

REPORT ON ELECTRICAL EQUIPMENT

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report 15th July 62 19... When handed in at Local Office... Received at London Office SHIMONOSERI

No. in Survey held at Hiroshima, Japan Date, First Survey 15th Apr., 1962 Port of 14th July, 62
Reg. Book Last Survey 19... (No. of Visits 18)

on the Single Screw Motor Tanker "Lebedin" Gross 22226.26

Built at Hiroshima, Japan By whom built Mitsubishi Shipbuilding & Engineering Co., Ltd., Hiroshima Works Yard No. S - 146 Tons 15360.43
Owners V/O Sudoimport When built 1962 - 7

Installation fitted by Mitsubishi Shipbuilding & Engineering Co., Ltd., Hiroshima Works Port belonging to Odessa

Is vessel equipped for carrying Petroleum in bulk Yes Is vessel equipped with D.F. Yes E.S.D. Yes Gy.C. Yes Sub.Sig. No Radar Yes

Plans, have they been submitted and approved Yes System of Distribution three phase, three wire Voltage of Lighting 127 V

Heating 380 V Power 380 V D.C. or A.C. Lighting A.C. Power A.C. If A.C. state frequency 50 c/s

Prime Movers, has the governing been found as per Rule when full load is thrown on and off Yes Are turbine emergency governors fitted with a trip switch - Generators, are they compound wound -, and level compounded under working conditions -

Are the generators arranged to run in parallel Yes Is the compound winding connected to the negative or positive pole -

Have machines 100 kw. and over been inspected by the Surveyors during manufacture and testing Yes Have certificates of test for machines under 100 kw. been supplied and the results found as per Rule Yes Position of Generators Main Generators; Starb'd For'd & Aft in Engine Room and Port in Engine Room. Emergency Generator; Emergency Generator Room

is the ventilation in way of generators satisfactory Yes are they clear of inflammable material and protected from mechanical injury and damage from water, steam and oil Yes Switchboards, where are main switchboards placed Port For'd, Lower Floor in Engine Room

are they in accessible positions, free from inflammable gases and acid fumes and protected from mechanical injury and damage from water, steam and oil Yes, what insulation is used for the panels Phenol Resin Bonded Board, if of synthetic insulating material is it an Approved Type Yes, if of semi-insulating material (slate or marble) are all conducting parts insulated therefrom as per Rule - Is the construction as per Rule, including locking of screws and nuts Yes Description of Main Switchgear A triple pole linked air circuit breaker provided with over-current relay and reverse power relay.

and the switch and fuse gear (or circuit breakers) for each outgoing circuit A triple pole linked "No-fuse" circuit breaker with over current trip.

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule Yes Instruments on main switchboard A.C.: 6 D.C.: 6
ammeters A.C.: 3 D.C.: 3 voltmeters 3 synchronising devices. For compound machines in parallel are the ammeters and reverse current protection devices connected on the pole opposite to the equaliser connection - Earth Testing, state means provided Test Lamp

and Insulation Resistance Meter Preference Tripping, state if provided Yes, and tested Yes

Switches, Circuit Breakers and Fuses, are they as per Rule Yes, are the fuses an Approved Type Yes

make of fuses Utsunomiya Electric Mfg. Co., are all fuses labelled Yes If circuit breakers are provided for the generators, at what overload do they operate Main Generator at 120% Load; 19 - 24 sec. Emergency Generator at 120% Load; 21 - 22 sec., and at what current do the reverse current protective devices operate Main Generator 48 KW; 8.5 - 15.5 sec. Cables, are they insulated and protected as per Rule Yes, if otherwise than as per Rule are they of an Approved Type -, state maximum fall of pressure between bus bars and any point under maximum load 6 volts. Are all paper insulated and varnished cambric insulated cables sealed at the ends Yes

Are all the cable runs in accessible positions not exposed to drip or accumulation of water or oil, high temperatures or risk of mechanical damage Yes, are any cables laid under machines or floorplates Yes, if so, are they adequately protected Yes State type of cables (if in conduit this should also be stated) in machinery spaces V. C. L. C., galleys V. C. L. C. and laundries V. C. L. C. State how the cables are supported or protected All cables secured by metal clips to galvanized perforated steel plate or steel hangers: Cables on the fore and aft gangway run in galvanized steel pipe.

