

Rpt. 4b

Date of writing report 11th July, 1962 Received London Port KOBE No. FE-10186
Survey held at Osaka, Japan No. of visits In shops 83 28th Sept., 1961 22nd March, 1962
On vessel 26 First date 13th March, 1962 Last date 9th July, 1962.

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. Name m.v. "OKHOTSK" Gross tons 11,105
Owners V/O "Sudoimport" Moscow, U.S.S.R. Managers Hitachi Shipbuilding & Engineering Co., Ltd. Port of Registry Vlodivostok
Hull built at Osaka, Japan By Sakurajima Shipyard Yard No. 3923 Year 1962 Month 7
Main Engines made at do. By do. Eng. No. 2151 When 1962 3
Gearing made at - By - Gear No. - When -
Aux./donkey boilers made at Innoshima, Japan By Innoshima Shipyard Bfr. Nos. 561 & 562 When 1962 2
Machinery installed at Osaka, Japan By Hitachi Shipbuilding & Engineering Co., Ltd., Sakurajima Shipyard. When 1962 7

Particulars of restricted service of ship, if limited for classification None
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 "Class 3" Is ship an oil tanker? No
Is refrigerating machinery fitted? Yes If so, is it for cargo purposes? No Type of refrigerant Freon
Is the refrigerating machinery compartment isolated from the propelling machinery space? Yes Is the refrigerated cargo installation intended to be classed? No

Machinery only recd.
F.E. FROM ACCTS. 6 SEP 1962
F.E. FROM ADMIN/E 10/9
PLANS REC'D. 30/8
CERTS. RECD.
TO RPIS. DEPT.

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-oil engine direct coupled to lineshafting

MAIN RECIPROCATING ENGINES. Licence Name and Type No. Burmeister & Wain's, Hitachi B & W 874VT2BF-160
No. of cylinders per engine 8 Dia. of cylinders 740mm stroke(s) 1600mm 2 or 4 stroke cycle 2 Single or double acting Single
Maximum BHP per engine approved for this installation 12000 BHP at 115 RPM of engine and 115 RPM of propeller.
Corresponding MIP 9.5 kg/cm2 (For DA engines give MIP top & bottom) Maximum cylinder pressure 65 kg/cm2 Machinery numeral 2400
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? cover No. and type of mechanically driven scavenge pumps or blowers per engine and how driven None

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 No. of scavenge air coolers 2 Scavenge air pressure at full power 0.7 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? No No. of exhaust gas driven blowers per engine 2 as above No. of supercharge air coolers per engine 2 as above Supercharge air pressure 0.7 kg/cm2 Can engine operate without supercharge? No
No. of valves per cylinder: Fuel 2 Inlet None Exhaust 1 Starting 1 Safety 1

Material 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? Yes
Cooling 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? Crosshead Total internal volume of crankcase 163.47 M³ No. and total area of explosion relief devices 17,9021 cm² Are flame guards or traps fitted to relief devices? No 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? By 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? 4 hours
CRANK & FLYWHEEL SHAFING. Date of approval of torsional vibration characteristics of the propelling machinery system 11-4-61 London letter 8-9-61 State barred speed range(s), if imposed 505.5

for working propeller None For spare propeller None Is a governor fitted? Yes Is a torsional vibration damper or detuner fitted to the shafting? No
Where positioned? - Type - No. of main bearings 10 Are main bearings of ball or roller type? No Distance between inner edges of bearings in way of crank(s) 1004.6 mm Distance between centre lines of side cranks or eccentrics of opposed piston engines -

Crankshaft type: Built, semi-built, solid, (State which) Built
Diameter of journals 620 mm Diameter of crankpins Centre 620 mm Breadth of webs at mid-throw 1420 mm Axial thickness of webs 314 mm
Side 220 mm Pins Forged Steel Minimum 45 kg/mm2
If shrunk, radial thickness around eyeholes 345 mm Are dowel pins fitted? No Crankshaft material: Journals Forged Steel Approved 45 kg/mm2
Webs Cast Steel Tensile strength 45 kg/mm2
Diameter of flywheel 2240 mm Weight 8092 kg Are balance weights fitted? Yes Total weight 15140 kg Radius of gyration 1.125 mm

Diameter of flywheel shaft 570 mm Material Forged Steel Minimum approved tensile strength 45 kg/mm2
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. 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 570 mm Material Forged Steel Minimum approved tensile strength 45 kg/mm²

Shaft separate or integral with crank or wheel shaft? Integral with thrust shaft Diameter of intermediate shaft 460 mm Material Forged Steel

Minimum approved tensile strength 45 kg/mm² Diameter of screwshaft cone at large end 550 mm Is screwshaft fitted with a continuous liner? Yes

Diameter of tube shaft. (If these are separate shafts) None Is tube shaft fitted with a continuous liner in way of stern tube Thickness of screw/tube shaft liner at bearings 29 mm Thickness between bearings 29 mm How is the after end of the liner made watertight in the propeller boss? Neoprene ring

