

Report on Steam Turbine Machinery.

No. 1973

4a.

Date of writing Report 4th June 1956 When handed in at Local Office OCT. 19. 1956 Port of YOKOHAMA & K.O.B.E.
 Received at London Office 31 OCT 1956
 in Survey held at Hitachi, Japan Date, First Survey August 11th 1955 Last Survey 6th April 1956
 g. Book & Innoshima (Number of Visits 47(YKA) 31st July
 Total 59
 on the Single Screw Vessel "Naess Venturer" Tons (Gross 20899.20
 (Net 15207.20)
 Built at Innoshima, Japan By whom built Hitachi Shipbuilding & Engineering Co. Ltd., Innoshima Shipyard Yard No. 3777 When built 7Mo. 1956
 Engines made at Hitachi, Japan By whom made Hitachi Works, Hitachi Ltd. Engine No. AU-120 When made 4Mo. 1956
 Boilers made at Hitachi & Yokohama, Japan By whom made assembled by Babcock Hitachi, Ltd. Boiler No. BHC 3172-1 When made 3Mo. 1956
 Shaft Horse Power Maximum 700 x 2 Owners Port belonging to Monrovia
 N. as per Rule 140 x 2 Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted Yes
 made for which Vessel is intended Ocean going

STEAM TURBINE ENGINES, &c.—Description of Engines Multistage Impulse Type

of Turbines 1 Direct coupled, single reduction geared to 650KVA Generator No. of primary pinions to each set of reduction gearing 1
 Direct coupled to Alternating Current Generator 3 phase 60 periods per second rated 520 Kilowatts 450 Volts at 1,200 revolutions per minute;
 supplying power for driving Propelling Motors, Type Direct coupled, single or double reduction geared to propelling shafts.
 Kilowatts Volts at revolutions per minute.

TURBINE	H.P.	I.P.	L.P.	ASTERN
LOADING.				
No. of rows	6			
No. of stages				
No. of rows in each stage				

Shaft Horse Power at each turbine H.P. 700 ✓ Revolutions per minute, at full power, of each Turbine Shaft I.P. 10,010 1st reduction wheel 1,200 1,500
 L.P. 103.04 main shaft 1,200 1,500
 for Shaft diameter at journals H.P. 90mm (6.5") Pitch Circle Diameter 1st pinion 103.12mm 1st reduction wheel 901.88mm Width of 1st reduction wheel 260
 L.P. 60 2nd pinion main wheel 686.96 main wheel

distance between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion 180mm 1st reduction wheel 192.5mm
 2nd pinion main wheel
 Pinion Shafts, diameter at bearings External 1st 90mm 2nd 54mm diameter at bottom of pinion teeth 1st 96.47
 Internal 1st 90mm 2nd 54mm 102.12mm

Wheel Shafts, diameter at bearings 1st 120mm diameter at wheel shroud, 1st 905.88mm Generator Shaft, diameter at bearings 130mm 115
 as per rule 120mm Propelling Motor Shaft, diameter at bearings
 as fitted Thrust Shaft, diameter at collars as fitted

Screw Shaft, diameter as per rule as fitted Is the tube screw shaft fitted with a continuous liner
 as fitted as fitted as fitted

Bronze Liners, thickness in way of bushes as fitted Thickness between bushes as fitted Is the after end of the liner made watertight in the
 propeller boss If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner
 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
 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
 If so, state type Length of Bearing in Stern Bush next to and supporting propeller

Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine Can the H.P. or I.P. Turbines exhaust direct to the
 condenser No. of Turbines fitted with astern wheels Feed Pumps No. and size How driven

Pumps connected to the Main Bilge Line No. and size How driven Lubricating Oil Pumps, including Spare Pump, No. and size 2-@140M³/H. 35M
 two independent means arranged for circulating water through the Oil Cooler Yes Branch Bilge Suctions, No. and size:—In Engine
 In Pump Room

Holds, &c. in Water Circulating Pump Direct Bilge Suctions, No. and size Direct Bilge Suctions to the Engine and/or Boiler Room
 No. and size Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes
 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

all Sea Connections fitted direct on the skin of the ship Are they fitted with Valves or Cocks
 they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Are the Overboard Discharges above or below the deep water
 Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Are the Blow Off Cocks fitted with a spigot and brass
 covering plate What pipes pass through the bunkers How are they protected

at pipes pass through the deep tanks Have they been tested as per rule
 all Pipes, Cocks, Valves and Pumps in connection with the machinery and all boiler mountings accessible at all times
 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 Is the Shaft Tunnel watertight Is it fitted with a watertight door worked from

