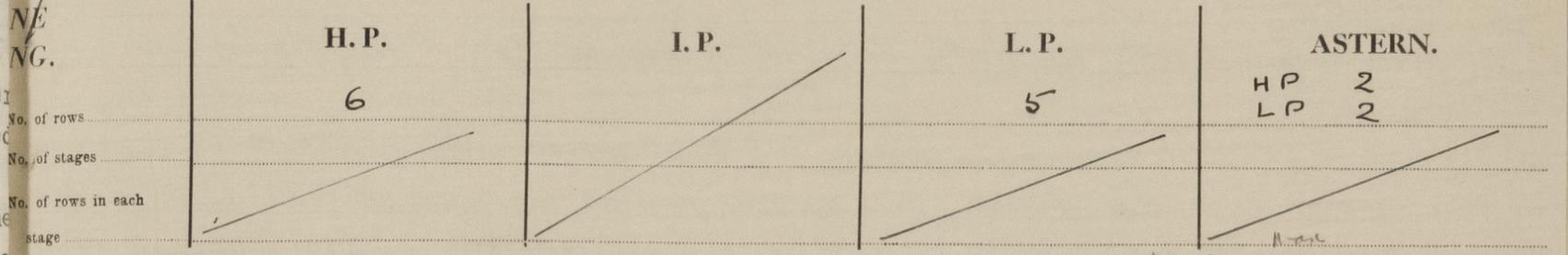


Report on Steam Turbine Machinery. No. 139

Writing Report 3-5-1950 When handed in at Local Office 19 Port of **Kobe** Received at London Office **12 JUL 1950**
 Survey held at **MAIZURU, JAPAN** Date, First Survey **7-4-50** Last Survey **13-5-1950**
 (Number of Visits **10**)
 on the **STEEL SINGLE SCREW STEAMER "NICHINAN MARY"** Tons: Gross **5296.28** Net **2884.54**
 at **Yokohama** By whom built **EAST JAPAN HEAVY IND. LD. YOKOHAMA SHIP YARD** Yard No. **S 405** When built **30-9-1942**
 made at **Tokyo** By whom made **ISHIKAWAJIMA HEAVY IND. LD** Engine No. **IT 2136** When made **30-9-1942**
 made at **Yokohama** By whom made **EAST JAPAN HEAVY IND. LD. YOKOHAMA SHIP YARD** Boiler No. When made **30-9-1942**
 Horse Power at Full Power **3,500** Owners **IINO KAIUN K.K.** Port belonging to **Tokyo**
 Horse Power as per Rule **652** Is Refrigerating Machinery fitted for cargo purposes **No** Is Electric Light fitted **YES**
 for which Vessel is intended **OCEAN GOING.**

TURBINE ENGINES, &c.—Description of Engines **CROSS COMPOUND IMPULSE TURBINE**

Ahead **2** Direct coupled
 Astern **2** single reduction geared to **ONE** propelling shaft. No. of primary pinions to each set of reduction gearing **2**
 Applied to Alternating Current Generator phase periods per second rated Kilowatts Volts at revolutions per minute;
 Direct Current Generator rated Kilowatts Volts at revolutions per minute;
 Driving power for driving Propelling Motors, Type
 Kilowatts Volts at revolutions per minute. Direct coupled, single or double reduction geared to propelling shafts.



