

# REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 40371

Port of Glasgow Date of First Survey 6<sup>th</sup> July Date of Last Survey 8<sup>th</sup> Sept. No. of Visits 6  
 No. in Reg. Book 64017 on the Steel B.S. Lapwing Port belonging to London  
 Built at Paisley By whom M<sup>rs</sup> Bow MacLachlan When built 1920  
 Owners M<sup>rs</sup> The General Steam Navigation Co Owners' Address  
 Yard No. 386 Electric Light Installation fitted by M<sup>rs</sup> Claud Hamilton & Co When fitted 1920

### DESCRIPTION OF DYNAMO, ENGINE, ETC.

5 1/2 x 5 enclosed type high speed steam engine direct coupled to a compound wound 5 hp lighting dynamo running at 480 R.P.M.  
 Capacity of Dynamo 90 Amperes at 100 Volts, whether continuous or alternating current continuous  
 Where is Dynamo fixed Engine Rm platform Whether single or double wire system is used double  
 Position of Main Switch Board Engine Rm platform having switches to groups 4 of lights, &c., as below  
 Positions of auxiliary switch boards and numbers of switches on each none

If fuses are fitted on main switch board to the cables of main circuit yes and on each auxiliary Fuse 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

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 158-16 CP. arranged in the following groups:—

A	<u>18</u>	lights each of	<u>16</u>	candle power requiring a total current of	<u>9.0</u>	Amperes
B	<u>21</u>	lights each of	<u>16</u>	candle power requiring a total current of	<u>10.5</u>	Amperes
C	<u>12</u>	lights each of	<u>16</u>	candle power requiring a total current of	<u>6</u>	Amperes
D	<u>17</u>	lights each of	<u>16</u>	candle power requiring a total current of	<u>8.5</u>	Amperes
E	<u>31</u>	lights each of	<u>16</u>	candle power requiring a total current of	<u>15.6</u>	Amperes
	<u>2</u>	Mast head light with <u>1</u> lamps each of	<u>32</u>	candle power requiring a total current of	<u>0.4</u>	Amperes
	<u>2</u>	Side light with <u>1</u> lamps each of	<u>32</u>	candle power requiring a total current of	<u>0.4</u>	Amperes

Cargo lights of 6 with 6 @ 16 candle power, whether incandescent or arc lights incandescent

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

Where are the switches controlling the masthead and side lights placed In Chart Room.

### DESCRIPTION OF CABLES.

Main cable carrying 90 Amperes, comprised of 19 wires, each .083" S.W.G. diameter, .10 square inches total sectional area  
 Branch cables carrying 10.5 Amperes, comprised of 7 wires, each .082" S.W.G. diameter, .0146 square inches total sectional area  
 Branch cables carrying 15.6 Amperes, comprised of 7 wires, each .064" S.W.G. diameter, .0225 square inches total sectional area  
 Leads to lamps carrying 2 Amperes, comprised of 3 wires, each .029" S.W.G. diameter, .002 square inches total sectional area  
 Cargo light cables carrying 21 Amperes, comprised of 7 wires, each .064" S.W.G. diameter, .0225 square inches total sectional area

### DESCRIPTION OF INSULATION, PROTECTION, ETC.

Copper wire insulated with pure vulcanized india rubber taped  
Lead covered or armoured with steel wire

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 —

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 4 used to mountings of access on bulkheads + beams, by means of brass or iron clips.



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 Lead covered

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat Lead cover or 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 Lead bushes through bulkheads, &c. W.T. glands

How are cables carried through decks W.T. Deck tubes

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 Cast Iron guards

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 Cast Iron guards

Where are the main switches and fuses for these lights fitted Engine Room

If in the spaces, how are they specially protected no

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 Switch board

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 600 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 CLAUD HAMILTON, Limited Electrical Engineers Date 21-Sept-1920

COMPASSES.

Distance between dynamo or electric motors and standard compass 69 feet

Distance between dynamo or electric motors and steering compass 56 feet

The nearest cables to the compasses are as follows:—

Cable	Amperes	feet from standard compass	feet from steering compass
A cable carrying <u>8.5</u>	<u>16</u>	<u>20</u>	<u>—</u>
A cable carrying <u>3.0</u>	<u>3</u>	<u>3</u>	<u>—</u>
A cable carrying <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>

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 any course in the case of the standard compass and nil degrees on any course in the case of the steering compass.

MacKintosh Builder's Signature Date —

GENERAL REMARKS.

This installation has been fitted on board under special survey. Tested under full working conditions found satisfactory.

It is submitted that this vessel is eligible for THE RECORD. E Lee St Pell 8/10/20

J. Rankin Surveyor to Lloyd's Register of Shipping.

Committee's Minute —

Elec. Light

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.



HC. 4.10.20

Im. 7.10.—Transfer.