

Rpt. 13.

No. FE-1005

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report..... 19..... When handed in at Local Office..... 19..... Port of **Nagasaki (Shimonoseki)**  
 No. in Survey held at **Nagasaki, Japan** Date, First Survey **6-5-58** Last Survey **10-7-1958**  
 Reg. Book..... (No. of Visits **12**)  
 on the **M.V. "KOTEI MARU"** Tons {Gross **9096**  
 Built at **Nagasaki, Japan** By whom built **Mitsubishi Zosen K.K.** Yard No. **1499** When built **July, 1958**  
 Owners **Daido Kaiun K.K.** Port belonging to **Kobe**  
 Installation fitted by **Mitsubishi Zosen K.K.** When fitted **July, 1958**

Is vessel equipped for carrying Petroleum in bulk **No** 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 **3-wire 3-phase** Voltage of Lighting **110**  
 Heating **110** Power **110** D.C. or A.C. Lighting **A.C.** Power **A.C.** If A.C. state frequency **60**  
 Windlass & mooring winch **220 D.C.V.**  
 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 **Port fwd, Port aft inner and outer of mchy. space on eng. platform.**

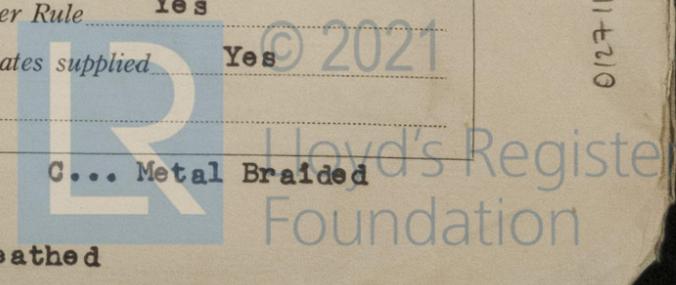
is the ventilation in way of generators satisfactory **Yes** are they clear of inflammable material and protected from mechanical injury and damage from water, steam and oil **Yes** Switchboards, where are main switchboards placed **at fwd end of mchy. space on eng. platform.**  
 are they in accessible 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 **Phenolic-resin-bonded board & bar**, 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 for each generator and arrangement of equaliser switches **A triple pole linked air circuit breaker with an instantaneous over current trip in each phase, an over current relay in each phase, a preference over current relay for hold fan circuit, reverse power relay and tripe pole linked isolating switch fitted. Neutral insulated from earth.**  
 and the switch and fuse gear (or circuit breakers) for each outgoing circuit **A triple pole linked air circuit breaker with an over current trip on each insulated pole. Breakers of De-iron type made by Mitsubishi Electric Mfg.Co., Ltd., Tokyo.**

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule **Yes** Instruments on main switchboard **3** ammeters **3** voltmeters **1** 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 **2 sets of**  
 Metallic filament lamps for power and lighting circuits. 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 **Fuji Elect. Mfg.Co.Ltd, Tokyo** **Yes** If circuit breakers are provided for the generators, at what overload do they operate **50% (480A) 17 sec.**, and at what **power** do the reverse current protective-devices operate **25 KW.** 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 **10** volts. Are all ~~paper wrapped~~ 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 **RLC, VLC & RHRC**, galleys **RLC & VLC**  
 and laundries **RLC** Cable under floorplate in conduit **Cables of metal braided**  
**secured by metal clips on coated steel hangers or galvanized perforated steel plates, cables in cargo spaces protected by steel platings.**

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 **Yes** and test certificates supplied **Yes**  
 Are the motors accessible for maintenance at all times **Yes**

Note:- Type of cable V... Varnished-Cambric-Insulated C... Metal Braided  
 R... Vulcanised-Rubber-Insulated  
 L... Lead-Alloy-Sheathed  
 HR... Polychloroprene-Compound-Sheathed



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Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule **Yes**. Emergency Supply, state position Boat dk. port (battery room), 24V battery units with automatic control switch for lighting accommodation, navigation & mchy. spaces. **In radio room**  
 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 **2 sets at 84 AH 24V**. 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 **110** and compartments where lamps are fitted **Dining 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 **-**, whether fixed or portable **-**, are they of the carbon arc or of the filament type **-**.  
 Cables & switch box fitted for Suez searchlight. **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 **Yes**. 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 **-**.  
 Have certificates of test for motors under 100 BHP intended for essential sea services been supplied and the results found as per Rule **-**.  
 Lighting Conductors, where required are they fitted as per Rule **- (steel ship)**.  
 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 **-**, are all fuses of an Approved Cartridge Type **-**, make of fuse **-**. Are the fittings for pump rooms, 'tween deck spaces, etc., in accordance with the special requirements for such ships **-**. Are all cables lead covered as per Rule **-**.  
 E.S.D., if fitted state maker **Tokyo Keiki Seisakusho** location of transmitter and receiver **in E.S. Compartment F.No.119/120**.  
 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.	
			KVA	Volts.	Amperes.	Revs. per Min.	TYPE.	MAKER.
MAIN	3	Mitsubishi Elect.Mfg.Co. Ltd., Nagasaki	250	450	321	450	Diesel	Daihatsu Kogyo K.K., Osaka
EMERGENCY ROTARY TRANSFORMER								

