

Report on Steam Turbine Machinery. No. 2711A

4026

4a. Writing Report 3rd Sept., 19 58 When handed in at Local Office 19 Port of YOKOHAMA
 Survey held at Yokohama & Tokyo Date, First Survey 19th March, 1957 Last Survey 9th August 19 58
 Book (Number of Visits 176)
 on the Single Twin Triple Screw Vessel "RIYADH MARU" Tons (Gross 26034.19 (Net 16070.87)
 at Yokohama, Japan By whom built Nippon Kokan K.K., Tsurumi Shipyard Yard No. 742 3945 When built 8 - 1958
 nes made at Tokyo, Japan By whom made Ishikawajima Heavy Industries Co., Ltd. Engine No. IT-2262 When made 3 - 1958
 rs made at Yokohama, Japan By whom made Nippon Kokan K.K., Tsurumi Shipyard Boiler No. B-238 When made 8 - 1958
 Horse Power Maximum 17500 Service 15750 Owners Nippon Yusen Kaisha, Ltd. Port belonging to Tokyo
 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes
 for which Vessel is intended 3450

1M TURBINE ENGINES, &c.—Description of Engines Multi-stage impulse turbine with double reduction gearing
 Turbines Ahead 2 Direct coupled, single reduction/gearred to Main propelling shafts. No. of primary pinions to each set of reduction gearing HP-1 LP-1
 Astern 1 double reduction/gearred
 coupled to Alternating Current Generator phase periods per second rated Kilowatts Volts at revolutions per minute;
 applying power for driving Propelling Motors, Type Direct Current Generator rated Kilowatts Volts at revolutions per minute. Direct coupled, single or double reduction geared to propelling shafts.

| BINE | H. P. | I. P. | L. P. | ASTERN. |
|---------------------------|-------|-------|-------|---------|
| No. of rows | 11 | | 7 x 2 | 3 |
| No. of stages | | | | |
| No. of rows in each stage | | | | |

Horse Power at each turbine H.P. 8660 I.P. 5,026 L.P. 8840
 Shaft diameter at journals H.P. 140 mm I.P. 301.37 mm L.P. 230 mm
 Pitch Circle Diameter 1st pinion HP 633.58 mm LP 633.58 mm 2nd pinion HP 633.58 mm LP 633.58 mm
 Distance between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion 470 mm 2nd pinion 930 mm
 Pinion diameter 1st HP 200 mm LP 229 mm 2nd LP 229 mm
 Pinion Shafts, diameter at bearings External 1st HP 180 mm LP 180 mm 2nd HP 420 mm LP 290 mm
 Internal 1st HP 496.6 mm LP 496.6 mm 2nd HP 290 mm LP 290 mm
 Shafts, diameter at bearings 1st HP 420 mm LP 420 mm 2nd LP 420 mm
 Intermediate Shafts, diameter as per rule 528.65 mm as fitted 540.0 mm
 Propelling Motor Shaft, diameter at bearings 585 mm
 Thrust Shaft, diameter at collars as per rule 600 mm dia. at journal reduced as fitted to 560 mm dia. at coupling

Shaft diameter as per rule 602.31 mm as fitted 620.0 mm in body reduced to 565 mm dia. adjacent to coupling
 Liners, thickness in way of bushes as per rule 26.162 mm as fitted 28.0 mm Thickness between bushes as fitted 28.0 mm
 Is the after end of the liner made watertight in the stern 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 -
 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 -
 If so, state type - Length of Bearing in Stern Bush next to and supporting propeller 2600 mm

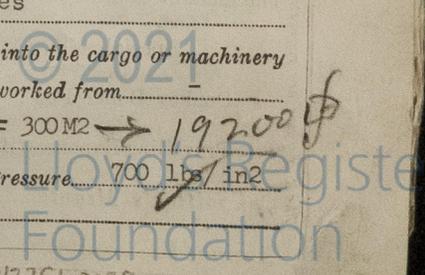
Propeller, diameter 6,800 mm Pitch 5,130 mm No. of Blades 5 State whether Moveable Solid Total Developed Surface 19,947 square feet
 Are arrangements made so that steam can be led direct to the L.P. Turbine Yes Can the H.P. or I.P. Turbines exhaust direct to the sea Yes
 No. of Turbines fitted with astern wheels 1 Feed Pumps (No. and size) 3-110 m³/hr x 560m 2-25m³/hr x 140m
 How driven Steam Turbine Steam (Weirs)

