

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 1069.

Port of **NAGASAKI.** Date of First Survey *29th March* Date of Last Survey *3rd June* No. of Visits *5.*
 No. in Reg. Book on the ~~Iron or Steel~~ *Twin s.s. Touraga Maru* Port belonging to *Tokio*
 Built at *Nagasaki* By whom *Mitsubishi Dockyard & Engine Works* When built *1916*
 Owners *Nippon Yusen Kaisha* Owners' Address *Tokio*
 Yard No. *250* Electric Light Installation fitted by *Mitsubishi Dockyard & Engine 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 vcr

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 76* 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 one 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:—

| | | | | | | | |
|---|--|----------------|--------------------|---|--|---------------------|---------|
| A | Bridge deck Circuit | lights each of | <i>4 16 43 13</i> | — | candle power requiring a total current of | <i>37</i> | Amperes |
| B | Fore " | lights each of | <i>1 13</i> | — | candle power requiring a total current of | <i>30</i> | Amperes |
| C | After " | lights each of | <i>1 23 2 16 1</i> | — | candle power requiring a total current of | <i>37</i> | Amperes |
| D | Engine room " | lights each of | <i>— 66 2</i> | — | candle power requiring a total current of | <i>41</i> | Amperes |
| E | | lights each of | | | candle power requiring a total current of | <i>112</i> | Amperes |
| | <i>Two Mast head lights with ^{one double} filament lamps</i> | each of | <i>32</i> | | candle power requiring a total current of | <i>1.12</i> | Amperes |
| | <i>Two Side lights with ^{one Morse code signal lamp} 6 e 6 c.p.</i> | lamps each of | <i>32</i> | | candle power requiring a total current of | <i>1.12</i> | Amperes |
| | <i>Seven Cargo lights of ^{Two} 4 e 32</i> | | <i>1200</i> | | candle power, whether incandescent or arc lights | <i>Incandescent</i> | |

If arc 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.

| | | | | | | | |
|-----------------------------|-------------|-----------------------|------------|-------------|-----------|--------------------------------|------------------------------------|
| Main cable carrying | <i>150</i> | Amperes, comprised of | <i>37</i> | wires, each | <i>14</i> | L.S.G. diameter, <i>0.1906</i> | square inches total sectional area |
| Branch cables carrying | <i>41</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 |
| Branch cables carrying | <i>30</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>4.48</i> | Amperes, comprised of | <i>168</i> | wires, each | <i>38</i> | L.S.G. diameter, <i>0.0005</i> | square inches total sectional area |

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 & armoured with galvanized iron wire.

Joints in cables, how made, insulated, and protected *Joints in cable are made in brass pieces fitted on porcelain bases in submain board & distributing board in teak case or extension boxes, and some joints in cast iron boxes 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 cargo space 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, or 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 armoring.*

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

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 lead bush* through bulkheads, &c. *Watertight 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 armoring, 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 *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 tank 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 *two* ~~an~~ *amperemeters* 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

General Manager

Electrical Engineers

Date *22nd June 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>5.61</i> | Ampères | <i>10</i> | feet from standard compass | <i>8</i> | feet from steering compass |
| A cable carrying | | Ampères | | feet from standard compass | | feet from steering compass |
| A cable carrying | | Ampères | | 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

General Manager

Builder's Signature.

Date *22nd June 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 RECORD Elec. light.

19/7/16

a. J. Williamson

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

Committee's Minute *FRI 21 JUL 1916*

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.