

## REPORT ON ELECTRIC LIGHTING INSTALLATION.

No. 29585

Port of *Glasgow* Date of First Survey *2/9/10* Date of Last Survey *13-12-10* No. of Visits *21*  
 No. in Reg. Book on the ~~Iron or Steel~~ *1/5* *Preussen* Port belonging to *Hamburg*  
 Built at *Clydebank* By whom *J. Brown & Co Ltd* When built *1910*  
 Owners *The Hamburg American Line* Owners' Address *Hamburg*  
 Yard No. *417* Electric Light Installation fitted by *J. Brown & Co Ltd* When fitted *1910*

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

*2 Vertical open type single cylinder engines having cylinder 7" dia by 6" stroke coupled directly to compound wound multipolar dynamos 330 revs per min. 100 lbs steam.*

Capacity of Dynamo *85* Amperes at *110* Volts, whether continuous or alternating current *continuous*

Where ~~are~~ *are* Dynamos fixed *Starboard side of engine room* Whether single or double wire system is used *Single wire system*

Position of Main Switch Board *near to dynamos* having switches to groups *A.B.C.D.E.F.* of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each *no auxiliary switchboards 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 *Totally enclosed* 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 *no*

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

Total number of lights provided for *150* arranged in the following groups:—

A *Officers + navigating* lights each of *28 of 16 + 4 of 32* candle power requiring a total current of *20.84* Amperes

B *Engineers* lights each of *24 . 16* candle power requiring a total current of *13.9* Amperes

C *Forecastle crew* lights each of *24 . 16* candle power requiring a total current of *13.9* Amperes

D *Engine and Boiler Rm* lights each of *40 . 16* candle power requiring a total current of *23.2* Amperes

E *Large cluster* lights each of *6 - 16 x 5* candle power requiring a total current of *17.4* Amperes

F *Projector and arc lamps* *2* Mast head lights with *1* lamp each of *32* candle power requiring a total current of *40 or 25* Amperes

*2* Side lights with *1* lamp each of *32* candle power requiring a total current of *2.32* Amperes

*5* Cargo lights of *6. 16 c.p. each* candle power, whether incandescent or arc lights *Incandescent*

If arc lights, what protection is provided against fire, sparks, &c. *Carbons enclosed in glazed hexagon lanterns*

Where are the switches controlling the masthead and side lights placed *in the wheel house*

## DESCRIPTION OF CABLES.

Main cable carrying *85* Amperes, comprised of *19* wires, each *14* L.S.G. diameter, *.09372* square inches total sectional area

Branch cables carrying *45* Amperes, comprised of *19* wires, each *16* L.S.G. diameter, *.06000* square inches total sectional area

Branch cables carrying *22* Amperes, comprised of *7* wires, each *16* L.S.G. diameter, *.022140* square inches total sectional area

Leads to lamps carrying *0.58* Amperes, comprised of *1* wires, each *16* L.S.G. diameter, *.003217* square inches total sectional area

Cargo light cables carrying *3.48* Amperes, comprised of *90* wires, each *36* L.S.G. diameter, *.0040828* square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

Wires and cables are insulated with pure rubber, vulcanised rubber, rubber coated tape, the whole vulcanised together, and finally braided with cotton impregnated with wax.

Joints in cables, how made, insulated, and protected *Spliced joints re. insulated (after being well soldered,) with several layers of pure rubber tape, and finished off with rubber coated waterproof adhesive 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 *no joints in these spaces*

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 *Along upper Deck after leaving engine room, through cargo spaces on Starboard side. Protected by lead sheathing + armoring in engine room, strong wood casing in holds*



**DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.**

Are they in places always accessible *Yes except when cargo is in holds.* ✓  
 What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture *Lead sheathing and armoring.* ✓  
 What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *Strong wood casing in galley.* ✓  
 What special protection has been provided for the cables near boiler casings *Lead sheathing and armoring.* ✓  
 What special protection has been provided for the cables in engine room *Do.*  
 How are cables carried through beams *Through holes braced with lead through bulkheads, &c. through W. T. glands.*  
 How are cables carried through decks *Through iron deck tubes.* ✓  
 Are any cables run through coal bunkers *no* or cargo spaces *Yes* or spaces which may be used for carrying cargo, stores, or baggage *Yes* ✓  
 If so, how are they protected *By strong wood casing carried inside channel iron girders.* ✓  
 Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage *no* ✓  
 If so, how are the lamp fittings and cable terminals specially protected \_\_\_\_\_  
 Where are the main switches and cut outs for these lights fitted \_\_\_\_\_  
 If in the spaces, how are they specially protected \_\_\_\_\_  
 Are any switches or cut outs fitted in bunkers \_\_\_\_\_  
 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 *negative pole earthed on dynamo yoke ring.* ✓  
 How are the returns from the lamps connected to the hull *By brass screws.* ✓  
 Are all the joints with the hull in accessible positions *Yes.* ✓  
 The installation is \_\_\_\_\_ supplied with a voltmeter and *two* ✓ by amperemeters fixed on switchboard.

**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*

*M. Henderson* Assistant Secretary.

Electrical Engineers

Date *Nov 16<sup>th</sup> 1910*

**COMPASSES.**

Distance between dynamo or electric motors and standard compass *95 feet*  
 Distance between dynamo or electric motors and steering compass *98 "*

The nearest cables to the compasses are as follows:—

| A cable carrying | Amperes   | feet from standard compass | feet from steering compass |
|------------------|-----------|----------------------------|----------------------------|
| <i>40</i>        | <i>10</i> | <i>6</i>                   | <i>6</i>                   |
| <i>25</i>        | <i>10</i> | <i>6</i>                   | <i>6</i>                   |
| <i>58</i>        | <i>1</i>  | <i>1</i>                   | <i>1</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 *very* ✓ course in the case of the standard compass and *nil* ✓ degrees on *very* ✓ course in the case of the steering compass.

*John Brown & Company, Limited.*

*M. Henderson* Builder's Signature.

Date \_\_\_\_\_

**GENERAL REMARKS.**

Assistant Secretary.

*This installation has been fitted in accordance with the rules, and tested under working conditions with satisfactory results.*

*It is submitted that this vessel is eligible for*

**THE RECORD.** Elec. light. *JWD 11/15/10*

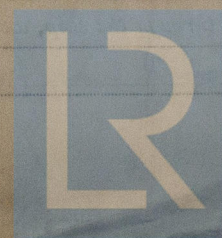
Surveyor to Lloyd's Register of British and Foreign Shipping.

*Harry Clarke*

Committee's Minute *Glasgow* **20 DEC. 1910**

*Elec. Light.*

*W*



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THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.