

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 603

Port of *Nagasaki* Date of First Survey *30. 3. 08* Date of Last Survey *26. 4. 08* No. of Visits *18*.
 No. in Reg. Book *31* on the Iron or Steel *Turbine S. "Tenyo Maru"* Port belonging to *Tokio*.
 Built at *Nagasaki* By whom *Nitson Bishi & Co. Works* When built *1908*.
 Owners *Tayo Kisen Kaisha* Owners' Address *Tokio*.
 Yard No. *190* Electric Light Installation fitted by *Nitson Bishi Dockyard & Co. Works* When fitted *1908*.

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Two duplicate sets of a compound wound six pole continuous current dynamo mounted on the same bed plate as, and coupled direct to a vertical enclosed compound two crank engine.

Capacity of Dynamo *750* Amperes at *100* Volts, whether continuous or alternating current *continuous*

Where is Dynamo fixed *on starboard platform of engine room top Main Deck.*

Position of Main Switch Board *after of dynamo room* having switches to groups *twenty* of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each *First deck: one on passage of office cabin, one on passage of smoking room, one on bulkhead of smoking room lounge, Promenade deck: 11 on passage of 1st class, 4 on bulkhead of library, Shelter deck: 8 on passage of 1st class, 4 on bulkhead of dining saloon, one on fore crew's entrance, 3 on after 3rd class entrance. Upper deck: 5 on passage of 1st class, 2 on passage of 2nd class, 3 on passage of engine room, 2 on passage of 3rd class, 8 on passage of crew's quarters; Main deck: one on passage of after 3rd class; Engine room: 4 in dynamo room, one on entrance of shaft tunnel; Boiler room: one in fore boiler room, one in after boiler room.*

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* and to each lamp circuit *no* from which branch every five or four lamps.

If vessel 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 *yes* exclusive lamp circuits

Are the cut outs of non-oxidizable metal *yes* and constructed to fuse at an excess of *about 50% and not more than 100%* per cent over the normal current

Are all cut outs fitted in easily accessible positions *yes* Are the fuses of standard dimensions *yes* 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*

Are all switches and cut-outs constructed of incombustible materials and fitted on incombustible bases *yes*

Total number of lights provided for *20* submain circuits arranged in the following groups:—

<i>1</i> Search light	<i>one light each of 16,000 candle power</i>	<i>60.00</i>	<i>Amperes</i>
<i>2</i> Smoking room	<i>lights each of 25</i>	<i>44.80</i>	<i>Amperes</i>
<i>3</i> Promenade deck	<i>lights each of 25</i>	<i>32.76</i>	<i>Amperes</i>
<i>4</i> 1st class	<i>lights each of 25</i>	<i>40.00</i>	<i>Amperes</i>
<i>5</i> Upper deck	<i>lights each of 25</i>	<i>70.00</i>	<i>Amperes</i>
<i>6</i> Main deck	<i>lights each of 25</i>	<i>27.50</i>	<i>Amperes</i>
<i>7</i> Engine room	<i>lights each of 25</i>	<i>90.40</i>	<i>Amperes</i>
<i>8</i> Boiler room	<i>lights each of 25</i>	<i>123.00</i>	<i>Amperes</i>
<i>9</i> Fore crew's entrance	<i>lights each of 25</i>	<i>112.00</i>	<i>Amperes</i>
<i>10</i> After 3rd class entrance	<i>lights each of 25</i>	<i>236.00</i>	<i>Amperes</i>
<i>11</i> Crew's quarters	<i>lights each of 25</i>	<i>70.00</i>	<i>Amperes</i>
<i>12</i> After 3rd class	<i>lights each of 25</i>	<i>112.00</i>	<i>Amperes</i>
<i>13</i> Cargo lights	<i>lights each of 25</i>	<i>32</i>	<i>Amperes</i>
<i>14</i> Mast head light	<i>one double filament</i>	<i>112</i>	<i>Amperes</i>
<i>15</i> Side light	<i>one double filament</i>	<i>112</i>	<i>Amperes</i>
<i>16</i> Cargo lights	<i>lights each of 25</i>	<i>32</i>	<i>Amperes</i>
<i>17</i> Mast head light	<i>one double filament</i>	<i>112</i>	<i>Amperes</i>
<i>18</i> Side light	<i>one double filament</i>	<i>112</i>	<i>Amperes</i>
<i>19</i> Cargo lights	<i>lights each of 25</i>	<i>32</i>	<i>Amperes</i>
<i>20</i> Mast head light	<i>one double filament</i>	<i>112</i>	<i>Amperes</i>
<i>21</i> Side light	<i>one double filament</i>	<i>112</i>	<i>Amperes</i>
<i>22</i> Cargo lights	<i>lights each of 25</i>	<i>32</i>	<i>Amperes</i>

