

pt. 4b

Date of writing report 27th Oct., 1963

Received London 19 DEC 1963

Port KOBE

No. FE-11838

Survey held at Aioi, Japan

No. of visits In shops 114 On vessel 32

First date 5th Sept., 1962 Last date 28th March, 1963

15th May, 1963 20th Sept., 1963

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

Name m.s. "LOZOVAYA" Gross tons 23,138
 Managers Vsesojuznoje Exportno-Importnoje Objedinenije "Sudimport" Moscow, U.S.S.R.
 Port of Registry ODESSA
 All built at Aioi, Japan By Ishikawajima-Harima Heavy Industries, Co., Ltd., Aioi Works Yard No. 615 Year Month When 1963 9
 Main Engines made at do. By do. Eng. No. ID 225 When 1963 5
 Boilers made at Aioi, Japan By Ishikawajima-Harima Heavy Industries, Co., Ltd., Aioi Works Blr. Nos. IB805 & 806 When 1963 8
 Machinery installed at do. By do. When 1963 9
 Particulars of restricted service of ship, if limited for classification -
 Particulars of vegetable or similar cargo-oil notation, if required -
 Ship to be classed for navigation in ice? Yes, Class 3 Is ship intended to carry petroleum in bulk? Yes
 Refrigerating machinery fitted? Yes If so, is it for cargo purposes? No Type of refrigerant Dichlorodifluoromethane
 Refrigerating machinery compartment isolated from the propelling machinery space? Yes Is the refrigerated cargo installation intended to be classed? -

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 drawing 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 9 Cyl. diesel coupled direct to shafting Sulzer Type 2 stroke, single acting with crosshead turbo charged direct reversing type 9RD-90
MAIN RECIPROCATING ENGINES. Licence Name and Type No.
 No. of cylinders per engine 9 Dia. of cylinders 900 mm stroke(s) 1550 mm 2 or 4 stroke cycle 2 Single or double acting Single
 Maximum approved BHP per engine 18000 at 119 RPM of engine and 119 RPM of propeller.
 Corresponding MIP 8.52 kg/cm² (For DA engines give MIP top & bottom) Maximum cylinder pressure 69 kg/cm² Machinery numeral 3,600
 Are the cylinders arranged in Vee or other special formation? No If so, number of crankshafts per engine -

2 OR 4 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? Ports 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 3 Where exhaust gas driven blowers only are fitted, can the engine operate with one blower out of action? Yes
 Is a stand-by or emergency pump or blower is fitted, state how driven None No. of scavenge air coolers 3 Scavenge air pressure at full load 0.70 kg/cm² Are scavenge manifold explosion relief valves fitted? Yes

3 OR 4 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 3 No. of supercharge air coolers per engine 3 Supercharge air pressure 0.7 kg/cm² Can engine operate without supercharger? Yes

2 OR 4 STROKE ENGINES—GENERAL. No. of valves per cylinder: Fuel 1 Inlet None Exhaust None Starting 1 Safety 1
 Material of cylinder covers Steel Casting Material of piston crowns Steel Casting Is the engine equipped to operate on heavy fuel oil? Yes
 Lubricating 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? 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 157.5 M³ No. and total area of explosion relief devices 9 x 2,060 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? Directly to tank top How is the engine started? By compressed air.
 Can 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 1/2 Hours

CRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system 16-4-63 Kobe State barred speed range(s), if imposed 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 11 Are main bearings of ball or roller type? None Distance between inner edges of bearings in way of crank(s) 1,200 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 650 mm Diameter of crankpins Centre 650 mm Side - Breadth of webs at mid-throw 1037 mm Axial thickness of webs 405 mm
 Pins Steel forging Minimum 53.0 kg/mm²
 Crankshaft material Journals Steel Forging Approved 53.0 kg/mm²
 Webs Steel Forging Tensile strength 53.0 kg/mm²
 Diameter of flywheel 2558 mm Weight 1900 kgs Are balance weights fitted? Yes Total weight 793 kgs Radius of gyration 934 mm

Diameter of flywheel shaft - Material - Minimum approved tensile strength -
 Flywheel shaft: separate, integral with crankshaft, integral with thrustshaft. (State which) Integral with thrust shaft.

20/1/64

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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.)

