

Rpt. 4b

Date of writing report 31st Aug., 1957Survey held at NagasakiReceived London 15 OCT 1957In shops 88
No. of visits 10
On vesselPort Nagasaki (Shimonoseki) No. 775First date 6-8-1956 Last date 23-7-1957First date 22-4-1957 Last date 27-7-1957

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. _____ Name M.V. "KOSEI MARU" Gross tons 9,202
Owners Daido Kaiun K.K. Managers _____
Hull built at Nagasaki By Mitsubishi Zosen K.K. Port of Registry Kobe
Main Engines made at Nagasaki By Nagasaki Works Yard No. 1485 Year Month
Gearing made at - By Mitsubishi Zosen K.K. Eng. No. 298 When 1957-7
Donkey boilers made at Osaka By Hirano Iron Works Co.Ltd. Blr. Nos. H577 When 1957-7
Machinery installed at Nagasaki By Mitsubishi Zosen K.K., Nagasaki Works When 1957-7

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 tunnelIs ship to be classed for navigation in ice? NoIs ship intended to carry petroleum in bulk? NoIs refrigerating machinery fitted? YesIf so, is it for cargo purposes? YesType of refrigerant DichlorodifluorometheneIs the refrigerating machinery compartment isolated from the propelling machinery space? NoIs 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 coupledMAIN RECIPROCATING ENGINES. Licence Name and Type No. Mitsubishi Nagasaki Diesel Engine 6UEC 75/150 TypeNo. of cylinders per engine 6 Dia. of cylinders 750mm stroke(s) 1,500mm 2 or 4 stroke cycle 2 Single or double acting SingleMaximum approved BHP per engine 8,500 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 58kg/cm² Machinery numeral 1,700Are 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? YesIf a stand-by or emergency pump or blower is fitted, state how driven by Electric Motorpower 0.35 kg/cm² Are scavenge manifold explosion relief valves fitted? Yes No. of scavenge air coolers 2 Scavenge air pressure at full 4/11/57FOUR 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 1Material of cylinder covers Cast Iron Material of piston crowns Cr.Mo. Steel Forging the engine equipped to operate on heavy fuel oil? YesCooling 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? _____ Entablature? No Is the crankcase separated from theunderside of pistons? Yes Is the engine of crosshead or trunk piston type? Crosshead Total internal volume of crankcase 85.32M³ No. and total area of explosion reliefdevices 6 x 165.39CM² Are flame guards or traps fitted to relief devices? Yes Is the crankcase readily accessible? Yes If not, must the engine be removed foroverhaul of bearings, etc? Yes 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 AirCan 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 hoursCRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system 27-20-12-56 State barred speed range(s), if imposedfor 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? NoWhere positioned? _____ Type _____ No. of main bearings 8 Are main bearings of ball or rollertype? Mer 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 BuiltDiameter of journals 560mm Diameter of crankpins Centre 560mm Breadth of webs at mid-throw 890mm Axial thickness of webs 350mmIf shrunk, radial thickness around eyeholes 242.5mm Are dowel pins fitted? No Crankshaft material Journals Steel Forging Minimum 44 kg/mm²Webs Steel Forging Tensile strength 44 kg/mm²Diameter of flywheel 2600mm Weight 8,750 kgs Are balance weights fitted? No Total weight _____ Radius of gyration 1.081 M.Diameter of flywheel shaft 560mm Material Steel Forging Minimum approved tensile strength 44 kg/mm²Flywheel shaft: separate, integral with crankshaft, integral with thrustshaft. (State which) integral with thrustshaft

MAN CAS TURBINES 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 Material of

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 per

minute at full power Gas delivery pressure Gas delivery temperature Have the turbines and attached equipment been tested working

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 shaft

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

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 brief

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 522mm 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 screwshaft liner

bearings 26mm Thickness between bearings 20mm Material of screwshaft 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 1,830 mm

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

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 174,525 kg/cm⁴

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)

Diesel Generator Engines at Port Fwd. & Port Aft Inboard on platform. Yokohama No.M-3291

1 set Emergency Air Compressor, 75 L/Min. driven by Kerosene Engine at Port on platform. Kobe No.M-37984.

No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate)

Port 2nd Deck. Nagasaki No. AR3374.

