

## REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 8236

Port of *Belfast* Date of First Survey *Sep 14* Date of Last Survey *Sep 17* No. of Visits *3*  
 No. in Reg. Book on the *Iron or Steel* *SS. New Toronto* Port belonging to *Liverpool*  
 Built at *Belfast* By whom *Harland & Wolff L<sup>d</sup>* When built *1919*  
 Owners *Belder Dempster & Co. Ltd.* Owners' Address *Liverpool*  
 Yard No. *558* Electric Light Installation fitted by *Harland & Wolff L<sup>d</sup>* When fitted *1919*

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

*An additional 17kw set fitted 5-28, not in parallel*  
*One Enclosed forced Lubrication, Single Cylinder Engine. 5 1/2" x 6" Stroke.*  
*520 R.P.M. 5/6 To 10 Kw. Dynamo.*

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

Where is Dynamo fixed *in Engine Room* Whether single or double wire system is used *Double*

Position of Main Switch Board *in Engine Room* having switches to groups *A. B. C. D. E.* of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each *none fitted.*

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 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 *167* arranged in the following groups:—

A	<i>Navigation</i>	<i>5 lights each of 32 CP. + 5 of 8</i>	candle power requiring a total current of	<i>9.1</i>	Amperes
B	<i>Cabin &amp; Crew</i>	<i>93 lights each of 16 CP. + 2 of 16</i>	candle power requiring a total current of	<i>18.6</i>	Amperes
C	<i>Engine &amp; Boiler Room</i>	<i>32 lights each of 24</i>	candle power requiring a total current of	<i>3.6</i>	Amperes
D	<i>Cargo</i>	<i>30 lights each of 16 + 2 of 1000</i>	candle power requiring a total current of	<i>9.6</i>	Amperes
E	<i>Wireless</i>	<i>lights each of</i>	candle power requiring a total current of	<i>20.1</i>	Amperes
	<i>2 Mast head lights with 1 lamp each of</i>	<i>32</i>	candle power requiring a total current of	<i>15.0</i>	Amperes
	<i>2 Side lights with 1 lamp each of</i>	<i>32</i>	candle power requiring a total current of	<i>2.4</i>	Amperes
	<i>5 Cargo lights of</i>	<i>96</i>	candle power, whether incandescent or arc lights	<i>2.4</i>	Amperes
	<i>2 1/2 Watt " "</i>	<i>1000</i>	" " each		

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

Where are the switches controlling the masthead and side lights placed *In wheelhouse*

## DESCRIPTION OF CABLES.

Main cable carrying	<i>22.2</i>	Amperes, comprised of	<i>7</i>	wires, each	<i>16</i>	L.S.G. diameter, <i>.02201</i> square inches total sectional area
Branch cables carrying	<i>2.5</i>	Amperes, comprised of	<i>1</i>	wires, each	<i>14</i>	L.S.G. diameter, <i>.005</i> square inches total sectional area
Branch cables carrying		Amperes, comprised of		wires, each		L.S.G. diameter, square inches total sectional area
Leads to lamps carrying	<i>1.8</i>	Amperes, comprised of	<i>1</i>	wires, each	<i>17</i>	L.S.G. diameter, <i>.00246</i> square inches total sectional area
Cargo light cables carrying	<i>2.5</i>	Amperes, comprised of	<i>90</i>	wires, each	<i>36</i>	L.S.G. diameter, <i>.00407</i> square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

*Galvan + Branch Wiring, exposed are of 600 Megohm C.M.A. Grade*  
*untanned India Rubber armoured & white braided also 1/4 A.P. 254*  
*Lead covered.*

Joints in cables, how made, insulated, and protected *Joints made in W. T. Junction Boxes on Deck*  
*& Porcelain Junction Boxes with Iron Protecting Cover in Engine Room*

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 *Yes*

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 *Clipped direct to bulkhead & protected by*  
*armouring & braiding in Eng. Rm, Galley & Crew's Quarters & lead covered in Accommodation.*

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 *Iron Piping*

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *Armoured + Braided Cables.*

What special protection has been provided for the cables near boiler casings *Armoured + Braided Cables.*

What special protection has been provided for the cables in engine room *Armoured + Braided Cables.*

How are cables carried through beams *Beams lashed with lead or fibre through bulkheads, &c. in Hands if U.S. lead or fibre. otherwise*

How are cables carried through decks *In Iron Deck Pipes lashed or with Hand.*

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

If so, how are they protected *Armoured + Braided Cable in 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 *Permanently* How fixed *Armoured + Braided Clipped to Blk Hd.*

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 *~~~~~* supplied with a voltmeter and *~~~~~* an amperemeter, fixed *on Switch in Eng. Rm.*

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 *100* per cent. that of pure copper.

Insulation of cables is guaranteed to have a resistance of not less than *600* 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.

Electrical Engineers

Date

*23/10/19*

COMPASSES.

Distance between dynamo or electric motors and standard compass *114 ft. from Dynamo. 18 ft. from Wireless Rotary.*

Distance between dynamo or electric motors and steering compass *109" " " 20" " " "*

The nearest cables to the compasses are as follows:—

A cable carrying *6* Amperes *10* feet from standard compass *5* feet from steering compass

A cable carrying *15* Amperes *26* feet from standard compass *22* 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 *all* course in the case of the

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

Builder's Signature.

Date

*23/10/19*

GENERAL REMARKS.

*This installation is of good description throughout, and has been fitted in accordance with the Rules.*

*It is submitted that this vessel is eligible for THE RECORD Elec. light.*

*JWD 28/10/19*

*R. F. Benouille*

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

Committee's Minute