Auxiliary } Boiler fitted? If so, is a report now forwarded?
Plans. Are approved plans forwarded herewith for Shafting Main Boilers Auxiliary Boilers Donkey Boilers
Superheaters General Pumping Arrangements Oil Fuel Burning Arrangements
Geared turbines situated aft. Have torsional vibration characteristics of system been approved? Date of approval 6th Oct. 52

SPARE GEAR.

Has the spare gear required by the Rules been supplied?
State the principal additional spare gear supplied.

The foregoing is a correct description.

J. Morimoto

Dates of Survey while building During progress of work in shops - 1952: 3.13.18.25-March 8.15.17.19.29-April 6.9.13.16.20.22.30-May
During erection on board vessel - 3.6.20.24.27-June 4.15.25.27.29-July 5.8.9.13.15.16.19.26.27-Aug 2-Sept
Total No. of visits

Dates of Examination of principal parts-Casings LP 27-6-52 Rotors LP 15-7-52 Blading LP 16-8-52 Gearing 2nd 15-8-52
Wheel shaft 1st LP 30-5-52 Thrust shaft 5-8-52 Intermediate shafts Tube shaft Screw shaft
2nd 13-5-52

Propeller Stern tube Engine and boiler seatings Engine holding down bolts
Completion of fitting sea connections Completion of pumping arrangements Boilers fixed Engines tried under steam

Main boiler safety valves adjusted Thickness of adjusting washers

Rotor shaft, Material and tensile strength HP Ni Cr Mo SLL 52.9 48.3 48.3 LP Forged SLL T. L. 39.3 Identification Mark Y2599 Y26

Flexible Pinion Shaft, Material and tensile strength Ni Cr Mo SLL HP B 46.9 LP B 51.8 Identification Mark Y2621-A Y26

Pinion shaft, Material and tensile strength Ni Cr Mo SLL 1st PINION HP 46.6 44.4 45.6 2nd PINION RIM HP 46.5 46.5 Identification Mark 1st PINION LP Y

2nd PINION RIM HP Y2633-A LP Y2633-D Chemical analysis 1st HP PINION 0.32 0.24 0.62 0.031 0.030 1.65 0.90 0.39

OTHER PINIONS 0.32 0.27 0.57 0.030 0.018 1.57 0.82 0.34

If Pinion Shafts are made of special steel state date of approval of chemical analyses, physical properties and heat treatment

1st Reduction Wheel Shaft, Material and tensile strength HP FORGED STEEL 31.3 Identification Mark Y3797 Y379

Wheel shaft, Material FORGED STEEL Identification Mark Y2598 Thrust shaft, Material FORGED STEEL Identification Mark Y2598

Intermediate shafts, Material Identification Marks Tube shaft, Material Identification Marks

Screw shaft, Material Identification Marks Steam Pipes, Material Test pressure

Date of test 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 the Rules for the use of oil as fuel been complied with

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 S.S. Terukuni Maru S NO 454

General Remarks. (State quality of workmanship, opinions as to class, &c.) This turbine has been constructed

under the supervision of the Society's Surveyors in accordance with the approved plans. The quality of workmanship and materials have been

found satisfactory.

It is submitted that this machinery is eligible to be classed with

this Society with notation of + LMC when satisfactory installed in the vessel.

Reference to the Secretary letter dated 22nd March 1951 a recommendation

has been made regarding the examination of this gearing after six months

in service following in the vessel.