

# REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 8731

Port of Belfast. Date of First Survey 3<sup>rd</sup> Dec 1921 Date of Last Survey 29<sup>th</sup> Mar. 1922 No. of Visits 15  
 No. in Reg. Book on the Iron or Steel T.S.S. "Barrabool" Port belonging to Belfast.  
 Built at Belfast. By whom Harland & Wolff Ltd. When built 1922  
 Owners Peninsular & Oriental S. Co. Ltd. Owners' Address London.  
 Yard No. 584 Electric Light Installation fitted by Harland & Wolff Ltd. When fitted 1922.

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

4 Comp<sup>d</sup> Vertical, Two Crank, Enclosed, Steam Engines, with Cyl<sup>s</sup> 9" x 14" x 7". Each coupled to a 50 KW Comp<sup>d</sup> Wound, Multipolar Dynamo, to run at 105V, 450 RPM. Also one Emergency Set, consisting of a Vertical Oil Engine, 4 cyl<sup>r</sup> type Petrol Starting, coupled to a 25 KW Comp<sup>d</sup> Wound, Multipolar Dynamo, to run at 105V, 600 RPM.  
 Capacity of Dynamos Main, each 476 } Amperes at 105 Volts, whether continuous or alternating current Continuous  
Emergency 238 }

Where are Dynamos fixed in Engine Room, Port { Main, on Lower Dk Level (Whether single or double wire system is used Single  
Emerg, on Boat Dk Level )  
 Position of Main Switch Board in Engine Rm, on Main Dynamo Flat having switches to groups A to I inclusive of lights, &c., as below  
 " " Emergency Do " " " " Emerg. " " }

Positions of auxiliary switch boards and numbers of switches on each one board in Wheelhouse, with 5 switches for Signals.  
Seven boards in Eng. Room, each with 10 switches. One board in Wheelhouse, with 16 switches for Compasses, Telegraphs etc.

If fuses 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 fuses fitted to both flow and return wires or cables of all circuits including lamp circuits yes

Are the fuses of non-oxidisable metal yes and constructed to fuse at an excess of 100 per cent over the normal current

Are all fuses 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 fuses constructed of incombustible materials and fitted on incombustible bases yes

Total number of lights provided for 1104 & 38 Cabin Fans arranged in the following groups:—

A	lights each of	candle power requiring a total current of	Amperes
B	lights each of <u>( see )</u>	candle power requiring a total current of	Amperes
C	lights each of <u>( attached )</u>	candle power requiring a total current of	Amperes
D	lights each of <u>( schedule )</u>	candle power requiring a total current of	Amperes
E	lights each of	candle power requiring a total current of	Amperes
<u>2</u>	<u>Must head lights with 1 lamp each of 32</u>	<u>candle power requiring a total current of 2.125</u>	<u>Amperes</u>
<u>2</u>	<u>Side lights with 1 lamp each of 32</u>	<u>candle power requiring a total current of 2.125</u>	<u>Amperes</u>
	<u>10-1/2 Watt } Cargo lights of { 1,000</u>	<u>candle power, whether incandescent or arc lights incandescent</u>	
	<u>10-3 Light } { 48</u>		

If arc lights, what protection is provided against fire, sparks, &c. No Arc Lights fitted.

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

## DESCRIPTION OF CABLES.

Main cable carrying 238 Amperes, comprised of 37 wires, each .103" S.W.G. diameter, .3 square inches total sectional area  
 Branch cables carrying 23 Amperes, comprised of 19 wires, each .052" S.W.G. diameter, .04 square inches total sectional area  
 Branch cables carrying 7.7 Amperes, comprised of 7 wires, each .064" S.W.G. diameter, .0225 square inches total sectional area  
 Leads to lamps carrying .6 Amperes, comprised of 3 wires, each .029" S.W.G. diameter, .002 square inches total sectional area  
 Cargo light cables carrying 4.75 Amperes, comprised of 7 wires, each .036" S.W.G. diameter, .007 square inches total sectional area  
1.75

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

Cables are insulated with pure & vulcanised rubber, taped, braided & compounded overall, protected generally through-out in stout wood casing. Where exposed to heat or moisture, they are protected in steel conduit.  
 Branch Wires in Crews spaces are protected by lead covering.

