

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

14 OCT 1955

Received at London Office

Date of writing Report 19 When handed in at Local Office SEP. 27. 1955 19 Port of KOBE
 No. in Survey held at Nagoya Date, First Survey 10th April Last Survey 25th July 1955.
 Reg. Book. (No. of Visits 12)
 on the M.V. "TEN-EI MARU" Tons { Gross 7628.61
 Net 4403.30
 Built at Nagoya, Japan By whom built Nagoya Shipbuilding Co., Ltd. Yard No. 120 When built 1955 7mo.
 Owners Kyoei Tanker K.K. Port belonging to Kobe
 Installation fitted by Nagoya Shipbuilding Co., Ltd. When fitted 1955 7mo.
 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 Three phase Three wire system Voltage of Lighting 110
 Heating 110 Power 440 D.C. or A.C., Lighting A.C. Power A.C. If A.C. state frequency 60 cycle
 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 AC, and level compounded under working conditions -
 if not compound wound state distance between generators - and from switchboard - Are the generators arranged to run
 in parallel Yes, are shunt field regulators provided AVR Is the compound winding connected to the negative or positive pole
 - Have machines over 100 kw. 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 -

Position of Generators Starboard inboard and outboard in E.R.
 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 Starboard forward 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 Synthetic resin, 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 over current trip and
 a triple pole linked knife switch fitted.

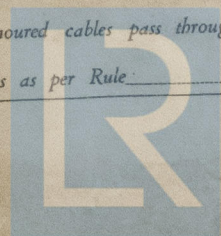
and the switch and fuse gear (or circuit breakers) for each outgoing circuit A triple-pole linked non-fuse breaker for each out-
 going power and other circuit.

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule Yes Instruments on main switchboard 6
 ammeters 1 voltmeters 1 synchronising devices. For compound machines in parallel are the ammeters and reversed current
 protection devices connected on the pole opposite to the equaliser connection - Earth Testing, state means provided
 Earth indicating lamps

Switches, Circuit Breakers and Fuses, are they as per Rule Yes, are the fuses an Approved Type Yes
 make of fuses Fuji Plug type, are all fuses labelled Yes If circuit breakers are provided for the generators, at what
 overload do they operate 50% O.L., and at what ~~current~~ power do the reversed ~~current~~ power protective devices operate 11.9 K.W. (Max.)

Joint Boxes, Section Boards and Distribution Boards, is the construction as per Rule Yes
 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 3 V, are the ends of all cables having a sectional
 area of 0.01 square inch and above provided with soldering sockets Yes 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 Are cables in machinery spaces, galleys, laundries, etc., lead covered Yes or run in conduit -
 or of the "HR" type - State how the cables are supported or protected Generally supported by iron hangers and
 fixed by metal clips. Where exposed to risk of mechanical damage protected by sheet iron plating and under
 floor plates in engine room in conduits.

Are all lead sheaths, armouring and conduits effectually banded 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 they
 effectively banded Yes Refrigerated chambers/are the cables and fittings as per Rule Yes



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Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule Yes Emergency Supply, are position Secondary battery, Navigation bridge Port Side.

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 and fitted as per Rule Yes, are they adequately ventilated Yes

state battery capacity in ampere hours 2 sets - 24 V x 200 AH

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

Are any fittings installed where readily combustible materials or inflammable or explosive dust or gases are likely to be present No

if so, how are they protected -

and where are the controlling switches fitted - Are all fittings suitably ventilated Yes

Searchlight Lamps, No. of -, whether fixed or portable -, are they of the carbon arc or of the filament type -

Heating and Cooking, is the general construction as per Rule Yes, are the frames effectually earthed -, 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 -

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

Control Gear and Resistances, and they constructed and fitted as per Rule Yes Lightning Conductors, where required are they fitted as per Rule Yes Ships carrying Oil having a Flash Point 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 the cables lead covered as per Rule -

