

Report on Steam Turbine Machinery.

No. 1973

4a.

Received at London Office **31 OCT 1956**

Date of writing Report 4th June 1956 When handed in at Local Office OCT 19 1956 Port of YOKOHAMA & K.O.B.E.

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 20899.30
Net 15207.30

uilt at Innoshima, Japan By whom built Hitachi Shipbuilding & Engineering Co. Ltd., Innoshima Shipyard Yard No. 3777 When built 7Mo. 1956

gines made at Hitachi, Japan By whom made Hitachi Works, Hitachi Ltd. Engine No. AU-120 When made 4Mo. 1956

ilers made at Hitachi & Yokohama, Japan By whom made made by Hitachi works, Hitachi Ltd. assembled by Babcock Hitachi, Boiler No. BHC 3172-1 5HC 3172 When made 3Mo. 1956

raft Horse Power {Maximum 700 x 2 Owners _____ Port belonging to Monrovia
Service 140 x 2

N. as per Rule _____ Is Refrigerating Machinery fitted for cargo purposes _____ Is Electric Light fitted Yes

ade 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 propelling shafts. No. of primary pinions to each set of reduction gearing 1

ected coupled to { Alternating Current Generator 3 phase 60 periods per second } rated 520 Kilowatts 450 Volts at 1,200 revolutions per minute;
Direct Current Generator

upplying power for driving _____ Propelling Motors, Type _____

ed _____ Kilowatts _____ Volts at _____ revolutions per minute. Direct coupled, single or double reduction geared to _____ propelling shafts.

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

Cancelled for sister ship "ALEXANDRA I"

ft Horse Power at each turbine H.P. 700 ✓ Revolutions per minute, at full power, of each Turbine Shaft I.P. 10,010 L.P. 1,200 1st reduction wheel 1,500

or Shaft diameter at journals H.P. 190mm (6.5") Pitch Circle Diameter 103.12mm 1st pinion 103.12mm 1st reduction wheel 901.88mm Width of Face 686.96 1st reduction wheel 260

istance 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/

able Pinion 1st/ 4.2mm reduced to 4.0mm dia adjacent to claw coupling Pinion Shafts, diameter at bearings { External 1st/ 90mm 2nd/ 54mm diameter at bottom of pinion teeth 1st/ 96.47
Internal 1st/ 102.12mm 2nd/ 102.12mm

heel Shafts, diameter at bearings { 1st/ 120mm diameter at wheel shroud, { 1st/ 905.88mm Generator Shaft, diameter at bearings 130mm 115
main 690.95 Propelling Motor Shaft, diameter at bearings _____

s/ Intermediate Shafts, diameter _____ Thrust Shaft, diameter at collars _____
as per rule _____ as fitted _____

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

onze Liners, thickness in way of bushes _____ Thickness between bushes _____ Is the after end of the liner made watertight in the _____
as per rule _____ as fitted _____

PELLER 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 _____

wo 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 _____

PELLER, diameter _____ Pitch _____ No. of Blades _____ State whether Moveable _____ Total Developed Surface _____ square feet.

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 _____

ndenser _____ No. of Turbines fitted with astern wheels _____ Feed Pumps { No. and size _____
How driven _____

mps connected to the Main Bilge Line { No. and size _____
How driven _____

last Pumps, No. and size _____ 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 _____

Boiler Rooms _____

in Water Circulating Pump Direct Bilge Suctions, No. and size _____ Direct Bilge Suctions to the Engine and/or Boiler Room _____

ges, 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 _____

ering 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 _____

he 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 _____

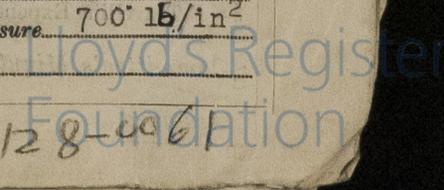
ces, or from one compartment to another _____ Is the Shaft Tunnel watertight _____ Is it fitted with a watertight door _____ worked from _____

ELERS, &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 Working Pressure 700 lb/in²

Report on Main Boilers now forwarded? Yes

012/24-012128-006



Is a Donkey Boiler fitted? 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 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
 Bolt's, reamer bolts and nuts for turbine casing and coupling.

The foregoing is a correct description. S. Akamatsu ASSISTANT MANAGER, HITACHI WORKS.
HITACHI LTD
 S. Akamatsu, Manager, Innoshima Shipyard 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, 11, 14, 18, 21, 26, 30.
	During erection on board vessel - - -	1956:- May 21, 26. June 7, 16, 29. July 9, 17, 25, 27, 29, 30, 31.
Total No. of visits		59
Dates of Examination of principal parts	Casings	AU-120 20-1-56 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 L. 56.0 T. 56.0 R. 25.6 T/in2	Identification Mark Y-7116-A
Flexible Pinion Shaft, Material and tensile strength	Ni Cr Mo V Steel AU-120 58.8 T/in2	Identification Mark Y-8315-A
Pinion shaft, Material and tensile strength	Ni Cr Mo Steel AU-121 59.4 T/in2	Identification Mark Y-8315-B
		Y-6990-A
		Y-6990-B
		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 Identification Mark -
 Wheel shaft, Material Electric furnace carbon steel Identification Mark Y-6986-A 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.

Certificate (if required) to be sent to Committee's Minute.

Construction	The amount of Entry Fee	£ 84,000.-	When applied for.
Special			5th July 1956
Donkey Boiler Fee			When received.
Travelling Expenses (if any)			19

Shamada
Shamada
 Engineer Surveyor to Lloyd's Register of Shipping.



Committee's Minute
 Assigned See Rpt. 1.

TUESDAY 18 DEC 1956