Material of screw/tube shaft Forged Steel Minimum approved tensile strength 45 kg/mm² Is an approved oil gland fitted? No If so, state type

Length of bearing next to and supporting propeller 2250 mm 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. 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	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) 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	6100mm	4820mm	Solid	13,536M ²	4	285.2mm	Mn.Br.	51.6 kg/mm ²	324555	-	-	-	-
Spare	6100mm	At 0.7R 4720mm	Built	12,575M ³	4	261.5mm	Cast Steel	49.7 kg/mm ²	314000	-	-	-	-

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-Main 4.7M³/min Motor driven stbd fwd & Kobe M-76770 1-Aux. 0.17M³ Diesel Engine Driven Stbd Kobe M-76772-A 1-Ship Service 0.32M³/min Motor Driven Stbd Kobe M-76771 1-Dumper Control 0.14 M³/min Motor Driven Stbd on 2nd deck in E.R. Kobe M-76773

No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate) 2-Main 11M³ Stbd in boat and outboard under deck in E.R. Kobe AR-76568 2-Aux. 0.2M³ port and starboard Kobe AR-73471 1-Ship Service 1.5M³ Fwd centre in E.R. Kobe AR-76569 1-Dumper Control 0.17M³ Starboard on 2nd deck in E.R. Kobe AR-74041

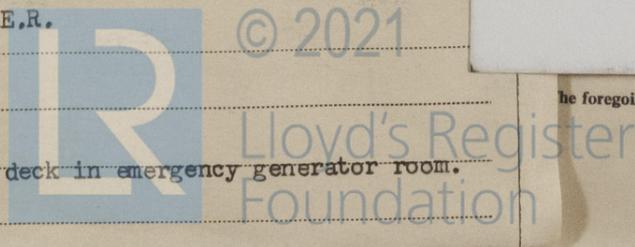
How are receivers first charged? Aux. air compressor driven by diesel engine Maximum working pressure of starting air system 25 kg/cm² Are the safety devices in accordance with the Rules? Yes Has the starting of the main engines been tested and found satisfactory? Yes

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

No. of Fuel Valve Cooling Coolers: 1

Fuel Oil Tank:

- 2-25M³ Heavy oil settling tanks P. & S. on 3rd deck in E.R.
- 2-9.5M³ Heavy oil service tanks Std. in. & outboard on 3rd deck in E.R.
- 1-6.5M³ Diesel oil settling tank Std. 3rd deck in E.R.
- 1-7.5M³ Diesel oil service tank Std. 3rd deck in E.R.
- 1-2M³ F.O. settling tank for Donkey boiler Std. on boiler flat.
- 1-0.9M³ Diesel oil tank for emergency generator engine Std. on boat deck in emergency generator room.
- 1-0.2M³ Kerosen tank for emergency fire pump In steering Room
- 1-0.5M³ F.O. drain tank Std. in engine room.



1-F.O.
Std.
2-Hea
Std.
1-Oil
for b
Sta.
2-Vac
Std.
1-Bri
Port
1-Con
Port
1-Sta
Port
1-L.O
Std.
1-Eme
drive

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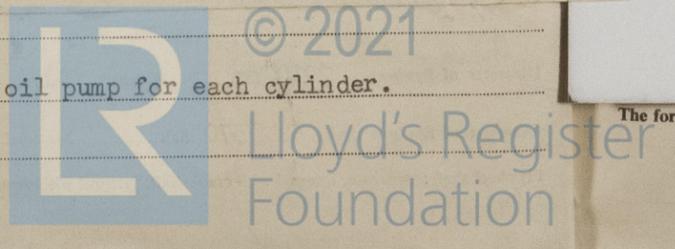
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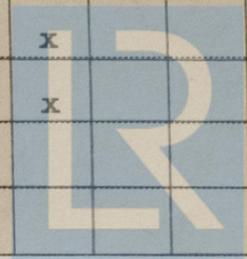
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As per attached sheet

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) 1-Fuel oil supply pump, 1-Fuel oil pump for each cylinder.



	BALLAST	OIL	SEA	LUB	VACUUM	DISTILL				FEED	OIL	LUB.	MAIN	OVER	ATMOS	BRINE	FIRE
	MAIN	FUEL		OIL	TANK	ING.				TANK	TANK	OIL	ENG.	BOARD	PHERE	HEATER	MAIN
						TANK									OVER		
1-F.O.transfer & service pump Std. motor driven		X									X						
2-Heavy oil circulating pumps Std. in.&outboard motor driven		X											X				
1-Oily ballast water supply pump for bilge separator Std. motor driven	X		X											X			
2-Vacuum Pumps Std. Fw'd & Aft motor driven					X										X		
1-Brine pump for distilling plant Port motor driven			X													X	
1-Condensate pump for distilling plant Port motor driven						X			X								
1-Starting L.O.pump for generator E. Port motor driven				X								X					
1-L.O. service pump Std. motor driven				X								X					
1-Emergency fire pump diesel engine driven in steering E.R.			X														



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