

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office.

20 OCT 1952

Date of writing Report 14-5-1952 When handed in at Local Office 19 Port of YOKOHAMA.

No. in Survey held at YOKOSUKA, JAPAN. Date, First Survey 7-2-52 Last Survey 28-3-1952  
Reg. Book. (No. of Visits 15)

on the S.S. "EIKEN MARU" Tons { Gross 6394.82  
Net 3674.29

Built at YOKOSUKA, JAPAN By whom built URAGA SHIPBUILDING YARD  
THE URAGA DOCK CO., LTD. Yard No. 637 When built 3, 1952

Owners HACHIUMA KISEN CO., LTD. Port belonging to NISHINOMIYA

Installation fitted by URAGA SHIPBUILDING YARD, THE URAGA DOCK CO., LTD. When fitted 3, 1952

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  
SINGLE PHASE TWO WIRE Voltage of Lighting 110V

Heating - Power 220 D.C. or A.C., Lighting A.C. Power A.C. If A.C. state frequency 60

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 YES Generators, are they compound wound - , 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 YES. 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 YES and the results found as per Rule YES

Position of Generators ENGINE ROOM LOWER PLATFORM, STARBOARD.

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 ENGINE ROOM MANOEUVERING PLATFORM, STARBOARD AFT.

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 (state or marole) 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 TRIPLE POLE LINKED CIRCUIT-BREAKER WITH OVER CURRENT TRIPS IN TWO PHASE AND REVERSE POWER RELAY.

and the switch and fuse gear (or circuit breakers) for each outgoing circuit TRIPLE POLE LINKED CIRCUIT BREAKER WITH OVER CURRENT TRIPS IN TWO PHASE FOR POWER AND TRIPLE POLE LINKED SWITCH WITH FUSE ON EACH POLE FOR LIGHTING.

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule YES. Instruments on main switchboard AC. 14  
DC. 3 ammeters AC. 5  
DC. 3 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 SYSTEM USING THREE LAMPS OF THE METAL FLAMENT TYPE EACH 10 WATTS.

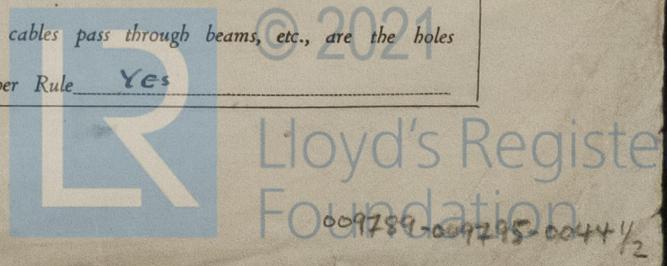
Switches, Circuit Breakers and Fuses, are they as per Rule YES, are the fuses an Approved Type YES, make of fuses MIITSUI TYPE N.O.F. 0/250 AMP, are all fuses labelled YES. If circuit breakers are provided for the generators, at what overload do they operate 25 %, and at what current do the reversed current protective devices operate 10% OF FULL LOAD WATTAGE.

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 3.0 T, 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 - . 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 WHERE NOT EXPOSED TO DRIP OR ACCUMULATION OF WATER OR OIL OR RISK OF MECHANICAL DAMAGE, THE CABLES ARE SUPPORTED BY CLIPS OR STRAPS ON SADDLES OR METAL HANGERS, BACKING PLATE AND WHERE APPEARED TO BE LIABLE TO BE LIABLE TO EXPOSE TO THEM ARE PROTECTED BY SHEET IRON PLATING OR BY HEAVY GAUGE SCREWED STEEL CONDUIT.

Are all lead sheaths, armouring, and conduits effectually bonded and earthed YES. Are all cables passing through decks and watertight bulkheads provided with deck ties 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



Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule YES. Emergency Supply, state position TWO (2) SETS OF 24 T. SECONDARY BATTERIES FITTED AT BATTERY ROOM ON BOAT DECK, 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 200 AMPERE HOURS.

