

Rpt. 13.

No. FE-1069

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

Date of writing Report 30th July 1960 When handed in at Local Office 19 Port of Nagasaki  
 No. in Survey held at Nagasaki, Japan Date, First Survey 13-5-1960 Last Survey 6-7-1960  
 Reg. Book. (No. of Visits 10) Gross 9549.99  
 on the m.v. "BROOKLYN MARU" Tons Net 5508.25  
 Built at Nagasaki, Japan By whom built Mitsubishi Zosen K.K. Yard No. 1532 When built 7-1960  
 Owners Daido Kaiun K.K. Port belonging to Kobe  
 Installation fitted by Mitsubishi Zosen K.K. When fitted 7-1960  
 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 440 D.C. or A.C. Lighting A.C. Power A.C. If A.C. state frequency 60  
 6T Cargo winch, mooring winch D.C. 220 V, Windlass D.C. 440 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 Position of Generators Port forward, Port Aft  
 inner and outer on eng. platform in machy. space  
 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 Port forward on eng.  
 platform in machy. space

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 Phendric 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 cargo caire system, thermotank fan and engine room auxiliaries,  
 reverse power relay and a triple pole linked isolating switch fitted.  
 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. Breaker (non fuse to-type) made by  
 Terasaki Denki Seisakusho.

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule Yes Instruments on main switchboard 6  
 ammeters 3 voltmeters 1 synchronising devices. For compound machines in parallel are the ammeters and reverse current  
 3 wattmeters, 2 frequency meters 1 watt hour meter Earth Testing, state means provided 2 sets of  
 protection devices connected on the pole opposite to the equaliser connection  
 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  
 make of fuses Utsunomiya Elect. are all fuses labelled Yes If circuit breakers are provided for the generators, at what  
 Mfg. Co. 25% (450A) 11 sec. Power and at what do the reverse current protective-  
 overload do they operate devices operate 30 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 14.3 volts. 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 State  
 type of cables (if in conduit this should also be stated) in machinery spaces RLC, VLC. galleys RLC, VLC.  
 and laundries RLC (Cables under floorplate in conduit)  
 State how the cables are supported or protected

Cables of metal braided secured by metal clips on coated steel hangers or  
 galvanized steel plate, 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  
 R...Vulcanised-Rubber-Insulated  
 L...Lead-Alloy-Sheathed  
 HR...Polychloroprene-Compound-Sheathed

C...Metal Braided

012036-012041-0040 1/2

Lloyd's Register  
 Foundation

13 OCT 1965

Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule. Yes Emergency Supply, state position Boat dk. aft (battery room), 24V battery unit with automatic control switch in radio room for lighting accommodation, navigation & machinery spaces.

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 120 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. 110V and compartments where lamps are fitted.

All living quarters include galley, pantries, lavatories, passages etc., and near the main switch board in engine 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 One, whether fixed or portable. Portable, are they of the carbon arc or of the filament type. 500 watt 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. 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

Lightning Conductors, where required are they fitted as per Rule. -

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 Seizosha Co., Ltd. location of transmitter and receiver. In Echo Sounder Compartment F.No.130/131

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      | <del>Mitsubishi Electric M.B. Co. Ltd.</del><br>Fuji Denki Seizo K.K.,<br>Kawasaki Wks, Kawasaki | 224KW<br>280KVA    | 450    | 359      | 514            | Diesel       | Daihatsu Kogyo K.K., Osaka |
| EMERGENCY ROTARY TRANSFORMER |        |  |                    |        |          |                |              |                            |

#### GENERATOR CABLES.

| DESCRIPTION.              | No. of | Kw.             | CONDUCTORS.               |  | MAXIMUM CURRENT IN AMPERES. |       | APPROX. LENGTH (feet 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            | 3      | 224KW<br>280KVA | 2(3C)                     | 37/.093  | 380                         | 462   | F.11                                    | V           | LC                   |
| " EQUALISER               |        |                 |                           |  |                             |       | A.In 18<br>A.Out 16.7                   |             |                      |
| EMERGENCY GENERATOR       |        |                 |                           |  |                             |       |   |             |                      |
| ROTARY TRANSFORMER: MOTOR |        |                 |                           |  |                             |       |   |             |                      |
| " GENERATOR               |        |                 |                           |  |                             |       |   |             |                      |

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

| DESCRIPTION.                      |      |       |         |      |     |       |   |    |  |
|-----------------------------------|------|-------|---------|------|-----|-------|---|----|--|
| Power: (From main switchboard to) |      |       |         |      |     |       |   |    |  |
| Eng.Rm. Aux. Main floor stbd.     | P-12 | 1(3C) | 19/.083 | 83   | 128 | 58.6  | V | LC |  |
| " " port                          | P-13 | 1(3C) | 19/.052 | 37   | 70  | 25    | V | LC |  |
| " 3rd Dk. port                    | P-14 | 1(3C) | 19/.064 | 59   | 91  | 22.5  | V | LC |  |
| Eng.Rm. Vent. Fan main floor      | P-15 | 1(3C) | 7/.052  | 22.8 | 38  | 15.2  | V | LC |  |
| Cargo Winch Forward               | P-16 | 2(3C) | 37/.083 | 303  | 400 | 96.4  | V | LC |  |
| Cargo Winch Aft                   | P-17 | 2(3C) | 37/.083 | 303  | 400 | 103.6 | V | LC |  |
| Cargo Caire                       | P-19 | 1(3C) | 19/.083 | 67.2 | 128 | 45.9  | V | LC |  |
| Ref. Machine                      | P-20 | 1(3C) | 37/.083 | 158  | 200 | 15.2  | V | LC |  |
| Thermotank Fans                   | P-21 | 1(3C) | 7/0.52  | 15   | 38  | 40    | V | LC |  |