Horse Power at each turbine: H.P. **1,750**, I.P. **1,750**, L.P. **1,750**. Revolutions per minute, at full power, of each Turbine Shaft: H.P. **5,202**, I.P. **5,202**, L.P. **5,202**.
 Shaft diameter at journals: H.P. **120**, I.P. **180**, L.P. **180**. Pitch Circle Diameter: 1st pinion **HP 190.95**, LP **237.63**; 2nd pinion **HP 332.14**, LP **351.68**. Main wheel **2455.22**. Width of Face: 1st reduction wheel **310**, main wheel **760**.
 Between centres of pinion and wheel faces and the centre of the adjacent bearings: 1st pinion **555**, 2nd pinion **1060**, 1st reduction wheel **555**, main wheel **1150**.
 Pinion diameter: 1st **110**, 2nd **110**. Pinion Shafts, diameter at bearings: 1st **240**, 2nd **140**. External diameter at bottom of pinion teeth: 1st **240**, 2nd **140**.
 Shafts, diameter at bearings: main **355**. Generator Shaft, diameter at bearings: **2200**. Propelling Motor Shaft, diameter at bearings: **332**. Thrust Shaft, diameter at collars: **355**.
 Shaft diameter: as per rule **316.3**, as fitted **317**. Screw Shaft, diameter: as per rule **348**, as fitted **355**. Is the shaft fitted with a continuous liner? **Yes**.
 Liners, thickness in way of bushes: as per rule **18.2**, as fitted **20**. Thickness between bushes: as per rule **460**, as fitted **460**. Is the after end of the liner made watertight in the boss? **Yes**.
 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**.
 Bearings are fitted, is the shaft lapped or protected between the liners? **Yes**. Is an approved Oil Gland or other appliance fitted at the after end of the tube? **Yes**.
 Length of Bearing in Stern Bush next to and supporting propeller: **1500**.
 Diameter **4600**, Pitch **4000**, No. of Bades **4**. State whether Moveable? **Yes**. Total Developed Surface **81.8** square feet.
 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 sea? **Yes**.
 No. of Turbines fitted with astern wheels **2**. Feed Pumps: (No. and size **2 - 25 M³/hr**, **320 x 250 x 600** mm; How driven **Steam**).
 Connected to the Main Bilge Line: (No. and size **1 General Service, 1 Ballast + 1 Bilge pump**, **1-250 x 180 x 250** mm; How driven **Steam**; **1-230 x 300 x 250** mm; **1-125 x 125 x 150** mm).
 Pumps, No. and size **1-160 M³/hr**, **230 x 300 x 250** mm. Lubricating Oil Pumps, including Spare Pump, No. and size **2-60 M³/hr**, **200 x 250 x 480** mm.
 Independent means arranged for circulating water through the Oil Cooler? **Yes**. Suctions, connected both to Main Bilge Pumps and Auxiliary pumps, No. and size:—In Engine and Boiler Room **1 x 50** mm, **3 x 70** mm + **1 x 90** mm; In Pump Rooms **1 x 70** mm each.
 Water Circulating Pump Direct Bilge Suctions, No. and size **1 x 300** mm (**1750 M³/hr**). Independent Power Pump Direct Suctions to the Engine Room No. and size **1 x 180** mm. Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes? **Yes**.
 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**.
 Sea Connections fitted direct on the skin of the ship? **Yes**. Are they fitted with Valves or Cocks? **Yes**.
 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? **Yes**. 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 plate? **Yes**. What pipes pass through the bunkers? **Cofferdam bilge pipe**. How are they protected? **Tested**.
 Pipes pass through the deep tanks? **Cofferdam bilge pipe**. Have they been tested as per rule? **Yes**.
 Pipes, Cocks, Valves and Pumps in connection with the machinery and all boiler mountings accessible at all times? **Yes**.
 Management 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 from one compartment to another? **Yes**. Is the Shaft Tunnel watertight? **Yes**. Is it fitted with a watertight door? **Yes**.
 Total Heating Surface of Boilers **875.4 M²** less **17.7 = 867.7**.
 Draft fitted? **Yes**. No. and Description of Boilers **3 cylindrical dry combustion Boilers**. Working Pressure **17.5 Kg/cm²**.
 Plans on Main Boilers now forwarded? **Yes**.