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 —.

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 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 —.

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

Control Gear and Resistances, and they constructed and fitted as per Rule YES. Lightning Conductors, where required are they fitted as per Rule —. 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 NIPPON ELECTRIC CO., LTD. location of transmitter NO. 1 CARGO HOLD STARBOARD AFT. and receiver NO. 1 CARGO HOLD PORT AFT.

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               | No. of | MAKER.    | RATED AT                 |        |       |                | PRIME MOVER.        |                         |
|------------------------------|--------|-----------|--------------------------|--------|-------|----------------|---------------------|-------------------------|
|                              |        |           | Kilowatts per Generator. | Volts. | Amps. | Revs. per min. | TYPE.               | MAKER.                  |
| MAIN                         | 2      | MEIDENSHA | 150                      | 225    | 462   | 1800           | HORIZONTAL          | URAGA SHIPBUILDING YARD |
| AUX.                         | 1      | "         | 30                       | 225    | 90    | 514            | URAGA-SULZER 3TE 16 | TAMASHIMA DIESEL WORKS  |
| EMERGENCY ROTARY TRANSFORMER |        |           |                          |        |       |                |                     |                         |

GENERATOR CABLES.

| DESCRIPTION.              | KILOWATTS. | CONDUCTORS.               |                                                                | MAXIMUM CURRENT IN AMPERES. |       | APPROX. LENGTH (lead plus return feet). | 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            | 150        | 5                         | 3 <sup>c</sup> 0.2                                             | 462                         | 465   | 36                                      | RUBBER      | LEAD ALLOY SHEATHED AND ARMOURED. |
| " " EXCITER EQUALISER     | 3          | 1                         | 2 <sup>c</sup> 0.0225                                          | 272                         | 33    | 36                                      | "           | "                                 |
| AUX. GENERATOR            | 30         | 1                         | 3 <sup>c</sup> 0.2                                             | 90                          | 93    | 26                                      | "           | "                                 |
| " " EXCITER               | 3          | 1                         | 2 <sup>c</sup> 0.0225                                          | 27.2                        | 33    | 26                                      | "           | "                                 |
| EMERGENCY GENERATOR       |            |                           |                                                                |                             |       |                                         |             |                                   |
| ROTARY TRANSFORMER: MOTOR |            |                           |                                                                |                             |       |                                         |             |                                   |
| " " GENERATOR             |            |                           |                                                                |                             |       |                                         |             |                                   |

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

| DESCRIPTION.                                           | No. in Parallel per Pole. | 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.                     |
|--------------------------------------------------------|---------------------------|----------------------------------------------------------------|-----------------------------|-----------------------------------------|-------------|------------------------------------------|
| FROM MAIN SWITCH BOARD TO SECTION BOX P-1              | 2                         | 3 <sup>c</sup> 0.15                                            | 113.3                       | 154                                     | 20          | RUBBER LEAD ALLOY SHEATHED AND ARMOURED. |
| " " " P-2                                              | 2                         | 3 <sup>c</sup> 0.15                                            | 113.3                       | 154                                     | 20          | "                                        |
| " " " P-3                                              | 2                         | 3 <sup>c</sup> 0.1                                             | 86.8                        | 120                                     | 105         | "                                        |
| " " " P-4                                              | 1                         | 3 <sup>c</sup> 0.2                                             | 80                          | 93                                      | 20          | "                                        |
| " " " P-5                                              | 2                         | 3 <sup>c</sup> 0.15                                            | 130                         | 154                                     | 45          | "                                        |
| " " " P-6                                              | 1                         | 3 <sup>c</sup> 0.1                                             | 60                          | 60                                      | 43          | "                                        |
| " " TO SHORE CONNECTION BOX                            | 4                         | 3 <sup>c</sup> 0.15                                            | 305                         | 308                                     | 66          | "                                        |
| FROM AUX. SWITCH BOARD TO 15 KVA TRANSFORMER (PRIMARY) | 1                         | 2 <sup>c</sup> 0.1                                             | 75                          | 85                                      | 17          | "                                        |
| " " " (SECONDARY)                                      | 1                         | 2 <sup>c</sup> 0.2                                             | 130                         | 133                                     | 17          | "                                        |

