

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 938

Port of **NAGASAKI** Date of First Survey *6th May* Date of Last Survey *2nd Sept.* No. of Visits *11*
 No. in Reg. Book on the *Iron or Steel* *S. S. Suwa Maru* Port belonging to *Tokio*
 Built at *Nagasaki* By whom *Mitsui Bishi S. S. Works* When built *1914*
 Owners *Nippon Yusen Kaisha* Owners' Address *Tokio*
 Yard No. *236* Electric Light Installation fitted by *Mitsui Bishi Dockyard & Engine Works* When fitted *1914*

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Two sets of a Compound wound continuous current dynamo on the same bed plate with a vertical engine

Capacity of Dynamo *850* Amperes at *100* Volts, whether continuous or alternating current *Continuous*

Where is Dynamo fixed *Port side of tween deck in engine room*

Position of Main Switch Board *after bulkhead of engine room* having switches to groups *131 to 200* of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each *Boat deck 2, Promenade deck 5, Bridge deck 6, Poop deck 2, Upper deck 15, 2nd deck 2, Engine room 3, Boiler room 1*

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*

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*

Are the cut outs of non-oxidizable metal *Yes* and constructed to fuse at an excess of *50* 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 *7 Circuits* arranged in the following groups:—

A	Engine room	lights each of	<i>8cp, 16cp, 25cp, 32cp, 50cp</i>	—	—	candle power requiring a total current of	<i>85.8</i>	Amperes
B	Salon & Social Hall	lights each of	<i>7, 1, 137, 4, 2</i>	—	—	candle power requiring a total current of	<i>48.86</i>	Amperes
C	Bridge & Prom. deck	lights each of	<i>54, 15, 131, —</i>	—	—	candle power requiring a total current of	<i>60.2</i>	Amperes
C'	after		<i>2, 66, 58, —</i>	—	<i>5</i>		<i>62.57</i>	
D	Upper deck	lights each of	<i>33, 37, 63, 2, 44</i>	—	—	candle power requiring a total current of	<i>56.84</i>	Amperes
E	For cargo	lights each of	<i>—, 1, —, 7, 24</i>	—	—	candle power requiring a total current of	<i>60.4</i>	Amperes
F	after cargo		<i>one double —, 2, —, 5, 22</i>	—	—		<i>58.72</i>	
	2 Mast head light with filament lamps each of		<i>32</i>	—	—	candle power requiring a total current of	<i>2.24</i>	Amperes
	2 Side light with " lamps each of		<i>32</i>	—	—	candle power requiring a total current of	<i>2.24</i>	Amperes
	One Morse code flashing lamp		<i>6-5ch</i>	—	—		<i>1.1</i>	
	Twelve Cargo lights of		<i>200</i>	—	—	candle power, whether incandescent or arc lights	<i>Incandescent</i>	
	Four " " "		<i>1200</i>	—	—		<i>arc lamp</i>	

If arc lights, what protection is provided against fire, sparks, &c. *Protected by double globes.*

Where are the switches controlling the masthead and side lights placed *In chart room on boat deck*

DESCRIPTION OF CABLES.

Main cable carrying	<i>850</i> Amperes, comprised of	<i>75x2</i> wires, each	<i>13</i> L.S.G. diameter,	<i>0.9745</i> square inches total sectional area
Branch cables carrying	<i>85.8</i> Amperes, comprised of	<i>19</i> wires, each	<i>16</i> L.S.G. diameter,	<i>0.0624</i> square inches total sectional area
Branch cables carrying	<i>48</i> Amperes, comprised of	<i>19</i> wires, each	<i>18</i> L.S.G. diameter,	<i>0.0351</i> square inches total sectional area
Leads to lamps carrying	<i>56</i> Amperes, comprised of	<i>1</i> wires, each	<i>18</i> L.S.G. diameter,	<i>0.0018</i> square inches total sectional area
Cargo light cables carrying	<i>7</i> Amperes, comprised of	<i>283</i> wires, each	<i>38</i> L.S.G. diameter,	<i>0.00772</i> square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Wires & cables used in the installation of the ship are composed of tinned copper insulated with pure india rubber, vulcanizing india rubber, coated tape, and the whole vulcanized together, then lead covered, or lead covered and armoured with galvanized iron wires.

Joints in cables, how made, insulated, and protected *Joints in cable are made in brass pieces in submain boards, distributing boards, extension boxes, and some joints in cast iron boxes are soldered and insulated with pure india rubber or 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 *Yes, except 7 in extension boxes in cast iron covers in cargo spaces.*

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 *With the double wire distribution system, and cables are protected by lead cover, or galvanized iron wires, or enamelled steel conduits.*

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 *Protected by galvanized iron pipe*

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

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

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

How are cables carried through beams *Through teak ferrules* through bulkheads, &c. *Water tight packing glands.*

How are cables carried through decks *Through galvanized iron deck tube.*

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 enamelled steel conduit or galvanized iron wires.*

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 *By strong cast iron covers.*

Where are the main switches and cut outs for these lights fitted *On upper deck passage*

If in the spaces, how are they specially protected *With water tight cast iron boxes.*

Are any switches or cut outs fitted in bunkers *No.*

Cargo light cables, whether portable or permanently fixed *Portable* How fixed *With fibre fork & fibre connector.*

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 *two* *an* amperemeters fixed on main switchboard

The copper used is guaranteed to have a conductivity of *98* 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.

MITSU BISHI DOCKYARD & ENGINE WORKS.

J. Hirota Electrical Engineers
General Manager.

Date *21st Sept. 1914*

COMPASSES.

Distance between dynamo or electric motors and standard compass *33 ft. from 33 H.P. Boat hoist motor*

Distance between dynamo or electric motors and steering compass *123 ft. from main dynamo*
31 ft. from 33 H.P. Boat hoist motor.

The nearest cables to the compasses are as follows:—

Cable	Amperes	feet from standard compass	feet from steering compass
A cable carrying <i>15</i>	<i>10</i>	<i>8</i>	<i>8</i>
A cable carrying <i>28</i>	<i>1</i>	<i>1</i>	<i>1</i>
A cable carrying <i>✓</i>	<i>✓</i>	<i>✓</i>	<i>✓</i>

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 *no* degrees on *any* course in the case of the standard compass and *no* degrees on *any* course in the case of the steering compass.

MITSU BISHI DOCKYARD & ENGINE WORKS.

J. Hirota Builder's Signature.
General Manager.

Date *21st Sept. 1914*

GENERAL REMARKS.

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

It is submitted that this vessel is eligible for

THE RECORD. Elec. light.

J. W. L.
28/10/14

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

Committee's Minute *FRI. OCT. 30. 1914*

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.