

OM ACCTS 31/1
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 No. in Survey held at Aioi
 Reg. Book 15/2

Report on Steam Turbine Machinery. No. FE-7105

Received at London Office

Date of writing Report 15th Dec., 1960. When handed in at Local Office JAN 19 1961 Port of Kobe
 No. in Survey held at Aioi Date, First Survey 20th July, 1959 Last Survey 8th November, 1960.
 Reg. Book 15/2 (Number of Visits 82)

on the ~~Twin~~ ~~Triple~~ ~~Quadruple~~ Single Screw Vessel "MIR" Tons (Gross 25,037 (Net 16,304)
 Built at Aioi, Japan By whom built Harima Shipbuilding & Eng. Co., Ltd. Yard No. 529 When built 1960, 11
 Engines made at Tokyo, Japan By whom made Ishikawajima Heavy Ind. Co., Ltd. Engine No. IT-2261 When made 1960, 11
 Boilers made at Aioi, Japan By whom made Harima Shipbuilding & Eng. Co., Ltd. Boiler No. B867, B868 When made 1960, 11
 Shaft Horse Power } Maximum Owners Vseso Juznoje Exportno-Importno Port belonging to Odessa, USSR
 } Service 17,600 } Objedinenije "Sudoimport"
 M.N. as per Rule 3,520 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes
 Trade for which Vessel is intended Ocean Going

STEAM TURBINE ENGINES, &c.—Description of Engines.

No. of Turbines Ahead..... Direct coupled, single reduction geared } to..... propelling shafts. No. of primary pinions to each set of reduction gearing.....
 Astern..... double reduction geared }
 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 { No. of rows.....				
Reaction Blading { No. of stages.....				
{ No. of rows in each stage.....				

Shaft Horse Power at each turbine { H.P..... I.P..... L.P..... } Revolutions per minute, at full power, of each Turbine Shaft { H.P..... I.P..... L.P..... } 1st reduction wheel..... main shaft.....
 Rotor Shaft diameter at journals { H.P..... I.P..... L.P..... } Pitch Circle Diameter { 1st pinion..... 1st reduction wheel..... 2nd pinion..... main wheel..... } Width of Face { 1st reduction wheel..... main wheel..... }

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion..... 1st reduction wheel..... 2nd pinion..... main wheel..... }
 Flexible Pinion Shafts, diameter { 1st..... 2nd..... } Pinion Shafts, diameter at bearings { External..... Internal..... } 1st..... 2nd..... diameter at bottom of pinion teeth 1st..... 2nd.....
 Wheel Shafts, diameter at bearings { 1st..... 2nd..... } diameter at wheel shroud, { main..... } Generator Shaft, diameter at bearings..... Propelling Motor Shaft, diameter at bearings.....
 Intermediate Shafts, diameter as per rule..... as approved..... 538 mm. Thrust Shaft, diameter at collars as per rule..... as fitted..... 570 mm. Is the screw shaft fitted with a continuous liner { Yes..... }

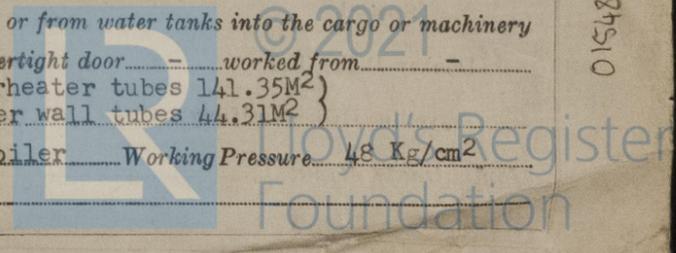
Bronze Liners, thickness in way of bushes as per rule..... as approved..... 36 mm. Thickness between bushes as per rule..... as approved..... 28 mm. Is the after end of the liner made watertight in the propeller boss..... Yes..... If the liner is in more than one length are the junctions made by fusion 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.....
 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 2800 mm.
 Propeller, diameter 6,750 mm. Pitch 5,200 mm. No. of Blades 5 State whether Moveable No Total Developed Surface 22.9 M² square feet. If Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine case 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. Main: 3x100M³/H, Cold Start: 1 x 3M³/H How driven. Main: Steam Turbine, Cold Start: Elect. Motor. }
 Pumps connected to the Main Bilge Line { No. and size. Bilge pump 1x15M³/H, Fire & bilge pump 1x140/95M³/H, General service pump 140M³/H How driven. Elect. Motor, Elect. Motor, Steam }
 Ballast Pumps, No. and size. 1x250M³/H, 2x160M³/H. Cargo Oil pump, Stripping pump, Bilge & ballast pump 1x80M³/H. Lubricating Oil Pumps, including Spare Pump, No. and size 2 x 140 M³/H
 Are two independent means arranged for circulating water through the Oil Cooler Yes Branch Bilge Suctions, No. and size:—In Engine and Boiler Rooms 5x4" (fw'd p.&s. hats. Aft p.&s. Aftmost) 3 x 2" (fw'd centre, p.& s.) In Pump Room 2x3" (p.&s.) 1 x 2" (c) 1 x 2" (c)

In Holds, &c. Engine room coff'm. 3x2", Fw'd coff'm. 2x3", Aft coff'm. 2x3" 1x4" (c)
 Main Water Circulating Pump Direct Bilge Suctions, No. and size 1 x 20" Direct Bilge Suctions to the Engine and/or Boiler Room Bilges, No. and size Port 1x4", Star'd 1x6" Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes.....
 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 Both
 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 None How are they protected.....
 What pipes pass through the deep tanks None 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..... worked from.....

