

# Report on Steam Turbine Machinery.

GENERATOR ENGINE

No. 679-C

4a.

Received at London Office 20 OCT 1952

Date of writing Report 14-5-1952 When handed in at Local Office 19 Port of YOKOHAMA

No. in Survey held at YOKOSUKA, JAPAN Date, First Survey 15-8-1952 Last Survey 28-3-1952

Reg. Book on the S.S. "EIKEN MARU" (Number of Visits 32) Tons (Gross 6394.82 Net 3674.29)

Built at YOKOSUKA, JAPAN By whom built THE URAGA SHIP BUILDING YARD Yard No. 637 When built 3-1952

Engines made at YOKOSUKA, JAPAN By whom made THE URAGA SHIP BUILDING YARD Engine No. 10348 When made 2-1952

Boilers made at MAIZURU, JAPAN By whom made IINO SANGYO MAIZURU WORKS Boiler No. B 112 When made 10.51

TOTAL CAPACITY OF GENERATORS 150 x 2 = 300 kW Owners HACHIMA KISEN CO., LTD. Port belonging to NISHINOMIYA

Shaft Horse Power at Full Power 40 x 2 = 80 Is Refrigerating Machinery fitted for cargo purposes NO Is Electric Light fitted YES

Trade for which Vessel is intended OCEAN GOING GENERATOR No. 357803

TEAM TURBINE ENGINES, &c.—Description of Engines IMPULSE SINGLE CYLINDER TYPE

No. of Turbines 2 Direct coupled, single reduction geared to MAIN GENERATOR propelling shafts. No. of primary pinions to each set of reduction gearing 1

Direct coupled to Alternating Current Generator 3 phase 60 periods per second rated 150 Kilowatts 225 Volts at 1800 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 4	—	—	—
Reaction Blading	No. of stages	—	—	—
	No. of rows in each stage	—	—	—

Shaft Horse Power at each turbine H.P. 236 I.P. — L.P. —

Revolutions per minute, at full power, of each Turbine Shaft H.P. 8928 I.P. — L.P. —

1st reduction wheel 1800 main shaft —

Rotor Shaft diameter at journals H.P. 60 mm I.P. — L.P. —

Pitch Circle Diameter 1st pinion 104.66 mm 2nd pinion — main wheel —

1st reduction wheel 519.13 mm 1st reduction wheel 110 mm main wheel —

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion 135 mm 2nd pinion — main wheel —

1st reduction wheel 135 mm 1st reduction wheel 135 mm 2nd reduction wheel 135 mm

Flexible Pinion Shafts, diameter at bearings 1st — 2nd —

External 1st 60 mm 2nd — diameter at bottom of pinion teeth 1st 95.24 mm 2nd —

Internal 1st — 2nd —

Wheel Shafts, diameter at bearings 1st 80 mm 2nd —

diameter at wheel shroud, main —

Generator Shaft, diameter at bearings 78 mm

Propelling Motor Shaft, diameter at bearings —

Intermediate Shafts, diameter as per rule — as fitted —

Thrust Shaft, diameter at collars as per rule — as fitted —

Tube Shaft, diameter as per rule — as fitted —

Screw Shaft, diameter as per rule — as fitted —

Is the tube screw shaft fitted with a continuous liner —

Bronze Liners, thickness in way of bushes as per rule — as fitted —

Thickness between bushes as per rule — as fitted —

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 1-10 M<sup>3</sup> x 40 M (AUX.) 1-10 M<sup>3</sup> x 40 M (MAIN)

Are two independent means arranged for circulating water through the Oil Cooler NO ONLY ONE Suctions, connected both to Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size:—In Engine and Boiler Room — In Pump Room —

In Holds, &c. — Main Water Circulating Pump Direct Bilge Suctions, No. and size — Independent Power Pump Direct Suctions to the Engine 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 —

DILERS, &c.—(Letter for record —) Total Heating Surface of Boilers 405 M<sup>2</sup> x 2

Is Forced Draft fitted YES No. and Description of Boilers 2-THREE DRUM TYPE WATER TUBE BOILER Working Pressure 20 kg/cm<sup>2</sup>

Is a Report on Main Boilers now forwarded? YES

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009789-009795-0043



Is { a Donkey Boiler fitted? No If so, is a report now forwarded? -  
an Auxiliary }  
Is the donkey boiler intended to be used for domestic purposes only -  
Plans. Are approved plans forwarded herewith for Shafting 24-10-51 Main Boilers 23-10-51 Auxiliary Boilers - Donkey Boilers -  
(If not, state date of approval)  
Superheaters 24-10-51 General Pumping Arrangements 31-10-51 Oil Fuel Burning Arrangements 31-10-51  
Geared turbines situated aft. Have torsional vibration characteristics of system been approved YES Date of approval 12-11-51

SPARE GEAR.