Is a Donkey Boiler fitted? *NO* If so, is a report now forwarded?
 an Auxiliary Boiler fitted? *NO* 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 *18-5-50* Main Boilers *18-5-50* Auxiliary Boilers Donkey Boilers
 (If not, state date of approval)
 Superheaters *18-5-50* General Pumping Arrangements *18-5-50* Oil Fuel Burning Arrangements *18-5-50*
 Geared turbines situated aft. Have torsional vibration characteristics of system been approved? *NO* Date of approval

SPARE GEAR.

Has the spare gear required by the Rules been supplied? *YES*
 State the principal additional spare gear supplied. *one set of bearing bolts + nuts each for rotor shafts.
 one set of bearing bolts + nuts each for reduction gear shafts 64 condenser tubes
 one air pump rod + 3 safety valve springs of boiler.*

The foregoing is a correct description,

Dates of Survey while building: During progress of work in shops -
 During erection on board vessel - *1950, April 7, 10, 11, 14, 15, 24, 25, 30 May 8, 13*
 Total No. of visits *10*

Dates of Examination of principal parts—Casings *14-4-50* Rotors *14-4-50* Blading *14-4-50* Gearing *11-4-50*
 Wheel shaft *11-4-50* Thrust shaft *14-4-50* Intermediate shafts *14-4-50* Tube shaft Screw shaft *15-4-50*
 Propeller *15-4-50* Stern tube *15-4-50* Engine and boiler seatings *14-4-50* Engine holding down bolts *14-4-50*
 Completion of fitting sea connections Completion of pumping arrangements Boilers fixed Engines tried under steam
 Main boiler safety valves adjusted *13-5-50* Thickness of adjusting washers
 Rotor shaft, Material and tensile strength *Forged steel 44~50 Kgs/mm²* Identification Mark
 Flexible Pinion Shaft, Material and tensile strength *Forged steel 44~50 Kgs/mm²* Identification Mark
 Pinion shaft, Material and tensile strength *Ni. Cr steel 50~75 Kgs/mm²* Identification Mark
 ; Chemical analysis

If Pinion ~~Shaft~~ are made of special steel state date of approval of chemical analysis, physical properties and heat treatment. *APPROVED ISHIKAWAJIMA SPECIFICATION S*
 MECHANICAL PROPERTIES OF MATERIAL OF GEARING QUILL SHAFTS --- F.S. *44~50 Kgs/mm²*
 1st Reduction Wheel Shaft, Material and tensile strength *Forged steel 44~50 Kgs/mm²* Identification Mark
 Wheel shaft, Material *F.S.* Identification Mark Thrust shaft, Material *F.S.* Identification Mark
 Intermediate shafts, Material *F.S.* Identification Marks Tube shaft, Material Identification Marks
 Screw shaft, Material *F.S.* Identification Marks Steam Pipes, Material *hild steel* Test pressure

Date of test 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?
 Is the vessel (not being an oil tanker) fitted for carrying oil as cargo? *oil tanker* 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? *NO* If so, state name of vessel

General Remarks, (State quality of workmanship, opinions as to class, &c.)
*The machinery of this vessel has been examined in accordance with the approved plans and Secretary's letters for classification.
 The workmanship and material are sound and good.
 The machinery was examined under working condition during comparative sea trial + found satisfactory.
 In my opinion, the machinery of this vessel is eligible to be classed with record of LMC 5,50. Screw shaft (C.L.) seen 4,50 Boilers w 17.5 Kgs/cm².*

The amount of Entry Fee	£ 160-0-0	When applied for
Tail shaft	£ 10-0-0	19
Special	£ —	
Donkey Boiler Fee	£ —	When received
Travelling Expenses (if any)	£ 17-0-0	19
Sunday att. fee	£ 10-0-0	

(The Surveyors are requested not to write on or below the space for Committee's Minute.)
 Committee's Minute *FRI. 25 AUG 1950*

Assigned *LMC 5,50 Subject
 S 4,50 F.D. C.L. 3 SB 249/16 Spt.*

M. Yamakura
 Engineer Surveyor to Lloyd's Register of Shipping
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Certificate (if required) to be sent to