

# Report on Steam Turbine Machinery. No. \_\_\_\_\_

160 KW GENERATOR

Received at London Office

4a. Date of writing Report 6th Oct 1952 When handed in at Local Office 19 Port of Yokohama -4 MAR 1953  
 Date, First Survey 13th March 52 Last Survey 22nd Aug 1952  
 Survey held at Tokyo (Number of Visits 21)  
 on the S.S. "KIRISHIMA MARU" Tons: Gross \_\_\_\_\_ Net \_\_\_\_\_  
 Built at Aioi Japan By whom built \_\_\_\_\_ Yard No. 476 When built \_\_\_\_\_  
 Engines made at Tokyo By whom made Ishikawajima Heavy Industries Co., Ltd. Engine No. JA 1158 When made 52. 7 mo  
 Boilers made at \_\_\_\_\_ By whom made \_\_\_\_\_ Boiler No. \_\_\_\_\_ When made \_\_\_\_\_  
 Shaft Horse Power at Full Power 220 SHP Owners Terukuni Kaisha K.K. Port belonging to \_\_\_\_\_  
 Nom. Horse Power as per Rule 44 x 2 Is Refrigerating Machinery fitted for cargo purposes \_\_\_\_\_ Is Electric Light fitted \_\_\_\_\_  
 Trade for which Vessel is intended \_\_\_\_\_

STEAM TURBINE ENGINES, &c.—Description of Engines Impulse type 5 stages  
 No. of Turbine 1 Direct coupled, single reduction geared } to 160 KW propelling shafts. No. of primary pinions to each set of reduction gearing 1  
 Direct coupled to { Alternating Current Generator ..... phase ..... periods per second }  
 Direct Current Generator } rated ..... Kilowatts ..... Volts at ..... revolutions per minute;  
 Propelling Motors, Type \_\_\_\_\_  
 Direct coupled, single or double reduction geared to ..... propelling shafts.

TURBINE	H. P.	I. P.	L. P.	ASTERN.
Impulse	<u>5 stages 6 rows</u>			
Direct				
Reduction				
gearing				

Shaft Horse Power at each turbine { H.P. 220 SHP }  
 { I.P. \_\_\_\_\_ }  
 { L.P. \_\_\_\_\_ }  
 { H.P. 9.978 }  
 { I.P. \_\_\_\_\_ }  
 { L.P. \_\_\_\_\_ }  
 Generator 1st reduction wheel  
 main shaft 15.50

Motor Shaft diameter at journals { H.P. 70 mm φ }  
 { I.P. \_\_\_\_\_ }  
 { L.P. \_\_\_\_\_ }  
 Pitch Circle Diameter { 1st pinion 99.32 }  
 { 2nd pinion \_\_\_\_\_ }  
 1st reduction wheel 660.68 Width of Face { 1st reduction wheel 100 }  
 { main wheel \_\_\_\_\_ }  
 { main wheel \_\_\_\_\_ }

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 105 }  
 { 2nd pinion \_\_\_\_\_ }  
 { 1st reduction wheel 120 }  
 { main wheel \_\_\_\_\_ }  
 { main wheel \_\_\_\_\_ }  
 Flexible Pinion Shafts, diameter at bearings { External 1st 60 }  
 { Internal 1st \_\_\_\_\_ }  
 { 2nd \_\_\_\_\_ }  
 { 2nd \_\_\_\_\_ }  
 diameter at bottom of pinion teeth { 1st 92.04 }  
 { 2nd \_\_\_\_\_ }

Wheel Shafts, diameter at bearings { 1st 100 }  
 { main \_\_\_\_\_ }  
 diameter at wheel shroud, { 1st 666.64 }  
 { main \_\_\_\_\_ }  
 Generator Shaft, diameter at bearings \_\_\_\_\_  
 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 } shaft fitted with a continuous liner { \_\_\_\_\_ }  
 { screw } { \_\_\_\_\_ }

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. \_\_\_\_\_  
 Length of Bearing in Stern Bush next to and supporting propeller. \_\_\_\_\_  
 If so, state type \_\_\_\_\_

