

Rpt. 4a.

Report on Steam Turbine Machinery.

No. 983

Date of writing Report 14-8-1952 When handed in at Local Office 19 Port of Kobe Received at London Office 4 FEB 1953
No. in Survey held at Innoshima Date, First Survey 7th Feb., 1952 Last Survey 30th July 1952.
Reg. Book (Number of Visits 15) Tons Gross 8,135.67
on the T.S.S. "TSUKUSHI MARU"
Built at Kobe, Japan By whom built Kawasaki Dock yard Yard No. 653 When built 25th Mar. '43
Engines made at Kobe, Japan By whom made Kawasaki Dock Yard Engine No. 11778 When made Oct. & Nov. 1942
Boilers made at Kobe, Japan By whom made Kawasaki Dock yard Boiler No. 116 3032 When made 3rd Mar. 1943
Shaft Horse Power at Full Power 3550 each 7100 in total Owners Pan Islamic Steamship Co., Ltd., Port belonging to Karachi
Nom. Horse Power as per Rule 1420 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes
Trade for which Vessel is intended Pilgrim Trade from Pakistan

2 sets of
STEAM TURBINE ENGINES, &c.—Description of Engines 2 cylinder all impulse cross-compound geared turbine

No. of Turbines Ahead 2 ~~Direct coupled,~~ to two 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 } rated. — Kilowatts. — Volts at — 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	6 Each		6 Each	H.P. 2 LP 2
Reaction Blading	No. of stages				
	No. of rows in each stage				

Shaft Horse Power at each turbine { H.P. 4866 1st reduction wheel 743
I.P. — main shaft 140
L.P. 3352
HP 66419"
LP 96414"
43,49364"
Rotor Shaft diameter at journals { H.P. 120 m/m (80 central hole) 1st pinion
I.P. — Pitch Circle 1st reduction wheel 2x200 m/m
L.P. 135 m/m (55 central hole) 2nd pinion main wheel 79,7996"
Face { 1st reduction wheel 2x200 m/m
main wheel 2 x 425 m/m

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 1st reduction wheel
2nd pinion main wheel HP 155 m/m
LP 231 m/m

Flexible Pinion { 1st — Pinion Shafts, diameter at bearings External 1st 130 m/m 270 m/m 1st LP 231 m/m
Shafts, diameter { 2nd 200 m/m Internal 1st 210 m/m 2nd 362 m/m

Wheel Shafts, diameter at bearings { 1st 200 m/m 1st 1900 m/m Generator Shaft, diameter at bearings —
main 350 m/m diameter at wheel shroud, { main 9809 m/m Propelling Motor Shaft, diameter at bearings —

Intermediate Shafts, diameter as per rule 298.5 m/m Thrust Shaft, diameter at collars as per rule 328 m/m
as fitted 312 m/m as fitted 350 m/m

Tube Shaft, diameter as per rule — Screw Shaft, diameter as per rule 326.3 m/m Is the { screw } shaft fitted with a continuous liner { Yes
as fitted — as fitted 340 m/m

Bronze Liners, thickness in way of bushes as per rule 17.55 mm (330 m/m at coupling) 13.16 mm Is the after end of the liner made watertight in the
as fitted 20 mm Thickness between bushes as fitted 15 mm 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 Yes
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 825 & 1458 mm

Propeller, diameter 4000 mm Pitch 4,350 mm No. of Blades 4 State whether Moveable Yes Total Developed Surface 4,8758 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 L.P. Turbines exhaust direct to the

Condenser No No. of Turbines fitted with astern wheels 2 Feed Pumps { No. and size { 2 Main feed 50 M3/h x 370 m. 20 Aux. feed
(Donkey boiler cap. 5 ton/h. Both steam driven

Pumps connected to the Main Bilge Line { No. and size { Bilge & fire 110 M2/H x 40 M or 55 x 85 G.S. 55 M3/H x 60 M or 110 x 35:
(How driven) Electric Motor driven Ballast & bilge 125 M3/h x 40 M: Sanitary 125 M3/H x 35 M

Ballast Pumps, No. and size 1 125-150 M3/h x 35-30 M Lubricating Oil Pumps, including Spare Pump, No. and size 2 x 120 M3/h x 35 M

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 Eng. Room { 2 x 130 mm 1 x 80 mm Boiler Room { 2 x 130 mm Shaft tunnel { 2 x 50
1 x 100 " 2 x 50 " Total 10 In Pump Room { 3 x 80
1 x 90

In Holds, &c. No. 1 Hold 2 x 80 mm No. 2 Hold 2 x 80 mm No. 3 Hold 3 x 80 mm No. 4 Hold 2 x 50 mm
Main Water Circulating Pump Direct Bilge Suctions, No. and size 2 x 300 mm Independent Power Pump Direct Suctions to the Engine Room

Bilges, No. and size 2 x 300 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. None How are they protected. —

What pipes pass through the deep tanks. None 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. 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. No worked from 2020 only

BOILERS, &c.—(Letter for record —) Total Heating Surface of Boilers 1456.4 M2 = 15676.5 FT2

Is Forced Draft fitted Yes No. and Description of Boilers 3 Water tube Boiler Working Pressure 27 kg/cm2
(3 induced and 2 forced draft fans) (Lamont-type)

Is a Report on Main Boilers now forwarded? Yes

If not, state whether, and when, one will be sent?

Is a Report also sent on the Hull of the Ship?

NOTE.—The words which do not apply should be deleted.

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Is { a Donkey Boiler fitted? Yes If so, is a report now forwarded? Yes
an Auxiliary }
Is the donkey boiler intended to be used for domestic purposes only. No. (for Aux. Engine (some) and General use.)
Plans. Are approved plans forwarded herewith for Shafting Yes Main Boilers Yes Auxiliary Boilers Yes Donkey Boilers Yes
(If not, state date of approval) (28-12-51)
Superheaters Yes General Pumping Arrangements Oil Fuel Burning Arrangements
Geared turbines situated aft. Have torsional vibration characteristics of system been approved No Date of approval -

SPARE GEAR.

Has the spare gear required by the Rules been supplied Yes, except Turbine thrust pads.
State the principal additional spare gear supplied 14 Boiler wall tubes, 24 economiser tubes, 6 pre heater tubes.
87 Air heating tubes 24 boiler water wall heater plugs. 220 boiler heater plug washers.
24 boiler tube plugs. One impeller of boiler water circulating pump. 14+ main and 100 aux.
condenser tubes.

The foregoing is a correct description.

Manufacturer.

Dates of Survey while building { During progress of work in shops - - }
During erection on board vessel - - }
Total No. of visits.

Dates of Examination of principal parts—Casings Rotors Blading Gearing
Wheel shaft 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 Identification Mark
Flexible Pinion Shaft, Material and tensile strength Identification Mark
Pinion shaft, Material and tensile strength Identification Mark

; Chemical analysis

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 Identification Mark
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 If so, state name of vessel

General Remarks. (State quality of workmanship, opinions as to class, &c.)

See Rept. 9 attached hereto.

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 ... £ 220-16-0
Donkey Boiler Fee ... £ 100-0-0
Special T.S. ... £ 12-0-0
Aux. Elect. Equipment 80-0-0
Donkey Boiler Fee ... £
Sunday Fee ... £ 21-0-0
Travelling Expenses (if any) £ 36-5-0

When applied for
23. JAN. 1953

When received
LONDON
London O

TUES. 3 MAR 1953

Committee's Minute

Assigned

See minute on HKg Rpt. 11148

S. B. Johnson & M. Kamakura,
Engineer Surveyor to Lloyd's Register of Shipping.



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