Joints in cables, how made, insulated, and protected Soldered & insulated with pure rubber tape, served with prepared tape & protected in strong wood casing.

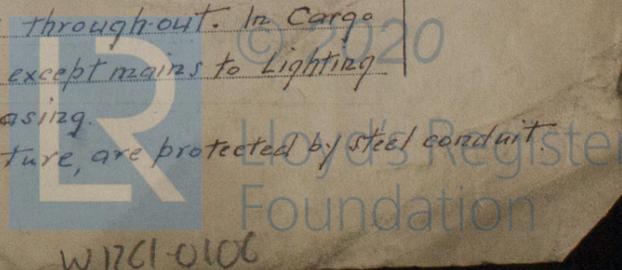
Are all the joints of cables thoroughly soldered, and the flux used not containing acids or other corrosive substances yes Are all joints in accessible positions, none being made in bunkers, cargo spaces, or spaces which may at any time be used for carrying cargo, stores, or baggage yes

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 In strong wood casing generally through-out. In Cargo spaces, protected by lead covering serving, steel armouring & braiding overall, except mains to Lighting

Boxes (controlled from Main Switchboard) which are in strong wood casing.

Branch Wires in Machinery Spaces & in places where exposed to moisture, are protected by steel conduit.  
 Branch Wires in Crews spaces are protected by lead covering.



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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 *Steel conduit.*

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

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

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

How are cables carried through beams *through bushes of fibre. ✓* through bulkheads, &c. glands if W.T., otherwise bushes

How are cables carried through decks *Iron Deck Tubes, fibre bushed. ✓*

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 *Cables to Lighting Boxes (controlled from Switchboard), in strong wood casing; other cables L.S.A.B. further protected in places by steel plating.*

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 fuses for these lights fitted \_\_\_\_\_

If in the spaces, how are they specially protected \_\_\_\_\_

Are any switches or fuses fitted in bunkers *No*

Cargo light cables, whether portable or permanently fixed *permanent.* How fixed *in strong wood casing.*

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel *through special earth plates.*

How are the returns from the lamps connected to the hull *sweated to 3/8" tinned brass screws tapped into beams etc.*

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

Is the installation supplied with a voltmeter *Yes*, and with an amperemeter *Yes*, fixed on *Main & Emergency Switchboards.*

**VESSELS BUILT FOR CARRYING PETROLEUM.**

In vessels built for carrying petroleum, are all switches and fuses fitted in positions not liable to the accumulation of petroleum vapour or gas \_\_\_\_\_

Are any switches, fuses, 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 not less than that of the Engineering Standards Committee's standard, and the wires are protected by tinning from the sulphur compounds present in the insulating material.

Insulation of cables is guaranteed to have a resistance of not less than 2500 megohms per statute mile at 60° Fahrenheit after 24 hours' immersion in water, the test being made after one minute's electrification at not less than 500 volts and while the cable is still immersed.

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.

For **HARLAND & WOLFF, LTD.**

*S. Johnston*

Electrical Engineers

Date *20/4/22*

**COMPASSES.**

Distance between dynamo or electric motors and standard compass *160 ft to Dynamo & 36 ft to nearest motor.*

Distance between dynamo or electric motors and steering compass *160 ft " " & 36 ft " "*

The nearest cables to the compasses are as follows:—

A cable carrying	10	Amperes	6'-6"	feet from standard compass	8	feet from steering compass
A cable carrying	30	Amperes	40	feet from standard compass	40	feet from steering compass
A cable carrying	32	Amperes	32	feet from standard compass	32	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 steering compass and *Nil* degrees on *all* course in the case of the standard compass

For **HARLAND & WOLFF, LTD.**

*[Signature]*

Builder's Signature.

Date



**GENERAL REMARKS.**

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

*It is submitted that*

*this vessel is eligible for*

*Fee £ 37-2-6*

*THE RECORD.*

*Elec. Light*

*Advised 21-4-22*

*L. J. [Signature]*  
*26/4/22*

*R. F. Bennett*

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