#### DISTRIBUTION CABLES (to Section-Boards and 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 (feet plus return feet). | INSULATION. | PROTECTIVE COVERING. |
|----------------------------------|---------------------------|--|-----------------------------|-------|---|-------------|----------------------|
|                                  |                           |  | In the Circuit.             | Rule. |   |             |                      |
| Lighting:-                       |                           |  |                             |       |   |             |                      |
| M.S.B. to 3x20 KVA Trans.450/113 | 1(3C)                     | 19/.064  | 77                          | 91    | 16.5                                    | V           | LC                   |
| Above trans to light panel P-25A | 2(3C)                     | 37/.072  | 306                         | 332   | 15.6                                    | V           | LC                   |
| Lighting Panel to Nav.Bridge L-1 | 1(3C)                     | 7/.064   | 37                          | 51    | 34.5                                    | V           | LC                   |
| " to Accommodation L-2           | 1(3C)                     | 37/.072  | 120                         | 166   | 18.5                                    | V           | LC                   |
| " to Cargo Light L-3             | 1(3C)                     | 19/.083  | 88                          | 128   | 16.0                                    | V           | LC                   |
| " to Eng.Rm.Light L-4            | 1(3C)                     | 19/.083  | 95                          | 128   | 13.0                                    | V           | LC                   |
| " to Nav. Light L-9              | 1(2C)                     | 7/.036   | 2                           | 27    | 35.0                                    | V           | LC                   |
| D-F-B(L-1) to Nav. Light         | 1(2C)                     | 7/.052   | 2                           | 55    | 3.5                                     | V           | LC                   |

#### Cooking and Heating:

|                                  |      |       |         |    |     |    |   |    |
|----------------------------------|------|-------|---------|----|-----|----|---|----|
| Light Panel to Saloon Pantry S-B | L-6  | 1(3C) | 37/.072 | 47 | 166 | 29 | V | LC |
| L-6 to Galley & Heater S-B       | L-6A | 1(3C) | 37/.072 | 58 | 166 | 34 | V | LC |

#### Wireless:

|                      |      |       |         |    |    |      |   |    |
|----------------------|------|-------|---------|----|----|------|---|----|
| Light Panel to Radio | L-7  | 1(3C) | 7/0.052 | 24 | 38 | 30.5 | V | LC |
| M.S.B. to Radio      | D-22 | 1(3C) | 7/.036  | 10 | 19 | 32.5 | V | LC |

#### Nautical:

|                                 |       |       |          |     |    |      |   |    |
|---------------------------------|-------|-------|----------|-----|----|------|---|----|
| M.S.B. to Gyro Pilot No.1       | P-27  | 1(3C) | 7/0.029  | 1.5 | 11 | 100  | R | LC |
| " " No.2                        | P-28  | 1(3C) | 7/0.029  | 1.5 | 11 | 100  | R | LC |
| D-F-B(L-2) To Boat Dk Light     | L-2-A | 1(3C) | 7/0.064  | 25  | 51 | 15.0 | V | LC |
| " To Bridge Dk "                | L-2-B | 1(3C) | 19/0.052 | 36  | 70 | 6.0  | V | LC |
| " To Store Light                | L-2-D | 1(3C) | 7/0.064  | 31  | 51 | 5.5  | V | LC |
| D-F-B (L-3) To Fore Cargo Light | L-3-A | 1(3C) | 19/0.064 | 41  | 91 | 59   | V | LC |
| " (L-3) To Aft Cargo Light      | L-3-B | 1(3C) | 19/0.064 | 46  | 91 | 65   | V | LC |
| D-F-B(L-4) To Engine Room       | L-4-A | 1(3C) | 19/0.064 | 50  | 91 | 12.5 | V | LC |