Connected to the Main Bilge Line (No. and size) 1-30m³/hr x 25m 1-200/100m³/hr x 30/70m 1-150m³/hr x 140m
 How driven Motor (Piston) Motor (Centrifugal) Motor (Centrifugal) (Butterworth & Fire Pump) (Steam Turbine)
 Pumps, No. and size 1-150 m³/hr x 140m 1-200 m³/hr x 30m 1-30 x 25 m Lubricating Oil Pumps, including Spare Pump, No. and size 2-150m³/hr x 3kg/cm²
 independent means arranged for circulating water through the Oil Cooler Yes Branch Bilge Suctions, No. and size: In Engine
 3-100mm, 6-50mm In Pump Room Main Pump Room 2-75mm Aux. 1-80mm

Water Circulating Pump Direct Bilge Suctions, No. and size 1-160mm 1-100mm Direct Bilge Suctions to the Engine and/or Boiler Room
 No. and size 1-160mm 1-100mm Are all the Bilge Suction pipes in Holds and/Tunnel/Wall fitted with strum-boxes Yes
 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
 Sea Connections fitted direct on the skin of the ship Yes Are they fitted with Valves or Cocks Both
 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
 Cow 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 -
 pipes pass through the deep tanks - Have they been tested as per rule -

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
 from one compartment to another Yes Is the Shaft Tunnel watertight - Is it fitted with a watertight door - worked from -
 Conduction 700 x 2 = 1400 M² Radiation 42 x 2 = 84 M² Superheater 150 x 2 = 300 M²
 2-Marine Water Tube Boiler of 2 drum type with water wall Working Pressure 700 lbs/in²

Boilers, &c.—Total Heating Surface of Boilers
 Draught fitted Yes No. and Description of Boilers
 Port on Main Boilers now forwarded? Yes



Is **a Donkey** Boiler fitted? Yes, One (1) Low Pressure Steam Generator. If so, is a report now forwarded? Yes
 Is **an Auxiliary** L.P. Steam Generator intended to be used for domestic purposes only? No
 Plans. Are approved plans forwarded herewith for Shafting? 18-3-57 Main Boilers. 26-11-57 Auxiliary Boilers. - L.P. Steam Generator 1-5-57
 Superheaters. 1-5-57 General Pumping Arrangements. 12-3-57, 14-3-57 Oil Fuel Burning Arrangements. 19-11-57
 Geared turbines situated aft. Have torsional vibration characteristics of system been approved? Yes Date of approval. 23-1-58

SPARE GEAR.

Has the spare gear required by the Rules been supplied? Yes
 State the principal additional spare gear supplied:
 Bolts & Nuts for turbine casing and reduction gear casing
 Packing rings for turbine
 One (1) cast iron screw propeller

The foregoing is a correct description. *H. Asumura* VICE DIRECTOR NKK TSURUMI SHIDYARD YOKOHAMA, JAPAN. *S. Ohyama*

Dates of Survey while building: During progress of work in shops - - - TOKYO: 1957: MAR. 19, 26, 30, APR. 11, 16, 23, 25, MAY 9, 14, 18, 30, 31, JUN. 6, 15, 18, 22, 25, 29, JUL. 2, 4, 9, 11, 23, 25, 27, AUG. 1, 8, 22, 27, SEP. 3, 5, 7, 10, 17, 21, 26, OCT. 3, 15, NOV. 9, 21, 26, 30, DEC. 3, 5, 10, 12, 14, 17, 21, 1958: JAN. 7, 9, 11, 13, 16, 18, 21, 23, 25, 27, 28, 30, FEB. 1, 12, 18, 19, 20, 25, 27, MAR. 4, 8, 10, 15, 18, 20, 22, 24, 27, 29, 30, 31, JUN. 12, 14, 22, 27, AUG. 15, SEP. 6, 16, 19, OCT. 3, 5, 10, 12, 15, 17, 21, 24, 26, 31, NOV. 2, 6, 11, 13, 27, 29, DEC. 4, 9, 11, 14, 18, 20, 23, 26, 31, 1958: JAN. 7, 10, 16, 18, 20, 22, 24, 27, 29, 30, 31, FEB. 3, 6, 12, 14, 19, 21, 24, 26, MAR. 3, 5, 7, 17, 19, 26, APR. 2, 7, 9, 11, 25, MAY 19, 21, 28, 30, JUN. 2, 4, 6, 9, 13, 16, 23, 25, 27, 30, 1958: APR. 30, MAY 9, 14, 16, JUN. 27, JUL. 7, 14, 21, 23, 29, AUG. 2, 5, 6, 9
 Total No. of visits. 176
 Dates of Examination of principal parts - Casings: HP 28-12-57, LP 26-12-57, 28-12-57, Rotors: LP 12-12-57, Blading: LP 17-12-57, Gearing: 1st (HP) 12-1-57, 2nd (LP) 25-1-57
 Wheel shaft: 1st (HP) 10-12-57, LP 21-11-57, Thrust shaft: 30-11-57, Intermediate shafts: 9-5-58, Tube shaft: - Screw shaft: 2-4-57
 Propeller: 9-5-58, Stern tube: - Engine and boiler seatings: 14-5-58, Engine holding down bolts: -
 Completion of fitting sea connections: 16-5-58, Completion of pumping arrangements: 22-7-58, Boilers fixed: 14-7-58, Engines tried under steam: 2-7-58

