

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 272

Port of Nagasaki Date of First Survey 10.10.02 Date of Last Survey 3.3.03 No. of Visits 30
 No. in on the Iron or Steel Swm S.S. "Aki Maru" Port belonging to Tokyo
 Reg. Book Built at Nagasaki By whom Mr. Mitau Bishi N.Y.E. Works When built 1903
 Owners Mr. Nippon Yusen Kaisha Owners' Address Tokyo
 Yard No. 142 Electric Light Installation fitted by Mr. Mitau Bishi Dockyard Tokyo When fitted 1903

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Two sets of a compound wound direct current dynamo, mounted on the same bed plate as, and directly coupled to a vertical compound engine

Capacity of Dynamo Each 4400 Amperes at 65 Volts, whether continuous or alternating current Continuous

Where is Dynamo fixed Both in thrust block recess

Position of Main Switch Board Engine room after bulkhead having switches to groups 2 to 76 of lights, &c., as below
on top platform

Positions of auxiliary switch boards and numbers of switches on each Fore castle, lamp room, passages to sailor room & firemen room, Midship, Promenade deck, Wheel house, Bar room, Bridge deck, Port & starboard corners of social hall, Corners of Passage on Port & starboard, Main deck, Corners of all of saloon on Port & starboard, Passages of engineers, Officers cabin, European pantry, Bulkhead of saloon, Poop, 2nd class pantry, Wall of 3rd class pantry, passage of 2nd class stateroom, Engine room, Thrust block recess, Fore & Aft Bulkhead, After hold, on bulkhead. One switch for each board

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, with the exception of extension boxes Yes, with the exception of extension boxes 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 exclusive lamp circuit

Are the cut outs of non-oxidizable metal yes and constructed to fuse at an excess of not more than 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, on the inside of submainboard cover

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

Total number of lights provided for 391 arranged in the following groups:—

A Fore castle	35 lights, each of 26-16cp & 9-50cp	candle power requiring a total current of	46.58 Amperes
A Searchlight	One 2500 Can. Searchlight and one arc lamp	" " " "	75.00
B Fore hold	20 lights, each of 20-50	candle power requiring a total current of	53.80 Amperes
B Poop	57 " " " 51-16cp & 6-50cp	" " " "	60.00
C After hold	16 lights each of 50	candle power requiring a total current of	43.04 Amperes
C Promenade Deck	37 " " " 25-16cp, 4-32cp & 8-50cp	" " " "	49.90
D Midship starboard	73 lights each of 71-16cp & 2-8cp	candle power requiring a total current of	61.92 Amperes
D Midship port	75 " " " 73-16cp & 2-50cp	" " " "	68.16
E Engine Room	76 lights each of 74-16cp & 2-50	candle power requiring a total current of	69.02 Amperes
Fore & Main Mast head lights with	each one special double filament lamps each of 32	candle power requiring a total current of	3.44 Amperes
Both Side lights with	each one special double filament lamps each of 32	candle power requiring a total current of	3.44 Amperes

10 Cargo lights of 50x4=200 candle power, whether incandescent or arc lights Incandescent lamp

If arc lights, what protection is provided against fire, sparks, &c. With Hexagonal lantern

Where are the switches controlling the masthead and side lights placed in wheelhouse on Bridge deck

DESCRIPTION OF CABLES.

Main cable carrying 355.58-171.84 Amperes, comprised of 37 wires, each #12 L.S.G. diameter, 0.3217 square inches total sectional area
 Branch cables carrying 75-61.92 Amperes, comprised of 19 wires, each #15 L.S.G. diameter, 0.0789 square inches total sectional area
53.8- 19 " " " #16 " " " 0.0624
 Branch cables carrying 17.2-15.48 Amperes, comprised of 19 wires, each #20 L.S.G. diameter, 0.0198 square inches total sectional area
13.76-9.46 " " " #18 " " " 0.0128
 Leads to lamps carrying 86.2-38 Amperes, comprised of 7 wires, each #16 L.S.G. diameter, 0.0032 square inches total sectional area
43-0.86 " " " #18 " " " 0.0018
 Cargo light cables carrying 10.76 Amperes, comprised of 112 wires, each #30 L.S.G. diameter, 0.0125 square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

The whole cables & wires used in the installation are covered with pure and vulcanized india rubber, india rubber coated tape the whole vulcanized together, braided cotton & then covered preservative compound. The cables which are liable to be exposed to moisture or mechanical injury are protected with iron casing & which liable to heat are armoured with galvanized 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, submainboards. Few joints of 816 & 18 wires are made in casing, being thoroughly soldered, and covered with india rubber & 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 in accessible positions. None in bunkers but some in cargo spaces &c.

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, and they are protected with wood casings, iron pipes, galv. iron wire & lead armoured

DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.

Are they in places always accessible *Yes, excepting those in iron pipes*

What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture *galvanized iron pipes*

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *Armoured with galvanized iron wires*

What special protection has been provided for the cables near boiler casings *Armoured with gal-iron wires*

What special protection has been provided for the cables in engine room *Carried in gal-iron pipes or armoured with gal-iron wires*

How are cables carried through beams *thru' teak ferrules driven in, but armoured cables without ferrules through bulkheads, &c. thru' watertight stuffing boxes.*

How are cables carried through decks *Through iron deck tubes lined with wood or vulcanized fibre.*

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 *with galvanized iron pipes and strong wood casing in addition.*

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage *None in bunkers, but some in cargo space & baggage room*

If so, how are the lamp fittings and cable terminals specially protected *Lamps with strong cast brass guards, cable terminals with teak blocks.*

Where are the main switches and cut outs for these lights fitted *in watertight switch boxes fixed on fore-bulkhead of saloon and on port alley side of forepeak pantry.*

If in the spaces, how are they specially protected *None in the spaces.*

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 voltmeter and an amperemeter, fixed

The copper used is guaranteed to have a conductivity of *Not less than 98* per cent. that of pure copper.

Insulation of cables is guaranteed to have a resistance of not less than *1,000* 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.

D. Hamade Electrical Engineers Date *9-6-1903*

COMPASSES.

Distance between dynamo or electric motors and standard compass *112 ft 0"*

Distance between dynamo or electric motors and steering compass *106 ft 0"*

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
<i>1.72</i>	<i>5</i>	<i>6</i>	<i>6</i>
<i>6.88</i>	<i>6</i>	<i>5</i>	<i>5</i>
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Have the compasses been adjusted with and without the electric installation at work at full power

The maximum deviation due to electric currents, etc., was found to be degrees on course in the case of the standard compass and degrees on course in the case of the steering compass.

A. Midgastane *asst. Y. Manager.* Builder's Signature. Date *22/6/03*

GENERAL REMARKS.

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

Committee's Minute *It is submitted that Elec. light be noted in the Register Book*

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.