

Rpt. 4a.

Report on Steam Turbine Machinery.

No. 896

Date of writing Report 11 JUL 1952

When handed in at Local Office

19

Port of Yokohama & Kobe

Received at London Office

No. in Survey held at Yokohama & Nagoya

Date, First Survey 30th March 1951 Last Survey 24th Dec 1951

Reg. Book

(Number of Visits 54)

on the steel Single Screw Steamer "KOMEI MARU"

Tons (Gross 6288.83)

(Net 3731.84)

Built at Nagoya Japan

By whom built Nagoya Ship Building Co. Ltd.

Yard No. 10101

When built Dec 1951

Engines made at Yokohama Japan

By whom made Uraga Dock Co. Ltd.

Engine No. 10229

When made 9-1951

Boilers made at Yokohama Japan

By whom made Uraga Dock Co. Ltd.

Boiler No. 10375

When made 10-1951

Shaft Horse Power at Full Power 4000

Owners Nippon Shosen Co. Ltd.

Port belonging to Tokyo

Nom. Horse Power as per Rule 945.94

Is Refrigerating Machinery fitted for cargo purposes No

Is Electric Light fitted Yes

Trade for which Vessel is intended Ocean going

STEAM TURBINE ENGINES, &c.—Description of Engines

Impulse type with HP and LP turbines

No. of Turbines Ahead 2 Direct coupled, single reduction geared to main propelling shafts. No. of primary pinions to each set of reduction gearing 2

Astern 2 double reduction geared

direct coupled to Alternating Current Generator phase periods per second

for supplying power for driving Propelling Motors, Type Direct Current Generator rated Kilowatts Volts at revolutions per minute;

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

No. of stages

Reaction Blading

No. of rows in each stage

8

6

2 (HP)

2 (LP)

Shaft Horse Power at each turbine H.P. 2070 I.P. 4531 L.P. 1930

Revolutions per minute, at full power, of each Turbine Shaft H.P. 189.37 I.P. 1575.81 L.P. 3301

Rotor Shaft diameter at journals H.P. 160 mm I.P. 401.84 mm L.P. 180 mm

Pitch Circle Diameter 1st pinion LP 235.56 1st reduction wheel LP 150.11 2nd pinion LP 422.62 main wheel 2182.38

Width of Face 1st reduction wheel 217.5 x 2 mm main wheel 440 x 2 mm

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion 350 mm 1st reduction wheel 340 mm

2nd pinion 652.5 mm main wheel 692.5 mm

Flexible Pinion 1st Pinion Shafts, diameter at bearings External 150 mm Internal 320 mm

2nd 140 mm 1st LP 160 mm 2nd LP 145 mm

diameter at bottom of pinion teeth 1st HP 188.83 mm 2nd LP 414.41 mm

Wheel Shafts, diameter at bearings 1st 320 mm 1st LP 160 mm

main 400 mm diameter at wheel shroud, main 2050 mm

Intermediate Shafts, diameter as per rule 354.6 mm as fitted 360 mm

Thrust Shaft, diameter at collars as per rule 372.4 mm as fitted 385 mm

Tube Shaft, diameter as per rule 391.4 mm as fitted 400 mm

Screw Shaft, diameter as per rule 391.4 mm as fitted 400 mm

Is the tube screw shaft fitted with a continuous liner Yes

Bronze Liners, thickness in way of bushes as per rule 19.6 mm as fitted 22.5 mm

Thickness between bushes as per rule 14.7 mm as fitted 19 mm

Is the after end of the liner made watertight in the propeller boss Yes

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 Yes

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 1660 mm

Propeller, diameter 5300 mm Pitch 4.150 No. of Blades 4 State whether Moveable Movable Total Developed Surface 95.4 square feet.

If Single 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 Condenser Yes

No. of Turbines fitted with astern wheels 2 Feed Pumps No. and size 23 H x 320 mm 2 sets 13 H x 140 mm 2 sets

How driven 54.55 HP Turbine 220 x 160 x 450 mm steam engine

Pumps connected to the Main Bilge Line No. and size 1-200 H x 20 mm 1-35 H x 25 mm 1-10 H x 30 mm 1-200 H x 9.5 mm

How driven steam engine steam engine steam engine steam engine

Ballast Pumps, No. and size 2-200 H x 20 mm (230 x 300 x 300 mm) Lubricating Oil Pumps, including Spare Pump, No. and size 2-100 H x 30 mm (220 x 160 x 450 mm)

Are two independent means arranged for circulating water through the Oil Cooler Yes

Suctions, connected both to Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size;—In Engine and Boiler Room 8 x 70 mm 2 x 50 mm

In Holds, &c. NO. 1: 2 x 80 mm NO. 2: 2 x 90 mm NO. 3: 2 x 70 mm NO. 4: 2 x 70 mm NO. 5: 2 x 50 mm 2 x 80 mm

2 x 50 mm 2 x 80 mm 2 x 70 mm

Main Water Circulating Pump Direct Bilge Suctions, No. and size 1 x 340 mm

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1-120 mm 1-70 mm

Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Yes

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 Yes

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

Are they 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 line below

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 covering plate Yes

What pipes pass through the bunkers How are they protected

What pipes pass through the deep tanks Edge pipe, Ballast pipe Have they been tested as per rule Yes