#### MOTOR CABLES.

| ALL IMPORTANT MOTORS TO BE ENUMERATED. |   | No.     | B.H.P. | CONDUCTORS.               |  | MAXIMUM CURRENT IN AMPERES. |       | APPROX. LENGTH (feet 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. |   |             |                      |
| J. & P. Cooling F.W. Pumps             | 2 | 49 KW   | 1(3C)  | 19/.064                   | 78   | 91                          | 41    | V                                       | LC          |                      |
| Cooling Sea Water Pumps                | 2 | 55 "    | 1(3C)  | 19/.064                   | 84   | 91                          | 38    | V                                       | LC          |                      |
| L.O. Pumps                             | 2 | 22 "    | 1(3C)  | 7/.064                    | 42   | 51                          | 22    | V                                       | LC          |                      |
| Fire & G.S. Pump                       | 1 | 37 "    | 1(3C)  | 19/.052                   | 57.5   | 70                          | 30    | V                                       | LC          |                      |
| Bilge & Ballast                        | 1 | 37 "    | 1(3C)  | 19/.052                   | 57.5   | 70                          | 33    | V                                       | LC          |                      |
| Aux. Blower                            | 1 | 22 "    | 1(3C)  | 7/.052                    | 35   | 38                          | 59    | V                                       | LC          |                      |
| Steering Gear Motors                   | 2 | 22 "    | 1(3C)  | 7/.064                    | 46.5   | 51                          | 134   | V                                       | LC          |                      |
| O.F. Transfer Pump                     | 1 | 11 "    | 1(3C)  | 7/.044                    | 20.4   | 29                          | 22    | V                                       | LC          |                      |
| O.F. Service Pump                      | 1 | 3 "     | 1(3C)  | 3/.036                    | 5.28   | 7                           | 18    | R                                       | LC          |                      |
| O.F. Purifiers                         | 3 | 2.2 "   | 1(3C)  | 3/.036                    | 4  | 7                           | 13    | R                                       | LC          |                      |
| O.F. Purifier & Clarifier              | 1 | 2.2 "   | 1(3C)  | 3/.036                    | 4  | 7                           | 15    | R                                       | LC          |                      |
| Purifier Pumps                         | 2 | 2.2 "   | 1(3C)  | 3/.036                    | 4  | 7                           | 21    | R                                       | LC          |                      |
| Bilge Pump                             | 1 | 4.1 "   | 1(3C)  | 7/.029                    | 8.1  | 11                          | 24    | R                                       | LC          |                      |
| L.O. Purifier                          | 1 | 1.5 "   | 1(3C)  | 3/.036                    | 2.9  | 7                           | 23    | R                                       | LC          |                      |
| L.O. Shifting                          | 1 | 3 "     | 1(3C)  | 3/.036                    | 5.29   | 7                           | 20    | R                                       | LC          |                      |
| Forced Circulation Pump                | 2 | 5.5 "   | 1(3C)  | 7/.029                    | 8.7  | 11                          | 21    | R                                       | LC          |                      |
| Eng. Room Vent. Fans                   | 4 | 3.4 "   | 1(3C)  | 3/.036                    | 5.7  | 7                           | 58    | R                                       | LC          |                      |
| Ref. Compressors                       | 3 | 22/11 " | 2(3C)  | 7/.064                    | 36/22  | 51                          | 14    | V                                       | LC          |                      |
| Ref. Cooling W. Pumps                  | 2 | 37 "    | 1(3C)  | 3/.036                    | 6.5  | 7                           | 17    | R                                       | LC          |                      |
| Cold Air Circulating Fans              | 4 |         | 2(3C)  | 3/.036                    |  | 7                           | 56    | R                                       | LC          |                      |
| Windlass (440V D.C.)                   | 1 | 67 "    | 1(1C)  | 19/.083                   | 176  | 185                         | 26    | V                                       | LC          |                      |
| Mooring Winch (220V D.C.)              | 1 | 40 "    | 1(1C)  | 17/.083                   | 208  | 185                         | 40    | V                                       | LC          |                      |
| Leonard M-G Motor                      | 1 | 85 "    | 1(3C)  | 19/.083                   | 139  | 128                         | 11    | V                                       | LC          |                      |
| Leonard M-G Motor                      | 1 | 85 "    | 1(3C)  | 19/.083                   | 139  | 128                         | 10    | V                                       | LC          |                      |
| Leonard M-G Motor(exciter)             | 1 | 15 "    | 1(3C)  | 7/.044                    | 24.5   | 29                          | 21    | V                                       | LC          |                      |

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.

K. Kita  
NAGASAKI WORKS  
MITSUBISHI SHIPBUILDING & ENGINEERING CO., LTD.

Electrical Contractors.

Date 30th July, 1960

COMPASSES.

Have the compasses been adjusted under working conditions. Yes

K. Kita  
NAGASAKI WORKS  
MITSUBISHI SHIPBUILDING & ENGINEERING CO., LTD.

Builder's Signature.

Date 30th July, 1960

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. Power System 6.7.1960  
Main Switch Board 13.1.1960 Lighting System 30.3.1960, 2.6.1960

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

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. 840 K.V.A. Kilowatts

The amount of Fee ... £216,000.- When applied for,

SEP 20 1960  
LOCALLY  
When received,

Travelling Expenses (if any) See Rpt. 1 19

A. Inai Zung  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute. FRIDAY 11 NOV 1960

Assigned. See Rpt. 1.

5m. 6.50 - Transfer. (MADE AND PRINTED IN ENGLAND)  
(The Surveyor is requested not to write on or below the space for Committee Minute.)

24. 10. 60



© 2021

Lloyd's Register  
Foundation