

Rpt. 4b

Date of writing report 15th July, 1962

Survey held at Hiroshima, Japan

Received London

In shops 222

No. of visits On vessel 15

Port Shimonoseki

8th Aug., 1961

First date 16th Mar., 1962

No. FE-2024

9th July, 1962

Last date 14th July, 1962

14 AUG 1962

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. Name Motor Tanker "Lebedin" Gross tons 22,226.24

Owners v/o Sudoimport Managers - Port of Registry Odessa

Hull built at Hiroshima, Japan By Mitsubishi Shipbuilding & Engineering Co., Ltd., Hiroshima Works Yard No. S-146 Year 1962-7

Main Engines made at Hiroshima, Japan By Mitsubishi Shipbuilding & Engineering Co., Ltd., Hiroshima Works Eng. No. 22 When 1962-3

Gearing made at - By - Gear No. - When -

Aux./donkey boilers made at Hiroshima, Japan By Mitsubishi Shipbuilding & Engineering Co., Ltd., Hiroshima Works Blr. Nos. 89 & 90 When 1961-12

Machinery installed at Hiroshima, Japan By Mitsubishi Shipbuilding & Engineering Co., Ltd., Hiroshima Works When 1962-7

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 Class 3

Is refrigerating machinery fitted? Yes If so, is it for cargo purposes? No (ship use) Is ship an oil tanker? Yes

Type of refrigerant Freon Gas 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 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 Reciprocating Oil Engine directly coupled to Line Shaft

MAIN RECIPROCATING ENGINES. Licence Name and Type No. Mitsubishi Hiroshima Sulzer 9RD90 Cross-scavenging Two-cycle Single Acting Exhaust Turbo-charged Cross-head Type

No. of cylinders per engine 9 Dia. of cylinders 900 mm stroke(s) 1,550 mm 2 or 4 stroke cycle 2 Single or double acting Single

Maximum BHP per engine approved for this installation 18,000 at 119 RPM of engine and 119 RPM of propeller.

Corresponding MIP 8.5 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 -

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? Port in Cylinder No. and type of mechanically driven scavenging pumps or blowers per engine and how driven 9 - Piston underside Scavenging Type

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

If 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 power 0.66 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 3 No. of supercharge air coolers per engine 3 Supercharge air pressure 0.66 kg/cm² Can engine operate without supercharger? Yes

No. of valves per cylinder: Fuel 1 Inlet None Exhaust None Starting 1 Safety 1

Material of cylinder covers Cast Steel Material of piston crowns 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? None Is welded construction employed for: Bedplate? Yes Frames? Yes Entablature? - 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 193.3 m³ No. and total area of explosion relief devices 9 - 18,540 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? Tank Top 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 hrs.

CRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system 25 - 5 - 1961 State barred speed range(s), if imposed 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 11 Are main bearings of ball or roller type? No 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 1,058 mm Axial thickness of webs 405 mm

If shrunk, radial thickness around eyeholes 287.5 mm Are dowel pins fitted? None Crankshaft material: Journals Forged Steel Minimum 50 Kg/cm² Approved 50 Kg/cm² Webs Forged Steel Tensile strength 50 kg/cm²

Diameter of flywheel 2,558 mm Weight 1,900 Kg Are balance weights fitted? Yes Total weight 2,277 Kg Radius of gyration 970 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

E. FROM ACCTS.	18 AUG 1962
F. FROM ADMIN.	17/8
PLANS RECD.	} 22/8
CERTS. RECD.	
TO RPLS. DEPT.	

509B



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
2 - Jacket Cooling F.W. Pump (E) Port (F & A) in E.R.				X						X					
2 - Piston Cooling F.W. Pump (E) Port (F & A) in E.R.				X											X

[Faded text area]