GENERATOR CABLES.

DESCRIPTION.	No. of	KVA	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (Lead plus connection-Lead).	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	3	250	2(3C)	37/.083	321	400	F.10.4	V	LC
" " EQUALISER							A.in 162		
							A.out 16.4		
EMERGENCY GENERATOR									
ROTARY TRANSFORMER: MOTOR									
" " GENERATOR									

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

DESCRIPTION.	No. of	KVA	CONDUCTORS.	MAXIMUM CURRENT IN AMPERES.	APPROX. LENGTH (Lead plus connection-Lead).	INSULATION.	PROTECTIVE COVERING.
			No. in Parallel per Pole.	In the Circuit.	Rule.		
Power:- (from main switchboard to)							
Eng. room aux. stbd. S-B	P-12	1(3C)	19/.064	83	91	21	V LC
" p & aft D-F-B	P-13	1(3C)	7/0.64	48	51	25.8	V LC
" 3rd dk S-B	P-14	1(3C)	19/.064	89	91	17.7	V LC
Eng. room vent fan	D-F-B	P-15	7/.052	35	38	17	V LC
Cargo winch fwd S-B	P-16	2(3C)	37/.072	#251	332	43	V LC
Cargo winch aft S-B	P-17	2(3C)	37/.072	#198	332	53.8	V LC
Hold fan D-F-B	P-18	1(3C)	19/.064	85	91	18.5	V LC
Ref. machine S-B	P-19	1(3C)	37/.083	177	200	15.2	V LC
Thermotank fan D-F-B	P-20	1(3C)	7/.052	36	38	38	V LC

Note:- \* Diversity factor applied.

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

DESCRIPTION.	No. in Parallel per Pole.	KVA	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (Lead plus connection-Lead).	INSULATION.	PROTECTIVE COVERING.
			No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.				
Lighting:-									
M.S.B. to 450/113 3x20 KVA Trans. P-25	1(3C)	19/.064	77	91	9	V	LC		
above trans to light panel P-25A	2(3C)	37/.072	308	332	6.6	V	LC		
Light. panel to bridge D-F-B L-1	1(3C)	7/.064	36	51	31	V	LC		
Light. panel to accommodation S-B L-2	1(3C)	19/.083	111	128	30	V	LC		
Light. panel to cargo light S-B L-3	1(3C)	19/.064	73	91	27	V	LC		
Light. panel to eng. room S-B L-4	1(3C)	19/.064	41	91	13	V	LC		
D-F-B(L-1) to nav. light D-F-B	1(2C)	7/.052	2	55	L+R 6	V	LC		
S-B(L-2) to boat dk. D-F-B L-2-1	1(3C)	7/.064	30	51	10	V	LC		
D-F-B(L-2-1) to nav. light D-F-B	1(2C)	7/.052	2	55	L+R 8	V	LC		
Cooking and Heating:-									
Light. panel to saloon pantry S-B L-6	1(3C)	37/.072	117	166	27.5	V	LC		
above to galley & heater S-B L-6A	1(3C)	37/.072	66	166	30.5	V	LC		
Wireless:-									
Panel to radio (110V) L-7	1(3C)	7/.052	27	38	37	V	LC		
R. to radio (110V) P-21	1(3C)	7/.036	15	19	37	V	LC		
Suez Canal Searchlight:-									
Power S-B (P-16) to 440/110 5KVA Trans. 6P-16	1(2C)	7/.036	(15)	17	L+R 116	R	LC		
above Trans. to switch & fuse box	1(2C)	7/.052	(60)	55	L+R 14	R	LC		