Are all lead sheaths, armouring and conduits effectually bonded and earthed Yes Are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands Yes, where unarmoured cables pass through beams, etc., are the holes effectively bushed Yes Refrigerated chambers, are the cables and fittings as per Rule Yes

Have refrigeration fan motors been constructed under survey - and test certificates supplied -

Are the motors accessible for maintenance at all times -

- * 2 sets 25.2 V (200 AH) (for communication & lighting)
- 1 set 28.75 V (100 AH X 2) (for radio)
- 1 set 24 V (40 AH) (for telephone)
- 1 set 24 V (40 AH) (for fire alarm)
- 1 set 24 V (280 AH) (for starting of emergency generator)
- 1 set 24 V (60 AH) (for starting of fire pump)

Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule. **Yes** Emergency Supply, state position
Emergency Generator & Emergency Switchboard in Emergency Generator Room, Boat Deck

Navigation Lamps, are they separately wired. **Yes** controlled by separate double pole switches and fuses. **Yes** Are the switches and fuses in a position accessible only to the officers on watch. **Yes**, is an automatic indicator fitted. **Yes** Is an alternative supply provided. **Yes**

Secondary Batteries, are they constructed, fitted and adequately ventilated as per Rule. **Yes**, state battery capacity in ampere hours. **See above *** Where required to do so does it comply with 1948 International Convention. **Yes**

Lighting, is fluorescent lighting fitted. **Yes** If so, state nominal lamp voltage. **127 V** and compartments where lamps are fitted. **Main & Emergency Switchboard, Saloon, Smoking Room & Crew's Mess Room**

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, weatherproof. **Yes**

Searchlights, No. of **2**, whether fixed or portable. **1 fixed 1 portable**, are they of the carbon arc or of the filament type. **Filament**

Heating and Cooking, is the general construction as per Rule. **Yes**, are the frames effectually earthed. **Yes**, are heaters in the accommodation of the convection type. **-** Motors, are all motors constructed and installed as per Rule and placed in well-ventilated compartments in which inflammable gases cannot accumulate and protected from damage from water, steam and oil. **Yes**

Are motors coupled to oil fuel transfer and pressure pumps capable of being stopped from a position accessible in the event of fire in the pump compartment. **Yes** Have motors of 100 BHP and over been inspected by the Surveyors during manufacture and testing. **Yes**

Have certificates of test for motors under 100 BHP intended for essential sea services been supplied and the results found as per Rule. **Yes**

Lightning Conductors, where required are they fitted as per Rule. **-**

Ships carrying Oil having a Flash Point of less than 150° F. Have all the special requirements of the Rules for such ships been complied with. **Yes**, are all fuses of an Approved Cartridge Type. **Yes**, make of fuse. **Utsunomiya Electric Mfg. Co.** Are the fittings for pump rooms, 'tween deck spaces, etc., in accordance with the special requirements for such ships. **Yes** Are all cables lead covered as per Rule. **Yes**

E.S.D., if fitted state maker. **U.S.S.R. Make** location of transmitter and receiver. **Engine Room Fore (Frame No. 52 - 53)**

Spare Gear, if the vessel is for open sea service have spares been provided as per Rule and suitably stored in dry situations. **Yes**

Insulation Tests, has the insulation resistance of all circuits and apparatus been tested and found satisfactory. **Yes**

PARTICULARS OF GENERATING PLANT

DESCRIPTION OF GENERATOR	No. of	MAKER	RATED AT				TYPE	PRIME MOVER
			Kw. per Generator	Volts	Ampères	Revs. per Min.		
MAIN	5	Mitsubishi Electric Mfg. Co.	400	400	578	600	Diesel	Mitsubishi Nippon Heavy Ind. Ltd., Yokohama Shipyard & Engine Works
EMERGENCY ROTARY TRANSFORMER	1	do	95	400	137	1000	Diesel	Kubota Iron Works

GENERATOR CABLES

DESCRIPTION	No. of	KVA	CONDUCTORS		MAXIMUM CURRENT IN AMPERES		APPROX. LENGTH (lead plus meter)	INSULATION	PROTECTIVE COVERING
			No. in Parallel per Pole	Sectional Area or No. and Dia. of Strands Sq. ins. or sq. mm.	In the Circuit	Rule			
MAIN GENERATOR	5	400	3	0.2 X 3	578	600	25	varnished cambric	lead sheath steel wire braid
" " EQUALISER									
EMERGENCY GENERATOR	1	95	1	0.15 X 1	137	166	17	varnished cambric	lead sheath steel wire braid

MAIN DISTRIBUTION CABLES (to Auxiliary Switchboards, etc.)

