

Rpt. 4b

Date of writing report 25th Feb., 1959 Received London 9 APR 1959 Port KOBE No. FE-6482
Survey held at Tamano, Japan No. of visits 148 In shops 1st July, 1957 22nd Jan., 1959
On vessel 29 First date 13th Oct., 1958 Last date 12th Feb., 1959

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. _____ Name M.T. "OHMINESAN MARU" Gross tons 20,201.82
Owners Mitsui Steamship Co., Ltd. Managers _____ Port of Registry Tokyo Year Month _____
Hull built at Tamano, Japan By Mitsui S.B. & Eng., Co., Ltd. Yard No. 635 When 1959-2
Main Engines made at Tamano, Japan By Mitsui S.B. & Eng., Co., Ltd. Eng. No. 739 When 1959-2
Gearing made at _____ By _____ 454 (Oil Burn.)
Donkey boilers made at Tamano, Japan By Mitsui S.B. & Eng., Co., Ltd. Blr. Nos. 455 (") 456 (Exh. Gas Eco.) When 1959-2
Machinery installed at Tamano, Japan By Mitsui S.B. & Eng., Co., Ltd. When 1959-2
Particulars of restricted service of ship, if limited for classification _____

Particulars of vegetable or similar cargo oil notation, if required NoIs ship to be classed for navigation in ice? No Is ship intended to carry petroleum in bulk? YesIs refrigerating machinery fitted? Yes If so, is it for cargo purposes? No Type of refrigerant Freon Direct Expansion typeIs the refrigerating machinery compartment isolated from the propelling machinery space? Yes Is the refrigerated cargo installation intended to be classed? No

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 wording is not applicable to the installation, a black line may be inserted. If the main engines have been constructed at another port and are covered by a separate report, the particulars given in that 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 Reciprocating Oil Engine Directly coupled to line shaftingMAIN RECIPROCATING ENGINES. Licence Name and Type No. Mitsui B & W D.E. 1274 VTBF 160No. of cylinders per engine 12 Dia. of cylinders 740mm stroke(s) 1600mm 2 or 4 stroke cycle 2 Single or double acting SingleMaximum approved BHP per engine 15,000 at 115 RPM of engine and 115 RPM of propeller.Corresponding MIP 7.9kg/cm2 (For DA engines give MIP top & bottom) Maximum cylinder pressure 55 kg/cm2 Machinery numeral 3000Are 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? Through valve in the cylinder cover No. and type of mechanically driven scavenge pumps or blowers per engine and how driven _____No. of exhaust gas driven scavenge blowers per engine 4 sets 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 _____ No. of scavenge air coolers _____ Scavenge air pressure at full power 1.4 kg/cm2 ABS 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 2 Inlet _____ Exhaust 1 Starting 1 Safety 1Material of cylinder covers Cr. Mo. Cast Steel Material of piston crowns Cr. Mo. Cast Steel Is the engine equipped to operate on heavy fuel oil? YesCooling medium for:—Cylinders Fresh Water Pistons Lub. oil Fuel valves Fuel Oil Overall diameter of piston rod for double acting engines _____Is the rod fitted with a sleeve? No Is welded construction employed for: Bedplate? Yes Frames? Yes Entablature? Yes Is the crankcase separated from the underside of pistons? Yes Is the engine of crosshead or trunk piston type? _____ Total internal volume of crankcase 7,500 cu.ft. and total area of explosion relief devices 24 total 2040in² fitted clear of platform Yes If not, must the engine be removed for overhaul of bearings, etc? _____ Are flame guards or traps fitted to relief devices? No Is the crankcase readily accessible? _____Is the engine secured directly to the tank top or to a built-up seating? Tank Top How is the engine started? 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? 6 hrs.CRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system 12-5-58 State barred speed range(s), if imposed 413.9for working propeller _____ For spare propeller _____ Is a governor fitted? Yes Is a torsional vibration damper or detuner fitted to the shafting? YesWhere positioned Forward end crankshaft Type Dynamic Damper No. of main bearings 14 Are main bearings of ball or roller type? NoDistance between inner edges of bearings in way of crank(s) 984.6mm 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 590mm Diameter of crankpins Centre 590mm Side 550 Breadth of webs at mid-throw 1010mm Axial thickness of webs 330mmIf shrunk, radial thickness around eyeholes 295mm Are dowel pins fitted? No Crankshaft material Journals Forged Steel Approved 44 kg/mm2 Cast Steel 44 kg/mm2 Webs _____ Tensile strength _____Diameter of flywheel 2268mm Weight 2548kgs. Are balance weights fitted? No Total weight _____ Radius of gyration _____Diameter of flywheel shaft 630mm Material Forged Steel Minimum approved tensile strength 44 kg/mm2Flywheel shaft: separate, integral with crankshaft, integral with thrustshaft. (State which) Integral with thrust shaft.

