

should be forwarded and a
 Report No. 450
 No. 750
 No. 775

Rpt. 4b

Date of writing report
 Survey held at Nagasaki
 Received London
 In shops 85
 On vessel 12
 Port Nagasaki (Shimonoseki) No. FE 795
 26-2-1957
 4-7-1957
 10-9-1957
 15-10-1957

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. Name M.V. "KOHOH MARU" Gross tons 9,208
 Owners Daido Kaiun K.K. Managers - Port of Registry Kobe
 Hull built at Nagasaki By Mitsubishi Zosen K.K., Nagasaki Works Year Month When 1957-10
 Main Engines made at Nagasaki By Mitsubishi Zosen K.K., Nagasaki Works Eng. No. 299 When 1957-10
 Gearing made at - By -
 Donkey boilers made at Osaka By Hirano Iron Works Co. Ltd. Blr. Nos. H 662 When 1957-2
 Machinery installed at Nagasaki By Mitsubishi Zosen K.K., Nagasaki Works When 1957-10

Particulars of restricted service of ship, if limited for classification -
 Particulars of vegetable or similar cargo oil notation, if required Carrying Vegetable Oil in Deep Tanks in way of tunnel.
 Is ship to be classed for navigation in ice? No Is ship intended to carry petroleum in bulk? No
 Is refrigerating machinery fitted? Yes If so, is it for cargo purposes? Yes Type of refrigerant Dichlorodifluoromethane
 Is the refrigerating machinery compartment isolated from the propelling machinery space? No Is the refrigerated cargo installation intended to be classed? Yes

The following particulars should be given as fully and as clearly as possible. Where the answer is "No" or "None", say so! Ticks and other signs of doubtful meaning are not to be used. Where the report need not be repeated below, but the port and report number should be stated.

No. of main engines 1 No. of propellers 1 Brief description of propulsion system Direct coupled
MAIN RECIPROCATING ENGINES. Licence Name and Type No. Mitsubishi Nagasaki Diesel Engine 6UEC 75/150 Type
 No. of cylinders per engine 6 Dia. of cylinders 750mm stroke(s) 1,500mm 2 or 4 stroke cycle 2 Single or double acting Single
 Maximum approved BHP per engine at 122 RPM of engine and 122 RPM of propeller.
 Corresponding MIP 8.76 kg/cm² (For DA engines give MIP top & bottom) Maximum cylinder pressure 58 kg/cm² Machinery numeral 1,700
 Are the cylinders arranged in Vee or other special formation? No If so, number of crankshafts per engine -

TWO STROKE ENGINES. Is the engine of opposed piston type? No If so, how are upper pistons connected to crankshaft? -
 Is the exhaust discharged through ports in the cylinders or through valve(s) in the cylinder covers? Valves No. and type of mechanically driven scavenge pumps or blowers per engine and how driven -
 No. of exhaust gas driven scavenge blowers per engine 2 Where exhaust gas driven blowers only are fitted, can the engine operate with one blower out of action? Yes
 If a stand-by or emergency pump or blower is fitted, state how driven by Electric Motor No. of scavenge air coolers 2 Scavenge air pressure at full power 0.35 kg/cm² Are scavenge manifold explosion relief valves fitted? Yes

FOUR STROKE ENGINES. Is the engine supercharged? - Are the undersides of the pistons arranged as supercharge pumps? - No. of exhaust gas driven blowers per engine -
 No. of supercharge air coolers per engine - Supercharge air pressure - Can engine operate without supercharger? -

