

Report on Steam Turbine Machinery.

No. 1000

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Writing Report 29-5-1953 When handed in at Local Office 19 Port of Yokohama
 Survey held at Tokyo & Shimizu Japan Date, First Survey 6th May 1952 Last Survey 23rd May 1953
 Book (Number of Visits 64)

on the S.S. "Leonidas"
 at Shimizu, Japan By whom built Nippon Steel Tube Co. Ltd.
 es made at Tokyo, Japan By whom made Shimizu Shipyard
 s made at Tokyo & Shimizu By whom made Ishikawajima Heavy Industries Co. Ltd.
 Engine No. IT 2188 When made 1953. 5 mo.
 Horse Power at Full Power 9,500 ✓ Owners Miramonte Compania Naviera S.A. Port belonging to Montevideo, Liberia
 Horse Power as per Rule 1,900 ✓ Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes
 for which Vessel is intended Ocean Going

M TURBINE ENGINES, &c.—Description of Engines Multistage Impulse type.
 Ahead 2 ✓ Direct coupled, single reduction geared to Main propelling shafts. No. of primary pinions to each set of reduction gearing 2 ✓
 Turbines Astern 1 ✓ double reduction geared
 coupled to Alternating Current Generator phase periods per second Direct Current Generator rated Kilowatts Volts at revolutions per minute;
 plying power for driving Propelling Motors, Type.
 Kilowatts Volts at revolutions per minute. Direct coupled, single or double reduction geared to propelling shafts.

LINE	H. P.	I. P.	L. P.	ASTERN.
ING.				
No. of rows	10 ✓		7 ✓	3 ✓
No. of stages				
No. of rows in each stage				

Horse Power at each turbine H.P. 4560 ✓ I.P. 4784 ✓ 1st reduction wheel L.P. 686 ✓
 Shaft diameter at journals H.P. 160 mm ✓ I.P. 261.99 1st reduction wheel HP 1486.78 L.P. 364.2 ✓ main shaft 115 ✓ HP 345x2
 between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion LP 267.5 1st reduction wheel HP 815
 Pinion diameter 1st HP 160 ✓ Pinion Shafts, diameter at bearings External 1st HP LP 160 2nd HP LP 310 309.5
 Internal 1st HP LP 1496.78 2nd HP LP 222
 Shafts, diameter at bearings 1st 280 279.5 1st reduction wheel HP 199.62 1st LP 248.40
 main 500 499.5 ✓ diameter at wheel shroud, 1st LP 1448.01 Generator Shaft, diameter at bearings 2nd LP 542.10
 Intermediate Shafts, diameter as per rule 440.4 ? as fitted 443 ✓ Propelling Motor Shaft, diameter at bearings —
 Thrust Shaft, diameter at collars as per rule 482.1 ? as fitted 485 ✓
 Is the tube screw shaft fitted with a continuous liner Yes ✓
 Liners, thickness in way of bushes as per rule 22.4 as fitted 25 Thickness between bushes as per rule 18.9 as fitted 22
 Is the after end of the liner made watertight in the boss Yes ✓ If the liner is in more than one length are the junctions made by fusion through the whole thickness of 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 —
 Are the liners 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
 If so, state type — Length of Bearing in Stern Bush next to and supporting propeller 1955 ✓
 diameter 6000 ✓ Pitch 4280 No. of Blades 4 State whether Moveable No Total Developed Surface 11.83 square feet
 Screw, are arrangements made so that steam can be led direct to the L.P. Turbine Yes Can the H.P. or I.P. Turbines exhaust direct to the
 Yes ✓ No. of Turbines fitted with astern wheels 1 ✓ Feed Pumps No. and size 2 x 50 m³/h x 400 m
 How driven Steam turbine ✓
 connected to the Main Bilge Line No. and size 3 sets 1 x 200 m³/h x 25 m ✓ 1 x 150 m³/h x 20 m ✓ 1 x 30 m³/h x 35 m ✓
 How driven Motor Motor Main shaft
 Pumps, No. and size 1 x 200 m³/h x 25 m ✓ Lubricating Oil Pumps, including Spare Pump, No. and size 2 x 120 m³/h x 35 m
 dependent means arranged for circulating water through the Oil Cooler Yes ✓ Suctions, connected both to Main Bilge Pumps and Auxiliary
 ps, No. and size:—In Engine and Boiler Room 160 mm φ x 2 100 mm φ x 5 ✓ In Pump Room 80 mm φ x 2 ✓
 cc 70 mm φ x 2 (Dry Cargo hold) ✓ 80 mm φ x 1 (aux. pump room) ✓
 ter Circulating Pump Direct Bilge Suctions, No. and size 1 x 400 mm φ ✓ Independent Power Pump Direct Suctions to the Engine Room
 and size 100 mm φ x 1 ✓ 160 mm φ x 1 ✓ Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes. Hold Yes ✓
 lge 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. Yes ✓
 ea Connections fitted direct on the skin of the ship Yes ✓ Are they fitted with Valves or Cocks. Yes ✓
 fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates. Yes ✓ Are the Overboard Discharges above or below the deep water
 Are they each fitted with a Discharge Valve always accessible on the plating of the vessel. Yes ✓ Are the Blow Off Cocks fitted with a spigot and brass
 plate. Yes ✓ What pipes pass through the bunkers. — How are they protected. —
 es pass through the deep tanks. — Have they been tested as per rule. —
 pipes, Cocks, Valves and Pumps in connection with the machinery and all boiler mountings accessible at all times. Yes ✓
 S. 2 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
 2 from one compartment to another. Yes ✓ Is the Shaft Tunnel watertight. No. Is it fitted with a watertight door. No. worked from —
 , &c.—(Letter for record) Total Heating Surface of Boilers 640 q. m x 2 6888 q. ft x 2 (Include super heater)
 Draft fitted Yes No. and Description of Boilers 2 x Two drum type water tube boiler Working Pressure 427 lbs/sq in sft
 rt on Main Boilers now forwarded? Yes

