

No. 3

STEAM

# REPORT ON ELECTRICAL EQUIPMENT

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

No. FE-1960

of writing Report. 25th Feb., 1962 When handed in at Local Office. 19 Port of HIROSHIMA.

in Survey held at HIROSHIMA, JAPAN. Date, First Survey 20th Oct. 1961 Last Survey 23rd Feb. 1962

Yard No. Book (No. of Visits 20)

Eng. Nos. on the SINGLE SCREW MOTOR TANKER "LUGANSK" Tons { Gross 22262.48 Net 15397.05

at Hiroshima, Japan. By whom built & ENG. CO., LTD., HIROSHIMA WORKS. Yard No. S-145 When built 1961-2

ers V/O Sudoimport Port belonging to ODESSA

allation fitted by MITSUBISHI SHIPBUILDING & ENG. CO., LTD., HIROSHIMA WORKS When fitted 1961-2

essel 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.

s, have they been submitted and approved. Yes. System of Distribution Three Phase Three Wire Voltage of Lighting 127 V

ing 380 V Power 380 V D.C. or A.C. Lighting A.C. Power A.C. If A.C. state frequency 50 C/S

e Movers, has the governing been found as per Rule when full load is thrown on and off Yes. Are turbine emergency governors fitted

Diamet a trip switch. Generators, are they compound wound. and level compounded under working conditions.

No. and the generators arranged to run in parallel. Yes. Is the compound winding connected to the negative or positive pole.

for how the machines 100 kw. and over been inspected by the Surveyors during manufacture and testing. Yes. Have certificates of test for machines

attached? per 100 kw. been supplied and the results found as per Rule. Yes. Position of Generators Main Generators:

rboard forward & aft in Engine room, port in Engine room. Emergency Generator: Emergency generator room

Boat deck.

the ventilation in way of generators satisfactory. Yes. are they clear of inflammable material and protected from mechanical injury and

age from water, steam and oil. Yes. Switchboards, where are main switchboards placed Port forward, lower floor in

ine room.

they in accessible positions, free from inflammable gases and acid fumes and protected from mechanical injury and damage from water,

m 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

otal area of Rule. Is the construction as per Rule, including locking of screws and nuts. Yes. Description of Main Switchgear

each generator and arrangement of equaliser switches. A triple pole linked air circuit breaker provided with over-

rent relay and reverse power relay.

the switch and fuse gear (or circuit breakers) for each outgoing circuit. A triple pole linked "NO-FUSE" circuit breaker

ch over current trip.

compartments containing switchboards composed of fire-resisting material or lined as per Rule. Yes. Instruments on main switchboard A.C.-6 D.C.-3

meters D.C.-3 voltmeters 3 synchronising devices. For compound machines in parallel are the ammeters and reverse current

tection devices connected on the pole opposite to the equaliser connection. Earth Testing, state means provided. Test

mps and insulation resistance meter Preference Tripping, state if provided. Yes. and tested. Yes.

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

ke of fuses UTSUNOMIYA ELECTRIC MFG. CO. are all fuses labelled. Yes. If circuit breakers are provided for the generators, at what

rload do they operate. Main Gen. at 120% load - 20-24 sec. Emer. Gen. at 120% load - 20 sec. and at what current do the reverse current protective

ices operate Main Gen. 48 KW - 12 - 15 sec. Cables, are they insulated and protected as per Rule. Yes

Secretary fully as otherwise than as per Rule are they of an Approved Type. state maximum fall of pressure between bus bars and any point

ter maximum load 6 volts. Are all paper insulated and varnished cambric insulated cables sealed at the ends. Yes.

e all the cable runs in accessible positions not exposed to drip or accumulation of water or oil, high temperatures or risk of mechanical

nage. Yes. are any cables laid under machines or floorplates. Yes. if so, are they adequately protected. Yes. State

of cables (if in conduit this should also be stated) in machinery spaces. V.C.L.C. & RLC, galleys. V.C.L.C.

laundries. V.C.L.C. State how the cables are supported or protected. All cables secured by metal clips

galvanised perforated steel plate or steel hangers; cables on the fore and aft gang way run in galvanised

eel pipes.