1-Auxiliary Air Receiver, 300L x 30 kg/cm² at Port platform, Nagasaki, No. AR-M-3208.

How are receivers first charged? by 2B.H.P. Air Compressor driven 30 kg/cm² Are the safety devices

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 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 1 x 3M3 Settling Tanks on 3rd deck

1 x 3M3 Service Tank on 3rd deck star'd. aft, 1 x 6M3 O.F. Cleaned Tank on Tank Top star'd.

2 x 1M3 Settling Tanks for Donkey Boiler on 3rd deck star'd. fwd.

MAIN ENGINE DRIVEN PUMPS (No. and Purpose)

INDEPENDENT PUMPS 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	Donkey Oil	Boiler Feed	Salt Water Cooling	Fresh Water Cooling	Oil Fuel Tanks	Fire Main	Lub. Oil
2 Jacket Cooling F.W. Pumps, star'd. inb'd. & outb'd. Elect.					X					X				
2 Piston Cooling F.W. Pumps combined with the above pumps Elect.					X					X				X
2 Cooling Sea Water Pump, star'd. inboard & outboard Elect.						X				X				
2 LO pumps for M.E. F & A.								X						X
2 LO pumps for Turbo Charger S.In. & Out. Elect.								X						X
2 O. Transfer Pump S.A. Elect.								X						X
2 O.F. Service Pump S.A. Elect.					X							X		
2 O.F. Transfer Pump S.A. Elect.					X							X		
2 Bilge Pump 1x30M3/H P.A. Elect.	X	X				X								X
2 Bilge & Ballast Pump 1x100/200M3/H P.A. Inb'd Elect.	X	X	X			X				X			X	
2 Fire & G.S. Pump 1x45/150M ³ /H P.A. Inboard Elect.	X	X	X			X				X			X	
2 Boiler, Water Forced Circulation Pump Star'd. in. & Out. Elect.								X	X					
2 Feed Pump for Donkey Boiler S.F. In. & Out. Steam								X		X				

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room No.1 hold 1x80 No.2 hold 1x80 No.3 hold 1x80 Coff'm Fr. 93/94 1x50

Coff'm LO. 1x50, No.4 hold Fwd 1x70 Deep Tank 1x80 No.5 hold F & A 2x80 No.6 hold 1x80 in m.m.

No. and size connected to main bilge line in main engine room P. Fwd 1x90 Aft 1x90 1x50 in m.m. In tunnel 1x90mm.

In aux. engine room Size and position of direct bilge suction in machinery spaces Bilge & Ballast Pump, Star'd. Fwd 2x240mm. (Cooling S.W. pump)

Size and position of emergency bilge suction in machinery spaces

S. Aft 1x90mm Fire & G.S. Pump, S. Fwd 2x240mm. Cooling S.W. Pumps

Is 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.	Niigata 15F25BS Type Diesel #8907	Niigata Eng. Co. Ltd.	Yokohama M-2255	250 KVA A.C. Generator
Port Aft. Inboard	" " #8908	" "	" "	250 KVA A.C. Generator
Port Aft. Outboard	" " #8909	" "	" "	200M ³ /H x 30 kg/cm ² Air Compressor.
Port	Kerosene Engine	Kubota Iron & Mach. Wks. Ltd.	Kobe M-37984	75L/MIN. Aux. Air Compressor.

Is electric current used for essential services at sea? Yes If so, state the minimum No. and capacity of generators required in order that the ship may operate

at sea 1 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 Economizer No. of donkey boilers heated by exhaust gas only? 1 W.P. 7 kg/cm²

Type Coils & headers Position in funnel Can the exhaust heated boilers deliver steam directly to

the 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

boilers Kobe, No. FE-4555 Is steam essential for operation of the ship at sea? Yes Are any steam pipes over 3 ins. bore? Yes If so, what is their

material? O.H. Steel For oil fired boilers is the arrangement of pipes, valves, controls, etc., in accordance with the Rules? Yes No. of oil burning pressure

units 1 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

4 Rams, & 2 Janney Pumps & 2 x 20 H.P. A.C. Motors.

Have the Rule Requirements for fire extinguishing arrangements been complied with? Yes Brief description of arrangements 6 Hydrant with hose reels,

25 Nozzles of KIDD'S CO2 Fire Extinguish system, 12 x litre Portable Forth Fire Extinguisher

x 150 litre Sand Box.

