

No/580,

Rpt. 13.

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

Date of writing Report 22nd Mar. 1927 when handed in at Local Office 22nd Mar. 1927 Port of NAGASAKI.

No. in Survey held at NAGASAKI. Date, First Survey 19th Jan. Last Survey 1st March, 1927  
(Number of Visits.....9)

Reg. Book. on the Steel Screw Motor Vessel "CHOJO MARU". Tons { Gross 2594  
Net 1391

Built at Nagasaki. By whom built Mitsubishi Zosen Kaisha Yard No. 424. When built 1927.

Owners Osaka Shosen Kabushiki Kaisha. Port belonging to Osaka.

Electric Light Installation fitted by Mitsubishi Zosen Kaisha, Ltd., Contract No. \_\_\_\_\_ When fitted 1927.

System of Distribution Two wire system. ✓  
Voltage of supply for Lighting 225. ✓ volts, Heating 225. ✓ volts, Power 225. ✓ volts.

System or Alternating Current, Lighting Direct. ✓ Power Direct. ✓

Alternating current system, state frequency of periods per second /

Do the Automatic Governor been tested and found efficient when the whole load is suddenly thrown on or off Yes ✓

Generators, do they comply with the requirements regarding overload Yes ✓, are they compound wound Yes ✓

Are they over compounded 5 per cent. Yes ✓, if not compound wound state distance between each generator /

Where more than one generator is fitted are they arranged to run in parallel Yes - except 4 KW., is an adjustable regulating resistance fitted in

series with each shunt field Yes

Are all terminals accessible and clearly marked Yes, are they so spaced or shielded that they cannot be accidentally earthed,

short circuited Yes Are the lubricating arrangements of the generators as per Rule Yes

Position of Generators Bottom platform in engine room space.

Is the ventilation in way of the generators satisfactory Yes, are they clear of all inflammable material Yes

Are they situated near unprotected woodwork or other combustible material, state distance of same horizontally from or vertically above the generators

/ and /, are the generators protected from mechanical injury and damage from water, steam or oil Yes

Are their axis of rotation fore and aft Yes are the prime movers and

earthing, are the bedplates and frames of the generating plant efficiently earthed Yes

Do their respective generators in metallic contact Yes

Main Switch Boards, where placed Starboard side aft, in engine room, on middle platform.

If the generators and main switchboard are not placed in the same compartment, is each generator provided with

a fuse on each insulated pole as near as possible to the terminals of the generator, additional to that provided on the main switchboard In same compartment

Switchboards, are they placed in accessible positions, free from inflammable gases and acid fumes Yes

are they protected from mechanical injury and damage from water, steam or oil Yes, if situated near unprotected

woodwork or other combustible material, state distance of same horizontally from or vertically above the switchboards / and /,

are they constructed wholly of durable, incombustible non-absorbent materials Yes, is all insulation of high dielectric strength and of

permanently high insulation resistance Yes, if semi-insulating material is used, are all conducting parts connected to one pole

insulated from the slab with mica or micamite and the slab similarly insulated from its framework Yes, insulated with mica., and is the

frame effectively earthed Yes Are the following fittings as per Rule, viz.:— spacing or shielding of live parts

Yes, accessibility of all parts Yes, absence of fuses on back of board Yes, proportion of omnibus

bars Yes, individual fuses to voltmeter, pilot or earth lamp Yes, connections of switches Yes

Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches The 80 KW.

generators are each fitted with circuit breaker with overload and reverse current release

together with single pole equaliser switch interlocked with circuit breaker as per Rule and

an enclosed fuse & knife switch on each pole. The 4 KW generator is fitted with single pole

circuit breaker with overload release & a double pole knife switch & fuse.

Instruments on main switchboard 5 ammeters 2 voltmeters / synchronising device for paralleling purposes.

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system Lamps.

Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules Yes

Section and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule Yes



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W1329-0078 1/3

Lloyd's Register Foundation

Steel Screw Motor Vessel "CHOJO MARU"

Lighting and Heating Conductors.

| Ref.No. | Description.              | No. of Cond. | Effective Area of each conductor sq.in. | Composition of Strand. |      | Total Maximum current amperes. | Approximate Length (Lead & Return) Feet. | Insulation with. | How protected. |
|---------|---------------------------|--------------|---|------------------------|------|--------------------------------|--|------------------|----------------|
|         |                           |              |   | No.                    | Dia. |                                |  |                  |                |
| 1,2,3.  | Main generator            | 1            | .00701                                  | 7                      | .036 | 355.5                          | 80                                       | Rubber           | L.A.W.         |
|         |                           | 3            | .605                                    | 91                     | .092 |                                | 240                                      | "                | "              |
| 4       | Auxiliary generator       | 3            | .00701                                  | 7                      | .036 | 17.8                           | 180                                      | "                | "              |
| 43      | Submain board No.1 S.     | 2            | .0127                                   | 7                      | .048 | 18.4                           | 200                                      | "                | "              |
| 45      | " " S 2.                  | 2            | "                                       | 7                      | "    | 19.18                          | 180                                      | "                | "              |
| 45      | " " S 3                   | "            | "                                       | 7                      | "    | 18.2                           | 40                                       | "                | "              |
| 46      | " " S 4                   | "            | .00701                                  | 7                      | .036 | 10.8                           | 180                                      | "                | "              |
| 47      | Distribution board No.10. | 1            | .00322                                  | 1                      | .064 | 3.5                            | 100                                      | "                | "              |
| 48      | " " No.8                  | 1            | "                                       | 1                      | "    | 6.1                            | 2  | "                | "              |
| 49      | " " No.7                  | 1            | "                                       | 1                      | "    | 2.8                            | 2  | "                | "              |
| 50      | " " No.6                  | 2            | .00701                                  | 7                      | .036 | 5.8                            | 170                                      | "                | "              |
| 51      | Aft Crews lamp circ.      | 1            | .00322                                  | 1                      | .064 | 1.82                           | 175                                      | "                | "              |
| 52      | Distribution Bd.No.5      | 1            | "                                       | 1                      | "    | 4.6                            | 175                                      | "                | "              |
| 53      | " " No.4                  | 1            | "                                       | 1                      | "    | 8.12                           | 2  | "                | "              |
| 54      | " " No.3                  | 1            | "                                       | 1                      | "    | 4.64                           | 40                                       | "                | "              |
| 55      | " " No.2                  | 1            | "                                       | 1                      | "    | 8.6                            | 2  | "                | "              |
| 56      | " " No.1                  | 2            | .00701                                  | 7                      | .036 | 9.8                            | 4  | "                | "              |
| 57      | Fan.Dis.board No.9        | 1            | .00322                                  | 1                      | .064 | 6.4                            | 100                                      | "                | "              |
| 58      | Navigation lamp.          | 1            | "                                       | 1                      | "    | 1.35                           | 160                                      | "                | "              |
| 59      | Ford.Cargo lamp socket    | 1            | "                                       | 1                      | "    | 2.0                            | 130                                      | "                | "              |
| 60      | " " " "                   | 1            | "                                       | 1                      | "    | 3.4                            | 120                                      | "                | "              |
| 61      | Aft. " " "                | 1            | "                                       | 1                      | "    | 3.4                            | 70                                       | "                | "              |
| 62      | " " " "                   | 1            | "                                       | 1                      | "    | 2.0                            | 180                                      | "                | "              |
| 63      | Ford.Cargo lamp           | 1            | .00466                                  | 168                    | .006 | 1.0                            | 40                                       | "                | T.F.C.         |
| 64      | " " " "                   | 1            | "                                       | "                      | "    | 1.0                            | 40                                       | "                | "              |
| 65      | " " " "                   | 1            | "                                       | "                      | "    | 1.0                            | 40                                       | "                | "              |
| 66      | " " " "                   | 1            | "                                       | "                      | "    | 1.33                           | 40                                       | "                | "              |
| 67      | " " " "                   | 1            | "                                       | "                      | "    | 1.0                            | 40                                       | "                | "              |
| 68      | Aft cargo lamp            | 1            | .00466                                  | 168                    | .006 | 1.0                            | 40                                       | "                | "              |
| 69      | " " " "                   | 1            | "                                       | "                      | "    | 1.33                           | 40                                       | "                | "              |
| 70      | " " " "                   | 1            | "                                       | "                      | "    | 1.0                            | 40                                       | "                | "              |
| 71      | " " " "                   | 1            | "                                       | "                      | "    | 1.0                            | 40                                       | "                | "              |
| 72      | " " " "                   | 1            | "                                       | "                      | "    | 1.0                            | 40                                       | "                | "              |
| 73      | Foremast lamp             | 1            | .00322                                  | 1                      | .064 | .25                            | 150                                      | "                | L.A.W.         |
| 74      | P. side lamp              | 1            | "                                       | 1                      | "    | "                              | 35                                       | "                | "              |
| 75      | S. side "                 | 1            | "                                       | 1                      | "    | "                              | 45                                       | "                | "              |
| 76      | Aft mast lamp             | 1            | "                                       | 1                      | "    | "                              | 280                                      | "                | "              |
| 77      | Stern lamp                | 1            | "                                       | 1                      | "    | "                              | 195                                      | "                | "              |
| 78      | Bus circuit               | 1            | "                                       | 1                      | "    | .5                             | 15                                       | "                | "              |
| 79      | Searchlight               | 1            | "                                       | 1                      | "    | 2.2                            | 90                                       | "                | "              |
| 80      | " " socket                | 1            | .00466                                  | 168                    | .006 | 2.2                            | 20                                       | "                | T.F.C.         |
| 81      | Compass light             | 1            | .00171                                  | 61                     | "    | .1                             | 5  | "                | "              |
| 82      | Heaters                   | 2            | .00181                                  | 1                      | .048 | 2                              | 110                                      | "                | L.A.W.         |
| 19      | Battery for W.L.T.        | 2            | .00701                                  | 7                      | .036 | 19                             | 40                                       | "                | D.C.W.         |
| 20      | 1.5 HP motor for W.L.T.   | 3            | .00181                                  | 1                      | .048 | 8.5                            | 40                                       | "                | "              |
|         |                           |              | .00701                                  | 7                      | .036 |                                | 80                                       | "                | "              |
| 21      | 1 KVA generator for WLT   | 3            | "                                       | "                      | "    | 10                             | "  | "                | "              |
| 22      | 1/2 HP motor for W.L.T.   | 3            | "                                       | "                      | "    | 19                             | "  | "                | "              |
| 23      | 1/2 KVA generator for WLT | 3            | .00181                                  | 1                      | .048 | 2.5                            | 120                                      | "                | "              |
| 2       | To switchboard for WLT    | 2            | .00701                                  | 7                      | .036 | 8.5                            | 200                                      | "                | "              |