E. S. D., if fitted state maker Tokyo Keiki K.K. location of transmitter - and - receiver Fr. 136-137 (S.s)

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 | 2 | Nishichiba Elec. Co. | 100 K.V.A. | AC 450 | 128 | 600 | 125 H.P. Single Act. Diesel Eng. | Ito Engineering Co., Ltd. |
| EMERGENCY ROTARY TRANSFORMER | 4 | Hitachi Seisaku-sho | 450V/200 K.V.A. | 115V | 80/320A | | | |

GENERATOR CABLES.

| DESCRIPTION. | KVA | CONDUCTORS. | | MAXIMUM CURRENT IN AMPERES. | | APPROX. LENGTH (Lead plus return feet). | INSULATION. | PROTECTIVE COVERING. |
|------------------------------|-----------|-----------------|--|-----------------------------|-------|---|-------------|----------------------|
| | | No. in Parallel | Sectional Area or No. and Dia. of Strands. Sq. ins. or Sq. mm. | In the Circuit. | Rule. | | | |
| MAIN GENERATOR | 100KVA | 1 | 0.15 | 128 | 166 | 26 | V | Lead & Cage Armour |
| Field from main generator | | 1 | 0.0225 | 27.3 | 33 | 26 | R | Lead & Cotton braid |
| Exciter | 3 K.W. | 1 | 0.0225 | 27.3 | 33 | 26 | " | " |
| Field Regulation for exciter | | 1 | 0.0045 | 11 | 26 | " | " | Lead & Cage Armour |
| Space heater | 0.6 K.W. | 1 | 0.003 | 5.5 | 11 | 26 | " | " |
| Governor motor | | 1 | 0.007 | 17 | 26 | " | " | Lead & Cage Armour |
| EMERGENCY GENERATOR | 20 K.V.A. | 1 | 0.15 | 80 | 238 | 23 | V | Lead & Cotton braid |
| ROTARY TRANSFORMER: MOTOR | | 1 | 0.3 | 320 | 372 | 23 | " | Lead & Cage armour |

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

| DESCRIPTION. | No. in Parallel | Sectional Area or No. and Dia. of Strands. Sq. ins. or Sq. mm. | In the Circuit. | Rule. | APPROX. LENGTH (Lead plus return feet). | INSULATION. | PROTECTIVE COVERING. |
|--------------------------------------|-----------------|--|-----------------|-------|---|-------------|----------------------|
| Main Switch B'd. - Power Section box | 1 | 0.06 | 42 | 42 | 125 | R | Lead & strand armour |
| " " " " P1 (Eng. Room) | 1 | 0.0225 | 40 | 51 | 50 | V | Lead & Cage armour |
| " " " " P2 (") | 1 | 0.0145 | 30 | 38 | 93 | " | " |
| " " " " P3 (") | 1 | 0.0225 | 56 | 51 | 66 | " | " |
| " " " " P4 (") | 1 | 0.007 | 7 | 12 | 105 | R | " |
| " " cooking (Up. deck) | 1 | 0.0225 | 44 | 51 | 116 | V | " |
| " " box L1 (Bridge deck) | 1 | 0.0225 | 40 | 51 | 83 | " | " |
| " " " " L2 (Up. deck) | 1 | 0.0225 | 35 | 51 | 125 | " | " |
| " " Heater (S) (Bridge deck) | 1 | 0.0225 | 39 | 51 | 132 | " | " |
| " " Heater (G) (Upper deck) | 1 | 0.01 | 11 | 29 | 116 | " | " |
| " " Gyro. (Boat deck) | 1 | 0.1 | 100 | 128 | 93 | " | " |
| " " Shore connection box (Up. deck) | 1 | 0.1 | 100 | 128 | 93 | " | " |

LIGHTING, HEATING, WIRELESS, NAVIGATION LIGHTS, ETC., CABLES.

