

Rpt. 4b
Date of writing report 28/4
RECD. Survey held at 3/5
RECD. 526/4
DEP

6th Feb., 1961
Kobe & Innoshima
Received London 74
In shops 47
On vessel 27
Port KOBE
26th July, 1960
16th May, 1960
10th Nov., 1960
No. 8689
31st Jan., 1961 (INNOSHIMA)
12th Dec., 1960
Last date 17th February, 1961

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. Name m.v. "M.H. THAMRIN"
Gross tons
Owners Diakarta Lloyd N.V. (Indonesia)
Port of Registry Djakarta
Hull built at Innoshima, Japan By Hitachi Shipbuilding & Eng. Co., Ltd. Hard No. 3902 ✓
Main Engines made at Kobe, Japan By Kawasaki Dockyard Co., Ltd. Eng. No. 6079 ✓
Gearing made at - By - Gear No. -
Aux./donkey boilers made at Osaka, Japan By Hirano Iron Works Co., Ltd. Blr. Nos. H 1303
Machinery installed at Innoshima, Japan By Hitachi S.B. & Eng. Co., Ltd., Innoshima Shipyard

Particulars of restricted service of ship, if limited for classification Ocean-going
Particulars of vegetable or similar cargo oil notation, if required None
If ship is to be classed for navigation in ice, state whether Class 1, 2 or 3 No
Is refrigerating machinery fitted? Yes If so, is it for cargo purposes? No Type of refrigerant Freon 12 direct expansion
Is the refrigerating machinery compartment isolated from the propelling machinery space? No 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 should 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 all other relevant particulars must be given and the port and report number should be stated.

No. of main engines 1 No. of propellers 1 Brief description of propulsion system 1 set of oil engine coupled to one screw shaft
MAIN RECIPROCATING ENGINES. Licence Name and Type No. Kawasaki MAN K7Z 78/140C diesel engine
No. of cylinders per engine 7 ✓ Dia. of cylinders 780 mm ✓ stroke(s) 1400 mm ✓ 2 or 4 stroke cycle 2 ✓ Single or double acting Single ✓
Maximum BHP per engine approved for this installation 8,950 ✓ at 118 ✓ RPM of engine and 118 ✓ RPM of propeller.
Corresponding MIP 8.38 kg/cm² (For DA engines give MIP top & bottom) Maximum cylinder pressure 60 kg/cm² Machinery numeral 1790 ✓
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? Through type ports No. and type of mechanically driven scavenge pumps or blowers per engine and how driven 7 - reciprocating integral with main piston
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 None fitted No. of scavenge air coolers 3 Scavenge air pressure at full power about 0.48 kg/cm² Are scavenge manifold explosion relief valves fitted? Yes

TWO AND FOUR STROKE ENGINES. Is the engine supercharged? Yes Are the undersides of the pistons arranged as supercharge pumps? Yes No. of exhaust gas driven blowers per engine 2 No. of supercharge air coolers per engine 3 Supercharge air pressure about 0.48 kg/cm² Can engine operate without supercharger? Yes
No. of valves per cylinder: Fuel 1 Inlet - Exhaust - Starting 1 Safety 1 ✓
Material of cylinder covers Mo-Cast Steel Material of piston crowns Mo-Cast Steel Is the engine equipped to operate on heavy fuel oil? Yes
Cooling medium for: Cylinders Fresh water Pistons Fresh water Fuel valves Fresh water Overall diameter of piston rod for double acting engines -

Is the rod fitted with a sleeve? - Is welded construction employed for: Bedplate? Yes Frames? Yes 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 98 M³ No. and total area of explosion relief devices 7 - 5810 cm² ✓ 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 the tank top How is the engine started? Starting compressed air
Can the engine be reversed? Yes If not, how is reversing obtained? -
Has the engine been tested working in the shop? Yes How long at full power? 2 1/2 hours

CRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system 22-11-60 State barred speed range(s), if imposed
for working propeller - 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 9 Are main bearings of ball or roller type? No Distance between inner edges of bearings in way of crank(s) 1420 mm 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 530 mm Diameter of crankpins 530 mm Breadth of webs at mid-throw 975 mm Axial thickness of webs 315 mm
If shrunk, radial thickness around eyeholes 285 mm Are dowel pins fitted? No Crankshaft material: Journals Forged steel Approved
Webs Tensile strength 53 kg/mm²
Diameter of flywheel 2498 mm Weight 11,950 kg Are balance weights fitted? No Total weight - Radius of gyration 46400 kg/M²
Diameter of flywheel shaft - Material - Minimum approved tensile strength -
Flywheel shaft: separate, integral with crankshaft, integral with thrustshaft. (State which) Integral with Crank 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 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. State Port and report No.)

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. Full particulars to be reported on Form 4e.) Port

Report No.

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 520 mm Material Forged Steel Minimum approved tensile strength 53 kg/mm²
 Shaft separate or integral with crank or wheel shaft? Integral with crankshaft Diameter of intermediate shaft 415 mm Material Forged Steel
 Minimum approved tensile strength 44 kg/mm² Diameter of screwshaft cone at large end 475 mm 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/tube shaft liner at bearings 25 mm Thickness between bearings 24 mm How is the after end of the liner made watertight in the propeller boss? Special endless rubber packing
 Material of screw/tube shaft 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 2,000 mm Material of bearing Lignum-vitae 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. If of special design, state type No Is it of reversible pitch type? No

If so, is it of approved design? State method of control

Propeller	Diameter MM	Pitch MM	Built or solid	Total developed surface SQ.M	No. of blades	Blade thickness at top of root fillet MM	Blade material	Tensile strength Ton/in ²	Design moment of inertia of propeller (dry) kg-cm-sec ²	For Class 1 or 2 ice strengthening only			
										Blade thickness at 25% radius	Blade thickness at tip	Length of blade section at 25% radius	Rake of blade
Working	5,300	4,980	Solid	10.40	4	226	Mn.Br.	31.6 31.4	149,150				
Spare	5,300	4,980	Solid	10.40	4	226	Mn.Br.	31.3 31.4	149,150				

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) M67268.
 Two - Main - 300 M³/H x 30 kg/cm², Motordriven, Port and Starboard, forward on lower floor in E.R.
 One - Aux. - 400 M³/H x 30 kg/cm², Emergency generator engine driven, in emerg. generator R. on Nav.Bridge Dk.

No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate) M67443.
 Two - Main - 12 M³ x 30 kg/cm², starboard inboard and outboard on 2nd deck in E.R. Kobe AR-56363
 One - Aux. - 0.3 M³ x 30 kg/cm², port outboard on lower floor in E.R. Kobe AR-66773

Emergency generator engine driven
 How are receivers first charged? air compressor Maximum working pressure of starting air system 30 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 2

OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure
 1-Diesel oil sett.tank on 2nd deck in E.R.(starb'd) 1-Diesel oil service tank in emerg.gen.R.(starb'd), 2-heavy O.F. sett.tank for boiler at shelter dk. level in E.R.(starb'd for'd & aft).
 1-Diesel oil service tank on 2nd dk in E.R.(port), 2-O.F. service tank for galley at promenade dk level in E.R. (port outboard and inboard).

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) 7-Oil fuel injection pumps, 1-Air cushion pump for piston cooling.

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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	Fersh Water Cooling	Sea	Feed Tanks	Lub. Oil	Boiler Feed	Salt Water Cooling	Fresh Water Cooling	Oil Fuel Tanks	Fire Main	Lub. Oil.	Piston Cooling	
Motor driven boiler W. forced air pump									Boiler							Boiler
Port inb'd & outb'd on 2nd dk. in E.R.									X							X
Motor driven diesel oil transfer pump																
Carb'd on lower floor in E.R.				X								X				
Motor driven, distilling pump									Distiller							Feed Tk.
Carb'd on lower floor in E.R.									X							X
Motor driven, brine pump									Evaporator							Outb'd
Carb'd on lower floor in E.R.									X							X
Motor driven, F.O. supply pumps																
Port fw'd & aft lower floor in E.R.				X								X				
Motor driven, fire & G.S. pumps, Port																
Outb'd & inb'd on lower floor in E.R.	X		X				X						X			X