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.	CONDUCTORS.	MAXIMUM CURRENT IN AMPERES.	APPROX. LENGTH (Lead plus connection-Lead).	INSULATION.	PROTECTIVE COVERING.
			No. in Parallel per Pole.	In the Circuit.	Rule.		
J. & P. Cooling F.W. Pumps	2	42	1(3C)	19/.044	50	58	max. 8.7 V LC
Cooling S.W. Pumps	2	55	1(3C)	19/.052	66	70	6.7 V LC
L.O. Pumps	2	15	1(3C)	7/.044	21	29	23.4 V LC
L.O. Shifting Pump	1	4	1(3C)	3/.036	5.2	7	14.5 R HRC
O.F. Service Pump	1	4	1(3C)	3/.036	5.2	7	13.5 R HRC
O.F. transfer Pump	1	15	1(3C)	7/.044	20.4	29	15 V LC
L.O. Purifier	1	2	1(3C)	3/.036	2.7	7	13.5 R HRC
O.F. Purifiers	3	2	1(3C)	3/.036	2.6	7	16.3 R HRC
O.F. Clarifiers	2	2	1(3C)	3/.036	2.8	7	12.5 R HRC
Purifier Pumps	2	3	1(3C)	3/.036	3.8	7	16.8 R HRC
Purifier Pump	1	1.5	1(3C)	3/.036	2.1	7	18.8 R HRC
Bilge Pump	1	5.5	1(3C)	7/.029	8.1	14	9 V LC
Bilge-ballast pump	1	45	1(3C)	19/.064	55/91	91	37.5 V LC
Fire G.S. Pump	1	50	1(3C)	19/.052	59	70	29.7 V LC
Forced circulating pumps	2	5	1(3C)	3/.036	6	7	29 R LC
Eng. room vent fans	2	5	1(3C)	3/.036	6.7	7	55.5 R LC
Steering gear	2	20	1(3C)	7/.044	28.5	* 29	97 V LC
Aux. blower	1	30	1(3C)	7/.052	35	38	30 V LC
Turbo charger L.O. Pumps	2	2	1(3C)	3/.036	2.9	7	57 R LC
Windlass (220 V.D.C.)	1	80	1	37/.072	304	* 252	L+R 84 V LC
Mooring winch (220 V.D.C.)	1	57	1	19/.083	223	* 192	L+R 76 V LC
Leonard M-G motor	1	90 KW	1(3C)	19/.083	140	* 133	30 V LC(up to starter)
Leonard M-G motor	1	72 KW	1(3C)	19/.083	113	* 133	36.5 V LC(up to starter)
Leonard M-G motors for winches	7	41 KW	1(3C)	19/.052	63	* 76	37.5 V LC(up to starter)
Ref. compressors	3	30	1(3C)	7/.064	36.5	51	31.5 V LC
Ref. C.W. Pumps	2	5	1(3C)	3/.036	6.2	7	23 R LC
Ref. Air Cooler Fans	4	4	1(3C)	3/.036	5.2	7	53 R LC

Note:- \* Intermittently - loaded.

NOTE.—Use Rpt. 13 Continuation Sheet if the above space is insufficient.

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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.

*I Koga*  
 NAGASAKI WORKS Electrical Contractors. Date 10th July, 1958  
 MITSUBISHI SHIPBUILDING & ENGINEERING CO., LTD.

COMPASSES.

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

*I Koga*  
 NAGASAKI WORKS Builder's Signature. Date 10th July, 1958  
 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 **Main switch board & lighting system only**  
 Plans. Are approved plans forwarded herewith **No** If not, state date of approval **"KOSEI MARU" "KOHOH MARU" "KOBU MARU" Power system 1-4-58**  
**Main switch board 5-1-56 (Ship No. 1465), Lighting system 12-4-57 (Ship No. 1485, 97-8)**  
 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 Equipment and Installation of this ship have been made under special survey in accordance with the Rules, approved plans and Secretary's letters. The materials and workmanship are good.

All tests and trials required by the Rules have been completed with satisfactory results.

Total Capacity of Generators **750** K.V.A. ~~Kilowatts.~~

The amount of Fee ... **¥279,000** : When applied for,  
 \* Less Generator Fees **71,550** } **AUG. - 4, 1958**  
 Actual Charge Made **¥207,450** }  
 When received,

Travelling Expenses (if any) **See Rpt. 4b.** 19  
 \* 3 - 250 KVA Generator Construction Fees charged to Mitsubishi Elect. Mfg. Co., Nag. on the 24/1/58.

Committee's Minute **FRIDAY - 5 SEP 1958**

Assigned **Sec Rpt. 1.**

*A. H. Murray*  
*K. Takemachi & S. Hashiguchi*  
 Surveyor to Lloyd's Register of Shipping.

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

18.8.58



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