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room
 Dry Cargo Space 2 - 50 mm; Main Pump Room 3 - 50 mm; Fore Pump Room 1 - 50 mm
 For Compartment 1 - 50 mm (Starb'd For'd); 4 - 90 mm (For'd P & S, Aft P & S) 2 - 70 mm, Aftmost in
 No. and size connected to main bilge line in main engine room 1 - 70 mm (E.R. Coff); 1 - 70 mm (Cooling F.W. Tank) 1/4/4/4/4 E.R.
 in aux. engine room 1 - 90 mm, Starb'd For'd; 1 - 70 mm Aftmost in E.R. Size and position of direct bilge suction in machinery spaces 1 - 160 mm, Port For'd
 Size and position of emergency bilge suction in machinery spaces 1 - 400 mm, Starb'd For'd
 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 oil tankers, ~~ships carrying cargo oil~~ or classed for navigation in ice Class **X, Z 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)
No.1 Port in E.R.	Yokohama M.A.N. Diesel Engine G6V 23.5/33A	Yokohama Shipyard & Engine Works	Yokohama M - 7982	A.C. Generator 400 KVA
No.2 Starb'd For'd in E.R.	"	Mitsubishi Nippon Heavy Ind., Ltd.	"	"
No.3 Starb'd For'd in E.R.	"	"	"	"
Emergency Generator Room on Boat Deck	Kubota 5J2 Diesel Engine	Kubota Iron Work	Kobe O - 76774	A.C. Generator 95 KVA

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
 1 Set, 320 KW
 Is an electric generator driven by Main Engine? **No**
 Secondary 16 Kg/cm² Mitsubishi Hiroshima Double Evaporation
 Primary 55 Kg/cm² Type Water Tube Boiler
 AM INSTALLATION. No. of aux/donkey boilers burning oil fuel **2**
 Port & Starb'd in Boiler Room
 Superheater fitted? **No** Are these boilers also heated by exhaust gas? **No** No. of aux./donkey boilers heated by exhaust gas only? **One** W.P. 19 Kg/cm²
 U Tube with Header Type Position **in Funnel** Can the exhaust heated boilers deliver steam directly to steam range or do they operate only as economisers in conjunction with oil fired boilers? **Yes** Port and No. of report on aux./donkey
 Primary I-11801 I-11802
 SMK Secondary I-11980
 Steel Pipe I-11958
 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 diameter?
 For oil fired boilers is the arrangement of pipes, valves, controls, etc., in accordance with the Rules? **Yes** No. of oil burning pressure
 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 Sets Mitsubishi Standard Model D-80 2 Rams 4 Cylinders Electro-hydraulic 2 Janney Pumps with 26 KW Electric Motors**
 Are Rule Requirements for fire extinguishing arrangements been complied with? **Yes** Brief description of arrangements **Water Service Comprising 2 Fire Pumps R. & 1 Emergency Fire Pump in Fore Emergency Fire Pump Room. CO2 Fire Extinguishing System in E.R. & B.R. Steam Heating System in E.R., B.R., Main & Aux. Pump Rooms and Cargo Oil Tanks. 9-9 litres Foam Bottles, 2-45 litres Bottles litres Monochloro Fire Ext. 2-290 litres Sand Boxes in Machinery Space. 2-1/2 Monochloro Fire Ext. in Emergency Generator Room. Air Foam Fire Ext. System in Cargo Oil Tanks, F.O. Deep Tanks & Main and Aux. Pump Rooms. Automatic Sprinkler System in Living Quarter**
 Has all the machinery been tried under full working conditions and found satisfactory? **Yes** Date and duration of trial **26th June & 4th July, 1962 4 hrs**
 Does this machinery installation contain any features of a novel or experimental nature? (Give particulars) **Electric Distance Reading Thermometers fitted to Main Engine Crank Journal Bearings. Main Engine Piston and Cooling Water Temperatures automatically controlled.**
 Brief description of the main engine and installation is correct and the particulars are as approved for torsional vibration characteristics. (Strike out words not applicable.)

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 built under special survey in accordance with the Rules, Approved Plans and Secretary's letters. The materials and workmanship are sound and good.