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

| DESCRIPTION.                                      | CONDUCTORS.               |                                                                | MAXIMUM CURRENT IN AMPERES. |       | APPROX. LENGTH (lead plus return feet). | 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. |                                         |             |                                  |
| FROM AUX SWITCH BOARD TO SECTION BOX L-NO.1       | 1                         | 3 <sup>c</sup> 0.06                                            | 30.3                        | 42    | 85                                      | RUBBER      | LEAD ALLOY SHEATHED AND ARMOURED |
| " " " L-NO.2                                      | 1                         | 3 <sup>c</sup> 0.06                                            | 28.9                        | 42    | 75                                      | "           | "                                |
| " " " L-NO.3                                      | 1                         | 3 <sup>c</sup> 0.1                                             | 46.3                        | 60    | 75                                      | "           | "                                |
| " " TO DISTRIBUTION BOX L-A                       | 1                         | 3 <sup>c</sup> 0.0225                                          | 8.8                         | 23    | 150                                     | "           | "                                |
| " " " L-B                                         | 1                         | 3 <sup>c</sup> 0.04                                            | 27.1                        | 33    | 145                                     | "           | "                                |
| " " " L-P                                         | 1                         | 3 <sup>c</sup> 0.06                                            | 33.1                        | 42    | 85                                      | "           | "                                |
| " " " L-K                                         | 1                         | 3 <sup>c</sup> 0.04                                            | 29.8                        | 33    | 20                                      | "           | "                                |
| " " " L-L                                         | 1                         | 3 <sup>c</sup> 0.0145                                          | 13.8                        | 19    | 110                                     | "           | "                                |
| " " TO NAVIGATION LIGHT                           | 1                         | 2 <sup>c</sup> 0.0045                                          | 1.8                         | 11    | 150                                     | "           | "                                |
| FROM SECTION BOX L-NO.2 TO DISTRIBUTION BOX L-F   | 1                         | 3 <sup>c</sup> 0.0045                                          | 3.4                         | 11    | 260                                     | "           | "                                |
| " " " L-G                                         | 1                         | 3 <sup>c</sup> 0.007                                           | 6.8                         | 12    | 175                                     | "           | "                                |
| " " " L-H                                         | 1                         | 3 <sup>c</sup> 0.0225                                          | 18.9                        | 23    | 200                                     | "           | "                                |
| " " " L-I                                         | 1                         | 3 <sup>c</sup> 0.01                                            | 9.5                         | 16    | 60                                      | "           | "                                |
| " " " L-J                                         | 1                         | 3 <sup>c</sup> 0.0225                                          | 18.9                        | 23    | 130                                     | "           | "                                |
| FROM MAIN SWITCH BOARD TO SUEZ CANAL SEARCH LIGHT | 1                         | 2 <sup>c</sup> 0.007                                           | 9.1                         | 17    | 320                                     | "           | "                                |
| " " TO WIRELESS EQUIPMENT                         | 1                         | 3 <sup>c</sup> 0.1                                             | 60                          | 60    | 148                                     | "           | "                                |
| FROM SECTION BOX P-6 TO DISTRIBUTION BOX C-1      | 1                         | 3 <sup>c</sup> 0.04                                            | 25                          | 33    | 132                                     | "           | "                                |
| " " " C-2                                         | 1                         | 3 <sup>c</sup> 0.04                                            | 15                          | 33    | 174                                     | "           | "                                |
| " " TO BATTERY CHARGING BOARD                     | 1                         | 3 <sup>c</sup> 0.007                                           | 7.1                         | 12    | 132                                     | "           | "                                |
| FROM AUX. SWITCH BOARD TO DISTRIBUTION BOX C-3    | 1                         | 3 <sup>c</sup> 0.04                                            | 6                           | 33    | 148                                     | "           | "                                |

