

Rpt. 4b

Date of writing report 15th July, 1962

Survey held at Hiroshima, Japan

Received London

In shops 222

No. of visits 15

On vessel

Port Shimonoseki

8th Aug., 1961

First date 16th Mar., 1962

Last date 14th July, 1962

No. FE-2024

9th July, 1962

14th July, 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 **Mitsubishi Shipbuilding & Engineering** Port of Registry **Odessa**

Hull built at **Hiroshima, Japan** By **Co., Ltd., Hiroshima Works** Yard No. **S - 146** Year **1962-7**

Main Engines made at **Hiroshima, Japan** By **Co., Ltd., Hiroshima Works** Eng. No. **22** When **1962-3**

Gearing made at **Hiroshima, Japan** By **Mitsubishi Shipbuilding & Engineering** Gear No. _____ When _____

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

Machinery installed at **Hiroshima, Japan** By **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 ship an oil tanker? **Yes**

Is refrigerating machinery fitted? **Yes** If so, is it for cargo purposes? **No (ship use)** Type of refrigerant **Freon Gas Direct Expansion Type**

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. **Mach. only recd.**

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 scavenge 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 **650 mm** Centre **650 mm** 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**

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 **50 kg/cm²**

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

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 El LR 28 - 9 - 61

THRUSTSHAFT ~~YK LR 26 - 1 - 62~~ Lloyd's KOB No. KT-F 1723 El 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 31 - 10 - 61~~ SHAFTS Spare Lloyd's KOB No. KT-F 1738 El LR 31 - 10 - 61
Lloyd's KOB No. KT-F 1697 El 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
Piston Crown; Lloyd's Test SMK Nos. 11861 - 1 to 10 W.T.P. 20 Kg/cm²
Crosshead Pin; Lloyd's SMK Y-16914-A, B, C, D Y-16918, Y-17094-A, B, C, D JN 13 - 12 - 61 LR

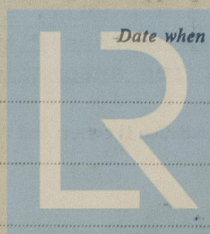
Is the installation a duplicate of a previous case? Yes If so, state name of vessel M.V. "Lugansk"
Date of approval of plans for crankshaft 20th June, 1961 5th Apr., 1961
Separate oil fuel tanks 6th November, 1961 23rd August, 1961
Cargo oil pumping arrangements 22nd Apr., 1961 8th & 27th Sept., 1961
Air receivers 16th Aug., 1961 26th June, 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,
Engine chocks & 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 Special Survey Fee 740.000
Decision +LMC ES } 7.62
Aux B }
SPS }
CK }

Expenses

Date when A/c rendered



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