L.A.W. - Lead covered & steel armoured wire.  
T.F.C. - Twin Flexible cord.  
L.C.W. - Lead covered wire.

Insulation of Cables, state type of cables, single or twin Both are the cables insulated and protected as per Tables III or IV of the Rules Yes  
Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load 5.6 volts for lighting. 5.7 volts for power.  
Cable Sockets and other connections, are the ends of all cables having a sectional area of .0032 square inch and above provided with soldering sockets Yes.

Paper Insulated Cables. If cables are paper covered, is the dielectric at the exposed ends of the conductor protected from moisture by being suitably sealed with insulating compound /

Cable Runs, are the cables fixed as far as possible in accessible positions not exposed to drip or accumulation of water or oil, or to high temperature from boilers, steam pipes, uptakes or other hot objects, or to avoidable risk of mechanical damage Yes

Support and Protection of Cables, state how the cables are supported and protected Clamped to metal brackets or perforated steel plates by metal clips and protected by steel armour.

If cables are run in wood casings, are the casings and caps secured by screws Yes, are the cap screws of brass Yes, are the cables run in separate grooves / If armoured and lead covered cables are secured by metal clips, are the clips spaced as per Table VI Yes

Refrigerated Chambers, if lights are fitted, are the cables and fittings in accordance with the special requirements No lights fitted.

Joints in Cables, state if any, and how made, insulated, and protected Junction boxes, insulated by mica-protected by metal box cover.

Watertight Glands and Deck Tubes, are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands Yes

Bushes in Beams and Non-watertight Positions, where unarmoured cables pass through beams and non-watertight partitions, are the holes efficiently bushed Yes state the material of which the bushes are made Sheet lead.

Earthing Connections, state what earthing connections are fitted and their respective sectional areas Three are no earth connections except for wireless telegraph, sectional area of which 0.00715 square inch.

, are their connections made as per Rule Yes

Alternative Lighting, are the groups of lights in the propelling machinery space arranged as per Rule Yes

Auxiliary Power Supply, state position and method of control of the emergency supply and how the generator is driven Bottom platform starboard side of engine room, - 4 KW generator driven by Hot bulb.oil engine.

