

# REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 27185

Port of **SUNDERLAND.** Date of First Survey **7 Feb** Date of Last Survey **5 April** No. of Visits **2**  
 No. in Reg. Book on the Iron or Steel **S/S CLAN MACBEAN** Port belonging to **Glasgow**  
 Built at **Sunderland** By whom **Messrs Bartram & Co. Ltd** When built **1918**  
 Owners **Can Line Ltd** Owners' Address **Glasgow**  
 Yard No. **243** Electric Light Installation fitted by **Messrs Clarke Chapman & Co. Ltd** When fitted **1918**

**DESCRIPTION OF DYNAMO, ENGINE, ETC.**

One single cylinder double acting open type vertical engine direct coupled to a continuous current compound wound dynamo  
 Capacity of Dynamo **90** 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 **near Dynamo** having switches to groups **A B C & D** of lights, &c., as below  
 Positions of auxiliary switch boards and numbers of switches on each **Each light & group of lights provided with switches as required**

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 **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 slate & porcelain**

Total number of lights provided for **124** arranged in the following groups :-

<b>A Saloon</b>	<b>63</b>	lights each of	<b>16</b>	candle power requiring a total current of	<b>35.3</b>	Amperes
<b>B Engines</b>	<b>43</b>	lights each of	<b>16</b>	candle power requiring a total current of	<b>24.1</b>	Amperes
<b>C Engine Room</b>	<b>18</b>	lights each of	<b>16</b>	candle power requiring a total current of	<b>10.1</b>	Amperes
<b>D Wireless</b>	-	lights each of	-	candle power requiring a total current of	<b>25</b>	Amperes
<b>E</b>	-	lights each of	-	candle power requiring a total current of	-	Amperes
<b>1 Mast head light with</b>	<b>1</b>	lamps each of	<b>32</b>	candle power requiring a total current of	<b>1.1</b>	Amperes
<b>2 Side light with</b>	<b>1</b>	lamps each of	<b>32</b>	candle power requiring a total current of	<b>2.2</b>	Amperes
<b>5 Cargo lights of</b>	<b>7-16</b>			candle power, whether incandescent or arc lights <b>incandescent</b>		

If arc lights, what protection is provided against fire, sparks, &c. **-**  
 Where are the switches controlling the masthead and side lights placed **on bridge rail**

**DESCRIPTION OF CABLES.**

Main cable carrying **90** Amperes, comprised of **19** wires, each **14** L.S.G. diameter, **.094** square inches total sectional area  
 Branch cables carrying **35.3** Amperes, comprised of **7** wires, each **17** L.S.G. diameter, **.017** square inches total sectional area  
 Branch cables carrying **10.1** Amperes, comprised of **1** wires, each **14** L.S.G. diameter, **.0050** square inches total sectional area  
 Leads to lamps carrying **56** Amperes, comprised of **1** wires, each **18** L.S.G. diameter, **.0018** square inches total sectional area  
 Cargo light cables carrying **3.9** Amperes, comprised of **168** wires, each **38** L.S.G. diameter, **.0050** square inches total sectional area

**DESCRIPTION OF INSULATION, PROTECTION, ETC.**

**Vulcanized india rubber taped & braided & lead covered where exposed steel armoured cable**  
 Joints in cables, how made, insulated, and protected **No joints except mechanical ones**  
 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 **Lead covered & steel armoured cables run through tween decks & clipped to underside of deck with strong galvanized iron clips**



S/S Blain Macbean

DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.

Are they in places always accessible No

What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture Lead covered & steel Armoured cables

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat Lead covered & Armoured cables

What special protection has been provided for the cables near boiler casings " " " "

What special protection has been provided for the cables in engine room " " " "

How are cables carried through beams in lead bushes through bulkheads, &c. in WT glands ✓

How are cables carried through decks in galvanized iron deck tiles ✓

Are any cables run through coal bunkers Yes or cargo spaces Yes or spaces which may be used for carrying cargo, stores, or baggage Yes

If so, how are they protected Lead covered & steel Armoured cables

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 to WT connection boxes How fixed to WT connection boxes

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel Double wire system

How are the returns from the lamps connected to the hull -

Are all the joints with the hull in accessible positions -

The installation is Yes supplied with a voltmeter and also an amperemeter, 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 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.

For Clarke, Chapman & Co., Ltd.

*W. Woodson* Director.

Electrical Engineers

Date April 18<sup>th</sup> 1918

COMPASSES.

Distance between dynamo or electric motors and standard compass 96 ft

Distance between dynamo or electric motors and steering compass 90 "

The nearest cables to the compasses are as follows:—

A cable carrying	.56	Amperes	12	feet from standard compass	6	feet from steering compass
A cable carrying	.56	Amperes	6	feet from standard compass	12	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.

For Bartram & Sons Ltd.

*G. M. Rhind*

Builder's Signature.

Date April 23<sup>rd</sup> 1918

GENERAL REMARKS.

The installation has been satisfactorily fitted in the vessel, tested at full load and found good.

It is submitted that this vessel is eligible for

THE RECORD. Elec. light.

*J. W. D.* 25/4/18.

*S. L. Davis.*

24.4.18

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

Committee's Minute

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