011595-011602-0214

Is { a Donkey Boiler fitted? How pressure steam generator fitted If so, is a report now forwarded? Yes
{ an Auxiliary } SEE SEPARATE REPORT

Is the donkey boiler intended to be used for domestic purposes only

Plans. Are approved plans forwarded herewith for Shafting. 12-1-53 Main Boilers. 11-8-52 Auxiliary Boilers. — Donkey Boilers. —
(If not, state date of approval)

Superheaters. 11-8-52 General Pumping Arrangements. 13-12-52 Oil Fuel Burning Arrangements.

Geared turbines situated aft. Have torsional vibration characteristics of system been approved. Yes Date of approval. 13-2-1-53
for 11541197

SPARE GEAR.

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

State the principal additional spare gear supplied. Complete bearing bushes for rotors pinions and gear wheel shafts

The foregoing is a correct description.

Y. Fozaki

J. Morimoto

Dates of Survey while building
During progress of work in shops - 1952:- May 6, 20 June 3, 17, 27 July 2, 8, 11, 22, 24, 29 Aug. 1, 8, 19, 25, 29 Sept. 2, 18, 22, 25, 27, Oct. 14, 24, 28 Nov. 7, 21, 28 Dec. 5, 9, 12, 17, 19, 27, 29
During erection on board vessel - 1953:- Jan. 10, 14, 17, 23, 31 Feb. 1, 5, 10, 21 March 8, 17, 25, 31 April 10, May 9, 15, 19, 23
Total No. of visits. 64

Dates of Examination of principal parts—Casings. HP 19-12-52 Rotors. HP 28-11-52 Blading. HP 16-1-53 Gearing. 19-1-53

2nd Wheel shaft. 21-11-52 Thrust shaft. — Intermediate shafts. 23-8-52 Tube shaft. — Screw shaft. 7-10-52

Propeller. 31-10-52 Stern tube. 10-10-52 Engine and boiler seatings. 15-12-52 Engine holding down bolts. 21-2-53

Completion of fitting sea connections. 6-12-52 Completion of pumping arrangements. 31-3-53 Boilers fixed. 15-2-53 Engines tried under steam. 22-2-53

Main boiler safety valves adjusted. Thickness of adjusting washers

Rotor shaft, Material and tensile strength. HP Ni Cr Mo Steel T. 50.5 B. 48.8 Ta. 48.2 Ra 49.7 Identification Mark. HP Y2649-A

Flexible Pinion Shaft, Material and tensile strength. Ni Cr Mo Steel LP 46.4 B. 46.2 Ta 46.5 Ra 46.2 Identification Mark. HP Y2682-B

Pinion shaft, Material and tensile strength. 1st Ni St. HP 48.8: 47.3: 48.1: 47.5 2nd Ni St. HP 51.3: 50.5: 50.1: 50.3 Identification Mark. 1st LP Y2652-A 2nd LP Y2652-B

2nd Forged St. HP 31.9 32.2 Y2655-A ; Chemical analysis 1st HP LP C 0.33 Si 0.28 Mn 0.47 P 0.026 S 0.010 Ni 3.27 Cr 0.14

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

1st Reduction Wheel Shaft, Material and tensile strength. Open hearth Forged steel HP 30.5 LP 30.5 Identification Mark. HP Y4189-A

Wheel shaft, Material. Open hearth Forged steel Identification Mark. Y2650-C Thrust shaft, Material. Open hearth Forged steel Identification Mark. Y380

Intermediate shafts, Material. Open hearth Forged steel Identification Marks. HP 2 NOM 5 F 8282 Tube shaft, Material. — Identification Marks. —

Screw shaft, Material. Open hearth Forged steel Identification Marks. NOM 5-F 828-4 Steam Pipes, Material. O.H. Steel Test pressure. 60

Date of test. 24-3-53 25-3-53 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. Yes 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. "Adrias" Rep. No. 927-

General Remarks. (State quality of workmanship, opinions as to class, &c.) This turbine has been constructed

the supervision of the Society's Surveyors in accordance with Rules and approved

plans. The quality of workmanship and materials found to be satisfactory

The Machinery has been satisfactorily installed in the vessel in accordance

the Rules, and tested under working condition and found satisfactory.

It is submitted that the Machinery of this vessel is eligible to be

with this Society with the notation of + LMC 5.53 and TSCL 5.53 "Fitted

Oil Fuel 5.53 F.P. above 150°F"