

t. 4a.

Report on Steam Turbine Machinery.

1772 (YKA)
No. 3253 K O B E
11 JAN 1956

DEC. 29, 1955
Received at London Office
Port of YOKOHAMA
Date, First Survey 25TH FEB 1955 Last Survey 27TH OCT. 1955
(Number of Visits 182)
Tons (Gross 13249.2 Net 8818.64)
Date of writing Report 19 When handed in at Local Office
No. in Survey held at TOKYO & AIOI
Reg. Book
on the S.S. JINGU MARU
Built at AIOI By whom built HARIMA S.B. & ENG. CO., LTD. Yard No. 495 When built
Engines made at TOKYO By whom made ISHIKAWAJIMA HEAVY INDUSTRIES CO., LTD. Engine No. IT-2222 When made 9. 55
Boilers made at AIOI By whom made HARIMA S.B. & ENG. CO., LTD. Boiler No. 781 When made Oct. 1955
Shaft Horse Power at Full Power 9,000 Owners DAIKYO SEKIYU K. K. Port belonging to YOKKAICHI
Nom. Horse Power as per Rule 1,800 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes
Trade for which Vessel is intended OCEAN GOING (CARRYING PETROLEUM IN BULK)

TEAM TURBINE ENGINES, &c.—Description of Engines MULTISTAGE IMPULSE TYPE

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 7 double reduction geared
Direct coupled to Alternating Current Generator phase periods per second
Direct Current Generator 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 10		7	3
Reaction blading	No. of stages			
	No. of rows in each stage			

Shaft Horse Power at each turbine H.P. 4380 I.P. 4789 L.P. 666
Revolutions per minute, at full power, of each Turbine Shaft I.P. 105 L.P. 643
Motor Shaft diameter at journals H.P. 207.46 mm I.P. 144.71 mm L.P. 144.71 mm
Pitch Circle Diameter 1st pinion P 255.29 mm 1st reduction wheel P 345 mm x 2
2nd pinion P 535.79 mm main wheel P 3279.35 mm
Distance between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion 267.5 mm 1st reduction wheel 680 mm
2nd pinion 815 mm main wheel 820 mm
Flexible Pinion Shafts, diameter 1st HP 158 mm 2nd LP 170 mm
Pinion Shafts, diameter at bearings External 1st HP 160 mm 2nd LP 310 mm
Internal 1st HP 1502.54 mm 2nd LP 495.92 mm
Generator Shaft, diameter at bearings 1st LP 1454.71 mm
Wheel Shafts, diameter at bearings 1st 280 mm 2nd 500 mm
diameter at wheel shroud, main 3295.35 mm
Propelling Motor Shaft, diameter at bearings as per rule as approved
Intermediate Shafts, diameter as fitted 4450 mm
Thrust Shaft, diameter at collars as fitted 420 mm DIA. REDUCED TO 260 mm DIA. AT COLLAR

Tube Shaft, diameter as per rule as approved
Screw Shaft, diameter as fitted 504 mm
Is the tube screw shaft fitted with a continuous liner YES
Bronze Liners, thickness in way of bushes as per rule as approved
Thickness between bushes as fitted 26 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
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 2320 mm

Propeller, diameter 6250 mm Pitch 4448.5 mm No. of Blades 4 State whether Moveable Movable Total Developed Surface 138,694 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 1 Feed Pumps No. and size 2 SETS 55 M³/4 x 400 M 1 Aux. pump.
How driven Steam turbine

Pumps connected to the Main Bilge Line No. and size Bilge pump 1 x 50 M³/4 x 25 M, G.S. & Fire pump 1 x 100 M³/4 x 30 M, Bathing pump 1 x 10 M³/4 x 140 M, Bilge & Sump pump 1 x 16 M³/4 x 35 M
How driven steam driven, motor driven, steam driven, M.E. driven

Ballast Pumps, No. and size Lubricating Oil Pumps, including Spare Pump, No. and size 2 x 120 M³/4 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 1 x 17 3/4", 1 x 6", 5 x 4", 1 x 3", 8 x 2" In Pump Room 1 x 4", 2 x 3"
In Holds, &c. 2 x 2 1/2" 1 x 2" (Aux. P.R.)