| DESCRIPTION. | No. in Parallel | Sectional Area or No. and Dia. of Strands. Sq. ins. or Sq. mm. | MAXIMUM CURRENT IN AMPERES. | | APPROX. LENGTH (Lead plus return feet) | INSULATION. | PROTECTIVE COVERING. |
|--|-----------------|--|-----------------------------|-------|--|-------------|----------------------------|
| | | | In the Circuit. | Rule. | | | |
| Main Switch Board - Distribution Box | 1 | 0.0225 | 11 | 23 | 150 | R | Lead & Cage armour |
| " " " " B (Boat deck) | 1 | 0.0225 | 17.5 | 23 | 100 | " | " |
| " " " " G (Bridge deck) | 1 | 0.01 | 10.1 | 16 | 118 | " | " |
| " " " " K (Upper deck) | 1 | 0.007 | 4.8 | 12 | 249 | " | " |
| " " " " L (Upper deck) | 1 | 0.007 | 4. | 12 | 270 | " | " |
| " " " " M (Engine Room) | 1 | 0.01 | 22.5 | 29 | 23 | V | Lead & Cage armour |
| " " " " N (Engine Room) | 1 | 0.1 | 34 | 60 | 50 | R | Lead & Strand armour |
| " " " " O (2nd deck) | 1 | 0.01 | 22.5 | 29 | 76 | V | Lead & Cage armour |
| " " " " P (Upper deck) | 1 | 0.01 | 25.2 | 29 | 115 | V | " |
| " " " " Q (Upper deck) | 1 | 0.0225 | 13.7 | 23 | 180 | R | " |
| Section box L1 - Distribution Box | 1 | 0.01 | 12.4 | 16 | 50 | " | " |
| " " " " E (Bridge deck) | 1 | 0.03 | 12.8 | 27 | 3 | " | " |
| " " " " F (Bridge deck) | 1 | 0.01 | 9.2 | 16 | 70 | " | " |
| Section box L2 - Distribution Box | 1 | 0.05 | 11.2 | 27 | 3 | " | " |
| " " " " I (Upper deck) | 1 | 0.01 | 12.4 | 16 | 66 | " | " |
| " " " " J (Upper deck) | 1 | 0.01 | 7.6 | 16 | 30 | " | " |
| Main Switch Board - Distribution Box | 1 | 0.0225 | 40 | 51 | 150 | V | " |
| Aux. S.B. (W/T Room) | 1 | 0.01 | 25 | 29 | 158 | " | " |
| Main Switch Board - Distribution Box | 1 | 0.0225 | 28.3 | 33 | 256 | R | Lead & Cotton braid |
| Light (Up. deck) | 1 | 0.0145 | 17 | 27 | 40 | " | " |
| Aux. S.B. Dist. Box | 1 | 0.0145 | 16 | 27 | 83 | " | " |
| " " " " R (Upper deck) | 1 | 0.0045 | 9.1 | 11 | 66 | " | " |
| Section box Heater (S) Heater (saloon) | 1 | " | " | " | 60 | " | " |
| " " " " (saloon) | 1 | " | " | " | 53 | " | " |
| " " " " Toaster (Pantry) | 1 | 0.0145 | 22 | 27 | 33 | " | " |
| " " " " (G) Heater (Off mess) | 1 | 0.0045 | 9.1 | 11 | 50 | " | " |
| " " " " (Crews Mess) | 1 | 0.01 | 29 | 29 | 155 | V | Lead & Cage armour |
| Aux. Switch Board - Wireless Equipment | 1 | 0.003 | 1.8 | 7 | 30 | " | Lead & Cotton armour |
| Dist. box A. - Navigation indicator | 1 | 0.4 | 0.4 | 7 | 30 | " | Lead & Copper Cage armour. |
| Navigation indicator - Navigation lamp | 1 | 0.4 | 0.4 | 7 | 30 | " | " |

