



REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 302.

Port of *Nagasaki* Date of First Survey *21. 12. 03.* Date of Last Survey *24. 2. 04* No. of Visits *12.*
 No. in *on the Iron or Steel* *S. S. "Ceylon Maru"* Port belonging to *Tokio.*
 Reg. Book *Built at* *Nagasaki* By whom *Nilsen Bishi D.E. Works.* When built *1904*
 Owners *Kippon Yusen Kaisha.* Owners' Address *Tokio.*
 Yard No. *152.* Electric Light Installation fitted by *Nilsen Bishi D.E. Works.* When fitted *1904.*

DESCRIPTION OF DYNAMO, ENGINE, ETC.

One *15 Kw Compound wound six pole direct current dynamo, mounted on the same bed plate as, and coupled direct to a vertical single cylinder engine.*

Capacity of Dynamo *136* Amperes at *110* Volts, whether continuous or alternating current *Continuous*

Where is Dynamo fixed *In the steam steering engine room, after the engine room, on upper deck*

Position of Main Switch Board *In the steering engine room, starboard passage, on bulkhead near the dynamo* having switches to groups *25 to 67* of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each *Chart room; 1st class pantry; after bulkhead of 1st class pantry; port and starboard amidship passages to engine room; forecabin lamp room & port passage; forecabin passage near entrance port; engine room aft bulkhead on upper platform; engine room casing middle platform port.*

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, excepting extension for from which two to three lamp circuits run.* 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

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 *no* 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, on the cover of each board.*

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

Total number of lights provided for *173* arranged in the following groups:—

A *Bore circuit* *12* lights each of *16cp 9-32cp 4-50* candle power requiring a total current of *21.597* Amperes

B *Amidship circuit* *29* lights each of *16cp 10- " 9- " 4- " 50* candle power requiring a total current of *39.192* Amperes

C *After circuit* *20* lights each of *16cp 9- " 4- " 50* candle power requiring a total current of *25.651* Amperes

D *Engine Room circuit* *60* lights each of *16cp 3- " 4- " 50* candle power requiring a total current of *39.861* Amperes

E lights each of candle power requiring a total current of Amperes

Two Mast head light with *double filament* lamps each of *32* candle power requiring a total current of *2.03* Amperes

Two Side light with *double filament* lamps each of *32* candle power requiring a total current of *2.03* Amperes

5 Cargo lights of *200* candle power, whether incandescent or are lights *incandescent*

If are lights, what protection is provided against fire, sparks, &c. *no arc lamp.*

Where are the switches controlling the masthead and side lights placed *in chart room*

DESCRIPTION OF CABLES.

Main cable carrying *126.301* Amperes, comprised of *37* wires, each *15* L.S.G. diameter, *0.14890* square inches total sectional area

35.77 Amperes, comprised of *19* wires, each *16* L.S.G. diameter, *0.06829* square inches total sectional area

Branch cables carrying *247.45* Amperes, comprised of *19* wires, each *18* L.S.G. diameter, *0.03399* square inches total sectional area

15.9 Amperes, comprised of *7* wires, each *16* L.S.G. diameter, *0.02227* square inches total sectional area

Branch cables carrying *8.33* Amperes, comprised of *7* wires, each *18* L.S.G. diameter, *0.01254* square inches total sectional area

Leads to lamps carrying *2.03* Amperes, comprised of *7* wires, each *20* L.S.G. diameter, *0.00705* square inches total sectional area

Cargo light cables carrying *6.125* Amperes, comprised of *112* wires, each *30* L.S.G. diameter, *0.01344* square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

The whole cables & wires used in the installation are covered with pure & vulcanized india rubber, india rubber coated tape, the whole vulcanized together, braided cotton & the preservative compound. The cables which are liable to be exposed to moisture or mechanical injury are protected with enamelled steel pipes & which are liable to heat are armoured with galv. iron wires & fastened to bulkhead or deck with clips and screws.

Joints in cables, how made, insulated, and protected *All joints are made in brass terminal pieces fitted in extension boxes, distributing boards and submain boards. Very few joints of 16 wires are made in wood casings, being thoroughly soldered & covered with india rubber tape & 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 *few extension boxes are placed and guarded with caution covers in these cases.*

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 *By multiple board double wired system & they are protected with wood casings, steel pipes, galv. iron wire or lead armoring.*

DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.

Are they in places always accessible *Yes, excepting those in steel pipe carried through*
 What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture *protected by galvanized iron pipes*
 What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *galvanized iron wire armouring*
 What special protection has been provided for the cables near boiler casings *galv iron wire armouring*
 What special protection has been provided for the cables in engine room *carried in galv iron piping or armoured with galv iron wires*
 How are cables carried through beams *through teak ferrules driven in the holes* through bulkheads, &c. *through water tight stuffing boxes*
 How are cables carried through decks *through iron deck tubes lined with wood*
 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 encasing in 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 *with strong cast iron shutters*
 Where are the main switches and cut outs for these lights fitted *near distributing boards in forecabin, 1st class pantry & poop.*
 If in the spaces, how are they specially protected *in switch in space*
 Are any switches or cut outs fitted in bunkers *no*
 Cargo light cables, whether portable or permanently fixed *portable* How fixed *with fibre connectors & forks*
 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 *—*

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.

A. Samada

Electrical Engineers

Date *1st-3-04*

COMPASSES.

Distance between dynamo or electric motors and standard compass *115 ft.*
 Distance between dynamo or electric motors and steering compass *111 ft.*
 The nearest cables to the compasses are as follows:—
 A cable carrying *0.5-1* Amperes *One* feet from standard compass *3* feet from steering compass
 A cable carrying *3.92* Amperes *5* feet from standard compass *5* 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 *—* course in the case of the standard compass and *—* degrees on *—* course in the case of the steering compass.

H. Marston

General Manager.

NISSU BISHI DOCKYARD & ENGINE WORKS.

Builder's Signature.

Date *29th Feb 1904*

GENERAL REMARKS.

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

A. C. Heron.

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

Committee's Minute

It is submitted that this installation appears to be satisfactory.

6.4.04