Has the spare gear required by the Rules been supplied YES

State the principal additional spare gear supplied

The foregoing is a correct description.

Dates of Survey while building  
During progress of work in shops - 1951:- AUG. 15, 17, OCT. 15, 24, 26. NOV. 6, 9, 14, 16, 19, 21, 26, DEC. 3, 5, 10, 14, 19, 24, 28.  
During erection on board vessel - 1952:- JAN. 9, 11, 18, 21, 23, 30. FEB. 7, 22, 23, 25  
Total No. of visits 32

Dates of Examination of principal parts—Casings 9-11-51 Rotors 25-2-52 Blading 25-2-52 Gearing 23-1-52  
Wheel shaft 23-1-52 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 26-3-  
Main boiler safety valves adjusted 24-3-52 Thickness of adjusting washers -  
Rotor shaft, Material and tensile strength O.H. STEEL 41.21 ~ 40.61 1/6" Identification Mark Y2965-A  
Flexible Pinion Shaft, Material and tensile strength - AXIAL TAN. Identification Mark -  
Pinion shaft, Material and tensile strength Ni-STEEL Y2976-A 50.04 1/6" 40.42 1/6" Identification Mark Y2976-A  
; Chemical analysis 0.34 0.32 0.51 0.008 0.008 3.22 Identification Mark Y2976-B

If Pinion Shafts are made of special steel state date of approval of chemical analyses, physical properties and heat treatment 12-11-51  
1st Reduction Wheel Shaft, Material and tensile strength O.H. STEEL 38.67 ~ 38.78 1/6" Identification Mark Y2963-A  
Wheel shaft, Material - Identification Mark - Thrust shaft, Material - Identification Mark -  
Intermediate shafts, Material - Identification Marks - Tube shaft, Material - Identification Marks -  
Screw shaft, Material - Identification Marks - Steam Pipes, Material O.H. STEEL Test pressure 40 kg/cm<sup>2</sup>  
Date of test 3-3-52, 10-3-52 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  
Is the vessel (not being an oil tanker) fitted for carrying oil as cargo NO If so, have the requirements of the Rules been complied with YES  
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. "HIKOSAN MARU"

General Remarks. (State quality of workmanship, opinions as to class, &c.)  
THESE GENERATOR SETS HAVE BEEN CONSTRUCTED UNDER SUPERVISION OF THE SOCIETY'S SURVEYOR IN ACCORDANCE WITH THE RULES AND APPROVED PLANS.  
THE QUALITY OF WORKMANSHIP AND MATERIALS FOUND TO BE SATISFACTORY.  
THESE GENERATOR SETS HAVE BEEN EXAMINED UNDER FULL WORKING CONDITION IN THE SHOP AND FOUND SATISFACTORY.  
THESE MACHINERY HAS BEEN SATISFACTORILY INSTALLED IN THE VESSEL IN ACCORDANCE WITH THE RULES TESTED UNDER WORKING CONDITION AND FOUND SATISFACTORY.  
IT IS SUBMITTED THAT THE MACHINERY OF THIS VESSEL IS ELIGIBLE TO BE CLOSED WITH THIS SOCIETY WITH THE NOTATION OF \* LMC 3.52

The amount of Entry Fee ... £ 40, 00. 00 : When applied for.  
Special ... £ : : 19  
Donkey Boiler Fee ... £ : : When received.  
Travelling Expenses (if any) £ : : 19

Committee's Minute

Assigned

TUES. 11 NOV 1952

Sir F.E. Mclay, M.P.

Engineer Surveyor to Lloyd's Register of Shipping.

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