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# REPORT ON ELECTRIC LIGHTING INSTALLATION.

No. 114840

Port of Glasgow Date of First Survey 14<sup>th</sup> Dec 1896 Date of Last Survey 14<sup>th</sup> Dec 1896 No. of Visits 1  
No. in Reg. Book on the Iron or Steel S. S. Kanagawa Maru Port belonging to Tokio  
Built at Meadowside Partick By whom Messrs Wm Henderson & Co When built 1896  
Owners Nippon Yusen Kaisha Owners Address Tokio Japan  
Yard No. 394 Electric Light Installation fitted by W. C. Martin & Co When fitted 1896.

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

2 Compound Belliss Engines Vertical type working at 200 lbs steam pressure, coupled direct to 2 compound wound Dynamos.  
Capacity of Dynamo each 340 Amperes at 65 Volts, whether continuous or alternating current continuous  
Where is Dynamo fixed In engine room, starting Platform recess  
Position of Main Switch Board Mid Platform Engine Room having switches to groups A.B.C.D.E.F.G.H, of lights, &c., as below  
Positions of auxiliary switch boards and numbers of switches on each Engine Room, Top, Port Side (1) Switch  
Engine Room Top Starboard (1) Switch, Saloon Entrance (1) Switch  
Forecastle lamp room (1) switch, Second cabin Pantry (1) switch.  
If cut outs are fitted on main switch board to the cables of main circuit yes and on each auxiliary switch boards 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 yes  
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 arranged in the following groups:—  
A 41 lights each of 16 candle power requiring a total current of 41 } Amperes  
B 42 lights each of 16 candle power requiring a total current of 42 } Amperes  
C 39 lights each of 16 candle power requiring a total current of 39 } Amperes  
D 23 lights each of 16 candle power requiring a total current of 23 } Amperes  
E 40 lights each of 16 candle power requiring a total current of 40 } Amperes  
F 12 lights each of 16 candle power requiring a total current of 12 } Amperes  
G a Mast head light with D.F. lamp each of 32 candle power requiring a total current of 2 Amperes  
H = 9 lights each of 50 candle power requiring a total current of 24 " Amperes  
I each Side light with D.F. lamps each of 32 candle power requiring a total current of 4 " Amperes  
J a Projector for Suez Canal candle power, whether incandescent or arc lights incandescent.  
K 6 Cargo lights of 200  
are lights, what protection is provided against fire, sparks, &c. An arc lamp fitted with lantern for navigation of the Suez Canal, also search light Projector  
are the switches controlling the masthead and side lights placed In the Lamp Room

## DESCRIPTION OF CABLES.

carrying 313 Amperes, comprised of 37 wires, each 12 L.S.G. diameter, .314 square inches total sectional area of one cable.  
carrying 59 Amperes, comprised of 19 wires, each 16 L.S.G. diameter, .0612 square inches total sectional area  
carrying 24 Amperes, comprised of 19 wires, each 18 L.S.G. diameter, .0344 square inches total sectional area  
carrying 1 Amperes, comprised of 1 wires, each 16 L.S.G. diameter, .00382 square inches total sectional area  
carrying 12 Amperes, comprised of 7 wires, each 18 L.S.G. diameter, .00844 square inches total sectional area

## INSULATION, PROTECTION, ETC.

insulated with Pure india rubber, then vulcanised with rubber, coated tape, the whole vulcanised together then cotton preservative compound.  
insulated, and protected no joints

roughly soldered, resin only having been used as a flux none Are all joints in accessible positions, none being  
ces, or spaces which may at any time be used for carrying cargo, stores, or baggage none  
inches from the cable leading from dynamo to main switch board none  
through the ship, and how protected Through cargo space in galvanised iron  
Forecastle for tween Deck lights, armoured sheathed wire.

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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

wires protected in galvanised iron pipes

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat, none near ~~indue~~ heat

What special protection has been provided for the cables near boiler casings

iron pipe

What special protection has been provided for the cables in engine room

Armour sheathed wires

How are cables carried through beams

Holes bushed with teak wood through bulkheads, &c.

Teak wood & glands for water tight Bulkhead

How are cables carried through decks

In tubes bushed with hard 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

Iron pipe & armour sheathed wire to lamps.

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

best iron covers

Where are the main switches and cut outs for these lights fitted

Port alleyway main Deck & Engine Room

If in the spaces, how are they specially protected

best Iron Covers

Are any switches or cut outs fitted in bunkers

no

Cargo light cables, whether portable or permanently fixed

Portable

How fixed

by portable fork 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

2

amperemeters fixed on Switchboard

in engine room

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 2000 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.

W. C. Martin & Co

Electrical Engineers

Date 30<sup>th</sup> Dec. 18

COMPASSES.

Distance between dynamo or electric motors and standard compass

130 feet

Distance between dynamo or electric motors and steering compass

120 feet.

The nearest cables to the compasses are as follows:—

A cable carrying about 60 Amperes about 40 feet from standard compass about 30 feet from steering compass

A cable carrying 50 Amperes ~ 50 feet from standard compass " 40 feet from steering compass

A cable carrying 50 Amperes ~ 60 feet from standard compass " 50 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

each

course

standard compass and

nil

degrees on

each

course in the case of the steering compass.

David M. Henderson

Builder's Signature

Date 12

GENERAL REMARKS.

The two dynamo can be made to generate electricity for lamps but it is intended to work them separately, one dynamo for the arc lamps & one for the arc lamps. This installation appears to be in accordance with the Society's Rules

C. J. Brown

Surveyor to Lloyd's Register of British

Committee's Minute