

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 28871.

Port of Glasgow Date of First Survey 29th Dec/09 Date of Last Survey 6th May/10 No. of Visits 23.
 No. in on the Iron or Steel Twin Is Zealandia Port belonging to Melbourne
 Reg. Book 6 Sup Built at Clydebank By whom I Brown & Co Ltd When built 1910
 Owners Huddart Parker & Co Owners' Address Melbourne Australia
 Yard No. 392 Electric Light Installation fitted by I Brown & Co Ltd When fitted 1910

DESCRIPTION OF DYNAMO, ENGINE, ETC.

2 Vertical compound enclosed forced lubrication type engines each coupled directly to a compound wound multipolar dynamo. One single cylinder vertical enclosed engine coupled ditto
 Capacity of Dynamos 2 of 700 + 1 of 250 Amperes at 100 Volts, whether continuous or alternating current Continuous
 Where is Dynamo fixed Engine room Port + Starboard backs Whether single or double wire system is used Double wire
 Position of Main Switch Board Engine room aft Bulkhead having switches to groups A B C D E F G H I J K of lights, &c., as below
 Positions of auxiliary switch boards and numbers of switches on each 42 Distributing boxes are fixed in various positions, but no auxiliary switchboards are supplied

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

Total number of lights provided for 801 arranged in the following groups:—

A. 105	lights each of	16	candle power requiring a total current of	63.0	Amperes
B. 87	lights each of	16	candle power requiring a total current of	52.2	Amperes
C. 112	lights each of	16	candle power requiring a total current of	67.2	Amperes
D. 110	lights each of	16	candle power requiring a total current of	66.0	Amperes
E. 99	lights each of	16	candle power requiring a total current of	59.4	Amperes
F. 91 lights, 2 static feeder lights each of 800 Wamps. Wireless telegraphy 20 amps	lights each of	16	candle power requiring a total current of	82.6	Amperes
G. 99 + 12	lights each of	16 + 32	candle power requiring a total current of	72.6	Amperes
H. 52 + 30	lights each of	16 + 32	candle power requiring a total current of	64.2	Amperes
I. Music Room radiators lights each of	lights each of	16	candle power requiring a total current of	60.2	Amperes
J. Captain's + Smoke Room radiators + galley fan.	lights each of	16	candle power requiring a total current of	58.0	Amperes
2 Mast head light with 1 lamps each of	lights each of	32	candle power requiring a total current of	2.2	Amperes
2 Side light with 1 lamps each of	lights each of	32	candle power requiring a total current of	2.2	Amperes
4 Cargo lights of	lights each of	160	candle power, whether incandescent or arc lights	Incandescent	

 If arc lights, what protection is provided against fire, sparks, &c. None supplied

Where are the switches controlling the masthead and side lights placed In Chart Room

DESCRIPTION OF CABLES.

Main cable carrying	<u>700</u> <u>250</u>	Amperes, comprised of	<u>27</u>	wires, each	<u>11</u>	L.S.G. diameter,	<u>.959</u> <u>.31</u>	square inches total sectional area
Branch cables carrying	<u>64</u>	Amperes, comprised of	<u>19</u>	wires, each	<u>15</u>	L.S.G. diameter,	<u>.07</u>	square inches total sectional area
Branch cables carrying	<u>11</u>	Amperes, comprised of	<u>7</u>	wires, each	<u>18</u>	L.S.G. diameter,	<u>.0125</u>	square inches total sectional area
Leads to lamps carrying	<u>.6</u>	Amperes, comprised of	<u>3</u>	wires, each	<u>21</u>	L.S.G. diameter,	<u>.00239</u>	square inches total sectional area
Cargo light cables carrying	<u>6</u>	Amperes, comprised of	<u>7</u>	wires, each	<u>20</u>	L.S.G. diameter,	<u>.007</u>	square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Cables + wires are insulated with pure rubber, vulcanised rubber, rubber coated tape, the whole vulcanised together and afterwards braided and compounded overall.

Joints in cables, how made, insulated, and protected Spliced joints thoroughly soldered, insulated with pure rubber tape and afterwards with rubber coated tape + compounded

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 None

Are there any joints in or branches from the cable leading from dynamo to main switch board Yes 2 junction boxes for one of the large machines

How are the cables led through the ship, and how protected Lead covered cables on teak wood grante from switchboard to Starboard passage upper Deck afterwards braided cables enclosed in wood casing



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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 *Lead covering*

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *Lead covering*

What special protection has been provided for the cables near boiler casings *Armoured and braided*

What special protection has been provided for the cables in engine room *Armoured and braided*

How are cables carried through beams *Through holes bushed with lead* through bulkheads, &c. *Watertight glands*

How are cables carried through decks *Watertight 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 *Armoured and braided*

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 *Cast iron covers*

Where are the main switches and cut outs for these lights fitted *For coal bunkers in boiler room, holds in Starboard passage for ^{room} Eng^{rs}*

If in the spaces, how are they specially protected

Are any switches or cut outs fitted in bunkers *No*

Cargo light cables, whether portable or permanently fixed *Portable* How fixed

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

The installation is supplied with *3* voltmeters and *3* amperemeters fixed *on Switch board*

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 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 *2500* 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.

John Brown & Company, Limited.

J. Henderson Electrical Engineers

Date *May 11th 1910*

COMPASSES.

Assistant Secretary.

Distance between dynamo or electric motors and standard compass *136 ft. from nearest dynamo 46 ft. from nearest motor*

Distance between dynamo or electric motors and steering compass *130 ft. " 34 ft. " "*

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
<i>13.4</i>	<i>13</i>	<i>7</i>	
<i>35</i>	<i>18</i>	<i>19</i>	
<i>.6</i>	<i>12</i>	<i>12</i>	

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 *every* course in the case of the standard compass and *nil* degrees on *every* course in the case of the steering compass.

John Brown & Company, Limited.

J. Henderson Builder's Signature. Date

Assistant Secretary.

GENERAL REMARKS.

*This installation has been fitted satisfactorily in accordance with the rules and has been seen working satisfactorily. The vessel is eligible in my opinion to have the record "Electric Light" ^{It is submitted that} *Harry Clarke*
THE RECORD. Elec. light. *June 1910*
Surveyor to Lloyd's Register of British and Foreign Shipping.*

Committee's Minute *GLASGOW 17 MAY. 1910*

Elec. Light. J.B.



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