

26. JAN. 1961

KOBE-FE7105

Rpt. 4a.

Report on Steam Turbine Machinery. No. 3238

Date of writing Report 1st April, 1960 When handed in at Local Office **JAN 19 1961** Port of **YOKOHAMA** Received at London Office
 No. in Survey held at **Tokyo, Japan** Date, First Survey **24th Dec., 1958** Last Survey **11th Feb., 1960**
 Reg. Book (Number of Visits **50**)

on the **Single** Screw Vessel Tons Gross **529** Net **2261**
 Built at **Aioi, Japan** By whom built **Harima Shipbuilding & Engineering Co., Ltd.** Yard No. **529** When built **2-60**
 Engines made at **Tokyo, Japan** By whom made **Ishikawajima Heavy Ind. Co., Ltd.** Engine No. **IT 2261** When made **2-60**
 Boilers made at By whom made Boiler No. When made
 Shaft Horse Power **Maximum 17600 Service 16000** Owners Port belonging to
 M.N. as per Rule Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted
 Trade for which Vessel is intended

STEAM TURBINE ENGINES, &c.—Description of Engines **Cross compound impulse turbine**
 No. of Turbines **Ahead 2 Direct coupled/ single reduction geared to single propelling shafts. Astern 1 double reduction geared** 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;**
 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	1st stage - 2 rows 2 - 10 stage - 9 rows		each 7 stages (double steam flow)	1st stage - 2 rows 2nd stage - 1 row
Reaction Blading	No. of rows			
	No. of stages			
	No. of rows in each stage			

Shaft Horse Power at each turbine **H.P. 8710 I.P. 8890 L.P. 8890** Revolutions per minute, at full power, of each Turbine Shaft **H.P. 5026 I.P. 4265 L.P. 4265** 1st reduction wheel **631**
 Rotor Shaft diameter at journals **H.P. 140 mm I.P. 140 mm L.P. 140 mm** 1st pinion **HP 301.37 mm I.P. 248.19 mm L.P. 230 mm** 1st reduction wheel **HP 238.63 mm I.P. 235.81 mm L.P. 235.81 mm** Width of Face **1st reduction wheel 330 mm x 2**
 Distance between centres of pinion and wheel faces and the centre of the adjacent bearings **1st pinion HP 470 mm I.P. 470 mm L.P. 470 mm** 1st reduction wheel **HP 515 mm I.P. 515 mm L.P. 515 mm**
 Flexible Pinion **1st HP 200 mm I.P. 230 mm L.P. 230 mm** Pinion Shafts, diameter at bearings **External 1st HP 180 mm I.P. 180 mm L.P. 180 mm** 2nd **HP 290 mm I.P. 290 mm L.P. 290 mm** diameter at bottom of pinion teeth **1st 287.77 mm I.P. 34.59 mm L.P. 662.18 mm**
 (Solid with 1st wheel shaft) **1st HP 420 mm I.P. 420 mm L.P. 420 mm** (290 central hold) **1st HP 493.3 mm I.P. 667.35 mm L.P. 667.35 mm** Mean **496.65 mm** Generator Shaft, diameter at bearings
 Wheel Shafts, diameter at bearings **main 630 mm (600 mm at coupling)** Propelling Motor Shaft, diameter at bearings **as per rule 588.5 mm as fitted 599.5 mm (560 mm at coupling)**
 Intermediate Shafts, diameter **as per rule** Thrust Shaft, diameter at collars **as per rule 588.5 mm as fitted 599.5 mm (560 mm at coupling)**

Tube Shaft, diameter **as per rule** Screw Shaft, diameter **as per rule** Is the tube screw shaft fitted with a continuous liner
 Bronze 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
 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

Propeller, diameter Pitch No. of Blades State whether Moveable Total Developed Surface square feet
 If Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine Can the H.P. or I.P. Turbines exhaust direct to the

Condenser 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

Ballast 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 Branch Bilge Suctions, No. and size:—In Engine and Boiler Rooms In Pump Room

In Holds, &c.

Main Water Circulating Pump Direct Bilge Suctions, No. and size Direct Bilge Suctions to the Engine and/or Boiler Room

Bilges, No. and size 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

Are all Sea Connections fitted direct on the skin of the ship Are they fitted with Valves or Cocks

Are 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 line

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

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

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

Is the Shaft Tunnel watertight Is it fitted with a watertight door worked from

BOILERS, &c.—Total Heating Surface of Boilers

Is Forced Draught fitted No. and Description of Boilers Working Pressure

Is a Report on Main Boilers now forwarded?

