

# REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 994

Port of *Yokohama* Date of First Survey *30<sup>th</sup> March* Date of Last Survey *30<sup>th</sup> June 1915* No. of Visits *8*  
 No. in Reg. Book on the ~~Iron or Steel~~ *s.s. Toyama Maru* Port belonging to *Tokio*  
 Built at *Nagasaki* By whom *Mitsui Bishi Dockyard & Engine Works* When built *1915*  
 Owners *Nippon Yusen Kaisha* Owners' Address *Tokio*  
 No. *243* Electric Light Installation fitted by *Mitsui Bishi Dockyard & Engine Works* When fitted *1915*

## 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 *150* Amperes at *100* Volts, whether continuous or alternating current *Continuous*  
 Where is Dynamo fixed *In thrust recess in engine room.*  
 Position of Main Switch Board *On bulkhead aft of dynamo having switches to groups 31 to 72* of lights, &c., as below  
 Positions of auxiliary switch boards and numbers of switches on each *Two in fore part and three in after part of Bridge deck, two in fore part, two in middle, and two in after part of upper deck, two in engine room, and one in Boiler room.*  
 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.*  
 Are all cut outs fitted in easily accessible positions *Yes* Are the fuses of standard dimensions *Yes* If wire fuses are used  
 Are there 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 *4 Circuits* arranged in the following groups :-  
*6 ch. 8 ch. 16 ch. 25 ch. 32 ch. are*

Location	Lights	Candle Power	Total Current (Amperes)
Bridge deck circuit	lights each of 6 4 7 56 8	56	30.94
Fore "	lights each of - 1 18 - 12	18	28.8
After "	lights each of - 1 30 - 12	30	35.52
Engine room "	lights each of - - 58 - -	58	31.92
Mast head lights with filament lamps each of 32	32	32	1.12
One Morse code flashing lamp 6 @ 6 ch.	6	6	1.26
Two Side lights with do. lamps each of 32	32	32	1.12
Seven Cargo lights of 4 @ 32	4	32	12.00

Are all lights, what protection is provided against fire, sparks, &c. *Protected by double globe*

Where are the switches controlling the masthead and side lights placed *In chart room on pilot bridge.*

## DESCRIPTION OF CABLES.

Current Carrying Capacity	Wires	Diameter (L.S.G.)	Total Sectional Area
Main cable carrying <i>150</i> Amperes	37 wires, each 15	0.1524	square inches
Branch cables carrying <i>35.52</i> Amperes	19 wires, each 17	0.0275	square inches
Branch cables carrying <i>28.8</i> Amperes	19 wires, each 18	0.0357	square inches
Leads to lamps carrying <i>56</i> Amperes	1 wires, each 18	0.0078	square inches
Cargo light cables carrying <i>4.48</i> Amperes	383 wires, each 38	0.00792	square inches

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

Wires and cables 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 fitted on porcelain beads, in submain boards & distributing boards, in teak case or extension boxes, and some joints in cast iron box 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 3 in extension box in cast iron covers in the 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 pipes, or galvanized iron wire armouring.

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 galvanized iron pipes.

How are cables carried through beams Through teak furlies through bulkheads, &c. water tight packing gland.

How are cables carried through decks 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 wire armouring, or enamelled steel conduits.

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 covers.

Where are the main switches and cut outs for these lights fitted On bridge deck passage.

If in the spaces, how are they specially protected In teak case.

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 \_\_\_\_\_ an amperemeter, fixed on Switch board

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

*[Signature]*  
General Manager

Electrical Engineers

Date \_\_\_\_\_

**COMPASSES.**

Distance between dynamo or electric motors and standard compass 140 feet from dynamo.

Distance between dynamo or electric motors and steering compass 130 feet from dynamo.

The nearest cables to the compasses are as follows:—

A cable carrying	<u>4.5</u>	Amperes	<u>8</u>	feet from standard compass	<u>7</u>	feet from steering compass
A cable carrying	<input checked="" type="checkbox"/>	Amperes	<input checked="" type="checkbox"/>	feet from standard compass	<input checked="" type="checkbox"/>	feet from steering compass
A cable carrying	<input checked="" type="checkbox"/>	Amperes	<input checked="" type="checkbox"/>	feet from standard compass	<input checked="" type="checkbox"/>	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 any course in the case of the standard compass and nil degrees on any course in the case of the steering compass.

MITSU BISHI DOCKYARD & ENGINE WORKS

*[Signature]*  
General Manager

Builder's Signature.

Date \_\_\_\_\_

**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.

a.s. Williamson

*[Signature]*  
J.W.D. 13/9/15

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

Committee's Minute TUE. III. 13 1915

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

REPORT FORM No. 13.

MACHINERY CERTIFICATE  
BOTTEN



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