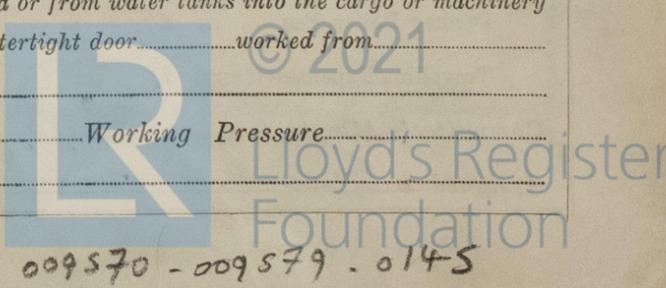
Propeller, diameter \_\_\_\_\_ Pitch \_\_\_\_\_ No. of Blades \_\_\_\_\_ State whether Moveable \_\_\_\_\_ Total Developed Surface \_\_\_\_\_ square feet.  
 Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine \_\_\_\_\_ Can the H.P. or I.P. Turbines exhaust direct 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 \_\_\_\_\_ }  
 Bilge 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. \_\_\_\_\_ Suctions, connected both to Main Bilge Pumps and Auxiliary  
 Bilge Pumps, No. and size:—In Engine and Boiler Room \_\_\_\_\_ In Pump Room \_\_\_\_\_  
 Holds, &c. \_\_\_\_\_

Main Water Circulating Pump Direct Bilge Suctions, No. and size \_\_\_\_\_ Independent Power Pump Direct Suctions to the Engine Room  
 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  
 level. \_\_\_\_\_ 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. \_\_\_\_\_  
 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. \_\_\_\_\_  
 How worked from \_\_\_\_\_

Boilers, &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? \_\_\_\_\_



Is  a Donkey Boiler fitted?  If so, is a report now forwarded?   
 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 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.....

The foregoing is a correct description.

J. Morimoto Manufact

1952 :-  
 Dates of Survey while building: During progress of work in shops - - 13, 16, 25 - March 26, 29 - April 2, 9, 13, 16, 23 - May 10, 13, 20, 22, 24 June 1, 4, 11, 29 July 1, 22 Aug.  
 During erection on board vessel - -  
 Total No. of visits.....

Dates of Examination of principal parts—Casings 4-7-52 Rotors 24-6-52 Blading 1-8-52 Pinion Gearing 22-8-52  
 29-7-52  
 Wheel shaft 10-6-52 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.....

Main boiler safety valves adjusted..... Thickness of adjusting washers.....  
 Rotor shaft, Material and tensile strength  $\left. \begin{matrix} L & IA 1158 & 54.5 \\ T & 55.7 \\ R & 54.4 \end{matrix} \right\}$  Identification Mark NO. Y2636B  
 Flexible Pinion Shaft, Material and tensile strength..... Identification Mark IA 1158  
 Pinion shaft, Material and tensile strength IA 1158 48.3 IA 1159 52.1 Identification Mark NO. Y2637E  
 ; Chemical analysis C 0.31 Si 0.33 Mn 0.53 P 0.025 S 0.019 Ni 1.54 Cr 0.71 Mo

If Pinion Shafts are made of special steel state date of approval of chemical analyses, physical properties and heat treatment..... IA 1158  
 1st Reduction Wheel Shaft, Material and tensile strength Forged Steel IA 1158 35.8 IA 1159 35.8 Identification Mark NO. Y3744B  
 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..... 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? No 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 approved plans and the Rules, the workmanship and materials have been found satisfactory. The turbines were examined during and after shop trials and found in good order. It is submitted that the engine is eligible for classification with this Society with the notation of +LTC when satisfactory installed on the vessel.

Certificate (if required) to be sent to.....  
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)

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

Committee's Minute..... FRI. 19 JUN 1953  
 Assigned..... See F.E. mchly, rpt.

M. J. Zuk  
 Engineer Surveyor to Lloyd's Register of Shipping.  
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