



REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 302

Port of Nagasaki Date of First Survey 21. 12. 03. Date of Last Survey 24. 2. 04 No. of Visits 12.
 No. in Reg. Book W on the Iron or Steel S. S. "Ceylon Maru" Port belonging to Tokio.
 Built at Nagasaki By whom Nissei Bishi D.E. Works. When built 1904
 Owners Kippon Yusen Kaisha. Owners' Address Tokio.
 Yard No. 152. Electric Light Installation fitted by Nissei Bishi D.E. Works. When fitted 1904.

DESCRIPTION OF DYNAMO, ENGINE, ETC.

One 15 Kw Compound wound six pole direct current dynamo, mounted on the same bed plate as, and coupled direct to a vertical single cylinder engine.
 Capacity of Dynamo 136 Amperes at 110 Volts, whether continuous or alternating current Continuous
 Where is Dynamo fixed In the steam steering engine room, after the engine room, on upper deck
 Position of Main Switch Board In the steering engine room, starboard passage, on bulkhead near the dynamo having switches to groups 25 to 67 of lights, &c., as below
 Positions of auxiliary switch boards and numbers of switches on each Chart room, 1st class pantry, after bulkhead of 1st class pantry, port and starboard amidship passages to engine room, forecabin lamp room & port passage, forecabin passage near entrance port, engine room aft bulkhead on upper platform, engine room casing, middle platform port.
 If cut outs are fitted on main switch board to the cables of main circuit Yes and on each auxiliary switch board to the cables of auxiliary circuits Yes and at each position where a cable is branched or reduced in size Yes, excepting extension for from which two to three lamp circuits run. and to each lamp circuit no
 If cessel is wired on the double wire system are cut outs fitted to both flow and return wires or cables of all circuits including lamp circuits
 Are the cut outs of non-oxidizable metal Yes and constructed to fuse at an excess of not more than 50 per cent over the normal current
 Are all cut outs fitted in easily accessible positions Yes Are the fuses of standard dimensions no If wire fuses are used are permanent instructions fitted on or near each switch board giving particulars of proper size of fuse for each circuit Yes, on the cover of each board.
 Are all switches and cut-outs constructed of incombustible materials and fitted on incombustible bases Yes
 Total number of lights provided for 173 arranged in the following groups:—
 A Bore circuit 12 lights each of 16cp 9-32cp 4-50 candle power requiring a total current of 21.597 Amperes
 B Amidship circuit 29 lights each of 16cp 10- " 9- " candle power requiring a total current of 39.192 Amperes
 C After circuit 20 lights each of 16cp 9- " 4- " candle power requiring a total current of 25.651 Amperes
 D Engine Room circuit 60 lights each of 16cp 3- " 4- " candle power requiring a total current of 39.861 Amperes
 E lights each of candle power requiring a total current of Amperes
Two Mast head light with double filament lamps each of 32 candle power requiring a total current of 2.03 Amperes
Two Side light with double filament lamps each of 32 candle power requiring a total current of 2.03 Amperes
5 Cargo lights of 200 candle power, whether incandescent or are lights incandescent
 If are lights, what protection is provided against fire, sparks, &c. no arc lamp.
 Where are the switches controlling the masthead and side lights placed in chart room

DESCRIPTION OF CABLES.

Main cable carrying	<u>126.301</u> Amperes, comprised of	<u>37</u> wires, each	<u>15</u>	L.S.G. diameter	<u>0.14890</u> square inches total sectional area
Branch cables carrying	<u>35.97</u> <u>247.45</u> Amperes, comprised of	<u>19</u> wires, each	<u>16</u>	L.S.G. diameter	<u>0.06829</u> <u>0.03399</u> square inches total sectional area
Branch cables carrying	<u>15.9</u> <u>8.33</u> Amperes, comprised of	<u>7</u> wires, each	<u>18</u>	L.S.G. diameter	<u>0.02227</u> <u>0.01254</u> square inches total sectional area
Leads to lamps carrying	<u>6.125</u> <u>2.03</u> Amperes, comprised of	<u>7</u> wires, each	<u>20</u>	L.S.G. diameter	<u>0.00705</u> <u>0.003217</u> square inches total sectional area
Cargo light cables carrying	<u>6.125</u> Amperes, comprised of	<u>112</u> wires, each	<u>30</u>	L.S.G. diameter	<u>0.01344</u> square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