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Service for which each pump is connected to be marked thus X

INDEPENDENT PUMPS Name below essential pumps, state position and how driven. Give capacity of bilge pumps.	SUCTION								DELIVERY							Over board
	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	
Motor driven F.W. cooling pump					X						X				X	
Starb'd fw'd & aft on lower floor in E.R.																
Motor driven F.W. cooling pump					X						X				X	
Starb'd aft on lower floor in E.R.																
Motor driven S.W. cooling pump						X				X						X
Starb'd on lower floor in E.R.																
Motor driven F.W. pumps for fuel valve cooling, Port fw'd & aft on lower floor in E.R.					X						X					
Motor driven aux. F.W. cooling pump					X						X				X	
Starb'd on lower floor in E.R.																
Motor driven, Aux. S.W. cooling pump						X				X						
Starb'd on lower floor in E.R.																
Motor driven, lub. oil pumps								X						X		
Port fw'd & aft on lower floor in E.R.																
Motor driven, heavy F.O. transfer pump				X								X				
Starb'd on lower floor in E.R.																
Motor driven, fire & G.S. pumps, Port						X							X			X
Outb'd & inb'd on lower floor in E.R. x 80/150 M ³ /h x 65/32M		X	X													
Motor driven, ballast & stand-by cooling S.W. pump						X					X					X
Starb'd on lower floor in E.R. x 360/450 M ³ /h x 25/20 M		X	X													
Motor driven Emer. bilge & fire pump in shaft tunnel 80/120 M ³ /h x 50/32M		X				X							X			X
Motor driven, bilge pump, port on lower floor in E.R. 10M ³ /h x 5 kg/cm ²		X														X
Steam driven, feed water pumps																
Starb'd inboard & outb'd on 2nd dk. in E.R.							X		X							

80mm on Plan

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room 2-50mm dia. in each for Nos. 1, 2, 3, 4 & 5, 1-80mm dia. in each for fw'd deep tank (P.&S.), 1-80mm dia. in each for aft deep tank (P.&S.), 2-50mm dia. in each for Nos. 3 & 4 tween deck (main locker), 1-50mm dia. Bosun Store: 2-50mm dia. on main dk., 2-50mm dia. on shelter deck.

No. and size connected to main bilge line in main engine room 1-50mm dia., 1-50mm dia. in each for fw'd centre & aft coff. In tunnel 2-80mm dia.

In aux. engine room Steering room: 2-50mm dia. 80. Size and position of direct bilge suction in machinery spaces 1-140mm dia. port aft

Size and position of emergency bilge suction in machinery spaces 1-260mm dia. starb'd fw'd

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 oil tankers, ships carrying cargo or classed for navigation in ice Class 1, 2 or 3? (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 Fw'd, Outb'd on lower floor in E.R.	4S.C.S.A. Yokohama	Mitsubishi	Yokohama M-6823	400KVA A.C. Generator
Port fw'd inb'd on lower floor in E.R.				
Port aft on lower floor in E.R.				
Starb'd on nav. bridge deck in emergency generator room	4S.C.S.A. Yokohama	do.	Yokohama M-6831	100KVA A.C. Generator and 40M ³ /H x 30kg/cm ² 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 One, 400 KVA

Is an electric generator driven by Main Engine? No

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

Position Forward on 2nd deck in E.R.