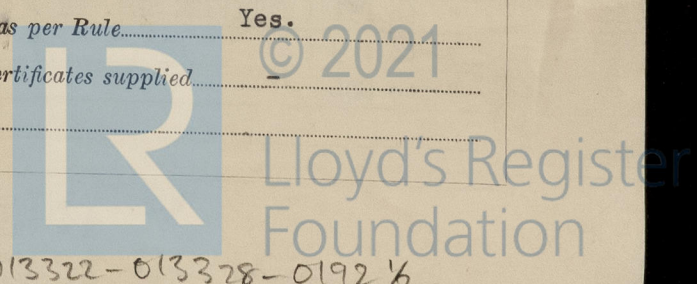
all lead sheaths, armouring and conduits effectually bonded and earthed. Yes. Are all cables passing through decks and watertight

heads provided with deck tubes or watertight glands. Yes. where unarmoured cables pass through beams, etc., are the holes

ctively bushed. Yes. Refrigerated chambers, are the cables and fittings as per Rule. Yes.

ve refrigeration fan motors been constructed under survey. None and test certificates supplied.

r full the motors accessible for maintenance at all times.



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- \* 2 sets 25.2 V. - 200 A.H. (For Communication & lighting)  
 1 set 24 V. - 200 A.H. (For Radio)  
 1 set 24 V. - 40 A.H. (For Telephone)  
 1 set 24 V. - 40 A.H. (For Fire alarm)  
 1 set 24 V. - 380 A.H. (For Starting of Emergency gen.)  
 1 set 24 V. - 60 A.H. (For Emergency 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 and Emergency switch board 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 switch board, Saloon and smoking 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 type**  
 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. **Yes**.

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. **KAIJO DENKI K.K.** location of transmitter and receiver. **Frame No. 52 - 53** except cables on fore & aft gangway (H.R. sheathed).

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				PRIME MOVER	
			Kw. per Generator	Volts	Ampères	Revs. per Min.	TYPE	MAKER
MAIN	3	MITSUBISHI ELEC. MFG. CO.	400	400	578	600	DIESEL	MITSUBISHI NIPPON H.I. 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 return) in feet	INSULATION	PROTECTIVE COVERING
			No. in Parallel per Pole	Sectional Area or No. and Dia. of Strands	In the Circuit	Rule			
MAIN GENERATOR	3	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	
ROTARY TRANSFORMER: MOTOR									
" " GENERATOR									

#### MAIN DISTRIBUTION CABLES (to Auxiliary Switchboards, etc.)

DESCRIPTION		MAXIMUM CURRENT IN AMPERES					
		No. of	Sectional Area or No. and Dia. of Strands	INSULATION	PROTECTIVE COVERING		
MSB to P 9 (ELEC. WORK SHOP SEC. BD)		1	0.007	5	26	V	LC
" to P11 (HYDROPHOR PUMP SEC. BD)		1	0.04	48	79	43	V
" to P12 (ENG. WORK SHOP SEC. BD)		1	0.04	70	79	30	V
" to P22 (MACH. SPACE VENT. F.SEC. BD)		1	0.0225	30	54	64	V
" to P52 ( DO )		1	0.0225	20	54	63	V
" to P24 (BOAT WINCH&ELEVATOR SEC. BD)		1	0.06	69	100	60	V
" to P54 (DIST. PLANT SEC. BD)		1	0.007	15.4	26	37	V
" to P63 (AFT PART VENT. FAN SEC. BD)		1	0.06	64.8	100	60	V
" to P64 (GALEY HIGH POWER SEC. BD)		1	0.1	95	135	75	V
" to P42 (AIR.COND. REF. MACH. SEC. BD)		1	0.2	104	210	38	V
" to P51 ( PURIFIRE SEC. BD )		1	0.04	31.4	79	32	V
" to P 3 ( DO )		1	0.04	33.9	79	31	V
" to ESB		1	0.15	140	180	59	V

N.B. 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	No. in Parallel per Pole	Sectional Area or No. and Dia. of Strands	MAXIMUM CURRENT IN AMPERES		APPROX. LENGTH (lead plus return) in feet	INSULATION	PROTECTIVE COVERING
			In the Circuit	Rule			
MSB to L10 (MINOR POWER APP.)	1	0.06	67	100	52	V	LC
" to L11 ( " )	1	0.1	84	135	92	V	LC
" to L12 ( " )	1	0.0225	35	54	92	V	LC
" to L13 ( " )	1	0.0225	15	54	15	V	LC
" to L 1 (LIGHT. SEC. BD. SGLD-1)	1	0.1	88	135	44	V	LC
" to L 2 ( " SGLD-2)	1	0.1	75	135	28	V	LC
" to L 3 ( " SGLD-3)	1	0.04	24	79	9	V	LC
" to L 4 ( " SGLD-4)	1	0.04	26	79	52	V	LC
" to L 5 (LIGHT. DIST. BD. SGLD-13)	1	0.0225	32	54	9	V	LC
" to L14 (SMALL VENT. FAN BD. FD-1)	1	0.0145	14	42	48	V	LC
ESB to EL9 (LIGHT. SEC. BD. SELD-1)	1	0.0225	40	54	24	V	LC
" to EL10 ( " SELD-2)	1	0.0225	31	54	46	V	LC
" to EL8 (LIGHT DIST. BD. ELD-2)	1	0.0145	15	42	40	V	LC
" to EL2 ( " ELD-1)	1	0.0045	3.5	13	40	R	LC
" to EL18 (COMM. DIST. BD. CD-1)	1	0.0145		42	44	V	LC
" to EL21 ( " CD-2)	1	0.0045		13	45	R	LC
" to EL19 ( " CD-3)	1	0.0145		42	68	V	LC
" to EL20 ( " CD-4)		0.0145		42	68	V	LC