Main boiler safety valves adjusted. Thickness of adjusting washers. HP NiMoV Steel LT 75.5 LB 72.0 R 73.2 kg/mm2 Identification Mark. HP No. Y-1026
 Rotor shaft, Material and tensile strength. LP NiMoV Steel LT 75.7 LB 74.0 R 76.5 kg/mm2 Identification Mark. LP No. Y-1025
 Flexible Pinion Shaft, Material and tensile strength. HP Ni Mo V Steel LT 76.5 LB 72.8 kg/mm2 Identification Mark. LP No. Y-1028
 Pinion shaft, Material and tensile strength. 1st LP Ni Mo Steel LT 84.5 LB 84.8 T 85.0 2nd Ni Cr Mo Steel LT 82.8 LB 84.5 T 81.5 T 87.3 kg/mm2 Identification Mark. HP 1st No. Y-1029, LP 1st No. Y-1030
 Chemical analysis: 1st: LP 0.4 0.31 0.60 0.015 0.012 1.71 0.82 0.29 2nd: 0.3 0.29 0.69 0.031 0.029 1.70 0.98 0.27
 If Pinion Shafts are made of special steel state date of approval of chemical analyses, physical properties and heat treatment. 18-3-57 HP No. Y-1013

1st Reduction Wheel Shaft, Material and tensile strength. HP O.H. Steel A44.5 B44.5 kg/mm2 Identification Mark. No. Y-1013
 Wheel shaft, Material. O.H. Steel Identification Mark. Y-10132 Thrust shaft, Material. O.H. Steel Identification Mark. No. Y-10133
 Intermediate shafts, Material. O.H. Steel Identification Marks. Y-12182 Tube shaft, Material. Cr. Mo. Steel for Superheated lines Identification Marks. No. Y-10134
 Screw shaft, Material. O.H. Steel Identification Marks. KF 2596 Steam Pipes, Material. O.H. Steel Test pressure. 90 kg/cm2
 Date of test. 28-5-58, 2, 4, 6, 9, 25 & 30-6-58, 4, 7 & 9-7-58 Is an installation fitted for burning oil fuel. Yes (Should be)
 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
 Full description of Fire Extinguishing Apparatus fitted in machinery spaces. 8-Hydrants & Hoses; Steam Smothering; Portable Foam Ext.; 6-Sand Boxes: 1-6.5kg CO2; Diesel Eng. Driven Emerg. Fire P.
 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. No If so, state name of vessel. -

General Remarks. (State quality of workmanship, opinions as to class, &c.)
 This Steam Turbine Machinery has been constructed under the Supervision of the Society's Surveyors in accordance with the Rules, approved plans and Secretary's letters.
 The Quality of workmanship and materials found to be satisfactory.
 The Machinery has been satisfactorily installed in the vessel in accordance with the Rules, tested under condition and found satisfactory.
 It is submitted that the Machinery of this vessel is eligible to be classed with this Society with the notation of LMC 8,58 and TSCL 8,58, "Fitted for Oil Fuel 8,58 F.P. above 150°F."

CONSTRUCTION The amount of Entry Fee ... ¥ 403,000
 INSTALLATION ... ¥ 389,000
 Special ... ¥ 127,000
 Donkey Boiler Fee ... ¥
 Travelling Expenses (if any) ¥ 15,000
 18th JUNE 1958, ISHIKAWAJIMA H.I. Co.
 SEP 22 1958
 TUESDAY 11 NOV 1958
 Engineer Surveyor to Lloyd's Register of Shipping.
 Lloyd's Register Foundation

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

7-10-58

Assigned: See Rpt. 1.