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MAIN GAS 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
 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 570mm Material Forged Steel Minimum approved tensile strength 44 kg/mm²
 Shaft separate or integral with crank or wheel shaft? Integral with wheel shaft Diameter of intermediate shaft 580mm Material Forged Steel
 Minimum approved tensile strength 44 kg/mm² Diameter of screwshaft cone at large end 660mm 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 at bearings 29mm Thickness between bearings 28mm Material of screwshaft Forged Steel Minimum approved tensile strength 44 kg/mm²
 Is an approved oil gland fitted? No If so, state type Length of bearing next to and supporting propeller 2600mm
 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 between liners readily visible in dry dock?

PROPELLER. Diameter of propeller 6200mm Pitch 4520mm Built up or solid Solid Total developed surface 18,410M²
 No. of blades 5 Blade thickness at top of root fillet 243mm Blade material Ni-Al-Bronze Moment of inertia of dry propeller GD2=159,000kgM²
 If propeller is of special design, state type Is propeller of reversible pitch type? If so, is it of approved design?
 State method of control Material of spare propeller Cast Iron Moment of inertia GD2=206,500kgM²

AIR COMPRESSORS & RECEIVERS. No. of main engine driven compressors per engine None Can they be declutched?
 No. of intermediately driven air compressors (State capacity, prime mover, position in ship, and Port and No. of certificate) 2-240M³/h. steam driven, starb'd side & aft E.R. floor, (Kobe M-53307, 54191) 1-200M³/h. Electric Motor starb'd side E.R. floor (Kobe No. M-48997, 54190)
 No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate) 2-Main 18M³, starb'd side, on 3rd deck and outboard in Engine Room (Kobe AR-53073), 1-Aux. 0.1M³ port side E.R. floor (Kobe AR-51845).

How are receivers first charged? Emergency air compressor driven by hand started oil engine Maximum working pressure of starting air system 25 kg/cm² Are the safety devices in 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 1 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. 2-Fuel oil settl. tanks (port forward outboard inboard), 2-Fuel oil service tanks (starb'd forward outboard & inboard), 1-Diesel oil Settling tank (port, centre forward), 1-Diesel oil service tank (starb'd centre forward).

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) 1 - Primary Fuel Oil Pump, 12-Fuel oil injection pumps, 1-Main Lub. oil 420 M³/h driven by chain on intermediate shaft.

INDEPENDENT PUMPS

Name below essential pumps, state position and how driven. Give capacity of bilge pumps.

	SUCTION										DELIVERY					
	Bilge Main	Bilge Direct	Ballast Main	Oil Fuel	Fresh Water Cooling	Sea	Feed Tanks	Lub. Oil	Boiler Feed	Salt Water Cooling	Fresh Water Cooling	Oil Fuel Tanks	Fire Main	Lub. Oil	Piston Cooling	
Main Fresh C.W.P. Floor Starb'd fwd. El.					X						X					
Main Sea C.W.P. " aft " X					X	X				X	X					
Spare S & F.C.W.P. " midd. " X					X	X				X	X					
Aux. Fresh C.W.P. Port fwd. " X					X						X					
Aux. sea C.W.P. " aft " X					X					X						
Main Lub. oil P. Port aft. M.E. X								X						X	X	
Spare Lub. Oil P. Starb'd aft El. X								X						X	X	
Lub. oil P. for turbo char. " fwd. " X								X						X		
" " aft. " X								X						X		
Lub. oil transf. P. Port aft. " X								X						X		
F.O. transfer P. Port fwd. inb. " X												X				
F.O. daily supply P. " outb. " X												X				
F.O. valve cool. P. " aft outb. " X												X				
F.O. circ. pump inb. " X												X				
Bilge/Ball. P. 200M ³ /hr. Port aft. " X	X	X	X	X		X							X			
Fire/G.S.P. 300/150M ³ /hr. " " X	X	X	X	X		X							X			
Bilge P. 20M ³ /hr. Port aft. " X	X	X	X	X		X							X			
Fire/Butterw. P. 150M ³ /hr. Port Fwd. " X						X							X			
Main Feed W.P. Starb'd " X									X							
Main Feed W.P. Boiler Room " X									X							
Aux. " " St. Aft B.R. El. " X									X							
Boiler W. circ. p. S. in B.B.R. " X									X							
" " " S. outb. B.R. " X									X							
F.O. burning P. Port B.R. " X									X							
" " " Starb'd. " X									X							
Ball P. in fwd. P.R. Ford. P.R. Steam " X	X	X	X	X		X										
F.O. trans. P. " " X	X	X	X	X		X										