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 650 mm Material Steel Forging Minimum approved tensile strength 53.0 kg/mm²
 Integral with wheel shaft
 Shaft separate or integral with crank or wheel shaft? wheel shaft Diameter of intermediate shaft 570 mm Material Steel forging
 Minimum approved tensile strength 44 kg/mm² Diameter of screwshaft cone at large end 635 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 33 mm Thickness between bearings 26 mm Material of screw/tube shaft Steel Forging 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 2600 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. Diameter of propeller 6200 mm Pitch 4880 mm Built up or solid Solid Total developed surface 20.45 m²
 Ni-Mn Bronze
 No. of blades 5 Blade thickness at top of root fillet 236.3 mm Blade material Casting Moment of inertia of dry propeller 4.454 x 10⁵ kg-cm-sec²
 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 STEEL Moment of inertia 4.655 x 10⁵

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) 2-500M³/H Main diesel generator engine port inboard and outboard Yka No.M-8939 1-10M³/H diesel engine port Yka No.M-8938, 1-60 M³/H elect. motor port Kobe No.M-87426.

No. of starting air receivers. (Main and Aux. State capacity of each position in ship and Port and No. of Certificate) Main 2-18M³, 25 kg/cm² upper engine flat, port inboard and outboard Kobe No.AR-3035, 3014, Aug. 1-300 Ltr. 25 kg/cm² port Kobe No.AR87450 1-1.5M³ 9 kg/cm² port lower engine flat Kobe No.AR-87451.

How are receivers first charged? By diesel engine driven air compressor 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 Jacket 2 Piston No. of main engine lubricating oil coolers 2 1 O.F. valve

OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure 2-bunker oil settling tanks, starb'd fore and aft, upper engine flat, 2-bunker oil service tank, port and starboard upper engine flat, 1-diesel oil settling tank, starb'd upper engine flat, 1-diesel oil service tank port upper engine flat, 1 Kerosene tank, port lower engine flat, 1-emergency diesel generator O.F. service tank, port captain bridge.

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) None

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	P.R. Bilge	Boiler Feed	Salt Water Cooling	Fresh Water Cooling	Oil Fuel Tanks	Fire Main	Lub. Oil	Piston Cooling	Sea
1-Bilge pump tank top starb'd elect. motor 15M ³ /H	x					x											x
2-G.S. & bilge pumps tank top starb'd forward elec. motor 140M ³ /H each	x	x				x					x						x
1-Bilge ballast pump fwd pump room port steam 80M ³ /H						x									x		x
1-Cooling sea water pump tank top starb'd elect. motor 650M ³ /H						x					x						
1-Jacket cooling fresh water pump tank top starb'd elect. motor 540M ³ /H						x						x					
1 Reserve cooling fresh water pump tank top starboard electric motor 830M ³ /H						x	x				x	x					
2 Piston cooling fresh water pumps tank top port fwd & aft elec. motor 180M ³ /H						x							x				
2-Lub.oil pumps tank top starb'd fwd & aft elec. motor 200 M ³ /H									x							x	
1-Lub.oil tanks for pump tank top starb'd elec. motor 6 M ³ /H									x							x	
2-Turbocharger lub. oil pumps tank top starb'd inb'd & outb'd elec. motor 3 M ³ /H									x							x	
2-Oil fuel booster pumps port lower engine flat outb'd & inb'd elec. motor 7 M ³ /H					x												x
1-Aux. sea water cooling pump tank top starb'd elect. motor 650M ³ /H						x	x				x	x					
1-Oil fuel service pump tank top starb'd elect. motor 10M ³ /H						x										x	
1-Oil fuel transfer pump tank top port elect. motor 50M ³ /H						x										x	
1-Oil fuel transfer pump fwd pump room starb'd steam						x										x	
2-Oil fuel burning pumps of boiler flat port inb'd & outb'd elect. motor 35 M ³ /H						x											Oil Burner
2-Boiler feed pumps lower engine flat starb'd fwd & aft, steam									x		x						
1-Exhaust gas economizer feed pump starb'd lower engine flat steam									x		x						
1-Exh. gas economizer water circulating pumps starb'd tank top elect. motor 12 M ³ /H									x		x						
2-Hire pumps tank top port inb'd & outb'd elect. motor 1.60 M ³ /H									x							x	0070 ² / ₃

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 2 Generators 390 KWH Is an electric generator driven by Main Engine? No

STEAM INSTALLATION. No. of boilers burning oil fuel 2 W.P. 16 kg/cm² Type 'D' type water tube
 Position (1) Port, (1) starb'd-boiler flat - machinery space aft.

Is a superheater fitted? No Are these boilers also heated by exhaust gas? No No. of donkey boilers heated by exhaust gas only? 1 w.p. 20 kg/cm² (S.V. SET TO 19.5 kg/cm²)

Type Header type with 'U' tubes Position Funnel uptake - bridge deck Can the exhaust heated boiler deliver steam directly to the steam range or do they operate only as economisers in conjunction with oil fired boilers? Economizer in conjunction with O.F. boilers - only Port and No. of report on donkey

boilers Kobe FE-11838 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 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) 2 Electric motors, 2-hydraulic pumps "Heleshaw" type.

