

## REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 600.

Port of *Nagasaki* Date of First Survey *3.2.10.* Date of Last Survey *21.4.10* No. of Visits *17.*  
 No. in on the Iron or Steel *T.S.S. Panama Maru* Port belonging to *Osaka.*  
 Reg. Book *50 in. S.* Built at *Nagasaki* By whom *Nilsen Bishi S+E. Works* When built *1910*  
 Owners *A. Osaka Shosen Kaisha* Owners' Address *Osaka.*  
 Yard No. *200.* Electric Light Installation fitted by *Nilsen Bishi S+E. Works.* When fitted *1910*

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

*Two sets of a compound wound continuous current dynamo on the same bedplate as, and each coupled direct to a vertical single engine.*

Capacity of Dynamo *100* 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 bulk head after the dynamo having switches to groups 34 to 92 of lights, &c., as below*

Positions of auxiliary switch boards and numbers of switches on each *Bridge deck: 2 in fore port passage, 1 in fore starboard passage, 1 in after passage, Upper deck: 2 in fore passage, 4 in port storage, 2 in starboard storage, 1 in after passage, Engine room: 3 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 except extension boxes* 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-*Fore circuit: 1* lights each of *8 cp, 28-16 cp, 3-32 cp, 2-200* candle power requiring a total current of *29.32* Amperes

B-*Upper deck: 2* lights each of *8 cp, 7-16 cp, 4-32 cp, 12-50* candle power requiring a total current of *67.48* Amperes

C-*Bridge deck: 6* lights each of *8 cp, 6-16 cp, 8-32 cp, 4-50* candle power requiring a total current of *53.48* Amperes

D-*Engine room: 4.5* lights each of *16 cp* candle power requiring a total current of *25.20* Amperes

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

*Two* Mast head light with *one double filament* lamps each of *32* candle power requiring a total current of *1.72* Amperes

*Two* Side light with *one double filament* lamps each of *32* candle power requiring a total current of *1.72* Amperes

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

*2* " " " *1,200* " " " *Are lamp*

If are lights, what protection is provided against fire, sparks, &c. *protected by double globes*

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

## DESCRIPTION OF CABLES.

Main cable carrying *100* Amperes, comprised of *37* wires, each *16* L.S.G. diameter, *.1184* square inches total sectional area

Branch cables carrying *67.48* Amperes, comprised of *19* wires, each *15* L.S.G. diameter, *.0779* square inches total sectional area

Branch cables carrying *5.6* Amperes, comprised of *7* wires, each *20* L.S.G. diameter, *.0070* square inches total sectional area

Leads to lamps carrying *56* Amperes, comprised of *1* wires, each *16* L.S.G. diameter, *.00312* square inches total sectional area

Cargo light cables carrying *7* Amperes, comprised of *283* wires, each *38* L.S.G. diameter, *.0079* square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

*Wires and cables used in the installation of the ship are consisted from the conductors of tinned copper wires, insulated with pure india rubber, then vulcanising india rubber, india rubber coated tape, and the whole vulcanised together, and then braided or protected with lead cover or galvanized iron wires.*  
*Joints in cables, how made, insulated, and protected joints in cables are made in brass pieces in submain boards, distribution boards, extension boxes, and some joints in cast iron box are made by solder, coated with 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 box.*

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 distributing box system and cables are protected by lead cover or galvanized iron pipe or galvanized iron wires.*



**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* ✓  
 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 frames* ✓  
 How are cables carried through decks *through galvanized iron deck tube* ✓  
 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 pipe* ✓  
 Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage *few in 3rd class space which may at times be used for cargo* ✓  
 If so, how are the lamp fittings and cable terminals specially protected *Lamps are protected by strong brass guard for carbon cover* ✓  
 Where are the main switches and cut outs for these lights fitted *in water proof box on engine casing of 3rd class space* ✓  
 If in the spaces, how are they specially protected *protected by strong wood 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 connectors* ✓  
 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 rollmeter 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. C. Heron* Electrical Engineers

Date *27-4-1910*

**COMPASSES.**

Distance between dynamo or electric motors and standard compass *90 ft*  
 Distance between dynamo or electric motors and steering compass *80 ft*  
 The nearest cables to the compasses are as follows:—  
 A cable carrying *4.48* Amperes *5* feet from standard compass *4* feet from steering compass  
 A cable carrying *.28* Amperes *1* feet from standard compass *1* 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 *no* ✓ degrees on *all* ✓ course in the case of the standard compass and *no* ✓ degrees on *all* ✓ course in the case of the steering compass.

**YAMATU BISHI DOCKYARD & ENGINE WORKS,**

Builder's Signature. Date

**GENERAL REMARKS.**

*for General Manager.* 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.* JWD 19/10

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

Committee's Minute *INES. 24 MAY 1910*

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.



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