

## REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 7309

Port of Belfast Date of First Survey 23<sup>rd</sup> Sept Date of Last Survey 25<sup>th</sup> Nov No. of Visits 15  
 No. in Reg. Book on the Iron Steel P.S.S. Cardigan belonging to Belfast  
 Built at Belfast By whom Markman Clark & Co built 1913  
 Owners Royal Mail Steam Packet Co Address London  
 Yard No. 324 Electric Light Installation fitted by Sunderland Forge Co When fitted 1913

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

2 Off. Engines, Open type compound } Direct coupled on common bed-plate  
 Dynamos. Multipolar compound-wound }  
 Capacity of Dynamos 318 Amperes at 110 Volts, whether continuous or alternating current Continuous  
 Where is Dynamo fixed In Engine Room, after end  
 Position of Main Switch Board In Engine Room having switches to groups 10 of lights, &c., as below  
 Positions of auxiliary switch boards and numbers of switches on each  
1 in Wheelhouse. 11 Switches for Navigation Signal Lights &c.

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. —  
 Are the cut outs of non-oxidizable metal Yes and constructed to fuse at an excess of 100 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 511 arranged in the following groups:—

|                                     |                       |                |  |   |   |         |         |
|-------------------------------------|-----------------------|----------------|--|---|---|---------|---------|
| Total number of lights provided for |                       |                |  |   |   |         |         |
| A                                   | 118                   | lights each of | 16   | candle power requiring a total current of | 21.5                                      | Amperes |         |
| B                                   | 69                    | " " "          | 16   | " " " " " " "                             | 13.5                                      | "       |         |
| C                                   | 38                    | lights each of | 16   | candle power requiring a total current of | 7.5                                       | Amperes |         |
| D                                   | 34                    | " " "          | 16   | " " " " " " "                             | 10.5                                      | "       |         |
| E                                   | 80                    | lights each of | 16   | candle power requiring a total current of | 15.4                                      | Amperes |         |
| F                                   | 20                    | " " "          | 16   | " " " " " " "                             | 3.6                                       | "       |         |
| G                                   | 44                    | lights each of | 16   | candle power requiring a total current of | 8.5                                       | Amperes |         |
| H                                   | 6 Arc lamps           | 24             | 32   | " " "                                     | 84.0                                      | "       |         |
| I                                   | 6 " " " " "           | 20             | 32   | candle power requiring a total current of | 100.0                                     | Amperes |         |
| also 2 spare plugs                  |                       |                |  |   |   |         |         |
| 2                                   | Mast head lights with | 1              | lamps each of                                    | 32  | candle power requiring a total current of | 2.0     | Amperes |
| 2                                   | Side lights with      | 1              | lamps each of                                    | 32  | candle power requiring a total current of | 2.0     | Amperes |
| 44                                  | Cargo lights of       | 32             | candle power, whether incandescent or arc lights | Both Fitted                               |   |         |         |

If are lights, what protection is provided against fire, sparks, &c. Strong glass globe & iron guard.

Where are the switches controlling the masthead and side lights placed In Wheelhouse

## DESCRIPTION OF CABLES.

Main cable carrying 100 Amperes, comprised of 19 wires, each 14 L.S.G. diameter, .09372 square inches total sectional area  
 Branch cables carrying 21 Amperes, comprised of 7 wires, each 16 L.S.G. diameter, .02214 square inches total sectional area  
 Branch cables carrying 13.5 Amperes, comprised of 7 wires, each 16 L.S.G. diameter, .02214 square inches total sectional area  
 Leads to lamps carrying 32 Amperes, comprised of 7 wires, each 25 L.S.G. diameter, .00216 square inches total sectional area  
 Cargo light cables carrying 4 Amperes, comprised of 168 wires, each .38 L.S.G. diameter, .00475 square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

All cables of best high-conductivity copper wire, tinned, insulated with pure & vulcanised india rubber, taped & vulcanised together. Cables in accommodation lead covered & braided over a 77,  
In mach<sup>y</sup> spaces & exposed positions lead covered, armoured & braided cables fitted.

Joints in cables, how made, insulated, and protected

No joints made.

Are all the joints of cables thoroughly soldered, resin only having been used as a flux — 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 —

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 Lead covered, armoured & braided cables run in 'tween decks, secured by galvanised iron clips & brass screws



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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  
Cables lead covered, armoured & braided

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat Lead-covered, arm<sup>d</sup> & braided

What special protection has been provided for the cables near boiler casings Lead covered, armoured & braided.

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

How are cables carried through beams Through holes bushed with fibre through bulkheads, &c. Thro' water-tight brass glands

How are cables carried through decks In deck pipes, made water-tight

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 Lead-covered, armoured & 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 cover fitted

Where are the main switches and cut outs for these lights fitted In Entrances above.

If in the spaces, how are they specially protected Enclosed in strong water-tight, cast-iron boxes

Are any switches or cut outs fitted in bunkers No

Cargo light cables, whether portable or permanently fixed Portable How fixed Attached to terminals of brass, (water-tight) sweated to heavy cast brass socket (finned) which is bolted to hull.

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel Soldered to brass washer which is fastened to hull by brass screw

How are the returns from the lamps connected to the hull Soldered to brass washer which is fastened to hull by brass screw

Are all the joints with the hull in accessible positions Yes.

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 100 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.

P. PRO THE SUNDERLAND FORGE & ENGINEERING CO. LTD.

Electrical Engineers

Date 3rd. Decr. 1913.

COMPASSES.

Distance between dynamo or electric motors and standard compass 120

Distance between dynamo or electric motors and steering compass 114

The nearest cables to the compasses are as follows:—

| A cable carrying | Amperes | feet from standard compass | feet from steering compass |
|------------------|---------|----------------------------|----------------------------|
| 6.0              | Amperes | 6                          | 6                          |
| 4                | Amperes | 4                          | 7                          |
| -                | Amperes | -                          | -                          |

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 Nil degrees on all courses in the case of the standard compass and Nil degrees on all courses in the case of the steering compass.

Builder's Signature.

Date

GENERAL REMARKS.

This installation appears to be of good description, and has been fitted in accordance with the Rules.

It is submitted that this vessel is eligible for

THE RECORD. Elec. light.

J.W.D.  
11/12/13

R.F. Beveridge

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

Committee's Minute

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.



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