Rpt. 4b

Date of writing report 13th Feb., 1963 | Received London | Port KOBE | No. FE-11678

Survey held at Akashi & Mukaishima, Japan | No. of visits In shops 22 | On vessel 10 | First date 17th July,1962 / 10th Jan.,1963 | Last date 2nd Feb.,1963 / 27th May, 1963

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. | Name "POLISI 505" | Gross tons 310.35

Owners The Government of the Republic of Indonesia | Managers | Port of Registry Djakarta

Hull built at Mukaishima | By Hitachi Shipbuilding & Eng.Co.,Ltd., Mukaishima Shipyard | Yard No. 3962 | When Year 1963 Month 5

Main Engines made at Akashi | By Kawasaki Dockyard Co.,Ltd., Akashi Plant | Eng. No. 6186, 6187 | When 1963 2

Gearing made at – | By – | Gear No. | When

Aux./donkey boilers made at – | By – | Blr. Nos. | When

Machinery installed at Mukaishima, Japan | By Hitachi Shipbuilding & Eng.Co.,Ltd., Mukaishima Shipyard | When 1963 - 5

Particulars of restricted service of ship, if limited for classification

Particulars of vegetable or similar cargo oil notation, if required –

If ship is to be classed for navigation in ice, state whether Class 1, 2 or 3 – | Is ship an oil tanker? No

Is refrigerating machinery fitted? No | If so, is it for cargo purposes? – | Type of refrigerant –

Is the refrigerating machinery compartment isolated from the propelling machinery space? – | Is the refrigerated cargo installation intended to be classed? –

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 relevent particulars must be given and the port and report number should be stated.

No. of main engines 2 | No. of propellers 2 | Brief description of propulsion system Two oil engines direct coupled to shaftings.

MAIN RECIPROCATING ENGINES.

Licence Name and Type No. Kawasaki MAN W8V 22/30M ALU 4 cycle single acting trunk piston, self-reversible, pre-combustion type with supercharger & inter cooler

No. of cylinders per engine 8 | Dia. of cylinders 220 mm | stroke(s) 300 mm | 2 or 4 stroke cycle 4 | Single or double acting Single

Maximum BHP per engine approved for this installation 640 | at 650 RPM of engine and 650 RPM of propeller.

Corresponding MIP 12.15 kg/cm2 *(For DA engines give MIP top & bottom)* | Maximum cylinder pressure 75 kg/cm2 | Machinery numeral 128 X 2

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? – | 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? – | No. and type of mechanically driven scavenge pumps or blowers per engine and how driven –

No. of exhaust gas driven scavenge blowers per engine – | Where exhaust gas driven blowers only are fitted, can the engine operate with one blower out of action? –

If a stand-by or emergency pump or blower is fitted, state how driven – | No. of scavenge air coolers – | Scavenge air pressure at full power – | Are scavenge manifold explosion relief valves fitted? –

FOUR STROKE ENGINES. Is the engine supercharged? Yes | Are the undersides of the pistons arranged as supercharge pumps? No | No. of exhaust gas driven blowers per engine 1 | No. of supercharge air coolers per engine 1 | Supercharge air pressure 0.46 kg/cm2 | Can engine operate without supercharger? Yes

No. of valves per cylinder: Fuel 1 | Inlet 2 | Exhaust 2 | Starting 1 | Safety 1

Material of cylinder covers Cast Iron | Material of piston crowns Forged Al-Alloy | Is the engine equipped to operate on heavy fuel oil? No

Cooling medium for :—Cylinders Fresh Water | Pistons – | Fuel valves – | Overall diameter of piston rod for double acting engines –

Is the rod fitted with a sleeve? – | Is welded construction employed for: Bedplate? No | Frames? No | Entablature? No | Is the crankcase separated from the underside of pistons? No | Is the engine of crosshead or trunk piston type? Trunk Piston | Total internal volume of crankcase 1.3 M^3 | No. and total area of explosion relief devices 2 x 81cm2 | 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? Built up seating | How is the engine started? 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 Hours 7.6.63. 5544

CRANK & FLYWHEEL SHAFTING.

Date of approval of torsional vibration characteristics of the propelling machinery system 14th Jan.,1963 | State barred speed range(s), if imposed for working propeller Below 190 RPM | For spare propeller None | Is a governor fitted? YES | Is a torsional vibration damper or detuner fitted to the shafting? Yes

Where positioned? Crankshaft forward end | Type MAN type sleeve spring dynamic damper | 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) 235 mm | Distance between centre lines of side cranks or eccentrics of opposed piston engines –

Crankshaft type: Built, semi-built, solid. *(State which)* Solid

Diameter of journals 150 mm | Diameter of crankpins Centre 150 mm Side – | Breadth of webs at mid-throw 230 mm | Axial thickness of webs 65 mm

If shrunk, radial thickness around eyeholes – | Are dowel pins fitted? – | Crankshaft material: Solid Journals Cr.Mo.Forged S Pins – Webs – | Minimum – Approved – Tensile strength 80 kg/mm2

Diameter of flywheel 1000 mm | Weight 475 kg | Are balance weights fitted? Yes | Total weight 549 kg | Radius of gyration 38.7 cm

Diameter of flywheel shaft – | Material – | Minimum approved tensile strength –

Flywheel shaft: separate, integral with crankshaft, integral with thrustshaft. *(State which)* Integral with thrustshaft.

