

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 6902.

Port of *Belfast* Date of First Survey *Nov. 11th 1910* Date of Last Survey *Jan. 11th 1911* No. of Visits *14*
 No. in Reg. Book on the *Iron or Steel* *T. S. S. "Arankola"* Port belonging to *Glasgow*
 Built at *Belfast* By whom *Workman Clark & Co. Ltd.* When built *1910*
 Owners *British India Steam Nav. Co. Ltd.* Owners' Address *London*
 Yard No. *298* Electric Light Installation fitted by *W. E. Martin & Co.* When fitted *1910*

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Two compound double acting steam engines, each direct coupled to compound wound multipolar Dynamo with carbon brushes.
 Capacity of Dynamo *380* Amperes at *100* Volts, whether continuous or alternating current *continuous*
 Where is Dynamo fixed *Thrust Recess* Whether single or double wire system is used *Double*
 Position of Main Switch Board *near 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 *Shade Deck Port, 2-3 way;*
Shade Deck Starboard, 1-3 way; Upper Deck Forward, 1-3 way;
Upper Deck Aft, 1-3 way; Engine Room, 1-3 way.
 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~~ reduced in size *yes* and to each lamp circuit *yes*
 If cessel 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-oxidisable 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 *467* arranged in the following groups :-

A	<i>108</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>59.4</i>	Amperes
B	<i>107</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>58.85</i>	Amperes
C	<i>69</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>37.9</i>	Amperes
D	<i>94</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>51.7</i>	Amperes
E	<i>89</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>48.9</i>	Amperes
<i>2</i>	<i>Mast head light with</i>	<i>1</i>	<i>lamps each of</i>	<i>32</i>	candle power requiring a total current of	<i>2.2</i> Amperes
<i>2</i>	<i>Side lights with</i>	<i>1</i>	<i>lamps each of</i>	<i>32</i>	candle power requiring a total current of	<i>2.2</i> Amperes
<i>3</i>	<i>Cargo lights of</i>	<i>8 lamps each of</i>	<i>16</i>	candle power, whether incandescent or arc lights	<i>incandescent</i>	

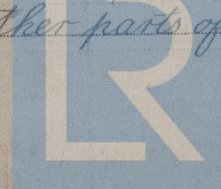
 If arc lights, what protection is provided against fire, sparks, &c. *No Arc Lights*
 Where are the switches controlling the masthead and side lights placed *In Chartroom*

DESCRIPTION OF CABLES.

Main cable carrying *380* Amperes, comprised of *61* wires, each *13* L.S.G. diameter, *.4* square inches total sectional area
 Branch cables carrying *60* Amperes, comprised of *19* wires, each *16* L.S.G. diameter, *.06* square inches total sectional area
 Branch cables carrying *30* Amperes, comprised of *19* wires, each *18* L.S.G. diameter, *.033* square inches total sectional area
 Leads to lamps carrying *3* Amperes, comprised of *1* wires, each *16* L.S.G. diameter, *.003* square inches total sectional area
 Cargo light cables carrying *4.4* Amperes, comprised of *108* wires, each *-* L.S.G. diameter, *.005* square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

L. E. Copper wire, tinned, insulated with pure and vulcanised Rubber and tape, the whole vulcanised together, taped, and sheathed with lead or Galvanised Iron ✓
 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 *no joints* 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 *Lead covered cables, clipped openly in Rooms* 2019
Twin Armoured Cables, clipped directly to Steelwork in other parts of the ship



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DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.

Are they in places always accessible *Yes, except when cargo in holds.* ✓
 What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture. *Metal Tubes* ✓
 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 *Bushed holes* ✓ through bulkheads, &c. *W.T. Glands.* ✓
 How are cables carried through decks *Metal Tubes, fitted watertight to Deck.* ✓
 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 *Steel armoured cable clipped under deck, protected by beams.* ✓
 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 *Strong Iron Shutters* ✓
 Where are the main switches and cut outs for these lights fitted *Outside - Near Entrances.* ✓
 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 *at present* supplied with *2* voltmeters and *also two* ✓ ~~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 *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.

W. S. Martin & Co.

Electrical Engineers

Date *28th July 1911*

COMPASSES.

Distance between dynamo or electric motors and standard compass *156 feet.*
 Distance between dynamo or electric motors and steering compass *160 feet.*
 The nearest cables to the compasses are as follows:—

A cable carrying	<i>8</i>	Amperes	<i>6</i>	feet from standard compass	<i>12</i>	feet from steering compass
A cable carrying	<i>1</i>	Amperes	<i>6</i>	feet from standard compass	<i>12</i>	feet from steering compass
A cable carrying	<i>25</i>	Amperes	<i>1</i>	feet from standard compass	<i>1</i>	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 *a certain* ✓ course in the case of the standard compass and *nil* ✓ degrees on *the same* ✓ course in the case of the steering compass.

Fraser & Neave

Builder's Signature.

Date *31st July 1911*

GENERAL REMARKS.

The installation has been well fitted, and was satisfactory under trial.
It is submitted that this vessel is eligible for THE RECORD, Elec. light.
J. W. D. 3/2/11
A. J. Thomas

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

Committee's Minute



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