DESCRIPTION	No. of	Sectional Area or No. and Dia. of Strands Sq. ins. or sq. mm.	In the Circuit	Rule	APPROX. LENGTH (lead plus meter)	INSULATION	PROTECTIVE COVERING
MSB to P9 (Electric Workshop Section Board)	1	0.007	5	26	26	V	LC
MSB to P11 (Hydrophor Pump Section Board)	1	0.04	48	79	43	V	LC
MSB to P12 (Eng. Workshop Section Board)	1	0.04	70	79	30	V	LC
MSB to P22 (Machinery Space Ventilating Fan Section Board)	1	0.0225	30	54	64	V	LC
MSB to P52 (do)	1	0.0225	20	54	63	V	LC
MSB to P24 (Boat Winch & Elevator Section Board)	1	0.06	69	100	60	V	LC
MSB to P54 (Distilling Plant Section Board)	1	0.007	15.4	26	37	V	LC
MSB to P63 (Aft Part Ventilating Fan Section Board)	1	0.06	64.6	100	60	V	LC
MSB to P64 (Galley High Power Section)	1	0.1	95	135	75	V	LC
MSB to P42 (Air Cond. Ref. Machine Section Board)	1	0.2	104	210	38	V	LC
MSB to P51 (Purifier Section Board)	1	0.04	31.4	79	32	V	LC
MSB to P3 (do)	1	0.04	33.9	79	31	V	LC
MSB to ESB (Emergency Switchboard)	1	0.15	140	180	59	V	LC

Abbreviation; V . . . Varnished Cambric Insulation
R . . . Vulcanized Rubber Insulation
L . . . Lead Sheath
C . . . Steel Wire Braid

DISTRIBUTION CABLES (to Section-Boards and Distribution-Fuse-Boards, etc.)

DESCRIPTION	CONDUCTORS		MAXIMUM CURRENT IN AMPERES		APPROX. LENGTH (lead plus meter)	INSULATION	PROTECTIVE COVERING
	No. in Parallel per Pole	Sectional Area or No. and Dia. of Strands Sq. ins.	In the Circuit	Rule			
MSB to L10 (Minor Power Apparatus Distribution Board)	1	0.06	67	100	52	V	LC
MSB to L11 (do)	1	0.1	84	135	92	V	LC
MSB to L12 (do)	1	0.0225	33	54	92	V	LC
MSB to L13 (do)	1	0.0225	15	54	15	V	LC
MSB to L1 (Lighting Section Board SGLD-1)	1	0.1	88	135	44	V	LC
MSB to L2 (Lighting Section Board SGLD-2)	1	0.1	75	135	28	V	LC
MSB to L3 (Lighting Section Board SGLD-3)	1	0.04	24	79	9	V	LC
MSB to L4 (Lighting Section Board SGLD-4)	1	0.04	26	79	52	V	LC
MSB to L5 (Lighting Distribution Board)	1	0.0225	32	54	9	V	LC
MSB to L14 (Small Ventilating Fan Board)	1	0.0145	14	42	48	V	LC
MSB to EL9 (Lighting Section Board SELD-1)	1	0.0225	40	54	24	V	LC
MSB to EL10 (Lighting Section Board SELD-2)	1	0.0225	31	54	46	V	LC
ESB to EL8 (Lighting Distribution Board)	1	0.0145	15	42	40	V	LC
ESB to EL2 (Lighting Distribution Board)	1	0.0045	3.5	13	40	R	LC
ESB to EL14 (Communication Distribution Board CD-1 127 V)	1	0.0145		42	44	V	LC
ESB to EL13 (Communication Distribution Board CD-1 110 V)	1	0.0145		42	44	V	LC
ESB to EL21 (Communication Distribution Board CD-2)	1	0.0045		13	45	R	LC
ESB to EL15 (Communication Distribution Board CD-3 127 V)	1	0.0145		42	68	V	LC
ESB to EL19 (Communication Distribution Board CD-3 110 V)	1	0.0145		42	68	V	LC
ESB to EL16 (Communication Distribution Board CD-4 127 V)	1	0.0145		42	68	V	LC
ESB to EL28 (Communication Distribution Board CD-4 110 V)	1	0.0145		42	68	V	LC