Navigation Lamps, are these separately wired Yes, controlled by separate switch and separate fuses Yes

are the fuses double pole Yes, are the switches and fuses grouped in a position accessible only to the officers on watch Yes

has each navigation lamp an automatic indicator as per Rule Yes, are separate screens provided for the use of oil and electric side lights Yes

are separate oil lanterns provided for the mast head lights and side lights Yes

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

are any fittings placed in spaces in which goods are liable to be stacked in close proximity to them; if so, how are they protected Yes- strong metal guards.

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected /

, how are the cables led

where are the controlling switches situated /

Searchlight Lamps, No. of 1, whether fixed or portable Portable, are their fittings as per Rule Yes

Arc Lamps, other than searchlight lamps, No. of /, are their live parts insulated from the frame or case /, are their fittings as per Rule /

Motors, are their working parts readily accessible Yes, are the coils self-contained and readily removable for replacement Yes

are the brushes, brush holders, terminals and lubricating arrangements as per Rule Yes, are the motors placed in well-ventilated compartments in which inflammable gases cannot accumulate and clear of all inflammable material Yes

are they protected from mechanical injury and damage from water, steam or oil Yes, are their axis of rotation fore and aft Yes

if situated near unprotected woodwork or other combustible material, are the motors of the totally enclosed, pipe ventilated, forced draught, drip or flame proof type Totally enclosed, if not of this type, state distance of the combustible material horizontally or vertically above the motors / and /

Control Gear and Resistances, are the generator field and motor speed regulators, starters and controllers constructed as per Rule Yes

Lightning Conductors, where lightning conductors are required, are these fitted as per Rule /

Ships carrying Oil having a Flash Point less than 150° F. Have the special requirements of the Rules been complied with regarding switches, joint boxes, section and distribution boards, protection of cables, method of distribution, lead of cables, lights and fittings /

If portable lamps for use in dangerous spaces are supplied, are they of a type approved by the Home Office /

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All Conductors are of annealed copper conforming to British Standard Specification No. 7.  
 The Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.  
 The foregoing is a correct description.

NAGASAKI WORKS, MITSUBISHI ZEN KAISHA, LTD.

*[Signature]*  
 GENERAL MANAGER.

Electrical Engineers.

Date 29/3/27

COMPASSES.

Distance between electric generators or motors and standard compass 20 feet from standard compass. (fan motor)

Distance between electric generators or motors and steering compass 16 feet from steering compass. ( " )

The nearest cables to the compasses are as follows:—

A cable carrying 0.1 Ampères 1 feet from standard compass 1 feet from steering compass. (for compass lamp)

A cable carrying / Ampères / feet from standard compass / feet from steering compass.

A cable carrying / Ampères / feet from standard compass / feet from steering compass.

Have the compasses been adjusted with and without the electric installation at work at full power. Yes

Has the effect of switching on and off circuits, motors and other electro-magnetic apparatus within the vicinity of the compasses been noted. Yes

The maximum deviation due to electric currents was found to be Nil degrees on All courses course in the case of the standard

compass, and / degrees on / course in the case of the steering compass.

NAGASAKI WORKS, MITSUBISHI ZEN KAISHA, LTD.

*[Signature]*  
 GENERAL MANAGER.

Builder's Signature.

Date 29/3/27

Is this installation a duplicate of a previous case No. / If so, state name of vessel /

General Remarks (State quality of workmanship, opinions as to class, &c.)

The materials and workmanship are good and the installation has been fitted in accordance with the Rules, tested under full working conditions and found satisfactory.  
 Plans sent under separate cover of:- "Load Distribution Diagram" & "Connection Diagram on Main Switchboard".

It is submitted that  
 this vessel is eligible for  
 THE RECORD. Elec. light.

*[Signature]*  
 31/4/27

Total Capacity of Generators 244. Kilowatts

|                                |          |   |                   |              |
|--------------------------------|----------|---|-------------------|--------------|
| The amount of Fee ... ..       | £ 376:00 | : | When applied for, | 2. 3. 1927   |
| Travelling Expenses (if any) £ | :        | : | When received,    | 10. 3. 1927. |

*[Signature]*  
 George Anderson  
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 22 APR 1927

Assigned

*[Signature]*  
 Elec Light

10, 924.—Transfer.  
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)



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