Is a superheater fitted? None Are these boilers also heated by exhaust gas? No No. of aux. boilers heated by exhaust gas only? 1 W.P. 9.5 kg/cm²

Type Forced circulating coil & header 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? as economizer Port and No. of report on aux. boilers Kobe FE-8689

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? 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 None 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 including particulars of alternative means of steering)

2- Electric hydraulic jarmey type (HD-24)

Yes

1-150L portable foam extinguisher

Have the Rule Requirements for fire extinguishing arrangements been complied with? Brief description of arrangements. 1-45L 6@1.1L portable CCl₄ 9-@ 9L soda acid extinguisher, 4 sets of 65mm dia. water coupling having Horsereel, 2-@ 150L sand box and "KDDE" fire extinguishing system (Drawing No. HP-906, date of approval 24-1-61) Extinguisher

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 10th February, 1961 6 hours Does this machinery installation contain any features of a novel or experimental nature? (Give particulars)

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.)

Y. Nihei, Executive Director of Kawasaki Dockyard.

H. Sanji, Chief of Machinery Division, HITACHI SHIPBUILDING & ENGINEERING CO., LTD.

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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 material and workmanship are sound and good.

The above described machinery has been installed on board the m.v. "M.H. THAMRIN" at Innoshima in a proper manner and found satisfactory when tested at sea under full working condition on the 10th February, 1961 and is eligible in our opinion for classification with the records of "LMC 2,61, Aux. Boiler Survey 2,61, (1-Oil Fired, 1-Exhaust Gas Heated Economizer), Tailshaft Survey - Continuous Liner 2,61, Steam Pipe Survey 2,61 and "Fitted for Oil Fuel".

NOTE: Main engine not to be run continuously below 33 r.p.m.

H. K. Palmer
H. K. Palmer. H. K. Palmer
Engineer Surveyor to Lloyd's Register of Shipping.

RODS		Connecting Rods		LLOYD'S YKA Y-14850 A - G(7)	
Piston Rods		LLOYD'S YKA Y 14854 A - G (7)			
CRANKSHAFT OR ROTORSHAFT		Crank Shaft		LLOYD'S KOB KT -CK 431	
FLYWHEEL SHAFT					
THRUSTSHAFT					
GEARING					
INTERMEDIATE SHAFTS		LLOYD'S KOB HC-F1429		LLOYD'S KOB HC-F1428	
SCREW AND TURN SHAFTS		Working: LLOYD'S KOB HC-F1417		Spare: LLOYD'S KOB HC-F1418	
PROPELLERS		Working: LLOYD'S NAG NG-601		Spare: LLOYD'S NAG NG 605	
OTHER IMPORTANT ITEMS		Crosshead Pins		LLOYD'S KOB KW-F3364-1,2	
		Cam shafts		LLOYD'S KOB KW-F3374	
		Piston Crowns		LLOYD'S KOB M 56401	
		Cylinder covers		LLOYD'S KOB M 56389	
				Coupling bolts & nuts for Intermediate Shaft & Tailshaft	
				Working: LLOYD'S KOB HI-F 1003 & HI-F 1004	
				Spare: LLOYD'S KOB HI-F1003 & 1004	
Is the installation a duplicate of a previous case? No					
If so, state name of vessel					
Date of approval of plans for cranksaft		8-8-1960		Straight shafting	
17-8-1960, 7-9-1960		8-8-60		Gearing	
Separate oil fuel tanks		7-12-1960		18-7-1960, 5-10-1960	
				24-1-1961	
Cargo oil pumping arrangements		-		Pumping arrangements	
				24-1-1961	
Dates of examination of principal parts:-		1-Crankshaft 20-9-60		Air receivers 4-Connecting Rods 5-8-60	
		1-Piston rods 11-8-60		8-Piston Crowns 21-9-60	
Fitting of stern tube		25-11-60		7-Crossheads 21-10-60	
		Fitting of propeller		29-11-60	
				Completion of sea connections	
				2-12-60	
				Alignment of crankshaft in main bearings	
				19-1-61	
Engine checks & bolts		19-1-61		Alignment of straight shafting	
				19-1-61	
Oil fuel lines		12-1-61		Testing of pumping arrangements	
				3-2-61	
Date of Committee		THURSDAY - 1 JUN 1961		29-11-61 & 10-2-61	
				Windlass	
				10-2-61	
Decision				Special Survey Fee	
				Construction	
				£ 525.000. -FEB -9	

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Expenses

Date when A/c rendered

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