Has 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-

power 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

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

GENERAL REMARKS

State if the machinery has been constructed and/or installed under special survey in accordance with the Rules, approved plans and Secretary's letters. State quality of materials and workmanship and give recommendations for classification, including any special notation to be assigned. Where existing machinery is submitted for classification the circumstances should be explained as fully as possible.

The machinery installation of this ship has been made under special survey in accordance with the requirements of the Rules, the approved plans and the Secretary's letters.

The main engine was tested under full power condition in the shop and subsequent sea trial and found satisfactory.

The explosion relief devices have been fitted on crank cases of main & auxiliary heavy oil engines and on scavenge manifold of main engine.

The notice board of barred speed range has been fitted on manoeuvring gauge board of main engine. ? not required for class purposes

Engineer Surveyor to Lloyd's Register of Shipping

PARTICULARS OF IDENTIFICATION MARKS (Including Port of origin) of important Forgings and Castings. (Copies of certificates should be forwarded with report.)

RODS Connecting Rods; LLOYD'S NAG NO. 1474-A, B, C, D, E, F KT E 16-2-57
Piston Rods; LLOYD'S NAG NO. 1479-A, B1, B2, MO B 29-357, LLOYD'S NAG NO. 1479-C1, C2, D, KT E 1-
CRANKSHAFT OR ROTOR SHAFT LLOYD'S NAG NO. 1977F & A. KT E 25-3-57
FLYWHEEL SHAFT LLOYD'S NAG NO. 1769 KT E 25-3-57
THRUST SHAFT
GEARING
INTERMEDIATE SHAFTS LLOYD'S NAG NO. 1542 SM E 13-4-57, LLOYD'S NAG NO. 1543A SM E 13-4-57, LLOYD'S NAG NO. 1543B SM E 8-4-57, LLOYD'S NAG NO. 1543C SM E 8-4-57, LLOYD'S NAG NO. 1543D SM E 8-4-57, LLOYD'S NAG NO. 1543E SM E 13-4-57
SCREW AND TUBE SHAFTS LLOYD'S NAG NO. 1544 SM E 20-4-57
PROPELLERS LLOYD'S NAG NO. 1983-A, B, C, D SM 5-4-57 E
OTHER IMPORTANT ITEMS Cross heads; LLOYD'S NAG NO. 1109E MO B 25-2-57, LLOYD'S NAG NO. 1699A KT E 2-
LLOYD'S NAG NO. 1475E-1 MO B 25-2-57, LLOYD'S NAG NO. 1475B2 MO B
LLOYD'S NAG NO. 1475C2 KT E 26-2-57, LLOYD'S NAG NO. 1475C1 KT E
Tie Rods; LLOYD'S NAG NO. 1478A-1, 2, 3, 4, B-1, 2, 3, 4, C-1, 2, 3, 4, D-1, 2, F-1, 2, MO E 12-12-

Is the installation a duplicate of a previous case? Yes
Date of approval of plans for crankshaft 8-2-56 Straight shafting 28-12-55 Gearing 21-11-56 Clutch *-
Separate oil fuel tanks 18-9-56 Pumping arrangements 14-1-57 Oil fuel arrangements 14-1-57
Cargo oil pumping arrangements - Air receivers 18-6-57 Donkey boilers 18-6-57
Exhaust Gas Heated Economizer 7-2-57
Dates of examination of principal parts:-
Fitting of stern tube 22-4-57 Fitting of propeller 24-4-57 Completion of sea connections 24-4-57 Alignment of crank shaft in main bearings 27-6-57
Engine chocks & bolts 27-6-57 Alignment of gearing - Alignment of straight shafting 27-6-57 Testing of pumping arrangements 15-7-57
Oil fuel lines 27-6-57 Donkey boiler supports 18-5-57 Steering machinery 25-7-57 Windlass 25-7-57
Date of Committee TUESDAY - 5 NOV 1957 Special Survey Fee £855,000
Decision See Rpt. 1.

Expenses 10,000

Date when A/c rendered

SEP. 30. 1957
LOCALLY

Lloyd's Register
Foundation