

83. 925

/GENERATING

Rpt. 4a.

# Report on Steam Turbine Machinery.

No. 1364-D

Received at London Office

20 MAY 1953

Date of writing Report 19 When handed in at Local Office 12 MAY 1953 Port of Kobe  
No. in Survey held at Kobe, Japan Date, First Survey 28-2-1952 Last Survey 16-1-1953  
Reg. Book on the Steel Single Screw S.S. "PATRICIA"  
Built at Kobe, Japan By whom built Kawasaki Dockyard Co., Ltd. Yard No. 925 When built 1-1953  
Engines made at Kobe, Japan By whom made Mitsubishi Heavy Ind., Ltd. Machine No. 1106 When made 29-8-52  
Boilers made at Kobe, Japan By whom made Reorganized Ltd., Kobe Shipyard & Engine Works Boiler No. 2159 When made 1-1953  
Shaft Horse Power at Full Power 600x2 Owners Ocean Oil Operation, Inc. Port belonging to Panama  
Nom. Horse Power as per Rule 1200x2 Is Refrigerating Machinery fitted for cargo purposes None Is Electric Light fitted yes  
Trade for which Vessel is intended Ocean going

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

All Impulse Single Reduction Gear Turbine

No. of Turbines Ahead Direct coupled, single reduction geared to propelling shafts. No. of primary pinions to each set of reduction gearing 1  
Astern double reduction geared  
direct coupled to Alternating Current Generator 3 phase 60 periods per second rated 500 K.V.A. 440 Volts at 1200 revolutions per minute;  
for supplying power for driving Propelling Motors, Type Direct Current Generator  
rated Kilowatts Volts at revolutions per minute. Direct coupled, single or double reduction geared to propelling shafts.

### TURBINE BLADING.

H.P. Curtis 1 row  
Rateau 4 rows

I.P.

L.P.

ASTERN.

Impulse Blading  
No. of rows  
XXXXXX  
XXXXXX  
XXXXXX  
XXXXXX

Shaft Horse Power at each turbine H.P. 600  
Revolutions per minute, at full power, of each Turbine Shaft 7548  
reduction wheel 1200  
pinion 7548

Rotor Shaft diameter at journals H.P. 60mm  
Pitch Circle Diameter 1st pinion - 896.65mm  
2nd pinion - 142.55mm  
reduction wheel 200mm  
pinion shaft 200mm  
Face pinion shaft 200mm

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings  
1st pinion 210mm  
2nd pinion 220mm  
reduction wheel 200mm  
reduction wheel 200mm

Flexible Pinion 1st - Pinion Shafts, diameter at bearings External 70mm  
2nd - Internal 132.93mm  
Generator Shaft, diameter at bearings 150mm/130mm

Wheel Shafts, diameter at bearings 100mm  
110mm  
diameter at wheel shroud wheel 830mm  
Propelling Motor Shaft, diameter at bearings 150mm/130mm

Intermediate Shafts, diameter as per rule -  
as fitted -  
Thrust Shaft, diameter at collars as per rule -  
as fitted -

Shaft, diameter as per rule -  
as fitted -  
Screw Shaft, diameter as per rule -  
as fitted -

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

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

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.

BOILERS, &c.—(Letter for record) Total Heating Surface of Boilers

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

Is a Report on Main Boilers now forwarded?



Is { a Donkey Boiler fitted? 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 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

1 complete steam strainer. 2 sets of spring of each size.  
2 complete sets of turbine and reduction gear bearings. 1 set of gear wheel and bearing for lub. oil pump.  
1 set of thrust pad. 1/2 set of complying bolts and nuts.  
1 set of oil strainer. 1/20 of total No. of bolts & nuts for flange of turbine and gear casing.  
1 Spiral gear for speed governor. 1/40 Tubes for oil cooler.  
1 set of gland packing 1/30 Tubes for condenser.  
1 spiral gear for tachometer. 1/30 sets of packings for condenser tubes.

The foregoing is a correct description.

H. C. Williams S. Murakami  
Director & General Manager Manufacturer.

Dates of Survey while building 29-8-52 27-8-52 7-8-52 5-8-52 31-7-52 15-7-52 31-5-52 13-3-52 28-2-52 15-4-52 8-4-52  
During progress of work in shops - - - - - 24-5-52  
Total No. of visits (29) HW 2S HW 4S HW 5S  
Dates of Examination of principal parts - Casings (HW 12S 15-7-52 HT1F 15-4-52 (27)83-L 7-5-52 HY1F 8-4-52  
Wheel shaft (GC1F 8-4-52) (HW 6S 28-2-52) (HT2F 15-4-52) (27)47-Z 15-4-52 (HY4F 15-4-52)  
Identification Mark (GC1F) (HW 6S) (HT2F) (27)47-Z (HY4F)  
LR No. Y3164  
LR No. Y3126

Rotors (HW 12S 15-7-52 HT1F 15-4-52 (27)83-L 7-5-52 HY1F 8-4-52  
Identification Mark (HW 12S) (HT1F) (27)83-L (HY1F)  
LR No. Y3164  
LR No. Y3126  
Pinion shaft, Material and tensile strength Special Steel 48.8 T/sq.in. (51.5 T/sq.in.) Identification Mark GC4F (GC3F)  
Chemical analysis 0.34% 0.22% 0.55% 0.018% 3.30%

If Pinion Shafts are made of special steel state date of approval of chemical analyses, physical properties and heat treatment LR-NO. MKF439-4 (MKF451)  
Reduction Wheel Shaft, Material and tensile strength Forging Steel, 35.4 T/sq.in. (35.5 T/sq.in.) Identification Mark HY4F (GC1F)  
Wheel shaft, Material Forging Steel Identification Mark (HT 4F) (GC1F)  
LR-NO. (MKF437-1)

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 Secretary'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 conditions with satisfactory results.

The amount of Entry Fee ... £ 72.000 When applied for 12. MAY 1953  
Special ... £ : :  
Donkey Boiler Fee ... £ : : When received  
Travelling Expenses (if any) £ : :  
Committee's Minute FRI. 12 JUN 1953  
Assigned Sea F.E. mclay, rpt.