Boilers, &c.—Total Heating Surface of Boilers Boiler 8520x2=17040ft² Sup. 1300x2=2600ft² Econ. 4978x2=9956ft²
 forced Draught fitted Yes No. and Description of Boilers 2-Babcock & Wilcox Integral furnace type Working Pressure 700 lb/in²
 Report on Main Boilers now forwarded? Yes

Is { a Donkey Boiler fitted? If so, is a report now forwarded? 5c.
an Auxiliary }
Is the donkey boiler intended to be used for domestic purposes only?
Plans. Are approved plans forwarded herewith for Shafting Main Boilers Auxiliary Boilers Donkey Boilers
(If not, state date of approval)
Superheaters General Pumping Arrangements Oil Fuel Burning Arrangements
Geared turbines Have torsional vibration characteristics of system been approved. Yes Date of approval 18-1-56
situated aft.

SPARE GEAR.

Has the spare gear required by the Rules been supplied. Yes
State the principal additional spare gear supplied. Each type of labyrinth rings
Bolts, reamer bolts and nuts for turbine casing and coupling.

The foregoing is a correct description.

S. Akamatsu, Manager, Innoshima Shipyard

ASSISTANT MANAGER, HITACHI WORKS.
HITACHI LTD.

Manufacture adjusted

Dates of Survey while building During progress of work in shops - 1955:- Aug. 11, 13, 30 Sep. 1, 3, 8, 13, 17, 20, 22, 27, Oct. 4, 6, 8, 11, 13, 18, 20, 24, 26, 28, 31 Nov. 5, 9, 14, 18, Dec. 5, 9, 13, 20, 23 1956:- Jan. 6, 9, 11, 20, 23, 25, 27, 30, Feb. 1, 3, 6, 10, March 5, 14, 18, 21, 26, June 7, 16, 29 July 9, 17, 25, 27, 29, 30, 31
During erection on board vessel - 1956:- May 21, 26
Total No. of visits AU-120 20-1-56 59 23-12-55 23-12-55 25-1-56
AU-121 30-1-56 Rotors 23-12-55 Blading 23-12-55 Gearing 25-1-56

Dates of Examination of principal parts - Casings AU-121 30-1-56 Rotors 23-12-55 Blading 23-12-55 Gearing 25-1-56
Wheel shaft 9-12-55 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 16-7-56 Boilers fixed 25-5-56 Engines tried under steam 25-7-56
Main boiler safety valves adjusted 16-7-56 Thickness of adjusting washers Drum 20mm sup. 16mm
Rotor shaft, Material and tensile strength Ni Cr Mo Steel AU-120 58.8 T/in2 Identification Mark Y-7116-A
Flexible Pinion Shaft, Material and tensile strength Ni Cr Mo V Steel AU-121 59.4 T/in2 Identification Mark Y-8315-A
Pinion shaft, Material and tensile strength Ni Cr Mo Steel AU-121 53.2 T/in2 Identification Mark Y-6990-A
Chemical analysis 0.33 0.30 0.28 0.008 0.013 1.13 1.04 0.39

If Pinion Shafts are made of special steel state date of approval of chemical analyses, physical properties and heat treatment 6-10-55

1st Reduction Wheel Shaft, Material and tensile strength Y-6986-A
Wheel shaft, Material carbon steel Identification Mark Y-6936-B Thrust shaft, Material - Identification Mark -
Intermediate shafts, Material - Identification Marks - Tube shaft, Material - Identification Marks -
Screw shaft, Material - Identification Marks - Steam Pipes, Material Ca-Moly, Steel Test pressure 92.5kgs/cm²

Date of test 16-5-56 20-6-56 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

Full description of Fire Extinguishing Apparatus fitted in machinery spaces -
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. Yes If so, state name of vessel. "ALEXANDRA - I"

General Remarks. (State quality of workmanship, opinions as to class, &c.) These Turbines have been constructed under the supervision of the Society's Surveyors in accordance with the Society's Rules, the Approved Plans and the Secretary's Letters.

The workmanship and materials have been found satisfactory.

The turbines were examined during and after half load shop trials and found in good order.

It is submitted that these engines are eligible for classification with this Society with the notation of

LMC when satisfactorily installed and tested in the vessel.

On completion these machines were installed in the ship in accordance with the Rules and tried under full working conditions with satisfactory results.

Construction
The amount of Entry Fee ... £/ ¥ 84,000.- When applied for.
Special ... £ . : : 5th July 19 56
Donkey Boiler Fee ... £ . : : When received.
Travelling Expenses (if any) £ . : : 19

Committee's Minute

Assigned

See Rpt. 1.

TUESDAY 18 DEC 1956

Engineer Surveyor to Lloyd's Register of Shipping.



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