015483-015495-0034

Is ☒ a Donkey ☐ an Auxiliary 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
(If not, state date of approval)

Superheaters General Pumping Arrangements Oil Fuel Burning Arrangements

Geared turbines ☒ Have torsional vibration characteristics of system been approved. Yes Date of approval London 2-9-58 Kobe 26-9-58
situated aft.

SPARE GEAR.

Has the spare gear required by the Rules been supplied

State the principal additional spare gear supplied

1 complete bearing bush for each rotor, pinion and gear wheel shaft.

Complete set of shaft gland packing for one gland of each turbine.

A half of inter stage packing for each turbine.

The foregoing is a correct description.

S. Ohyama

Manufacturer.

Dates of Survey while building

During progress of work in shops - 1958: Dec. 24, 28 1959: Jan. 8, 10, 13, 20, 22, 29 Feb. 12, 17 Mar. 14, 17 Apr. 28 May 7, 9, 28 June 16, 18 Jul. 4, 11, 21, 25 Aug. 4, 8, 11, 14, 15, 20, 22, 24, 25, 27, 28, 29, 31 Sep. 1, 2, 3, 4, 5, 21, 23 Oct. 10, Nov. 14 Dec. 20, 21

During erection on board vessel - 1960: Jan. 13 Feb. 3, 11

Total No. of visits 50

Dates of Examination of principal parts—Casings LP 4-6-59 HP 11-7-59 Rotors LP 4-7-59 HP 7-5-59 Blading LP 1-9-59 HP 22-8-59 Gearing 2-9-59

Wheel shaft 28-5-59 Thrust shaft 9-5-59 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 HP TA3830-1

Rotor shaft, Material and tensile strength LP Ni-Mo-V steel LT 78.9 LB 78.9 T 80.5 kg/mm² HP TA3909A-1

Flexible Pinion Shaft, Material and tensile strength LP Ni-Cr-Mo steel LT 77.6 LB 76.7 T 79.6 R 78.6 Identification Mark LP KT-F1287(TEL894-1)

Pinion shaft, Material and tensile strength LP Ni-Cr-Mo steel 1st LT 77.9 LB 77.7 T 80.4 2nd LT 80.6 LB 80.2 T 83.0 TB 81.4 kg/mm² HP 1st TA-3988-2

2nd TE 1493-B-1 LP 1st 0.32 0.26 0.70 0.022 0.016 1.72 0.90 0.30 Identification Mark LP TA-3988-1

2nd TE 1493-A-2 LP 2nd 0.30 0.26 0.63 0.020 0.013 1.85 0.85 0.28

If Pinion Shafts are made of special steel state date of approval of chemical analyses, physical properties and heat treatment 8-4-58

1st Reduction Wheel Shaft, Material and tensile strength HP forged steel B49.2 LP Ni-Cr-Mo steel, solid with quill shaft HP D32-876 Identification Mark LP TA3909B-1

Wheel shaft, Material Forged steel Identification Mark D32-878 Thrust shaft, Material Forged steel Identification Mark TEL597-2

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

Full description of Fire Extinguishing Apparatus fitted in machinery spaces

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, etc.)

The materials of these turbines and reduction gearing were made under the survey of American Bureau of Shipping

and the results of material test certificates were checked by means of Brinell tests taken by the Society's Surveyors

and found satisfactory. These turbines and reduction gearing were examined in rough machined and finished condition

and found in order. On completion of assembly these turbines and reduction gearing have been tested in the shop

under no load condition and found to work satisfactory. It is submitted that these turbines and reduction gearing

are eligible for classification with the Society with the notation of ☒ LMC with date when satisfactorily installed

in the vessel.

The amount of Entry Fee ... £ 388,850. - YOKOHAMA

Special ... £ : : APR. 30, 1960

Donkey Boiler Fee ... £ : : When received

Travelling Expenses (if any) £ : : 19

FRIDAY 24 MAR 1961

Committee's Minute

Assigned

See Rpt. 1.

Engineer Surveyor to Lloyd's Register of Shipping



Lloyd's Register of Shipping Foundation

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