

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)**
 Received at London Office.....
 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** Net **5337**
 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 **140** 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
3 wattmeters, 2 frequency meters
 protection devices connected on the pole opposite to the equaliser connection **-** Earth Testing, state means provided **2 sets of**
Metallic filament lamps for power Preference Tripping, state if provided **Yes**, and tested **Yes**
and lighting circuits.
 Switches, Circuit Breakers, and Fuses, are they as per Rule **Yes**, are the fuses an Approved Type **Yes**
Fuji Elect. Mfg.Co.Ltd, Tokyo
 make of fuses **Utsunomiya Elect. Mfg. Co.** are all fuses labelled **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 ~~pupex insulated~~ 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

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. **Yes**, are the frames effectually earthed **Yes**, are heaters in the Heating and Cooking, is the general construction as per Rule **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 **Yes**.
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** 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 (feet plus cable loss). | 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. | | | | | | | | | |
|------------------------------------|------|-------|---------|------|-----|------|---|----|--|
| 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 | 1(3C) | 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. | CONDUCTORS. | | MAXIMUM CURRENT IN AMPERES. | | APPROX. LENGTH (lead XXX m) | INSULATION. | PROTECTIVE COVERING. |
|---|---------------------------|--|-----------------------------|-------|--|-------------|----------------------|
| | No. in Parallel per Pole. | XXX No. and Dia. of Strands. Sq. ins. or XXX | In the Circuit. | Rule. | | | |
| | | | | | | | |
| Lighting:- | | | | | | | |
| M.S.B. to 450/113 3x20 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 (110 V) P-21 | 1(3C) | 7/.036 | 15 | 19 | 37 | V | LC |
| | | | | | | | |
| Suez Canal Searchlight:- | | | | | | | |
| Power S-B (P-16) to 440/110 5KVA Trans. | 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. | | | | | | |
|--|---|-------|--------|---------|-------|-------|----------|---|-------------------|
| | | | | | | | | | |
| 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.

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
MITSUBISHI SHIPBUILDING & ENGINEERING CO., LTD.

Electrical Contractors.

Date *10th July, 1958*

COMPASSES.

Have the compasses been adjusted under working conditions

Yes

I Koga
NAGASAKI WORKS
MITSUBISHI SHIPBUILDING & ENGINEERING CO., LTD.

Builder's Signature.

Date *10th July, 1958*

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", "KOHCHO MARU", "KOBU MARU"

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

* Less Generator Fees 71,550

Actual Charge Made £207,450

When applied for,

AUG - 4 1958

When received,

Travelling Expenses (if any) £ See Rpt. 4b.

* 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

See Rpt. 1.

A. H. H. H. H.

K. Takemura & S. Hashiguchi
Surveyor to Lloyd's Register of Shipping.



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