| ALL IMPORTANT MOTORS TO BE ENUMERATED. | No. | B.H.P. | MAXIMUM CURRENT IN AMPERES. | | APPROX. LENGTH (Lead plus return feet) | INSULATION. | PROTECTIVE COVERING. |
|--|-----|--------|-----------------------------|-------|--|-------------|----------------------|
| | | | In the Circuit. | Rule. | | | |
| - Ref. Machine | 2 | 5 | 0.01 | 7.5 | 16 | R | Lead & Cage armour |
| - Cool. W.P. for Ref. | 1 | 2 | 0.007 | 3.5 | 12 | " | " |
| - Welding Machine | 1 | 15 | 0.06 | 60 | 60 | 56 | " |
| - Turning gear | 1 | 15 | 0.01 | 20 | 29 | 115 | V |
| Power Sec. Box P1 - O.F. Purifire | 2 | 2 | 0.007 | 3.5 | 12 | 89 | R |
| " " " " - O.F. Clarifire | 2 | 3 | " | 4.5 | 12 | 33 | " |
| " " " " - L.O. Purifire | 1 | 3 | " | 3.5 | 12 | 26 | " |
| " " " " - O.F. Serv. pump | 2 | 2 | " | 3.5 | 12 | 99 | " |
| " " " " - L.O. Transfer pump | 1 | 2 | " | 3.5 | 12 | 26 | " |
| Power Sec. Box P2 - Sanitary pump | 1 | 3 | " | 4.5 | 12 | 69 | " |
| " - Fresh Water pump | 1 | 3 | " | 4.5 | 12 | 69 | " |
| " - Fuel V. cool. Water pump | 1 | 4 | " | 6 | 12 | 73 | " |
| " - E.R. Vent. Fan | 2 | 5 | 0.01 | 7.5 | 16 | 253 | " |
| " P3 - Forced draft fan | 1 | 7.5 | " | 11 | 29 | 53 | V |
| " " O.F. burning pump | 1 | 2 | 0.007 | 3.5 | 12 | 73 | R |
| " " Ext. gas H.F.W. cir. | 2 | 4 | 0.007 | 6 | 12 | 56 | " |
| " " P4 - O.F. booster pump | 2 | 7.5 | 0.01 | 11 | 29 | 40 | V |
| " " " " - Crane motor | 1 | 5 | " | 12.9 | 29 | 56 | " |
| " " " " - Lathe motor | 1 | 5 | " | 7.5 | 29 | 26 | " |
| " " " " - No. 1 Exh. Gas boiler Circulat. pump | 1 | 4 | " | 6 | " | 33 | " |
| " " " " - No. 2 -do- | 1 | 4 | " | " | " | 23 | " |
| " " " " P4 - No. 1 F.O. Booster pump | 1 | 7.5 | 0.01 | 11 | 29 | 16.5 | " |
| " " " " - No. 2 -do- | 1 | 5 | " | " | " | 23 | " |
| " " " " - Crane Motor | 1 | 5 | " | 12.9 | " | 56 | " |
| " " " " - Universal Mach. | 1 | 5 | " | 7.5 | " | 26 | " |
| " " " " - Cooling Tofu Blower | 1 | 0.5 | 0.007 | 1 | 12 | 73 | R |
| " " " " - Range Blower | 1 | 1 | " | 1.8 | " | 33 | " |
| " " " " - Galley Vent. Fan | 1 | 1 | " | " | " | 43 | " |

Remarks:- V:- Varnished camblie
R:- Vulcanized rubber

The Electrical Equipment is installed in accordance with the approved plans and the requirements of the Rules.

All Insulated Motors are guaranteed to have been tested at the maker's works as specified in the Rules.

The foregoing is a correct description.

K. Yoshida
Nagoya Shipbuilding Co., Ltd.,
Nagoya.

Electrical Contractors.

Date 10th August, 1955.

COMPASSES.

Have the compasses been adjusted under working conditions?

Taro Ueda
Nagoya Shipbuilding Co., Ltd., Nagoya.

Builder's Signature.

Date 1st August, 1955.

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? No If not, state date of approval 27-4-55

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

General Remarks. (State quality of workmanship, motor insulation tests, etc., have been made, opinions as to class, etc.)

The Electrical Installation of this vessel has been constructed under Special Survey in accordance with the Rules, Approved plans and Secretary's letters.

The materials and workmanship were found sound and good.

The Generator and Motors etc., have been examined under full load working condition to Rules requirements and found satisfactory.

Total Capacity of Generators 200 K.V.A. Kilowatts.

The amount of Fee ... £122,200 When applied for, 19

Travelling Expenses (if any) £5000 When received, 19

S. B. Jansson
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRIDAY 16 DEC 1955

Assigned

S. B. Jansson



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