Have the Rule Requirements for fire extinguishing arrangements been complied with? Yes Brief description of arrangements 2-150 Ltr. froth extinguishers 10-9 Ltr. froth extinguishers, 3-4.5 kg CO2 extinguishers, 2-150 Ltr. sand boxes 10-70mm hose couplings and 8-2 1/2" combined jet & spray nozzle with hoses 35-CO2 nozzle from ship's CO2 apparatus, steam smothering system.

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 7-9-63 2 Hours Does this machinery installation contain any features of a novel or experimental nature? (Give particulars) None

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). Ishikawajima-Harima Heavy Industries Co., Ltd. Aioi No.1 Works

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 T. Nishimura, Deputy General Superintendent of Aioi No.1 Works

3 machines fitted according to letter 29/1/64

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. P.R. Oil Bilge	Boiler Feed	Salt Water Cooling	Fresh Water Cooling	Oil Fuel Tanks	Fire Main	Lub. Oil	Piston Cooling	Sea
1-Bilge pump tank top starb'd elect. motor 15M ³ /H	X					X										X
2-G.S. & bilge pumps tank top starb'd forward elec. motor 140M ³ /H each	X	X				X				X						X
1-Bilge ballast pump fw'd pump room port steam 80M ³ /H	X		X			X							X			X
1-Cooling sea water pump tank top starb'd elect. motor 650M ³ /H						X				X						
1-Jacket cooling fresh water pump tank top starb'd elect. motor 540M ³ /H						X					X					

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room. Chain locker 52.9x1, boat swain's store 52.9mm x 2 (P.&S.) cargo hold 67.9mm x 2 (P.&S.), Fw'd coff'm 67.9mm x 1, Fw'd pump room 67.9mm x 1, Aft pump room 67.9mm x 2 (P&S) No sounder space 52.9mm x 1, E.R. coff. 52.9mm x 1, Steering room 52.9mm x 3 (Fw'd P. & S. and aft).

No. and size connected to main bilge line in main engine room 7 x 100 mm In tunnel -

In aux. engine room - Size and position of direct bilge suction in machinery spaces -

Port 1 x 150 mm Starb'd 1 x 100 mm Size and position of emergency bilge suction in machinery spaces 400 mm Starb'd fw'd

Is the bilge or ballast system fitted with means for separating oily water on the overboard discharge side? Yes 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? 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 inboard	2SACY 235mmx330mm	Yokohama S.Y. & E.Wks, Mitsubishi Nippon Diesel Ind.Ltd.	Yka No.M-9068	350KVA A.C. Generator & main starting air compressor
" " Outboard	do.	do.	do.	do.
Captain Bridge Port	4SA5CY 170mmx220mm	Kubota Iron & Machinery Diesel Co.,Ltd. Sakai Plant	Kobe No.0-88233	100 KVA A.C. Generator
Port in E.R.	4SA 1CY 95mmx140mm	Suction Gas Eng. Diesel Mfg. Co.,Ltd.	Yka No.M-8938	Emergency air compressor

3 machines fitted confirmed Kob letter 29/1/66

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 2 Generators 390 KWH Is an electric generator driven by Main Engine? No

Aux. STEAM INSTALLATION. No. of boilers burning oil fuel 2 W.P. 16 kg/cm² Type 'D' type water tube

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boilers Kobe FE-11838 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 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) 2 Electric motors, 2-hydraulic pumps "Heleshaw" type.

Have the Rule Requirements for fire extinguishing arrangements been complied with? Yes Brief description of arrangements 2-150 Ltr. froth extinguishers 10-9 Ltr. froth extinguishers, 3-4.5 kg CO2 extinguishers, 2-150 Ltr. sand boxes 10-70mm hose couplings and 8-2 1/2" combined jet & spray nozzle with hoses 35-CO2 nozzle from ship's CO2 apparatus, steam smothering system.

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-

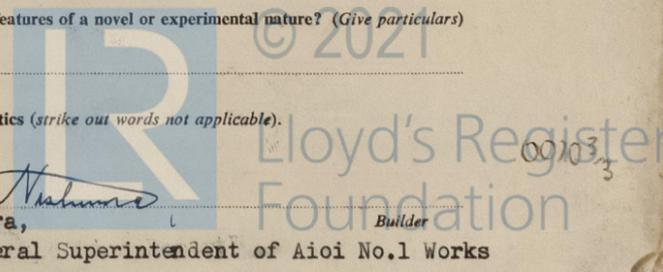
power sea trials of main engines 7-9-63 2 Hours Does this machinery installation contain any features of a novel or experimental nature? (Give particulars)

None

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).