The machinery was examined under working conditions during comprehensive shop and sea trials and found satisfactory.

In our opinion the machinery of this ship is worthy to have records of + LMC 7.62, ABS 7.62 (primary 782 lb/in² secondary 228 lb/in² exhaust gas economizer 284 lg/in²) TS (CL) 7.62 and SPS 7.62

J. Nonomura *W. A. Cook*
 Engineer Surveyor to Lloyd's Register of Shipping
 W. A. Cook, J. Nonomura, Y. Kojima

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

Piston Rod - Lloyd's SMK Y-16903-A, B, Y-16905, Y-16919, Y-17095, Y-17099, Y-17100-A, B, Y-17110, KY LR 15 -
 RODS Connecting Rod - Lloyd's SMK Y-16885, Y-16913A, Y-16917, Y-17097-A, B, Y-17104-A, B, Y-17115, Y-17098-A, B,
 YK LR 26 - 1 - 62 & JN LR 5 - 2 - 62

CRANKSHAFT ~~YK LR 26 - 1 - 62~~ Lloyd's KOB No. KT-CK 472 EI LR 28 - 9 - 61

THRUSTSHAFT ~~YK LR 26 - 1 - 62~~ Lloyd's KOB No. KT-F 1723 EI LR 28 - 9 - 61

GEARING - Lloyd's SMK NAG No. 4696 JN LR 27 - 2 - 62

INTERMEDIATE SHAFTS Lloyd's SMK NAG No. 4697 JN LR 27 - 2 - 62

SCREW ~~YK LR 26 - 1 - 62~~ SHAFTS Spare Lloyd's KOB No. KT-F 1738 EI LR 31 - 10 - 61

Lloyd's KOB No. KT-F 1697 EI LR 29 - 8 - 61
 Lloyd's SMK No. 12051 KOI LR 12 - 2 - 62

PROPELLERS Spare Lloyd's SMK No. 12077 KOI LR 5 - 4 - 62

OTHER IMPORTANT ITEMS

Cylinder Cover; Lloyd's Test SMK Nos. 11862 - 1 to W.T.P. 105 & 6 Kg/cm²
 YK 8, 10, 12, 17, 19, 22 & 24 - 1 - 62 YK 29 - 1 - 62
 Piston Crown; Lloyd's Test SMK Nos. 11861 - 1 to 10 W.T.P. 20 Kg/cm² YK 19, 22 & 24 - 1 - 62 LR
 JN 6, 7 & 15 - 2 - 62 LR JN 24 - 5 - 62 LR
 Crosshead Pin; Lloyd's SMK Y-16914-A, B, C, D Y-16918, Y-17094-A, B, C, D JN 13 - 12 - 61 LR

Is the installation a duplicate of a previous case? Yes If so, state name of vessel M.V. "Lugansk"
 Date of approval of plans for crankshaft 20th June, 1961 5th Apr., 1961
 Separate oil fuel tanks 6th November, 1961 23rd August, 1961
 Cargo oil pumping arrangements 22nd Apr., 1961 8th & 27th Sept., 1961
 16th Aug., 1961
 7th July, 1961

Dates of examination of principal parts:-
 Fitting of stern tube 23rd Feb., 1962 Fitting of propeller 27th Feb., 1962 Completion of sea connections 13th Feb., 1962 Alignment of crankshaft in main bearings 10th June, 1962
 Engine checks & bolts 15th May, 1962 Alignment of gearing - Alignment of straight shafting 15th May, 1962 Testing of pumping arrangements 25th
 Oil fuel lines 30th Apr., 1962 Donkey boiler supports 5th Mar., 1962 Steering machinery 4th July, 1962 Windlass 4th July, 1962

Date of Committee FRIDAY 14 SEP 1962
 Decision +LMC ES }
 Aux B }
 SPS } 7.62
 CK }
 Special Survey Fee 740.000
 Expenses 392.000