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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. (*A small diagram should be attached showing gas cycle.*) HP drives ..... at ..... RPM HP gas inlet temperature ..... pressure .....

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 150 mm Material Steel forged Minimum approved tensile strength 50 kg/cm2

Shaft separate or integral with crank or wheel shaft? Integral with wheel shaft. Diameter of intermediate shaft 110mm Material Forged steel

Minimum approved tensile strength 44 kg/mm2 Diameter of screwshaft cone at large end 132 mm Is screwshaft fitted with a continuous liner? None

Diameter of tube shaft. (*If these are separate shafts*) 126mm Is tube shaft fitted with a continuous liner in way of stern tube None Thickness of screw/tube shaft liner at bearings – Thickness between bearings – How is the after end of the liner made watertight in the propeller boss?

Material of screw/tube shaft High Tension Brass Minimum approved tensile strength – Is an approved oil gland fitted? No If so, state type –

Length of bearing next to and supporting propeller 2100 mm Material of bearing Lignum vitae In multiple screw vessels is the liner between stern tube and "A" bracket continuous? No If not, is the exposed length of shafting between liners readily visible in dry dock? Yes

Stern bush 2726 m/m
Aft bush 350 m/m

PROPELLER. If of special design, state type 3 Bladed Ordinal Type Is it of reversible pitch type ? No.

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

Propeller	Diameter	Pitch	Built or solid	Total developed surface	No. of blades	Blade thickness at top of root fillet	Blade material	Tensile strength	Design moment of inertia of propeller (dry)	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	1300mm	858mm	Solid	0.778 M2	3	58.9 mm	Manganese Bronze	Port 51.1kg/mm2 Starb'd 50.0 kg/mm2	198.8 kg/cm-sec2				
Spare													

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*) 2x20 M^3/H, Electric motor, port & starb'd in E.R. Kobe, M-85061; Emergency:- 1x4.5 M^3/H, 2.5 H.P. Diesel Engine, starb'd in E.R. Kobe M-85059

No. of starting air receivers (*Main and Aux. State capacity of each, position in ship and Port and No. of Certificate*) 2 x 400 Litre, port & starb'd, Kobe AR-84002 & 84003, 1 x 50 Litre, port in E.R. Kobe AR-84319

How are receivers first charged? By emergency 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 (Main Engine attached)

OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure None

MAIN ENGINE DRIVEN PUMPS (*No. and Purpose*) 1 x Sea water cooling pump, 1 x Jacket fresh water cooling pump, 1 x Fuel oil booster pump, 1 x lub. oil pump, 8 x Fuel injection H.P. pumps,

X Certs 84002/3 with certs for POL 504

14 AUG 1963

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	Lub. Oil	Boiler Feed	Salt Water Cooling	Fresh Water Cooling	Oil Fuel Tanks	Fire Main	Lub. Oil	Piston Cooling	
Bilge & fire pump s.s. E.M. 60M3/H	X	X	X			X				X	X		X			
General Service Pump s.s. E.M. 20M3/H	X		X			X				X	X		X			
Fresh water pump p.s. E.M.					X						X					
Reserve L.O. pump Midship E.M.								X						X		
Fuel oil transfer pump Midship E.M.				X								X				
Lub. oil priming pumps P. & S. E.M.								X						X		
Sea water cooling pump p.s.E.M.						X				X			X			

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room Cargo hold P. & S. 1 x 65 mm, Mail Room P. & S. 1 x 50mm., Void Space P. & S. 1 x 50 mm.