Ishikawajima-Harima Heavy Industries Co., Ltd. Aioi No.1 Works

T. Nishimura, Deputy General Superintendent of Aioi No.1 Works



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 of this ship has been constructed under Special Survey in accordance with the Rules the approved plans and the Secretary's letters. The materials and workmanship are good. The machinery has been examined in the shops and also during comprehensive sea trials and found satisfactory.

It is accordingly recommended that this machinery is entitled to have the records of +LMC 5,63, Auxiliary Boiler Survey 9,63, Tailshaft Survey (continuous liner) 9,63, Steam pipe survey 9,63 "Fitted for Oil Fuel".

E.G. White for R. Sabruchi & self
 Engineer Surveyor to Lloyd's Register of Shipping.
 E.G. White

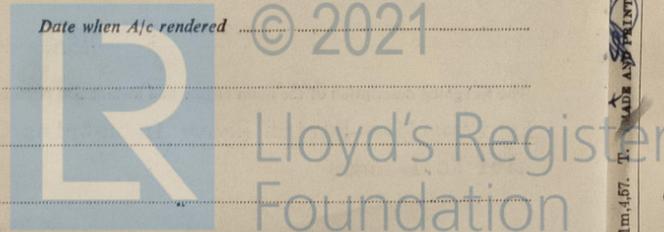
PARTICULARS OF IDENTIFICATION MARKS ((Including Port of origin) of important Forgings and Castings. (Copies of certificates should be forwarded with report.)

RODS Piston Rods: YKA Y-18370, Y-18371, Y-18372, Y-18373, Y-18374, Y-18375, Y-18376, Y-18377, Y-18378, KT 12-1-63 LR
 Connecting Rods: YKA Y-18361, Y-18362, Y-18363, Y-18364, Y-18365, Y-18366, Y-18367, Y-18368, Y-18369 YH 10-1-63 LR
 CRANKSHAFTS ~~OR ROTORS~~ KOB KT-CK 543 EI 5-1-63 LR
 FLYWHEEL SHAFT -
 THRUSTSHAFT KOB KT-F 1967 EI 8-1-63 LR ✓
 GEARING -
 INTERMEDIATE SHAFTS KOB NO.M-88816 No.KT-F 2013 EI LR 4-5-63 ✓
 SCREW AND TUBE SHAFTS KOB No.M-88035 No.KT-F 1996 EI LR 2-4-63 ✓
 PROPELLERS Working SMK NO.M-13015 KOI 2-3-63 HT No.R62-37 ✓ Spare HMA-M-15164 KOI 12-6-63 ✓
 OTHER IMPORTANT ITEMS Piston Crowns: KOB H-C 875-1-1,2,3,4,5,6,7,8,9,10 KT 4,5,6,7,8-2-63 LR
 Cylinder Covers: KOB H-C875-2-1,2,3,4,5,6,7,8,9,10 PM 11-1-63 LR KT 23-1-63 LR
 Crosshead Pins: KOB H-F 875-7-1,2,3,4,5,6,7,8,9 PM 11-1-63 LR KT 22-1-63 LR

Is the installation a duplicate of a previous case? Yes If so, state name of vessel m. s. "LENKORAN"
 Date of approval of plans for crankshaft 30-10-62 Straight shafting 9-1-63 Gearing - Clutch -
 Separate oil fuel tanks 13-2-63 Pumping arrangements 9-1-63 Oil fuel arrangements 9-1-63
 Cargo oil pumping arrangements 1-2-63 Air receivers 1-11-63 ^{AUX.} Donkey boilers 7-3-63
 Dates of examination of principal parts:-
 Fitting of stern tube 8-5-63 Fitting of propeller 10-5-63 Completion of sea connections 16-5-63 Alignment of crankshaft in main bearings 24-6-63
 Engine chocks & bolts 24-6-63 Alignment of gearing - Alignment of straight shafting 24-6-63 Testing of pumping arrangements 26-7-63
 Oil fuel lines 1-7-63 Donkey boiler supports 6-8-63 Steering machinery 7-9-63 Windlass 2-9-63

Date of Committee FRIDAY 24 JAN 1964
 Decision +LMCES
 ABS }
 TS/CL } 9.63
 SPS }
 Special Survey Fee
 Construction : £ 812,250.-
 Installation : 472,500.-
 Expenses -

Date when A/c rendered



If not, state whether, and when, one will be sent? 100,457. T. MADE AND PRINTED IN ENGLAND.