

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 1086.

Port of **NAGASAKI**, Date of First Survey *19th Aug*, Date of Last Survey *16th Sept. 1916* No. of Visits *4*
 No. in Reg. Book on the *Iron or Steel* *s. s. 'Tsuayama Maru'* Port belonging to *Tokio*
 Built at *Nagasaki* By whom *Mitsubishi S. S. Works* When built *1916*
 Owners *Nippon Yusen Kaisha* Owners' Address *Tokio*
 Yard No. *257* Electric Light Installation fitted by *Mitsubishi S. S. Works* When fitted *1916*

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 chest recess in engine room.*

Position of Main Switch Board *On bulkhead aft of dynamo* having switches to groups *29 to 74* 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 three in after part of upper deck; three in engine room; one in 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*.

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 *4 Circuits* arranged in the following groups:—

Group	Description	Lights	Candle Power	Total Current	Amperes
A	Bridge deck	lights each of 4, 16, 43, 11	—	—	36
B	Fore	lights each of 1, 13, —, 14, 1	—	—	29
C	after	lights each of 1, 23, 2, 14, 1	—	—	36
D	Engine room	lights each of —, 66, 2, —, —	—	—	41
E	Mast head	lights each of —, —, —, —, —	—	—	1.12
	Side lights	lights each of —, —, —, —, —	—	—	1.12
	Morse code signal lamp	lights each of —, —, —, —, —	—	—	1.26
	Cargo lights	lights each of —, —, —, —, —	—	—	—

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

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

DESCRIPTION OF CABLES.

Cable Type	Amperes	Wires	Diameter	Total Sectional Area
Main cable carrying	150	37	0.1906 L.S.G.	square inches
Branch cables carrying	41	19	0.0351 L.S.G.	square inches
Branch cables carrying	30	19	0.0351 L.S.G.	square inches
Leads to lamps carrying	56	1	0.0018 L.S.G.	square inches
Cargo light cables carrying	4.48	168	0.005 L.S.G.	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 cables are made in brass pieces fitted on porcelain bases in a main board + distributing board in tank case or extension boxes, and some joints in cast iron box are soldered and insulated with pure rubber or 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 cover in the 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 *With the double wire distribution system, and cables are protected by lead cover, galvanized iron wire armoring, or galvanized iron pipe*

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 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 *Galvanized iron wires or galvanized iron pipes.*

What special protection has been provided for the cables in engine room *Galvanized iron wires or galvanized iron pipes*

How are cables carried through beams *Through teak bulk.* 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 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 *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 of fibre connection*

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~~ 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.

MITSUBISHI DOCKYARD & ENGINE WORKS.

[Signature]
General Manager.

Electrical Engineers

Date *4th Oct. 1916.*

COMPASSES.

Distance between dynamo or electric motors and standard compass *85 feet from wireless motor generator, 122 feet from dynamo.*

Distance between dynamo or electric motors and steering compass *98 feet from wireless motor generator, 136 feet from dynamo.*

The nearest cables to the compasses are as follows:—

A cable carrying <i>5.6</i> Amperes	<i>10</i> feet from standard compass	<i>8</i> feet from steering compass
A cable carrying _____ Amperes	_____ feet from standard compass	_____ feet from steering compass
A cable carrying _____ Amperes	_____ feet from standard compass	_____ 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.

MITSUBISHI DOCKYARD & ENGINE WORKS.

[Signature]
General Manager.

Builder's Signature.

Date *4th Oct. 1916*

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 BROOD. Elec. light.

[Signature]
14/11/16

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

Committee's Minute *FRI. 3—NOV. 1916*



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11. 1. 1916

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