MOTOR CABLES

ALL IMPORTANT MOTORS TO BE ENUMERATED	No.	KW	CONDUCTORS	MAXIMUM CURRENT IN AMPERES	APPROX. LENGTH (lead plus meter)	INSULATION	PROTECTIVE COVERING
Ship Service Air Compressor	1	19	0.0145	59	42	30	V LC
Bilge & G.S. Pump	1	26	1	0.04	47	79	33 V LC
Starting Air Compressor	2	75	1	0.15	180	181	38 V LC
Cooling Salt Water Pump	2	95	1	0.2	185	210	36 V LC
Jacket Cooling F.W. Pump	2	65	1	0.1	120	135	33 V LC
Piston Cooling F.W. Pump	2	45	1	0.06	83	100	40 V LC
L.O. Pump	2	50	1	0.1	98	135	49 V LC
Main Pump Room Exhaust Fan	1	19	1	0.0145	39	42	28 V LC
Tank Vent Blower	1	37	1	0.06	66	100	25 V LC
Forced Draft Fan	2	40	1	0.06	72	100	63 V LC
Fire Pump	2	95	1	0.2	175	210	34 V LC
Fuel Valve Cooling F.W. Pump	2	3.7	1	0.0045	7.3	13	34 R LC
F.O. Booster Pump	2	5.5	1	0.0045	12.5	13	17 R LC
Boiler Water Forced Cir. Pump	2	5.5	1	0.0045	11	13	47 R LC
F.O. Burning Pump	2	4.5	1	0.0045	8.7	13	48 R LC
Turning Gear	1	21/10.5	1/1	0.0225	40	54	47 V LC
Steering Engine (From M.S.B.)	1	26	1	0.04	52	79	93 V LC
Steering Engine (From E.S.B.)	1	15	1	0.0145	28	42	36 V LC
Air Cond. Ref. Cooling Water Pump	1	15	1	0.0145	28	42	36 V LC
Air Cond. Ref. Compressor	2	37	1	0.06	68	100	15 V LC
Provision Ref. Cooling Water Pump	1	1.5	1	0.003	3.2	9	78 R LC
Provision Ref. Compressor	2	7.5	1	0.007	16.5	26	37 V LC
Control Air Compressor	1	15	1	0.0145	32	42	87 V LC
Sprinkler Pump	1	15	1	0.0145	27	42	73 V LC
Hydraulic Pump for Remote Control	3	2.2	1	0.003	4.6	9	47, 46 R LC
Machinery Space Bilge Pump	1	5.5	1	0.0045	11	13	75 R LC
Machinery Space Vent. Fan	5	7.5/1	1/1	0.007	26	13	9, 14, 16, 10, 16 V/R LC

NOTE.—Use Rpt. 43 Continuation Sheet if the above space is insufficient

The Electrical Equipment is installed in accordance with the approved plans and the requirements of the Rules.
 All Insulated Conductors are guaranteed to have been tested at the maker's works as specified in the Rules.
 The foregoing is a correct description.

S. Iwasaki Electrical Contractors. Date 15th July, 1962
 Seiichi Iwasaki, Hiroshima Works,
 Mitsubishi Shipbuilding & Engineering Co., Ltd.

COMPASSES

Have the compasses been adjusted under working conditions... **Yes**

S. Iwasaki Builder's Signature. Date 15th July, 1962
 Seiichi Iwasaki, Hiroshima Works,
 Mitsubishi Shipbuilding & Engineering Co., Ltd.

Have the foregoing descriptions and schedules been verified and found correct... **Yes**

Is this installation a duplicate of a previous case... **Yes** If so, state name of vessel... **Motor Tanker "LUGANSK"**

Plans. Are approved plans forwarded herewith... **Yes** If not, state date of approval... **-**

Certificates. Are certificates of test for motors engaged on essential sea services and generators forwarded herewith... **Yes**

General Remarks. (State quality of workmanship and materials, opinions as to class, etc.)

The electrical installation of this ship has been constructed and installed under special survey in accordance with the Rules, Approved Plans and Secretary's Letters.

The materials and workmanship are good.

The generators, motors, etc. have been examined under full working conditions to Rule Requirements and found satisfactory.

5m.3.58—Transfer. (MADE AND PRINTED IN ENGLAND)
 (The Surveyors are requested not to write on or below the space for Committee Minute.)

Total Capacity of Generators... **1,295 KVA** *Kilowatts*

The amount of Fee ... **266,800** ... £ : : When applied for, 19

Travelling Expenses (if any) £ : : When received, 19

C.G. Allan
 Surveyor to Lloyd's Register of Shipping
 C.G. Allan & J. Nonomura

Committee's Minute... **FRIDAY 14 SEP 1962**

Assigned... *See Rpt 46*