

# Report on Steam Turbine Machinery.

/GENERATOR

30 NOV 1953

No. 1691

Writing Report 19 When handed in at Local Office 19 Port of Kobe  
Survey held at Kobe, Aioi, Japan Date, First Survey 23-12-52 Last Survey 22-8-1953  
(Number of Visits 39)  
on the Steel Single Screws "DAIKYO - MARU" Tons (Gross 13,221.20 Net 9,553.47)  
Aioi, Japan By whom built Harima Shipbuilding & Engineering Co., Ltd. Yard No. 479 When built Aug. 1953  
made at Kobe, Japan By whom made Mitsubishi Heavy Ind., Kobe Engine No. 1163 When made 8me. 1953  
made at Aioi, Japan By whom made S.Y. & Eng. Wks. Boiler No. 1164 When made Aug. 1953  
Horse Power at Full Power 600x2 Owners Daikyo Oil Co., Ltd., Port belonging to Yokkaichi  
Horse Power as per Rule 120x2 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes  
for which Vessel is intended Ocean Going (Carrying Petroleum in Bulk)

M TURBINE ENGINES, &c.—Description of Engines. All Impulse, Single Reduction gear turbine  
each Generator  
Turbines 2 sets Direct coupled, single reduction geared to propelling shafts. No. of primary pinions to each set of reduction gearing.  
coupled to Alternating Current Generator 3 phase 60 periods per second rated 500 K.V.A. 450 Volts at 1200 revolutions per minute;  
applying power for driving Propelling Motors, Type Direct coupled, single or double reduction geared to propelling shafts.  
Kilowatts Volts at revolutions per minute.

BINE DING.	H. P.	I. P.	L. P.	ASTERN.
No. of rows	Curtis low Rateau 4 rows			
No. of stages				
No. of rows in each stage				

Horse Power at each turbine 600 Revolutions per minute, at full power, of each Turbine Shaft 7548  
Shaft diameter at journals 60mm Pitch Circle Diameter 896.65mm Width of Pinion shaft 142.55mm Face 200mm  
Distance between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion 210mm 1st reduction wheel 200mm  
2nd pinion 200mm Reduction wheel 200mm

Pinion Shafts, diameter at bearings 1st 70mm 2nd 60mm diameter at bottom of pinion teeth 132.93mm  
Generator Shaft, diameter at bearings 120mm/100mm  
Propelling Motor Shaft, diameter at bearings 830mm  
Intermediate Shafts, diameter as per rule as fitted Thrust Shaft, diameter at collars as per rule as fitted  
Screw Shaft, diameter as per rule as fitted Is the tube screw shaft fitted with a continuous liner

Size Liners, thickness in way of bushes Thickness between bushes Is the after end of the liner made watertight in the  
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 so, state type Is an approved Oil Gland or other appliance fitted at the after end of the tube  
Length of Bearing in Stern Bush next to and supporting propeller  
Pitch No. of Blades State whether Moveable Total Developed Surface square feet.

Feeder, diameter Pitch No. of Blades State whether Moveable Total Developed Surface square feet.  
Can the H.P. or I.P. Turbines exhaust direct to the  
No. of Turbines fitted with astern wheels Feed Pumps No. and size How driven  
Pumps connected to the Main Bilge Line No. and size How driven  
Lubricating Oil Pumps, including Spare Pump, No. and size  
Suctions, connected both to Main Bilge Pumps and Auxiliary In Pump Room

two independent means arranged for circulating water through the Oil Cooler  
Pumps, No. and size:—In Engine and Boiler Room  
Holds, &c. Independent Power Pump Direct Suctions to the Engine Room  
in Water Circulating Pump Direct Bilge Suctions, No. and size  
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  
Are they fitted with Valves or Cocks

all Sea Connections fitted direct on the skin of the ship Are the Overboard Discharges above or below the deep water  
they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Are the Blow Off Cocks fitted with a spigot and brass  
Are they each fitted with a Discharge Valve always accessible on the plating of the vessel How are they protected  
ering plate What pipes pass through the bunkers Have they been tested as per rule  
at pipes pass through the deep tanks

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  
ces, or from one compartment to another Is the Shaft Tunnel watertight Is it fitted with a watertight door worked from  
LERS, &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?

013639 - 013642 - 0236



Is { a Donkey Boiler fitted? } 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. 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.

SPARE GEAR.

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

State the principal additional spare gear supplied.

1 - Complete steam strainer

1 - Set of oil strainer

1 - Spiral gear for speed governor

1 - Spiral gear for tachometer

1 - Set of gear wheel and bearing for lubricating oil pump

1/20 - Total no. of condenser tubes.

1/20 - total no. of oil cooler tubes.

The foregoing is a correct description.

THE HARIMA SHIPBUILDING AND ENGINEERING COMPANY LTD.

S. Murakami Director & General Manager

Manufacture

Dates of Survey while building. During progress of work in shops. 1952. Dec. 16, 13, 26, 27, 29, 1953. Jan. 6, 8, 13, 16, 20, 22, 27, 30, Feb. 4, 5, 6, 10, 12, 20, Mar., 5, 10, 19, 26, 28, 31 Apr., 4, 14, 21, May, 6, 23, 26 June, 15, 16. During erection on board vessel. 1953. Aug., 4, 11, 19, 22. Total No. of visits. 39

Dates of Examination of principal parts-Casings. Rotors. Blading. 21-4-53. 10-3-53. 23-5-53. 26-5-53. 21-4-53

Wheel shaft. 21-4-53. Thrust shaft. Intermediate shafts. Tube shaft. Screw shaft.

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. Special steel forging, 53.9-59.1 T/in<sup>2</sup>. Identification Mark. LR No. KW-F-1731 F5468

Flexible Pinion Shaft, Material and tensile strength. Identification Mark. No. MKF519-7 No. FR7F

Pinion shaft, Material and tensile strength. Special steel forging 47.7-49.0 T/in<sup>2</sup>. Identification Mark. No. MKF519-2 No. FR4F. Chemical analysis. C 0.33 Si 0.35 Mn 0.50 P 0.016 S 0.007 3.45

If Pinion Shafts are made of special steel state date of approval of chemical analyses, physical properties and heat treatment. 4-3-53

Reduction Wheel Shaft, Material and tensile strength. Steel forging 35.4-37.6 T/in<sup>2</sup>. Identification Mark. No. MKF519-5 No. FR5F

Wheel shaft, Material. Steel forging. Identification Mark. No. MKF519-1 No. FR1F. Thrust shaft, Material. Identification Mark. No. MKF519-2 No. FR2F

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. If so, state name of vessel.

General Remarks. (State quality of workmanship, opinions as to class, &c.) These turbines have been constructed under the supervision of the Society's Surveyors in accordance with the Rules, Approved Plans, and the Society's letters.

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

The turbines were examined under steam in full working condition during shop and comprehensive sea trial and found satisfactory.

The amount of Entry Fee ... £ 72,000. When applied for. 17 NOV 1953. Special. Donkey Boiler Fee ... £. When received. Travelling Expenses (if any) £. FRIDAY 15 JAN 1954

Committee's Minute.

Assigned. See Rpt 4a.

Engine Surveyor to Lloyd's Register of Shipping. Lloyd's Register Foundation