2-stripping pumps E. & S. Main P. room Main Pump room 3-4", 1-8", 2-4" in P. & S. coff. D. conn. to stripping pumps suction. Forward pump room 1-3" conn. to ball pump in fwd. pump room.

No. and size connected to main bilge line in main engine room 3-5", 2-4", 2-2", 1-3", 2-3" in E.R. coff. d. 2-3" in dry tank and void space In tunnel -

In aux. engine room - Size and position of direct bilge suction in machinery spaces 2-6" (centre aft) 1-12" (starboard side)

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, (strike out words not applicable) Yes

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 side forward Engine Room floor	Oil Engine	Mitsui S.B. & E. Co. Ltd.	Kobe O-53417	256 kW A.C. Generator No. 1
Port side Middle Engine room floor	do	do	Kobe O-53418	- do - No. 2
Port side aft Engine Room floor	do	do	Kobe O-53420	- do - No. 3
Starb'd side forward Engine Room floor	Steam reciprocating	Ishii Kosakusho	Kobe M-52037	240M ³ /h 25kg/cm ² Air compressor
Starb'd side aft Engine Room floor	do	do	Kobe M-52181	- do -
Steering Engine Room	Oil Engine	Mitsubishi Kobe	-	Fire pump
Port side Eng. Room floor	Oil Engine	Kubota Iron Wks.	Kobe M-51382	Emergency 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 set 256 kW Is an electric generator driven by Main Engine? No

STEAM INSTALLATION. No. of donkey boilers burning oil fuel 2 W.P. 18.1 kg/cm² Type Double evaporation boiler Position in separate compartment aft of engine room Economisers

Is a superheater fitted? Yes Are these boilers also heated by exhaust gas? No No. of economisers heated by exhaust gas only? 1 W.P. 20 kg/cm²

Type Bend tube type exhaust gas economizer Position in Funnel Can the exhaust heated steam deliver steam directly to the steam range or do they operate only as economisers in conjunction with oil fired boilers? with oil fired boiler Port and No. of report on donkey

boilers I-53414, 53415, Kobe Exh. gas Eco. I-54652 Is steam essential for operation of the ship at sea? No Are any steam pipes over 3 ins. bore? Yes Is their material? Hot drawn steel pipe or oil fired boilers is the arrangement of pipes, valves, controls, etc., in accordance with the Rules? Yes No. of oil burning pressure

units 2 No. of steam condensers 1 No. of Evaporators 1

STEERING GEAR. (State No. and Type of Steam Engines, Electric Motors, Hydraulic Pumps and other particulars) 1 set, electro hydraulic type, 2 ram 4 cylinder type with 2 janney oil pumps, each driven by 40HP electric motor, capacity 82.3 ton-meter. (1) Water service comprising 4 power pumps in Eng. Room

Have the Rule Requirements for fire extinguishing arrangements been complied with? Yes Brief description of arrangements & 1-Alternative Pump in steering Engine room (2) CO2 Hose + Reel system for mach. & boiler space. (4) 6-9 litre, 1-45 litre foam extinguishers, in machinery & boiler space, (6) cylinders CO2 31 kgs (4-8 kgs dry chemical portable extinguishers in machinery & boiler space.

(3) Steam smothering system in mach. & boiler space. 3-6.7kg CO2 portable extinguishers in machinery and boiler space. 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 trial

power sea trials of main engines February 7th & 9th all day. 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) MITSUBI SHIPBUILDING & ENGINEERING CO. LTD., TAMANO WORKS.