TWO & FOUR STROKE ENGINES—GENERAL. No. of valves per cylinder: Fuel 1 Inlet - Exhaust 3 Starting 1 Safety 1
 Material of cylinder covers Cast Iron Material of piston crowns Cr. Mo Steel Forging Is the engine equipped to operate on heavy fuel oil? Yes
 Cooling medium for: -Cylinders F.W. Pistons F.W. Fuel valves F.W. Overall diameter of piston rod for double acting engines -
 Is the rod fitted with a sleeve? No Is welded construction employed for: Bedplate? No Frames? No Entablature? No Is the crankcase separated from the underside of pistons? Yes Is the engine of crosshead or trunk piston type? Crosshead Total internal volume of crankcase 85.32M² No. and total area of explosion relief devices 6x1653.9cm² Are flame guards or traps fitted to relief devices? Yes Is the crankcase readily accessible? Yes If not, must the engine be removed for overhaul of bearings, etc? - Is the engine secured directly to the tank top or to a built-up seating? to Tank Top How is the engine started? by Compressed Air
 Can the engine be directly reversed? Yes If not, how is reversing obtained? -
 Has the engine been tested working in the shop? Yes How long at full power? 2 hours

CRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system 20-12-56 28/11/57 State barred speed range(s), if imposed for working propeller below 40r.p.m. For spare propeller - Is a governor fitted? Yes Is a torsional vibration damper or detuner fitted to the shafting? No
 Where positioned? - Type - No. of main bearings 8 Are main bearings of ball or roller type? No Distance between inner edges of bearings in way of crank(s) 1,020mm Distance between centre lines of side cranks or eccentrics of opposed piston engines -

Crankshaft type: Built, semi-built, solid. (State which) Semi Built
 Diameter of journals 560mm Diameter of crankpins Centre 560mm Breadth of webs at mid-throw 890mm Axial thickness of webs 350mm
 Side - Pins Steel Forging Minimum
 If shrunk, radial thickness around eyeholes 242.5mm Are dowel pins fitted? No Crankshaft material Journals Steel Forging Approved 44 kg/mm² Webs Steel Forging Tensile strength -
 Diameter of flywheel 2600mm Weight 8,750 kgs Are balance weights fitted? No Total weight - Radius of gyration 0.081M
 Diameter of flywheel shaft 560mm Material Steel Forging Minimum approved tensile strength 44 kg/mm²
 Flywheel shaft: separate, integral with crankshaft, integral with thrustshaft. (State which) integral with thrustshaft

[Handwritten signature]
 13/11/57

MAIN ENGINES. Name and Type No.

No. of sets of turbines Open or closed cycle BHP per set at RPM of output shaft

How is drive transmitted to propeller shaft?

ARRANGEMENT OF TURBINES. HP drives at RPM HP gas inlet temperature pressure
 (A small diagram should be attached showing gas cycle.)
 IP drives at RPM IP gas inlet temperature pressure
 LP drives at RPM LP gas inlet temperature pressure

No. of air compressors per set Centrifugal or axial flow type? Material of turbine blades
 compressor blades No. of air coolers per set No. of heat exchangers per set How are turbines started?

How is reversing effected? Are the turbines operated in conjunction with free piston gas generators?

Total No. of free piston gas generators Diameter of working pistons Diameter of compressor pistons No. of double strokes

minute at full power Gas delivery pressure Gas delivery temperature Have the turbines and attached equipment been tested work
 in the shop? How long at full power?

ELECTRIC PROPULSION (Reciprocating engines or gas turbines. Electrical particulars to be reported on Form 4d.)

No. of generators KW per generator at RPM AC or DC? Position

No. of propulsion motors SHP per motor at RPM Position

How is power obtained for excitation of generators? Motors?

REDUCTION GEARING (Reciprocating engines or gas turbines. A small line sketch should be attached showing arrangement of gearing.)

Is gearing of single or double helical type? If single, position of gear thrust bearing Is gearing of epicyclic type?

PCD of pinions: First reduction Second reduction PCD of wheels: First reduction Main

Material of pinions Tensile strength Material of wheel rims Tensile strength

Are gear teeth surface hardened? How are teeth finished? Diameter of pinion journals Wheel sh

journals Are the wheels of welded construction? Is gearcase of welded construction? Has the wheel/gearcase been heat treated on complet

of welding? Where is the propeller thrust bearing located? Are gear bearings of ball or roller type?

CLUTCHES, FLEXIBLE COUPLINGS, ETC. If a clutch or other flexible connection is fitted between engine/turbine and gearing or between engine and line shafting give b

description and, for clutches, state how operated

Can the main engine be used for purposes other than propulsion when declutched? If so, what?