Main Water Circulating Pump Direct Bilge Suctions, No. and size 1 x 17 3/4" Independent Power Pump Direct Suctions to the Engine Room
Bilges, No. and size 1 x 17 3/4", 1 x 4", 1 x 6" 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 both 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 Ballast water suction, bilge How are they protected length + heavy gauge pipes

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 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 NO Is it fitted with a watertight door worked from
OILERS, &c.—(Letter for record) Total Heating Surface of Boilers 2 x 689.3 M² = 1398.6 M² = 15054 ft²

Is Forced Draft fitted YES No. and Description of Boilers 2 x Single flow, three drum water tube boiler Working Pressure 33 kg/cm² 30 kg/cm² (SUPER HEAT outlet)
Is a Report on Main Boilers now forwarded?

Is { a Donkey Boiler fitted? NO- 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 5-4-55 Main Boilers 5-3-55, 4-4-55, 5-3-55, 5-4-55 Auxiliary Boilers. - Donkey Boilers. -
(If not, state date of approval)
Superheaters 2-2-55 General Pumping Arrangements 6-7-55 Oil Fuel Burning Arrangements 23-5-55
Geared turbines situated aft. Have torsional vibration characteristics of system been approved YES Date of approval 2-8-55 17-8-55

SPARE GEAR.

Has the spare gear required by the Rules been supplied. YES
State the principal additional spare gear supplied. BEARING BUSHES FOR EACH REDUCTION GEAR AND ROTOR.
COMPLETE SET OF THRUST PADS FOR HP & LP TURBINE
BOLTS, REAMER BOLTS, STUDS & NUTS FOR TURBINE CASING JOINTS
PADS FOR THRUST
2-propeller blades
THE HARIMA SHIPBUILDING AND
ENGINEERING COMPANY, LTD.
5292 Aioi, Aioi-shi,
Hyogo-ken, Japan.

The foregoing is a correct description.

MANAGER. ISHIKAWAJIMA H.I. CO. LTD.

Dates of Survey while building
During progress of work in shops - 1955 FEB. 25 MAR. 2, 4, 12, 18, 23 APR. 1, 2, 4, 7, 9, 11, 15, 18, 26, 27, 28 MAY 4, 7, 10, 13, 20, 23
During erection on board vessel - JUNE 3, 6, 8, 10, 13, 14, 15, 16, 18, 22, 25 JUL. 1, 5, 7, 11, 12, 13, 15, 18, 20, 23, 27, 29 AUG. 1, 3, 10, 12, 15, 19, 20, 23
Total No. of visits. 29 SEP. 1, 3, 6, 7, 9, 12, 14, 18, 21, 22 OCT. 1, 1955, March 8, 18, April 1, 26, May 4, 10, 12, 30, June 1, 4, 6, 7, 8, 9, 11, 13, 14, 15, 16, 17, 18, 21, 22, 24, 25, 27, 28, 30, July 1, 5, 6, 8, 11, 12, 13, 14, 15, 16, 19, 21, 22, 24, 25, 26, 27, 28, 29, 30, Oct. 1, 3, 5, 6, 12, 19, 20, 25, 26, 27
1955, Aug. 11, 17, 18, 28, Sept. 28, Oct. 1, 3, 5, 6, 12, 19, 20, 25, 26, 27

Dates of Examination of principal parts - Casings HP 12-8-55 HP 7-7-55 HP 6-9-55 1ST 14-9-55
1ST 14-9-55 Rotors LP 10-8-55 LP 15-7-55 Blading LP 29-8-55 Gearing 2ND 12-9-55

Wheel shaft 2ND 12-9-55 Thrust shaft 12-9-55 Intermediate shafts 12-8-55 Tube shaft - Screw shaft 12-8-55