MOTOR CABLES.

| ALL IMPORTANT MOTORS TO BE ENUMERATED.     | No. | B.H.P. | CONDUCTORS.            | MAXIMUM CURRENT IN AMPERES. | APPROX. LENGTH (lead plus return feet). | INSULATION. | PROTECTIVE COVERING.                    |
|--------------------------------------------|-----|--------|------------------------|-----------------------------|-----------------------------------------|-------------|-----------------------------------------|
| LUBRICATING OIL PUMP                       | 2   | 27     | 1 3 <sup>c</sup> 0.15  | 73                          | 77                                      | 23          | RUBBER LEAD ALLOY SHEATHED AND ARMOURED |
| CONDENSATE PUMP                            | 2   | 13.5   | 1 3 <sup>c</sup> 0.1   | 33                          | 60                                      | 46          | "                                       |
| ENG. ROOM VENTILATING FAN                  | 2   | 5      | 1 3 <sup>c</sup> 0.01  | 13                          | 16                                      | 60          | "                                       |
| FORCED DRAFT FAN (FOR BOILER)              | 1   | 25     | 1 3 <sup>c</sup> 0.15  | 61                          | 77                                      | 100         | "                                       |
| FUEL OIL BURNING PUMP ( " )                | 1   | 3      | 1 3 <sup>c</sup> 0.007 | 8.6                         | 12                                      | 40          | "                                       |
| BOILER ROOM VENTILATING FAN                | 1   | 5      | 1 3 <sup>c</sup> 0.01  | 13                          | 16                                      | 33          | "                                       |
| FIRE & G. S. PUMP                          | 1   | 40     | 2 3 <sup>c</sup> 0.1   | 95                          | 120                                     | 33          | "                                       |
| STEERING GEAR MOTOR                        | 1   | 15     | 1 3 <sup>c</sup> 0.1   | 40                          | 60                                      | 130         | "                                       |
| FUEL OIL TRANSFER PUMP                     | 1   | 15     | 1 3 <sup>c</sup> 0.1   | 40                          | 60                                      | 100         | "                                       |
| FORCED DRAFT FAN (FOR BOILER PORT SERVICE) | 1   | 7.5    | 1 3 <sup>c</sup> 0.04  | 15                          | 33                                      | 158         | "                                       |

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.

*J. Kojima* Electrical Contractors. Date 30-7-52

COMPASSES.

Have the compasses been adjusted under working conditions YES

*Yoshimatsu* Builder's Signature. Date 30-7-52

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 21-11-51

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

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

THE ELECTRIC EQUIPMENT OF THIS VESSEL HAS BEEN CONSTRUCTED AND INSTALLED UNDER THE SUPERVISION OF THE SOCIETY'S SURVEYORS IN ACCORDANCE WITH THE APPROVED PLANS AND THE RULES.

THE WORKMANSHIP AND MATERIALS HAVE BEEN FOUND SATISFACTORY. THE EQUIPMENT HAS BEEN EXAMINED UNDER WORKING CONDITION AND INSULATION TESTED ACCORDING TO RULES.

IT IS SUBMITTED THAT THE ELECTRICAL EQUIPMENT OF THIS VESSEL IS ELIGIBLE TO BE CLASSED WITH THIS SOCIETY AND TO HAVE THE NOTATION ⊕ LMC 352

Total Capacity of Generators 330 Kilowatts.

The amount of Fee ... £223,800.00 { When applied for, 19  
When received, 19  
Travelling Expenses (if any) £ : : \_\_\_\_\_

*William J. ...*  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUES. 11 NOV 1952

Assigned See F.E. ...

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