STRAIGHT SHAFTING. Diameter of thrustshaft 560mm Material Steel Forging Minimum approved tensile strength 44 kg/mm²

Shaft separate or integral with crank or wheel shaft? Flywheel Shaft Diameter of intermediate shaft 410mm Material Steel Forging

Minimum approved tensile strength 44 kg/mm² Diameter of screwshaft cone at large end 470mm Is screwshaft fitted with a continuous liner? Yes

Diameter of tube shaft. (If these are separate shafts) Is tube shaft fitted with a continuous liner in way of stern tube Thickness of screw shaft line

bearings 26mm Thickness between bearings 20mm Material of screw/tube shaft Steel Forging Minimum approved tensile strength 44

Is an approved oil gland fitted? No If so, state type Length of bearing next to and supporting propeller 1,880mm

Material of bearing Lignumvitae In multiple screw vessels is the liner between stern tube and A bracket continuous? If not, is the exposed length of shafting betw

liners readily visible in dry dock?

PROPELLER. Diameter of propeller 5,200mm Pitch 4,700mm Built up or solid Built up Total developed surface 8.906M²

No. of blades 4 Blade thickness at top of root fillet 223.5mm Blade material Manganese Bronze Moment of inertia of dry propeller

If propeller is of special design, state type Is propeller of reversible pitch type? No If so, is it of approved design?

State method of control Material of spare propeller Moment of inertia

AIR COMPRESSORS & RECEIVERS. No. of main engine driven compressors per engine None Can they be declutched?

No. of independently driven air compressors. (State capacity, prime mover, position in ship, and Port and No. of certificate) 2 sets 200M³/Hx30kg/cm² driven by

Diesel Generator Engines at Port Aft Inboard & Outboard on Platform. Yokohama NO.M-3729 3720

1 Set Emergency Air Compressor, 75 L/MIN. driven by Kerosene Engine at Port on platform.

Kobe No.M-4793A

No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate) 2-Main Air Receivers, 10M³x30kg/cm²

Port 2nd Deck, Nagasaki No.M-3802, 3803

1-Auxiliary Air Receiver, 300L x 30kg/cm² at Port platform, Nagasaki, No.AR-M-3851

How are receivers first charged? Maximum working pressure of starting air system 30 kg/cm² Are the safety device

accordance with the Rules? Yes Has the starting of the main engines been tested and found satisfactory? Yes

COOLERS. No. of main engine fresh water coolers 2 Jacket Cooling No. of main engine lubricating oil coolers 1

OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure 1x3M³ Settling Tanks on 3rd deck star

1x3M³ Service Tank on 3rd deck star'd. aft, 1x6M³ O.F. Cleaned Tank on Tank Top star'd. aft

2x1M³ Settling Tanks for Donkey Boiler on 3rd deck star'd. fwd.

MAIN ENGINE DRIVEN PUMPS (No. and Purpose)

Name below essential pumps, state position and how driven. Give capacity of bilge pumps.	Service for which each pump is connected to be marked thus X																
	SUCTION						DELIVERY										
	Bilge Main	Bilge Direct	Ballast Main	Oil Fuel	Fresh Water Cooling	Sea	Feed Tanks	Lub. Oil	Donkey Boiler	Boiler Feed	Salt Water Cooling	Fresh Water Cooling	Oil Fuel Tanks	Fire Main	Lub. Oil	Piston Cooling	Bilge Well
2 Jacket Cooling F.W.Pumps, star'd. inbd. & outbd. Elect.					X							X					
2 Piston Cooling F.W.Pumps combined with the above pumps					X							X				X	
2 Cooling Sea Water Pumps						X					X						
2 L.O. Pumps for M.E. P.P.A.									X							X	
2 L.O. Pumps for Turbo Charger S.I.n. & Out. Fleet.									X							X	
2 L.O. Transfer Pump S.A. Elect.									X							X	
O.F. Service Pump S.A. Elect.					X								X				
O.F. Transfer Pump S.A. Elect.					X								X				
Bilge Pump 1x30M ³ /H										X							
P.A. & Ballast Pump 1x1000 M ³ /H		X	X	X			X					X		X			
2 A. Outboard		X	X	X			X					X		X			
2 A. Inboard		X	X	X			X					X		X			
2 Boiler Water Forced Circulation Pumps									X	X							
2 Star'd. Inboard & Outboard Elect									X	X							
2 Feed Pumps for Donkey Boiler									X	X							
2 F. In. & Out. wdg									X	X							