Builder S. Takata Senior Managing Director 08/12/2021 Lloyd's Register Foundation

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 material and workmanship and give recommendations, for classification, including any special notation to be assigned. Where existing machinery is submitted for classification circumstances should be explained as fully as possible.

The machinery of this ship has been constructed under Special Survey in accordance with the Rules, approved plans and Secretary's letters.

The materials and workmanship are sound and good.

The machinery has been examined under full working conditions during shop and comprehensive sea trials with satisfactory results.

The machinery of this ship is in our opinion worthy to have a record of +LMC 2,59, Donkey Boiler Survey 2, Tailshaft Survey (Continuous Liner) 2,59 and Steam Pipe Survey 2,59.

Jacobs & K. Tabuchi
Engineer Surveyor to Lloyd's Register of Shipping.
A. Jacobs & K. Tabuchi.

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

RODS	LLOYD'S YKA	LLOYD'S YKA	Connecting rods:	LLOYD'S SMK	LLOYD'S SMK
Piston Rods:	No. Y11878-A, B, D, E, F, G,	No. Y11581-A		KOB No. KT-F1073	KOB No. KT-F1026, 1027
ST LR	H, J, K, L, M, N	TN LR		KO LR	KO LR
	13-12-57	4-11-57		29-1-58	16-1-58
CRANKSHAFT	LLOYD'S KOB			LLOYD'S SMK	LLOYD'S SMK
	No. KT-CK377			KOB No. KT-F 1039, 1040	KOB No. KT-F1040
	KK 9-12-58			KO LR	KO LR 1059, 1090, 1091
FLYWHEEL SHAFT	LLOYD'S KOB			25-1-58	1-3-58
	No. KT-F1181				
THRUST SHAFT	ET LR				
	21-6-58				
GEARING					

INTERMEDIATE SHAFT LLOYD'S YKA No. X12186 ST LT 6-2-58

SCREW AND TUBE SHAFTS LLOYD'S KOB No. K-F 2634 EI LR 25-6-58, Spare LLOYD'S KOB No. K-F2624 EI LR 23-7-58

PROPELLERS Z.2535 RH ADH LLOYD'S ADH LON 13-3-58, LON, Spare LLOYD'S SMK No. 6814 KOI LR 30-6-58

OTHER IMPORTANT ITEMS	Cyl. liner	Cyl. cover	Piston Crown:
Crosshead:	LLOYD'S TEST KOB	LLOYD'S TEST KOB	LLOYD'S TEST KOB
LLOYD'S YKA	RS FINISH	No. M-C517-1, 3, 4, 5, 6, 7	No. M-C512-3, 4, 5, 6, 7, 8, 9,
No. Y-12196, A, B, C, D, E, F,	23-8-57	WTP 82.5kgs	WTP 82.5kgs
G, H, J, K, L, M	WTP 7kgs	AJ 25, 26, 28, 29-8-58	AJ 26, 30-6-58
ST LR 28-2-58	RS LR	WTP 4kgs	3-8-58
	27-8-58	AJ LR 2, 4-9-58	LLOYD'S
	30-8-58		No. M-C49
Is the installation a duplicate of a previous case?	No	If so, state name of vessel	ATP 4kgs
			AJ LR 12-9-58

Date of approval of plans for crankshaft 26-2-58 Straight shafting 23-10-58 Gearing 28-10-58 Clutch -

Separate oil fuel tanks 2-5-58 Pumping arrangements (Main) 17-4-58 (Aux.) 24-4-58 Oil fuel arrangements 28-10-58

Cargo oil pumping arrangements 17-4-58 Air receivers 23-10-58 Donkey boilers 23-10-58 WTP 82.5kgs

Dates of examination of principal parts:- Fitting of stern tube 13-10-58 Fitting of propeller 17-10-58 Completion of sea connections 21-10-58 Alignment of crankshaft in main bearings 1-9-58

Engine checks & bolts 20-12-58 Alignment of gearing - Alignment of straight shafting 9-1-59 Testing of pumping arrangements 23-1-59, 29-1-59

Oil fuel lines 21-1-59 Donkey boiler supports 5-12-59 Steering machinery 9-2-59 Windlass 9-2-59

Date of Committee FRIDAY 24 APR 1959

Decision See Rpt. 1 Special Survey Fee \$1,050,000.

Expenses ...

Date when A/c rendered

