

REPORT ON STEAM TURBINE MACHINERY.

No. 322

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Writing Report 11/1/1951 When handed in at Local Office 11/1/1950 Port of Yokohama
 Survey held at Tokyo + Aioi Japan Date, First Survey 1st June Last Survey 23rd December, 1950
 Book on the S/v "Nichiei Maru" (Number of Visits 21 58)
 at Aioi, Japan By whom built Harima Shipbuilding Wks Yard No. 453 When built Dec. 50
 nes made at Tokyo, Japan By whom made Ishikawajima Hvy Ind Co Engine No. IT 2152 When made 10-10-50
 made at Aioi, Japan By whom made Harima Shipbuilding Works Boiler No. 8722 8724 When made Dec. '50
 Horse Power at Full Power 7,000 HP Owners Nito Shosen Co Ltd Ltd. Port belonging to Tokyo
 Horse Power as per Rule 995 1612.3 Is Refrigerating Machinery fitted for cargo purposes ----- Is Electric Light fitted Yes
 for which Vessel is intended Ocean Going

STEAM TURBINE ENGINES, &c.—Description of Engines Impulse type, with HP & LP turbines

Ahead 2 ~~Direct coupled,~~ } to main propelling shafts. No. of primary pinions to each set of reduction gearing 2
 Astern 2 ~~single reduction geared~~ }
 double reduction geared }
 coupled to { Alternating Current Generator — phase — periods per second } rated — Kilowatts — Volts at — revolutions per minute;
 Direct Current Generator }
 driving power for driving — Propelling Motors, Type —
 — Kilowatts — Volts at — revolutions per minute. Direct coupled, single or double reduction geared to Double propelling shafts.

EXPANSION	H. P.			I. P.			L. P.			ASTERN.			
	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	
"	35 45	695 705	2				45	1227	1	34 43	759 768	2	H.P.
"	22	733	1				62	1257	1				
"	26	741	1				94	1304	1				
"	30	749	1				132	1357	1	86 102	1286, 1302	2	L.P.
"	35	759	1				194	1434	1				
"	42	773	1				264	1529	1				
"	41	791	1										

Horse Power at each turbine { H.P. 3500 I.P. 3500 L.P. 3500 } Revolutions per minute, at full power, of each Turbine Shaft { H.P. 4625 I.P. 3342 L.P. 3342 }
 Shaft diameter at journals { H.P. 170 I.P. 170 L.P. 170 } Pitch Circle { 1st pinion LP 714.20 1st reduction wheel L.P. 1515.80 2nd pinion LP 521.95 main wheel 3171.27 } Width of Face { 1st reduction wheel LP 268x2 2nd reduction wheel LP 268x2 }
 between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 915 820 (H.P.) 1st reduction wheel LP 900 2nd pinion L.P. 1346.61 1610 (H.P.) main wheel 1,700 }
 Pinion { 1st HP 155 2nd LP 150 } Pinion Shafts, diameter at bearings { 1st 300 2nd 465 } diameter at wheel shroud, { 1st 3050 2nd 3050 } Generator Shaft, diameter at bearings —
 Shafts, diameter at bearings { 1st 300 2nd 465 } Propelling Motor Shaft, diameter at bearings —
 Intermediate Shaft, diameter as per rule 15,7056" as fitted 16,0630" Thrust Shaft, diameter at collars as per rule 427.77 as fitted 465 Tube Shaft, diameter as per rule — as fitted —
 Shaft, diameter as per rule 17.2640" as fitted 17.8740" } tube } screw } shaft fitted with a continuous liner { Yes } Bronze Liners, thickness in way of bushes as per rule 0.8286 as fitted 0.9055"
 between bushes as per rule 0.6215" as fitted 0.7087" 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 fusion through the whole thickness of the liner One-length If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a material insoluble in water and non-corrosive Tight If two liners are fitted, is the shaft lapped or protected between the liners — Is an approved Oil Gland compliance fitted at the after end of the tube shaft — Length of Bearing in Stern Bush next to and supporting propeller 94.4883"
 diameter 5700 Pitch 3933.2 No. of Blades 4 State whether Moveable Moveable Total Developed Surface 118.1 square feet.
 Screw, are arrangements made so that steam can be led direct to the L.P. Turbine Yes Can the H.P. or L.P. Turbine exhaust direct to the Yes No. of Turbines fitted with astern wheels 2 Feed Pumps { No. and size 2, 42 ton/hr x 300 m head 2, 171/H x 300M (Steam) How driven driven by directly coupled steam turbine }
 connected to the Main Bilge Line { No. and size 1x200M³/Hx30M, 1x110M³/Hx50M, 1x60M³/Hx60M, 1x15M³/Hx60M, 1x15M³/Hx30M How driven Motor Motor Motor Motor Main Shaft }
 Pumps, No. and size 1 x 200M³/H x 30 M Lubricating Oil Pumps, including Spare Pump, No. and size 2 x 135M³/H x 35M
 independent means arranged for circulating water through the Oil Cooler Yes Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge
 No. and size: — In Engine and Boiler Room For 2 (P.S.) 3", Aft 2 (P.S.) 4", Aft (P.) 4", Aft (S.) 6", Tunnel 3", Condensate 1 1/2", In Pump Room 3", Fore 1-2" Center 2 (P.S.) 4"
 &c. Chain Locker 1-2 1/2", Cargohold 2 (P.S.) 2 1/2" Coffdam (F.N.O. 205-207) 1-3", Coffdam (F.N.O. 187-189) 1-3", Coffdam (F.N.O. 59-61) 1-1 1/2", Coffdam (Eng. RM) 1-2"
 Water Circulating Pump Direct Bilge Suctions, No. and size 1 x 450 φ Are all the Bilge Suction pipes in Holds and Tunnel Well 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 Yes 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 line Both
 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
 pipes pass through the bunkers. How are they protected
 pipes pass through the deep tanks. Have they been tested as per rule
 Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes
 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
 ment to another. Yes Is the Shaft Tunnel watertight NONE Is it fitted with a watertight door No worked from