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room
 No.1 hold P. 1x80 S. 1x80 No.2 hold 1x80 No.3 hold 1x80
 off'm. 10 1x50 No.4 hold P. 1x70 S. 1x80 Deep Tank P. 1x80 No.4 hold aft 1x80 No.5 hold F & A 2x80
 0.6 hold 1x80 in mm
 No. and size connected to main bilge line in main engine room P. 1x90 S. F.W'd 1x90 Aft 1x90 1x50
 In tunnel 1x90mm
 Size and position of direct bilge suction in machinery spaces P. Aft 1x40mm
 Size and position of emergency bilge suction in machinery spaces Star'd Fwd 2x240mm (Cooling S.W. Pump)
 the bilge or ballast system fitted with means for separating oily water on the overboard discharge side? No
 Do the piping arrangements comply with the Rules including special requirements for ships carrying petroleum in bulk, cargo oil or classed for navigation in ice? (strike out words not applicable).

STEAM & OIL ENGINE AUXILIARIES

Position of each	Type	Made by	Port and No. of Rpt. or Cert.	Driven Machinery (For electric generators, state output)
Port Fwd.	Daihatsu 5PST-25B Type Diesel No. 525004	Daihatsu Kogyo K.K.	Kobe No. FE-4885	250 KVA A.C. Generator
Port Aft. Inboard	" " No. 525005	" "	" "	250 KVA A.C. Generator & 200M ³ /H x30KG/CM ² Air Compressor
Port Aft. Outboard	" " No. 525006	" "	" "	"
Port	Kerosen Engine	Kubota Iron & Mach. Wks., Ltd.	Kobe No. M-44793A	75 L/MIN. Aux. Air Compressor

electric current used for essential services at sea? Yes

Is an electric generator driven by Main Engine? No

STEAM INSTALLATION. No. of donkey boilers burning oil fuel 1 W.P. 7 kg/cm² Type Vertical Cochran Type

Position Fwd. Centre on 2nd Deck in Machinery Space

Is a superheater fitted? No Are these boilers also heated by exhaust gas? No

Can the exhaust heated boilers deliver steam directly to steam range or do they operate only as economisers in conjunction with oil fired boilers? only as economizer

Port and No. of report on donkey

Is steam essential for operation of the ship at sea? No Are any steam pipes over 3 ins. bore? Yes

Material? O.H. Steel For oil fired boilers is the arrangement of pipes, valves, controls, etc., in accordance with the Rules? Yes

No. of steam condensers 1 No. of Evaporators

STEERING GEAR. (State No. and Type of Steam Engines, Electric Motors, Hydraulic Pumps and other particulars) Electro-hydraulic type Steering Gear with Rams, 2 Janney Pumps & 2x20 H.P. A.C. Motors

Are the Rule Requirements for fire extinguishing arrangements been complied with? Yes Brief description of arrangements 6 Hydrant with hose reels, 5 Nozzles of KIDD'S CO2 Fire Extinguish system, 12x9 litre Portable Forth Fire Extinguisher 150 litre Sand Box.

Is the spare gear required by the Rules been supplied? Yes Has all the machinery been tried under full working conditions and found satisfactory? Yes

Date and duration of full sea trials of main engines 25th July, 1957, 2 hours

Does this machinery installation contain any features of a novel or experimental nature? (Give particulars) No

Is the foregoing description of the main engine and installation correct and the particulars are as approved for torsional vibration characteristics (strike out words not applicable).