Propeller 12-8-55 Stern tube 11-8-55 Engine and boiler seatings 5-10-55 Engine holding down bolts 1-10-55

Completion of fitting sea connections 12-8-55 Completion of pumping arrangements 12-10-55 Boilers fixed 6-9-55 Engines tried under steam 20-10-55

Main boiler safety valves adjusted 5-10-55 Thickness of adjusting washers. TOP BOT. TAN. RAD. TOP BOT. TAN. RAD. KG/MM² HP Y3652

Rotor shaft, Material and tensile strength. N.C. CrMo STEEL HP 77.7 78.3 78.0 77.4 LP 77.3 75.8 78.7 76.9 Identification Mark LP Y3653

Flexible Pinion Shaft, Material and tensile strength. N.C. CrMo STEEL HP 85.6 84.0 LP 86.0 87.1 KG/MM² Identification Mark LP Y3640-A

Pinion shaft, Material and tensile strength. STEEL 1ST HP 70.3 70.0 71.5 70 2ND LP 85.6 81.0 82.1 82.4 LP 85.4 87.2 KG/MM² Identification Mark 1ST LP Y3642 LP Y3639

; Chemical analysis. 1ST HP 0.30 0.30 0.29 0.02 0.018 1.47 1.03 0.24 2ND HP 0.33 0.34 0.37 0.027 0.023 1.74 0.90 0.32 LP 0.30 0.30 0.49 0.02 0.018 1.97 1.03 0.30

If Pinion Shafts are made of special steel state date of approval of chemical analyses, physical properties and heat treatment. 2-6-55

1st Reduction Wheel Shaft, Material and tensile strength. FLE. FURNACE FORGED STEEL HP 45.5 LP 49.1 KG/MM² Identification Mark HP Y7028-A

Wheel shaft, Material. O.H. FORGED STEEL Identification Mark Y3386-A Thrust shaft, Material. SAME WHEEL SHAFT Identification Mark SAME WHEEL SH

Intermediate shafts, Material. FURNACE FORGED STEEL Identification Marks 1CTF 361 Tube shaft, Material. - Identification Marks -

Screw shaft, Material. FORGED STEEL Identification Marks K-7 1918 Steam Pipes, Material. CrMo steel Test pressure. 66 KG/CM²

Date of test. 12, 13, 15-8-55, 11-10-55 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. NO 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. 5.5 "ADRIAS" 5.5 "LEONIDAS"

Is this machinery a duplicate of a previous case. YES If so, state name of vessel. 5.5 "IONIAN CHALLENGER" 5.5 "IONIAN MESSE"

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 Approved plans and the Rules.

The workmanship and materials have been found satisfactory.

The turbine has been tested in the shop under no load condition and found in good order.

It is submitted that this engine is eligible for classification with this

Society with the notation of + LMC when satisfactorily installed in the vessel.

The Machinery has now been satisfactorily installed on board and tested under full working

condition and found satisfactorily.

In our opinion the machinery of this vessel is worthy of a record of + LMC 10,55 BS 10,55, WP

33 kg/cm² and TS(CL) 10,55.

TVC letter by dated 2/8/55 in 101184 + max 105604

During sea trials some rough running was observed and gear hammer took place between 45 and

65 r.p.m. The revolution counter has been marked and a notice board placed at the control stati

stating that the engine must not be run continuously between 45 and 65 r.p.m.

The amount of Entry Fee £304,000 - When applied for. OCT. 25, 1955

Special K O B E £10,000 DEC. 28, 1955

Donkey Boiler Fee ... £ : When received.

Travelling Expenses (if any) £ See Rpt. 1 : 19

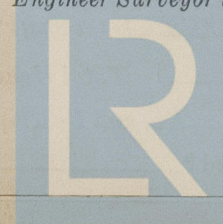
Committee's Minute FRIDAY 13 APR 1956

Assigned + LMC 10.55 (With Tors. & End!) 2 MB 469 Cl. OF 10.55.

CL

Certificate (if required) to be sent to

(The Surveyors are requested not to write on or below the space for Committee's Minute.)



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