

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 T.S.S. "TSUKUSHI MARU" (Number of Visits 15) Tons Gross 8,135.67
 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. 71778 When made Oct. & Nov. 1942
 Boilers made at Kobe, Japan By whom made Kawasaki Dock yard Boiler No. 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

STEAM TURBINE ENGINES, &c.—Description of Engines 2 sets of 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 ~~Direct reduction geared~~ 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 <u>6 Each</u>			<u>6 Each</u>	H.P. 2 LP 2
Reaction Blading { No. of stages <u>-</u>				
{ No. of rows in each stage <u>-</u>				

Shaft Horse Power at each turbine { H.P. 4866 1st reduction wheel 743
 { I.P. - main shaft 140
 { L.P. 3352
 Rotor Shaft diameter at journals { H.P. 120 m/m (80 central hole) LP 96.414" 1st reduction wheel 43.49364" Width of Face { 1st reduction wheel 2x200 m/m
 { I.P. - Diameter 15.0347" main wheel 79.7996" { main wheel 2 x 425 m/m
 { L.P. 135 m/m (55 central hole)

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion - 1st reduction wheel -
 { 2nd pinion - main wheel HP155m/m
 Flexible Pinion { 1st - External 130 m/m 270 m/m
 Shafts, diameter { 2nd 200m/m Internal 210 m/m diameter at bottom of pinion teeth 1st LP 31m/m
 { 2nd 362m/m

Wheel Shafts, diameter at bearings { 1st 200mm diameter at wheel shroud, { 1st 1900m/m Generator Shaft, diameter at bearings -
 { main 350m/m { main 9809m/m Propelling Motor Shaft, diameter at bearings -
 as per rule 298.5 m/m as fitted 312 m/m Thrust Shaft, diameter at collars as per rule 328 m/m
 as fitted 350 m/m

Tube Shaft, diameter as per rule - as fitted - Screw Shaft, diameter as per rule 326.3 m/m as fitted 340 m/m Is the ~~shaft~~ screw shaft fitted with a continuous liner { Yes
 Bronze Liners, thickness in way of bushes as per rule 17.55 mm (330 m/m at coupling) 13.16 mm as fitted 20 mm Thickness between bushes as fitted 15 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 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 for
 { How driven { 18M3/h x 370 m and 2 waia type pumps
 { Donkey boiler cap. 5 ton/h.
 Pumps connected to the Main Bilge Line { No. and size Bilge & fire 110 M2/H x 40 M or 55 x 65 G.S. 55 M3/H x 60M or 110x35:
 { How driven { Ballast & bilge 125 M3/h x 40M: Sanitary 125 M3/H x 35M
 { Electric Motor driven

Ballast Pumps, No. and size 1 125-150M3/h x 35-30M Lubricating Oil Pumps, including Spare Pump, No. and size 2x120 M3/hx35M
 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 { 2x130 mm 1x80 mm } Boiler Room { 2x130 mm Shaft tunnel { 2x50
 { 2x90 " 2x50 " } Total 10 { 3x80
 { 1x100 " } { 1x90

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 stowhold 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. only hinged door fitted Engine room
 worked from only

BOILERS, &c.—(Letter for record -) Total Heating Surface of Boilers 1456.4M2 = 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) (1a mont-type)
 Is a Report on Main Boilers now forwarded? Yes

NOTE.—The words which do not apply should be deleted. If not, state whether, and when, one will be sent? Is a Report also sent on the Hull of the Ship?

Is a Donkey an Auxiliary Boiler fitted? Yes If so, is a report now forwarded? Yes
 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 amount of Entry Fee ... £ 220-16-0
 Special T.S. ... £ 100-0-0
 Aux. Elect. Equipment ... £ 12-0-0
 Donkey Boiler Fee ... £ 80-0-0
 Sunday Fee ... £ 21-0-0
 Travelling Expenses (if any) £ 36-5-0

When applied for 23. JAN. 1953



TUES. 3 MAR 1953

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



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Assigned See minute on HKg Rpt. 11148