No. and size connected to main bilge line in main engine room Fw'd port 1x50mm., Aft starb'd 1 x 50mm In tunnel P. & S. 1 x 50mm

In aux. engine room – Size and position of direct bilge suctions in machinery spaces Starb'd Aft 1 x 65mm

Size and position of emergency bilge suctions in machinery spaces Port fw'd 125 mm

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 ~~(Strike out words not applicable)~~ Yes

STEAM & OIL ENGINE AUXILIARIES

Position of each	Type	Made by	Port and No. of ~~Certificate~~ Cert.	Driven Machinery (For electric generators, state output)
E.R. Port	4 C.S.A. Diesel Eng.	Yanmar Diesel Eng.Co.,Ltd.	Kobe O-84492 3 cyl. X	A.C. 225V., 70 KVA Generator
E.R. Starb'd	do.	do.	do.	do.
E.R. Starb'd	do.	do.	Kobe M-84014 1 cyl. X	4.5M^3/H 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 x 16 KW Is an electric generator driven by Main Engine? No

STEAM INSTALLATION. No. of aux /donkey boilers burning oil fuel (*See Circular 2144*) None W.P. – Type – Position –

Is a superheater fitted? – Are these boilers also heated by exhaust gas? – No. of aux./donkey boilers heated by exhaust gas only? – W.P. –

Type – Position – 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? – Port and No. of report on aux./donkey boilers – Is steam essential for operation of the ship at sea? – Are any steam pipes over 3 ins. bore? – If so, what is their material? – For oil fired boilers is the arrangement of pipes, valves, controls, etc., in accordance with the Rules? – No. of oil burning pressure units – No. of steam condensers – No. of Evaporators –

STEERING GEAR. (*State No. and Type of Steam Engines, Electric Motors, Hydraulic Pumps and other particulars including particulars of alternative means of steering*) One set Heleshaw type Electric hydraulic, 2 cylinder, 2 ram system, 1.5 KW motor

Have the Rule Requirements for fire extinguishing arrangements been complied with? Yes Brief description of arrangements 3 x 9 Litre foam extinguisher, 2 x 45 Litre foam extinguisher, 1 x 5 lbs CO2 fire extinguisher, 1 x 144 Litre sand box and shovel.

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 25-5-63 2 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.*)

K. IKEDA
Yard Manager of Hitachi Mukaishima Shipyard

Kawasaki Dockyard Co.,Ltd., Akashi Plant. *Builder*

0284½

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 oil engines have been constructed under Special Survey in accordance with the Rules, approved plans and the Secretary's letters.

The materials and the workmanship are sound and good.

The engines were examined under full load working conditions in the shop and found satisfactory.

The engines have been satisfactorily installed in the ship and comprehensive sea trials carried out with satisfactory results.

It is recommended that the machinery is eligible in our opinion to have a record of +LMC 5,63 & TS (b)5,63.

E.G. White, K. Tabuchi & M. Hayashibara

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 Rod: Eng.No.6186 LLOYD'S KOB FS-F2170-7,21,24,38,49 FS-F2174-5,10, FS-F2178-6 KT 9-11-62 LR
Eng.No. 6187 LLOYD'S KOB FS-F2170-2,10,50 FS-F2174-1,9 FS-F2178-3,18, FS-F2179-4 KT 9-11-62

CRANKSHAFT OR ROTORSHAFT Eng.No.6186 LLOYD'S KOB No.KT-CK 540 EI 22-11-62 LR Eng.No.6187 LLOYD'S KOB No.KT-CK541 EI 29-11-62 LR

FLYWHEEL SHAFT

THRUSTSHAFT Eng.No.6186 LLOYD'S KOB NO.OI-F1152-1 SM 30-10-62 Eng.No.6187 LLOYD'S KOB NO.OI-F1152-2 KT 6-11-62 LR

GEARING

INTERMEDIATE SHAFTS LLOYD'S KOB HC-F2352, 2353, 2380 & 2381 MH 17-1-63 LR

SCREW AND TUBE SHAFTS LLOYD'S KOB Y-18404 A_3, A_4, B_3 & B_4 MH 10-1-63 LR

PROPELLERS Port & starboard LLOYD'S TEST KOB FI 30-11-62 PM LR
37066 & 37662

OTHER IMPORTANT ITEMS

Is the installation a duplicate of a previous case? Yes **If so, state name of vessel** "POLISI 504"

Date of approval of plans for crankshaft 9-7-62 **Straight shafting** 14-8-62 8-10-62 **Gearing** - **Clutch** -

Separate oil fuel tanks None **Pumping arrangements** 8-11-62 **Oil fuel arrangements** 8-11-62

Cargo oil pumping arrangements - **Air receivers** **Aux./donkey boilers** -

Dates of examination of principal parts:—

Fitting of stern tube 21-1-63 **Fitting of propeller** 22-1-63 **Completion of sea connections** 17-1-63 **Alignment of crankshaft in main bearings** 14-3-63

Engine chocks & bolts 14-3-63 **Alignment of gearing** - **Alignment of straight shafting** 14-3-63 **Testing of pumping arrangements** 25-5-63

Oil fuel lines 9-4-63 **Donkey boiler supports** - **Steering machinery** 25-5-63 **Windlass** 25-5-63

Date of Committee FRIDAY 13 SEP 1963

Decision +LMC ES } TS(B) } 5.63

Special Survey Fee
Construction: £185,250.-
Installation: 75,600.-
135,000

Expenses —

Date when A/c rendered