

## REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 13871

Port of Greenock Date of First Survey 21<sup>st</sup> April Date of Last Survey 1<sup>st</sup> April No. of Visits 5  
 No. in Reg. Book on the Iron or Steel S.S. Highland Dalch Port belonging to  
 Built at Port Glasgow By whom Russell & Co When built 1904  
 Owners Owners' Address  
 Yard No. 514 Electric Light Installation fitted by Messrs H.T. Boulton & Co Glasgow When fitted 1904

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

Double acting single cylinder engine 120 lbs per sq. in. 250 Revs. coupled direct to dynamo

Capacity of Dynamo 100 Amperes at 110 Volts, whether continuous or alternating current Continuous

Where is Dynamo fixed Engine Room

Position of Main Switch Board Engine Room having switches to groups 8 of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each None

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 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

Yes 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 165 arranged in the following groups:—

A Engine Room 27 lights each of 16 candle power requiring a total current of 20 Amperes

B Lower Accom. 12 lights each of 16 candle power requiring a total current of 9 Amperes

C Coffin 20 lights each of 16 candle power requiring a total current of 15 Amperes

D Messing 48 lights each of 16 candle power requiring a total current of 36 Amperes

E Officers 32 lights each of 16 candle power requiring a total current of 24 Amperes

Pharmaceutical 22 lights each of 32 C.P. candle power requiring a total current of 18 Amperes

2 Mast head light with 1 lamps each of 32 C.P. candle power requiring a total current of 2 Amperes

2 Side light with 1 lamps each of 32 candle power requiring a total current of 2 Amperes

2 Cargo lights of 5 lights 16 candle power, whether incandescent or ~~are~~ lights 5 Amperes

If arc lights, what protection is provided against fire, sparks, &c. No Arcs

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

## DESCRIPTION OF CABLES.

Main cable carrying 100 Amperes, comprised of 37/14 wires, each L.S.G. diameter, .186 square inches total sectional area

Branch cables carrying 22 Amperes, comprised of 7/16 wires, each L.S.G. diameter, .0225 square inches total sectional area

Branch cables carrying 22 Amperes, comprised of 7/16 wires, each L.S.G. diameter, .0225 square inches total sectional area

Leads to lamps carrying 3 Amperes, comprised of 4/16 wires, each L.S.G. diameter, .0096 square inches total sectional area

Cargo light cables carrying 7 Amperes, comprised of 7/20 wires, each L.S.G. diameter, .0071 square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

All wires & cables insulated with Pure & Vulcanised rubber, Lapped, braided & served with preservative compound

Joints in cables, how made, insulated, and protected No joints

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 20

How are the cables led through the ship, and how protected Fibres lashing through beams & casing

Staterooms 21 on piping where exposed



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 *Such cables run in iron piping, Watertight Fittings*

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

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

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

How are cables carried through beams *Fibre bushing* through bulkheads, &c. *Watertight glands*

How are cables carried through decks *Watertight iron deck tubes*

Are any cables run through coal bunkers *no* or cargo spaces *no* or spaces which may be used for carrying cargo, stores, or baggage *no*

If so, how are they protected

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 *no*

Cargo light cables, whether portable or permanently fixed *Portable* How fixed *Solid brass plugs & sockets*

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 *at sunboard*

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.

*A. J. Boothroyd, Glasgow* Electrical Engineers Date *12/5/04*

COMPASSES.

Distance between dynamo or electric motors and standard compass *120 ft*

Distance between dynamo or electric motors and steering compass *120 ft*

The nearest cables to the compasses are as follows:—

| A cable carrying | Amperes   | feet from standard compass | feet from steering compass |
|------------------|-----------|----------------------------|----------------------------|
| <i>3</i>         | <i>25</i> |                            |                            |
| <i>3</i>         |           | <i>10</i>                  |                            |
| <i>3</i>         |           | <i>15</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 degrees on course in the case of the standard compass and degrees on course in the case of the steering compass.

*For Russell & Co* Builder's Signature. Date *20th May/04*

GENERAL REMARKS.

*The materials & workmanship are good when completed the installation was tested and worked satisfactorily.*

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

Committee's Minute

*Glasgow 30 MAY 1904*

*Record "Electric Light"*

*This installation appears to be fitted in accordance with the Rules*  
*12th 31/5/04*

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THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.