

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 12165

Port of *Glasgow* Date of First Survey *4th July* Date of Last Survey *7th July 1903* No. of Visits *21*
 No. in Reg. Book *164* on the Iron or Steel *s/s "Clan Macdonald"* Port belonging to *Glasgow*
 Built at *West Hartlepool* By whom *Furness, Withy & Co. Ltd* When built *1903*
 Owners *Bayne, Irvine & Co.* Owners' Address *Glasgow*
 Yard No. *267* Electric Light Installation fitted by *Furness, Withy & Co. Ltd* When fitted *1903*

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Compound wound Dynamo, Coupled direct to single Cylinder Engine running at a speed of 200 Revolutions at 80 lb Steam pressure
 Capacity of Dynamo *185* Amperes at *65* Volts, whether continuous or alternating current *Continuous*

Where is Dynamo fixed *On bottom platform of Engine room, Starb. side*
 Position of Main Switch Board *near dynamo* having switches to groups *7* of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each *Forward Crew Accommodation one @ 3.*

Saloon 1 @ 8. Navigation 1 @ 8. After Crew Accommodation 1 @ 6. Engine room 2 @ 5. 1 @ 3. & 1 @ 4. Cargo Cluster 1 @ 4. & 1 @ 3. Projector 1.

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 *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 *116 - 16. cp.* also *2 arc lights & 1 projector* arranged in the following groups:—

A	<i>108</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>97</i>	Amperes
B		lights each of		candle power requiring a total current of		Amperes
C		lights each of		candle power requiring a total current of		Amperes
D		lights each of		candle power requiring a total current of		Amperes
E		lights each of		candle power requiring a total current of		Amperes
	<i>2</i>	Mast head lights with <i>1</i> lamp each of	<i>32</i>	candle power requiring a total current of		Amperes
	<i>2</i>	Side lights with <i>1</i> lamp each of	<i>32</i>	candle power requiring a total current of		Amperes

4 Cargo lights of *8* lamps each of *16* candle power, whether incandescent or arc lights *Incandescent*

If arc lights, what protection is provided against fire, sparks, &c. *Hexagon lanterns*

Where are the switches controlling the masthead and side lights placed *In wheel-house on bridge*

DESCRIPTION OF CABLES.

Main cable carrying	<i>185</i> Amperes, comprised of	<i>37</i> wires, each	<i>14</i> L.S.G. diameter,	<i>.186</i> square inches total sectional area
Branch cables carrying	<i>60</i> Amperes, comprised of	<i>19</i> wires, each	<i>16</i> L.S.G. diameter,	<i>.0612</i> square inches total sectional area
Branch cables carrying	<i>35</i> Amperes, comprised of	<i>19</i> wires, each	<i>18</i> L.S.G. diameter,	<i>.0344</i> square inches total sectional area
Leads to lamps carrying	<i>7</i> Amperes, comprised of	<i>7</i> wires, each	<i>20</i> L.S.G. diameter,	<i>.00714</i> square inches total sectional area
Cargo light cables carrying	<i>35</i> Amperes, comprised of	<i>19</i> wires, each	<i>18</i> L.S.G. diameter,	<i>.0344</i> square inches total sectional area
	<i>Are 20 amp.</i>	<i>7</i> " "	<i>16</i> " "	<i>.0225</i> " " " "

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Best Vulcanized rubber taped & braided over, sheathed in steel armour in Engine-room, Storehold. Twin lead covered in Saloon only

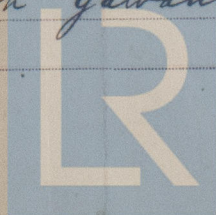
Joints in cables, how made, insulated, and protected

No joints

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

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 *Passed through galvanised iron tube under deck beams, tubes clipped up.*



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 *Steel armour*

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

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

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

How are cables carried through beams *Carried under beams thro' tube* through bulkheads, &c. *water tight stuffing boxes*

How are cables carried through decks *in iron pipes*

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

If so, how are they protected *thro' galvanised iron tube*

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 *Terminals protected by (brass boxes)*

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 *on Switch board*

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.

Furness Withy & Co. Ltd

Electrical Engineers

Date *23rd Sept. 1903.*

COMPASSES.

Distance between dynamo or electric motors and standard compass *105 feet*

Distance between dynamo or electric motors and steering compass *101 feet*

The nearest cables to the compasses are as follows:—

A cable carrying <i>7</i> Amperes	<i>8</i> feet from standard compass	<i>8</i> feet from steering compass
A cable carrying Amperes	feet from standard compass	feet from steering compass
A cable carrying Amperes	feet from standard compass	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 *nil* course in the case of the standard compass and *nil* degrees on *nil* course in the case of the steering compass.

FURNESS, WITHEY & CO., LIMITED.

per V. Jackson

Builder's Signature.

Date *23 SEP 1903*

GENERAL REMARKS.

The fitting of the wires throughout this vessel is as stated on this report and appears to be in accordance with the Committee requirements.

Allegon B. Wilson

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

Committee's Minute

It is submitted that this installation appears to be satisfactory

Lloyd's Register Foundation

25.9.03

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.