If are lights, what protection is provided against fire, sparks, &c. *✓*

Where are the switches controlling the masthead and side lights placed *in wheel house on flying bridge deck*

DESCRIPTION OF CABLES.

Main cable carrying *750* Amperes, comprised of *61* wires, each *10* L.S.G. diameter, *.7864* square inches total sectional area
 Branch cables carrying *90.4* Amperes, comprised of *19* wires, each *14* L.S.G. diameter, *.0973* square inches total sectional area
 Branch cables carrying *22.4* Amperes, comprised of *19* wires, each *18* L.S.G. diameter, *.03399* square inches total sectional area
 Leads to lamps carrying *2.4* Amperes, comprised of *1* wires, each *16* L.S.G. diameter, *.0032* square inches total sectional area
 Cargo light cables carrying *7* Amperes, comprised of *7* wires, each *20* L.S.G. diameter, *.00705* square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

The whole of the cable & wires used through out the installation are covered with pure vulcanized india rubber, india rubber coated tape, the whole vulcanized together, braided cotton, and their covered preservative compounds. All cables & wires are carried in galvanized iron pipe except public rooms, 1st & 2nd class state rooms, & senior officers' & engineers' rooms in which wires are protected with lead.
 Joints in cables, how made, insulated, and protected *All joints are made in brass terminal pieces fitted on china or slate bases in submain boards, distributing boards and extension boxes.*

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 *yes* in accessible positions and none in bunkers, but a very few of extension boxes with cast iron covers in cargo space

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 double wired multiple switch board system and they are protected with galvanized iron pipe and few parts of them are protected by lead cover.*

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DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.

Are they in places always accessible *yes*

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

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

What special protection has been provided for the cables near boiler casings *by galvanized iron pipe*

What special protection has been provided for the cables in engine room *by galvanized iron pipe*

How are cables carried through beams *through galv'd iron pipe continuous* through bulkheads, &c. *watertight by flanges and jmm nuts*

How are cables carried through decks *watertight by flanges and jmm nuts*

Are any cables run through coal bunkers *no* or cargo spaces *yes* or spaces which may be used for carrying cargo, stores, or baggage *yes*

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

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

If so, how are the lamp fittings and cable terminals specially protected *lamps are protected by a strong brass guard and extension box with cast iron covers*

Where are the main switches and cut outs for these lights fitted *fitted on entrance in group*

If in the spaces, how are they specially protected *none in the spaces*

Are any switches or cut outs fitted in bunkers *none*

Cargo light cables, whether portable or permanently fixed *portable*

How fixed *with fibre forks and connections in case*

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 *not less than 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. Okadgumi Electrical Engineers

Date *4-5-1908*

COMPASSES.

Distance between dynamo ~~or electric motors~~ and standard compass *214 ft.*

Distance between dynamo ~~or electric motors~~ and steering compass *212 ft.*

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
<i>28</i>	<i>1</i>	<i>9</i>	<i>9</i>
<i>24</i>	<i>6</i>	<i>4</i>	<i>4</i>
<i>448</i>	<i>7</i>	<i>6</i>	<i>6</i>

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

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

I. Maruza General Manager *Mitsui Bussan S.S. Co. Ltd. Yokohama* Builder's Signature. Date *27/5/08*

GENERAL REMARKS.

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

A. C. Heron

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

Committee's Minute

It is submitted that the Record Rec. Light be noted in the Reg. Book

Lloyd's Register Foundation

26.5.08