

# REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 772

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Port of *Nagasaki*No. in  
Reg. Bookon the Iron or Steel *785*Date of First Survey *15. 3. 12*Date of Last Survey *19. 4. 12*No. of Visits *12*Built at *Nagasaki*Port belonging to *Tokyo*Owners *Nippon Yusen Kaisha*By whom *Mitsui Bishi & Co. Ltd.*When built *1912*Yard No. *216*Electric Light Installation fitted by *The Mitsui Bishi & Co. Ltd.*When fitted *1912*

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

One set of a compound wound continuous current dynamo on the same bed plate with a vertical engine.

Capacity of Dynamo *300*

Amperes at

*100*

Volts, whether continuous or alternating current

*Continuous*Where is Dynamo fixed *on the thrust recess after engine room*Position of Main Switch Board *on the bulkhead after dynamo*Positions of auxiliary switch boards and numbers of switches on each *Bridge dk. - one in chart room. Shelter dk. - one in fore star Bd**38 to 106*

of lights, &amp;c., as below

*Bulk head, one in fore star Bd passage, Two in middle star Bd passage, one in after port passage, Upper dk. - Two in fore port passage, Four in middle star Bd storage, Two in after port storage, 2nd dk. - Three in dynamo 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.*

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

Total number of lights provided for *6* circuits

arranged in the following groups:—

A Shelter dk. circuit	lights each of <i>6-5cp 5-8cp 5-32cp</i>	candle power requiring a total current of		
B Upper dk. fore "	lights each of <i>10-16cp 8-1-25cp 1-50cp</i>	candle power requiring a total current of	<i>45.82</i>	Amperes
C " aft "	lights each of <i>1-8cp 9-16cp 7-50cp</i>	candle power requiring a total current of	<i>28.38</i>	Amperes
D Engine room "	lights each of <i>2-8cp 35-16cp 1-50cp</i>	candle power requiring a total current of	<i>38.56</i>	Amperes
E Fore Cargo "	lights each of <i>9-16cp 18-50cp</i>	candle power requiring a total current of	<i>33.04</i>	Amperes
F Aft 2 "	lights each of <i>16-50cp</i>	candle power requiring a total current of	<i>31.5</i>	Amperes
2 Mast head light with <i>one double filament</i> lamps each of	<i>32</i>	candle power requiring a total current of	<i>28.0</i>	Amperes
2 Side light with <i>do.</i> lamps each of	<i>32</i>	candle power requiring a total current of	<i>2.24</i>	Amperes
1 Morse code flashing lamp	<i>6-5cp</i>	candle power requiring a total current of	<i>2.24</i>	Amperes
10 Cargo lights of	<i>200</i>	candle power, whether incandescent or are lights	<i>1.1</i>	Amperes

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

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

## DESCRIPTION OF CABLES.

Main cable carrying <i>300</i> Amperes, comprised of <i>360</i> wires, each	<i>20</i> L.S.G. diameter,	<i>0.35</i> square inches total sectional area
Branch cables carrying <i>45.82</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>4.48</i> Amperes, comprised of <i>7</i> wires, each	<i>20</i> L.S.G. diameter,	<i>0.0072</i> square inches total sectional area
Leads to lamps carrying <i>560</i> Amperes, comprised of <i>213</i> wires, each	<i>16</i> L.S.G. diameter,	<i>0.0032</i> square inches total sectional area
Cargo light cables carrying <i>7.00</i> Amperes, comprised of <i>283</i> wires, each	<i>38</i> L.S.G. diameter,	<i>0.0079</i> square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

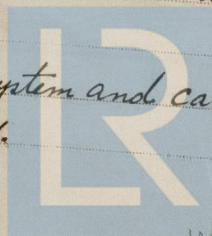
Main wires and cables used in the installation of the ship are composed of tinned copper insulated with pure india rubber, vulcanising india rubber, india rubber coated tape, and the whole vulcanised together, then lead covered, and armoured with galvanised iron wires.

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 *a few in extension boxes in cast iron boxes.*

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 box system and cables are protected by lead cover or galvanised iron pipes or galvanised iron wires.*



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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 *protected by galvanized iron wires or galvanized iron pipes.*

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.*

How are cables carried through beams *through teak ferrules* through bulkheads, &c. *through galvanized iron pipes.*

How are cables carried through decks *through galvanized iron deck tubes.*

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 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 *lamps are protected by strong cast iron cover.*

Where are the main switches and cut outs for these lights fitted *on the fore bulk head of shelter deck.*

If in the spaces, how are they specially protected *protected by 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 and 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 *yes* supplied with a voltmeter and *yes* an amperemeter, fixed *on main S. Board.*

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.

*[Signature]*

Electrical Engineers

Date *April 18-1912*

**COMPASSES.**

Distance between dynamo or electric motors and standard compass *107 feet*

Distance between dynamo or electric motors and steering compass *102 feet*

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
<i>4.48</i>		<i>8</i>	<i>6</i>
<i>28</i>		<i>1</i>	<i>1</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 *Nil* ✓ degrees on ✓ course in the case of the standard compass and *Nil* ✓ course in the case of the steering compass.

*MITSUBISHI DOCKYARD & ENGINE WORKS*

Builder's Signature.

Date *18th April 1912.*

**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 REDUCTION Elec. light.* *J.W.D. 11/6/12*

*A.C. Heron*

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

Committee's Minute. *TUE. JUN 11. 1912*