#### MOTOR CABLES

ALL IMPORTANT MOTORS TO BE ENUMERATED	No.	BACK KW							
SHIP SERVICE AIR COMPRESSOR	1	✓ 19	1	0.0145	39	✓ 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	✓ 180	38 31	V	LC
COOLING SALT WATER PUMP	2	✓ 95	1	0.2	185	✓ 210	35 36	V	LC
JACKET COOL. FRESH W. P.	2	✓ 65	1	0.1	120	✓ 135	32 40	V	LC
PISTON COOL. FRESH W. P.	2	✓ 45	1	0.06	83	✓ 100	33 40	V	LC
LUB. OIL PUMP	2	✓ 50	1	0.1	98	✓ 135	51	V	LC
MAIN PUMP RM EXH. 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 50	V	LC
FIRE PUMP	2	✓ 95	1	0.2	175	✓ 210	34 29	V	LC
FUEL VALVE COOL. F. W. P.	2	✓ 3.7	1	0.0045	7.3	✓ 13	17 29	R	LC
F.O. BOOSTER PUMP	2	✓ 5.5	1	0.0045	12.5	✓ 13	17	R	LC
BOILER WATER FORCED CIR. P.	2	✓ 5.5	1	0.0045	11	✓ 13	47 47	R	LC
F.O. BURNING PUMP	2	✓ 4.5	1	0.0045	8.9	✓ 13	48 49	R	LC
TURNING GEAR	1	21/10.5	1/1	0.0225/ 0.0145	40/28	54/42	47/9	V	LC
STEERING ENGINE (FROM MSB)	1	✓ 26	1	0.04	52	✓ 79	93	V	LC
" " (FROM ESB)	1	✓ 26	1	0.04	52	✓ 79	76	V	LC
AIR COND. REF. COOL. W. P.	1	✓ 15	1	0.0145	28	✓ 42	36 15	V	LC
AIR COND. REF. COMPRESSOR	2	✓ 37	1	0.06	68	✓ 100	12	V	LC
PROV. REF. COOL. W. P.	1	✓ 1.5	1	0.003	3.2	✓ 9	78	R	LC
PROV. REF. COMPRESSOR	2	✓ 7.5	1	0.007	16.5	✓ 26	37 38	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	46 48	R	LC
MACH. SPACE BILGE PUMP	1	✓ 5.5	1	0.0045	11	✓ 13	75	R	LC
H.O. Transfer	1	15 KW							
D.O. Transfer	1	3.7 KW							

NOTE.—Use Rpt. 13 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  
HIROSHIMA WORKS  
MITSUBISHI SHIPBUILDING & ENGINEERING CO., LTD.

Electrical Contractors. Date 27th Feb., 1962

#### COMPASSES

Have the compasses been adjusted under working conditions Yes.

S. Iwasaki  
HIROSHIMA WORKS  
MITSUBISHI SHIPBUILDING & ENGINEERING CO., LTD.

Builder's Signature. Date 27th Feb., 1962

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

Is this installation a duplicate of a previous case No. If so, state name of vessel -

Plans. Are approved plans forwarded herewith Yes. If not, state date of approval 2-3-61, 28-9-61.

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.

(The Surveyors are requested not to write on or below the space for Committee Minute.)

Total Capacity of Generators 1295 KVA

£ 266,800

The amount of Fee ... £ : When applied for,

19

Travelling Expenses (if any) £ : When received,

19

C. M. Iwano J. Kurokura  
Surveyor to Lloyd's Register of Shipping

FRIDAY 27 APR 1962

Committee's Minute

Assigned Su Kob 10257