The whole cables & wires used in the installation are covered with pure & vulcanized india rubber, india rubber coated tape, the whole vulcanized regular braided cotton & the preservative compound. The cables which are liable to be exposed to moisture or mechanical injury are protected with enamelled steel pipes & which are liable to heat are armoured with galv. iron wires & fastened to bulkhead or deck with clips and screws.
 Joints in cables, how made, insulated, and protected All joints are made in brass terminal pieces fitted in extension boxes, distributing boards and submain boards. Very few joints of 16 wires are made in wood casings, being thoroughly soldered & covered with india rubber tape & india rubber coated tape.
 Are all the joints of cables thoroughly soldered, resin only having been used as a flux Yes Are all joints in accessible positions, none being made in bunkers, cargo spaces, or spaces which may at any time be used for carrying cargo, stores, or baggage few extension boxes are placed and guarded with cast iron covers in these cases.
 Are there any joints in or branches from the cable leading from dynamo to main switch board no.
 How are the cables led through the ship, and how protected By multiple board double wired system & they are protected with wooden casings, steel pipes, galv. iron wire or lead armoring.



DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.

Are they in places always accessible *Yes, excepting those in steel pipe carried through*

What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture *protected by galvanized iron pipes*

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *galvanized iron wire armouring*

What special protection has been provided for the cables near boiler casings *galv iron wire armouring*

What special protection has been provided for the cables in engine room *carried in galv iron piping or armoured with galv iron wires*

How are cables carried through beams *through teak ferrules driven in the holes* through bulkheads, &c. *through water tight stuffing boxes*

How are cables carried through decks *through iron deck tubes lined with wood*

Are any cables run through coal bunkers *yes* or cargo spaces *yes* or spaces which may be used for carrying cargo, stores, or baggage *yes*

If so, how are they protected *by encasing in galvanized iron pipes*

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage *yes*

If so, how are the lamp fittings and cable terminals specially protected *with strong cast iron shutters*

Where are the main switches and cut outs for these lights fitted *near distributing boards in fore-castle, 1st class pantry & poop.*

If in the spaces, how are they specially protected *no switch in space*

Are any switches or cut outs fitted in bunkers *no*

Cargo light cables, whether portable or permanently fixed *portable* How fixed *with fibre connectors & forks*

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel *---*

How are the returns from the lamps connected to the hull *---*

Are all the joints with the hull in accessible positions *---*

VESSELS BUILT FOR CARRYING PETROLEUM.

In vessels built for carrying petroleum, are all switches and cut-outs fitted in positions not liable to the accumulation of petroleum vapour or gas *---*

Are any switches, cut outs, or joints of cables fitted in the pump room or companion *---*

How are the lamps specially protected in places liable to the accumulation of vapour or gas *---*

The installation is *---* supplied with a voltmeter and *---* an amperemeter, fixed *---*

The copper used is guaranteed to have a conductivity of *100* per cent. that of pure copper.

Insulation of cables is guaranteed to have a resistance of not less than *600* megohms per statute mile after 24 hours' immersion in seawater.

The foregoing statements are a correct description of the Electric Light installation fitted by us on this vessel and we declare that it is at this date in good order and safe working condition.

A. Samada Electrical Engineers Date *1st-3-04*

COMPASSES.

Distance between dynamo or electric motors and standard compass *115 ft.*

Distance between dynamo or electric motors and steering compass *111 ft.*

The nearest cables to the compasses are as follows:—

A cable carrying <i>0.5-1</i> Amperes	<i>One</i> feet from standard compass	<i>3</i> feet from steering compass
A cable carrying <i>3.92</i> Amperes	<i>5</i> feet from standard compass	<i>5</i> feet from steering compass
A cable carrying <i>---</i> Amperes	<i>---</i> feet from standard compass	<i>---</i> feet from steering compass

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

The maximum deviation due to electric currents, etc., was found to be *Nil* degrees on *---* course in the case of the standard compass and *---* degrees on *---* course in the case of the steering compass.

H. Maruta For **General Manager.** **MITSU BISHI DOCKYARD & ENGINE WORKS.** Builder's Signature. Date *29th Feb 1904*

GENERAL REMARKS. *This Electric Installation, has been fitted in accordance with the Rules, has been tested under full load and found satisfactory.*

A. C. Heron.

Surveyor to Lloyd's Register of British and Foreign Shipping.

Committee's Minute *It is submitted that this installation appears to be satisfactory.*

H.S.
6.4.04

REPORT FORM No. 17.

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.