

# REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 36579

Port of **GLASGOW** Date of First Survey **1-11-16** Date of Last Survey **22-12-16** No. of Visits **22**  
 No. in Reg. Book on the **Steel** **SS. "Limeleaf"** Port belonging to  
 Built at **Glasgow** By whom **Barclay Curle & Co. (538)** When built **1916**  
 Owners' Address  
 Yard No. **538** Electric Light Installation fitted by **A. Watson & Co.** When fitted **1916**

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

**2 direct coupled Siemens compound wound ship lighting sets**

Capacity of <sup>EACH</sup> Dynamo **510** Amperes at **100** Volts, whether continuous or alternating current **Continuous**  
 Where is Dynamo fixed **Bottom platform of Engine room** Whether single or double wire system is used **double**  
 Position of Main Switch Board **Alongside dynamos** having switches to groups **11 circuits** of lights, &c., as below  
 Positions of auxiliary switch boards and numbers of switches on each **1 in Chartroom with 4 switches and 1 in Engine room with 6 switches.**

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-oxidizable 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 **200** arranged in the following groups:—

A	$\left. \begin{matrix} 9 \\ 6 \\ 11 \\ 4 \end{matrix} \right\}$	lights each of	$\left. \begin{matrix} 8 \\ 16 \\ 16 \\ 32 \end{matrix} \right\}$	candle power requiring a total current of	<b>23.52</b>	Amperes
B		lights each of		candle power requiring a total current of		Amperes
C B.	<b>41</b>	lights each of	<b>16</b>	candle power requiring a total current of	<b>26.24</b>	Amperes
D C.	<b>34</b>	lights each of	<b>16</b>	candle power requiring a total current of	<b>21.46</b>	Amperes
E D.	<b>25</b>	lights each of	<b>16</b>	candle power requiring a total current of	<b>16.00</b>	Amperes
	<b>2</b>	Mast head light with <b>2</b> lamps each of	<b>32</b>	candle power requiring a total current of	<b>2.4</b>	Amperes
	<b>2</b>	Side lights with <b>2</b> lamps each of	<b>32</b>	candle power requiring a total current of	<b>2.4</b>	Amperes
	<b>6</b>	Cargo lights of	<b>128</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 **in Chartroom.**

## DESCRIPTION OF CABLES.

Main cable carrying **510** Amperes, comprised of **91** wires, each **.118** diameter, **1** square inches total sectional area  
 Branch cables carrying **200** Amperes, comprised of **34** wires, each **.092** diameter, **.250** square inches total sectional area  
 Branch cables carrying **26** Amperes, comprised of **4** wires, each **.18** S.W.G. diameter, **.0125** square inches total sectional area  
 Leads to lamps carrying **1 to 5** Amperes, comprised of **1** wire, each **.14** S.W.G. diameter, **.0025** square inches total sectional area  
 Cargo light cables carrying **4.8** Amperes, comprised of **1** wire, each **.14** S.W.G. diameter, **.0025** square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

**all cables are rubber insulated. The protection in Accommodation is lead sheathing; In engine & Boiler rooms and exposed places galvanized wire armouring is added.**

Joints in cables, how made, insulated, and protected **No joints**

Are all the joints of cables thoroughly soldered, and the flux used not containing acids or other corrosive substances — 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 **The lead covered cables are clipped direct to underside of decks or bulkheads with brass saddles. The armoured cable clipped similarly with galvanized steel saddles.**

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 Generally nothing further than the lead sheathing and wire armouring. Occasionally galv. iron pipe

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat as above

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 lead or fibre ferrules through bulkheads, &c. Brass WT glands.

How are cables carried through decks galvanized iron deck tubes.

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

If so, how are they protected Lead covering & galv wire armouring

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 The lamp fittings are of WT type with iron cover

Where are the main switches and fuses for these lights fitted in Engineers accommodation on top deck

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 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 -

Is the installation supplied with a voltmeter Yes and with an amperemeter Yes, fixed on Switchboard

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 Yes.

Are any switches, fuses, or joints of cables fitted in the pump room or companion No.

How are the lamps specially protected in places liable to the accumulation of vapour or gas Gas tight fittings.

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 250 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 ARCHD. WATSON & CO., LTD.,

Electrical Engineers

Date 29<sup>th</sup> Jan'y 1914.

COMPASSES.

Distance between dynamo or electric motors and standard compass 168 ft.

Distance between dynamo or electric motors and steering compass 160 ft.

The nearest cables to the compasses are as follows:—

A cable carrying	5	Amperes	3	feet from standard compass	3	feet from steering compass
A cable carrying	23-52	Amperes	20	feet from standard compass	16	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

The maximum deviation due to electric currents, etc., was found to be \_\_\_\_\_ degrees on \_\_\_\_\_ course in the case of the standard compass and \_\_\_\_\_ degrees on \_\_\_\_\_ course in the case of the steering compass.

FOR BARCLAY, GURLE & CO., LTD.

H. Sweeney Secretary.

Builder's Signature.

Date 30<sup>th</sup> Jan'y 1914

GENERAL REMARKS. This installation has been well fitted on board and when tested under full working conditions was found satisfactory.

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

A.M. Keand

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

Committee's Minute **GLASGOW** Electric Light

FRI 22 MAR 1914

JAN 25 1914

TUE FEB 27 1914

FRI 17 JAN 1914

E.	26	lights each of 16cp requiring a total current of	16 amperes.
F.	42	" " " " " " " "	26.88 "
G.		Wireless Telegraphy	30.00 "
H.		Searchlight Projector	4/60 "
I.		Force draught Motor	200 "
J.		Do. Do.	200 "
K.		Spare.	

The installation also includes:—  
 2-12 1/2" Ventilator fans.  
 Workshop Motor  
 1-4HP Motor for refrigerating machinery  
 1- Electric fire.