BOILERS, &c.—Total Heating Surface of Boilers 1110.53M² (Generating tubes 513.27M², Superheater tubes 141.35M², Economiser tubes 411.6M², Water wall tubes 44.31M²)
 Is Forced Draught fitted Yes No. and Description of Boilers 2—Two Drum Water Tube Boiler Working Pressure 48 Kg/cm²
 Is a Report on Main Boilers now forwarded? Yes

015483-015495-0025



Is **a Donkey Boiler fitted?** **an Auxiliary** **Boiler fitted?** No **If so, is a report now forwarded?** _____

Is the donkey boiler intended to be used for domestic purposes only 2-5-1958

Plans. Are approved plans forwarded herewith for Shafting 25-7-58 Main Boilers 16-10-1958 Auxiliary Boilers 18-2-1958 Donkey Boilers _____

(If not, state date of approval)

Superheaters 21-7-1959 General Pumping Arrangements 9-4-1959 Oil Fuel Burning Arrangements 3-3-1959

Geared turbines situated aft. Have torsional vibration characteristics of system been approved Yes Date of approval 15-5-59

SPARE GEAR.

Has the spare gear required by the Rules been supplied Yes

State the principal additional spare gear supplied None

The foregoing is a correct description. Y. Matsuyama, Manager of Aioi Works. IHE HARIMA SHIPBUILDING & ENGINEERING CO., LTD. 5292 Aioi, Aioi-shi, Hyogo-ken, Japan. Y. Matsuyama Manufacturer.

Dates of Survey while building

During progress of work in shops - 1959, July 20, Aug. 18, 28 Sep. 3, 5, 10, 11, 14, 15, 16, 25, 28 Oct. 14, 17, 20, 22, 24, 26, 28, 29, 31 Nov. 2, 5, 6, 7, 9, 11, 12, 13, 16, 19, 21, 24, 26, 30, Dec. 1, 2, 3, 7, 10, 14, 18, 28. 1960, Jan. 7, 11.

During erection on board vessel - 1959, Oct. 6, 13, 15 Nov. 12, 13, 19, 27, Dec. 15, 19, 21, 24. 1960, Jan. 9, 13, 20, Feb. 23, 26, March 1, 4, 5, 10, 12, 18 April 4, 6, 7, 9, 11, Oct. 7, 8, 19, 22, 26, 27, 28, 31, Nov. 2, 8.

Total No. of visits 82

Dates of Examination of principal parts—Casings _____ Rotors _____ Blading _____ Gearing _____

Wheel shaft 28-10-59 Thrust shaft _____ Intermediate shafts 22-9-59 Tube shaft _____ Screw shaft 18-8-59

Propeller 13-11-59 Stern bush 12-11-59 Engine and boiler seatings 1-3-60 5-3-60 Engine holding down bolts 1-3-60, 5-3-60

Completion of fitting sea connections 19-11-59 Completion of pumping arrangements 15-3-60 Boilers fixed 15-12-59 Engines tried under steam 9-4-60

Main boiler safety valves adjusted 13-1-60 Thickness of adjusting washers P.Sat.F-21.8^{mm} A-18.5^{mm} Spt.27.1^{mm} S.Sat.F-17.7^{mm} A-17.9^{mm} Spt.24.8^{mm}

Rotor shaft, Material and tensile strength _____ Identification Mark _____

Flexible Pinion Shaft, Material and tensile strength _____ Identification Mark _____

Pinion shaft, Material and tensile strength _____ Identification Mark _____

_____ ; Chemical analysis _____

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 _____ Identification Mark _____

Wheel shaft, Material _____ Identification Mark _____ Thrust shaft, Material _____ Identification Mark _____

Intermediate shafts, Material Steel Forging Identification Marks KT-E1388 Tube shaft, Material _____ Identification Marks _____

Screw shaft, Material Steel Forging Identification Marks KT-E1374 Steam Pipes, Material Cr-Mo Steel Carbon Steel Test pressure 65.25 Kg/cm²

1959 Sept. 17, 18, Oct. 19, 26, Nov. 5, 20, 24, 27, 28, 30. Dec. 3, 4, 7, 14, 21, 28

Date of test 1960 Jan. 7 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

Full description of Fire Extinguishing Apparatus fitted in machinery spaces Steam Smothering in Engine Room & Boiler Room, Form Fire Extinguisher 136 ltr x 1, 45 ltr x 1, 9 ltr x 10, Sand Box 150 ltr x 2 CO₂ Fire Extinguisher 10 lbs x 2, HOSC Coupling 1 1/2" x 5 Canvas Hose 1 1/2" x 4.

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 No If so, state name of vessel _____

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

The Boilers and Machineries have been installed on board the steam tanker "KATE N.L." at Aioi in a proper manner and found satisfactory when tested at sea under working conditions and eligible in our opinion for classification with the records of LMC 11.60, MBS(W.T.) 683Lbs/in² Spt. 620Lbs/in² 847°F 11.60, SGS 142Lbs/in² 11.60, TS(CL) 4.60, SPS 11.60 and OF 11.60

Neither gear hammer nor rough running could be detected at any speed.

The safety valve on the low pressure steam generator was adjusted under steam to 10 kg/cm² and accumulation test carried out and found satisfactory.

Certificate (if required) to be sent to Committee's Minute.

The amount of Entry Fee	£ 365.250	When applied for
Special	£ : : 19	
Donkey Boiler Fee	£ : : When received	
Travelling Expenses (if any)	£ : : 19	

J.A. Macfarlane & P. Macfarlane
Engineer Surveyor to Lloyd's Register of Shipping.



Committee's Minute FRIDAY 24 MAR 1961
Assigned See Rpt. 1

R.M.S. 3.2.61