BOILERS, &c.— (Letter for record) Total Heating Surface of Boilers 602.974 M2 x33
Is Forced Draft fitted Yes No. and Description of Boilers 3 3 Drums Water Tube Boiler Working Pressure 22
Is a Report on Main Boilers now forwarded? Yes
Is { a Donkey } Boiler fitted? No. If so, is a report now forwarded? -----
Plans. Are approved plans forwarded herewith for Shafting 18 July '50 Main Boilers 7 Aug. '50 Auxiliary Boilers ----- Donkey Boilers -----
(If not state date of approval)
Superheaters 30 Aug. 1950. General Pumping Arrangements 2 - Oct. '50. Oil Fuel Burning Arrangements 2 - Oct. '50
Spare Gear. State the articles supplied: Principal additional gears Yes

Bearing bushes for each reduction gear and each rotor (each 1 set.)
~~One set of pads for main thrust and turbine thrust.~~
Bolts, reamer bolts, studs and nuts for joint of turbine casings. 1 set of fuel oil burner.

T.V.C. app^d 17/7/57 for 114 hp.

The foregoing is a correct description,

T. Shigetomi T. Shigetomi

Dates of Survey while building { During progress of work in shops -- } 21 visits (YOKOHAMA DISTRICT) 1950-JUN. 9. 11. 14. 21. 23. JUL. 7. 12. 14. 28. AUG. 9. 19. 24. 28.
{ During erection on board vessel -- } SEP. 2. 11. 12. 18. 21. OCT. 10. 17. 20. 24. 30. NOV. 2. 6. 10. (KOBE DISTRICT)
Total No. of visits 1950 - OCT. 5. 20. NOV. 18. 25. 30. DEC. 4. 6. 12. 14. 20. 23. (KOBE DISTRICT) 23 58

Dates of Examination of principal parts—Casings HP, 1-9-50 LP, 28-7-50 Rotor HP, 15-8-50 LP, 22-9-50 Blading LP 22-9-50 Gearing LP 28-7-50
Wheel shaft { HP 15-8-50 LP 28-8-50 Thrust shaft 8-9-50 Intermediate shafts 18-9-50 Tube shaft - Screw shaft 28-7-50
2nd 8-9-50 11-6-50
Propeller 21-9-50 Stern tube 28-8-50 Engine and boiler seatings 5-10 - 50 Engine holding down bolts 14-12-50
Completion of pumping arrangements 6-12-50 Boilers fixed 29-10-50 Engines tried under steam shop 9-10-50
Main boiler safety valves adjusted 4-12-50 Thickness of adjusting washers -

Rotor shaft, Material and tensile strength HP, Ni-Cr Steel, 46.0, 44.7, 45.5, LP, Forging Steel 35.7, 35.4, Identification Mark HP Y1155 LP Y1154

Flexible Pinion Shaft, Material and tensile strength Ni-Cr Steel HP 49.6, 48.0, LP 59.4, 59.9, Identification Mark HP Y836 LP Y836

Pinion shaft, Material and tensile strength 1st Pinion, nickel steel LP 45.0, 45.0, 44.4 2nd Pinion, nickel steel LP 45.0, 45.0, 44.4 Identification Mark HP Y1157A LP Y1157B

1st Reduction Wheel Shaft, Material and tensile strength Forging steel HP 72.7 ton/in² LP 72.1 ton/in² Identification Mark HP Y1156 LP Y1156

Wheel shaft, Material Forging Steel A. 32.89 Identification Mark Y1156 Thrust shaft, Material Forging Steel A. 32.89 Identification Mark Y1156

Intermediate shafts, Material O.H.S. Identification Marks No. 1 K-F 504-1 No. 2 K-F 504-2 Tube shaft, Material Seamless hot drawing steel Identification Marks

Screw shaft, Material O.H.S. - Identification Marks K-F 527 Steam Pipes, Material drawing steel Test pressure 60.66

Date of test 9-6-50, 14-7-50, 21-6-50, 7-50, 23-6-50, 14-6-50 Can 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 Yes If so, have the requirements of the Rules been complied with Yes

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 and materials have been found satisfactory. The turbine is intended for installation in Ship No. 453 being constructed at the Harima Shipbuilding Works, Japan.

During machining of the main gear wheel some surface defects were caused to the teeth by ear. The gearing was examined after shop trials and found to be in order, but it is recommended that the gear wheel be again examined after six months' service. Subject to the foregoing the engine is submitted to be eligible for classification with this Society, and to have the notation of **Class D** when satisfactorily installed in the vessel. The machinery has now been satisfactorily installed on board and tested under full power.

The amount of Entry Fee £ : : When applied for, 19
Special £ : :
Donkey Boiler Fee £ : : When received,
Travelling Expenses (if any) £ : : 19

T. Shigetomi Engineer Surveyor to Lloyd's Register of Shipping.

FRI. 24 AUG 1951

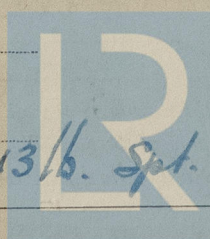
Committee's Minute

Assigned

+ LMC 12.50.

FITTED FOR OIL FUEL 12,500 FLASH POINT ABOVE 150°F.

F.D.C.L. 3 WTB 313/b. Spt.



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