Are all Pipes, Cocks, Valves and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes

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 Yes

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

OILERS, &c.—(Letter for record) Total Heating Surface of Boilers 385.5 m²

Is Forced Draft fitted Yes No. and Description of Boilers 2 three drums, Scotch type, water tubular

Working Pressure 25 kg/cm²

Is a Report on Main Boilers now forwarded? Yes

Is a Donkey Boiler fitted? *yes* If so, is a report now forwarded? *yes*
Is the donkey boiler intended to be used for domestic purposes only. *No, pumps + domestic*
Plans. Are approved plans forwarded herewith for Shafting *2-3-51* Main Boilers *24-5-51* Auxiliary Boilers *—* Donkey Boilers *24-5-51*
(If not, state date of approval)
Superheaters *7-9-51* General Pumping Arrangements *28-8-51* Oil Fuel Burning Arrangements *28-8-51*
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.

G.S. pump:- 2 Sae valve seat & 2 guard, 12 spring 2-ded valve seat & 2-guard, 12-spring
Oak Feed pump:- each 2-piston & bucket ring each 2-Sae & ded valve
Fresh water pump:- each 2-piston & bucket ring each 2-Sae & ded valve
Sanitary pump:- each 2-piston & bucket ring each 2-Sae & ded valve

The foregoing is a correct description,

Manufacturer.

Dates of Survey while building 1951:- Jan 31 Feb 14/16 Mar 15 20 22 27 April 5 14 24 27 May 4 9 10 14 18 31 Jun 8 15 21 23 26
During progress of work in shops - *July 11 13 28 Aug 11 15 28 Sept 2 21 25 28*
During erection on board vessel - *1951:- July 19 20 Aug 2 6 13 22 31 Sept 8 13 24 Oct 7 16 25 30 Nov 15 22 Dec 15 21 22 23 24*
Total No. of visits *32 (Yokohama) 22 (Kobe)*

Dates of Examination of principal parts—Casings *3-8-51* Rotors *25-9-51* Blading *7-9-51* Gearing *25-9-51*

Wheel shaft *1st HP 11-7-51 2nd LP 21-6-51* Thrust shaft *25-9-51* Intermediate shafts *11-10-51* Tube shaft *—* Screw shaft *17-9-51*

Propeller *25-10-51* Stern tube *22-9-51* Engine and boiler seatings *Engine 23-9-51* Engine holding down bolts *14-11-51*

Completion of fitting sea connections *27-9-51* Completion of pumping arrangements *10-12-51* Boilers fixed *24-10-51* Engines tried under steam *24-12-51*

Main boiler safety valves adjusted *18-12-51* Thickness of adjusting washers *—*

Rotor shaft, Material and tensile strength *O.H. Steel HP 39.4 1/2" LP 40.69 1/2"* Identification Mark *HP Y1510 LP Y2456*

Flexible Pinion Shaft, Material and tensile strength *Ni-Cr-Mo Steel 49.7-48.8 1/2"* Identification Mark *HP Y1516-17A LP Y1516-17B*

Pinion shaft, Material and tensile strength *Ni-Cr-Mo Steel 1st HP 46.1-46.9 1/2" 2nd LP 46.7-47.6 1/2"* Identification Mark *1st HP Y1516-8 2nd LP Y1516-9*

HP Y1516-13 LP Y1516-14; Chemical analysis *0.30 0.21 0.63 0.026 0.036 1.13 0.82 0.83*

If Pinion Shafts are made of special steel state date of approval of chemical analysis, physical properties and heat treatment *4-4-51 (Kobe)*

1st Reduction Wheel Shaft, Material and tensile strength *O.H. Steel 32.1-31.9 1/2"* Identification Mark *HP Y1504-A LP Y1504-B*

Wheel shaft, Material *O.H. steel* Identification Mark *Y1503* Thrust shaft, Material *—* Identification Mark *—*

Intermediate shafts, Material *E.F. Steel* Identification Marks *HC-F 357* Tube shaft, Material *—* Identification Marks *—*

Screw shaft, Material *E.F. steel* Identification Marks *HC-F346* Steam Pipes, Material *Solid drawn steel pipe* Test pressure *50 kg/cm² 20 kg/cm²*

Date of test *20-10-51, 30-10-51, 15-11-51, 21-11-51, 22-11-51, 5-12-51* Is an installation fitted for burning oil fuel. *yes*

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. *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. *No* If so, state name of vessel. *—*

General Remarks. (State quality of workmanship, opinions as to class, &c.) *This turbine has been constructed under the supervision of the Society's Surveyors in accordance with the Rules and approved plans. The quality of workmanship & materials has been found to be satisfactory.*

This turbine is intended for installation in ship NO 101 of the Nagoya Shipbuilding Co. Ltd. Nagoya.

It is submitted that this machinery is eligible to be classed this Society with notation of +LMC when satisfactorily installed in the vessel.

Reference to the Secretary's letter dated 22nd March 1951 a recommendation has been made regarding the examination of this gearing after six months in service following installation in the vessel.

The machinery has been now satisfactorily installed on board and tested under full power.

2WTB 365 lb. (Spt 351 lb.)

CL. DB 142 lbs.

TUES. 2 SEP 1952

Assigned +LMC 12.51 subject

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