

# REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 40428

Port of GLASGOW Date of First Survey 8.7.20 Date of Last Survey 23.9.20 No. of Visits 5  
 No. in on the Iron or Steel S.S. "MUNDRA" Port belonging to GLASGOW.  
 Reg. Book 66594 Built at WHITEINCH By whom MESSRS BARCLAY CURLE & CO LTD When built 1920  
 Owners THE BRITISH INDIA STEAM NAV. CO. LTD Owners' Address LONDON.  
 Yard No. 578 Electric Light Installation fitted by MESSRS SIEMENS BROS & CO. LTD When fitted 1920

### DESCRIPTION OF DYNAMO, ENGINE, ETC.

2 - COMBINED, VERTICAL, OPEN TYPE, STEAM ENGINES BY MESSRS SHANKS.  
2 - COMPOUND WOUND, 9 K.W. GENERATORS BY MESSRS SIEMENS.  
 Capacity of Dynamo 20 9 K.W. or 90 Amperes at 100 Volts, whether continuous or alternating current CONTINUOUS  
 Where is Dynamo fixed ENGINE RM. STARBOARD SIDE Whether single or double wire system is used DOUBLE WIRE  
 Position of Main Switch Board ART STBD BLDG ENG RM having switches to groups A TO E. of lights, &c., as below  
 Positions of auxiliary switch boards and numbers of switches on each NONE FITTED.

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 50% 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 254. arranged in the following groups:—

A-NAVIGATION	7 lights each of	32	candle power requiring a total current of	16.3	Amperes
B-ACCOMODATION	17 lights each of	25	candle power requiring a total current of	29.1	Amperes
C-CREW'S ACCOM.	41 lights each of	25	candle power requiring a total current of	12.3	Amperes
D-ENG & BOILER RM.	85 lights each of	25	candle power requiring a total current of	25.5	Amperes
E-WIRELESS	lights each of	—	candle power requiring a total current of	30	Amperes
2 Mast head lights with 1 lamp each of	32	candle power requiring a total current of	2.56	Amperes	
2 Side lights with 1 lamp each of	32	candle power requiring a total current of	2.56	Amperes	
4 Cargo lights of 6 LAMPS EACH	25	candle power, whether incandescent or arc lights	INCANDESCENT		

If arc lights, what protection is provided against fire, sparks, &c. NONE FITTED

Where are the switches controlling the masthead and side lights placed IN NAVIGATION LIGHT INDICATOR IN CHART RM.

### DESCRIPTION OF CABLES.

Main cable carrying 90 Amperes, comprised of 19 wires, each 13 S.W.G. diameter, .125 square inches total sectional area  
 Branch cables carrying 30 Amperes, comprised of 7 wires, each 16 S.W.G. diameter, .022 square inches total sectional area  
 Branch cables carrying Amperes, comprised of wires, each S.W.G. diameter, square inches total sectional area  
 Leads to lamps carrying 5 Amperes, comprised of 3 wires, each .029 S.W.G. diameter, .002 square inches total sectional area  
 Cargo light cables carrying 1.8 Amperes, comprised of 3 wires, each .029 S.W.G. diameter, .002 square inches total sectional area

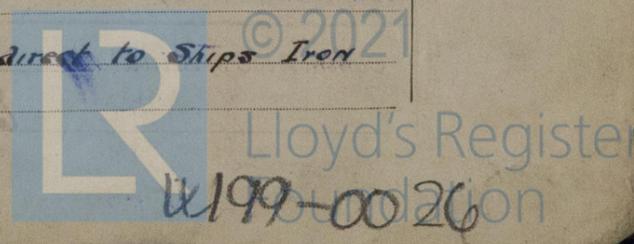
### DESCRIPTION OF INSULATION, PROTECTION, ETC.

Conductors of High Conductivity Tinned Copper Wire, Insulated With Pure And Vulcanized India Rubber, Taped or Lead Covered. Also The Foregoing, But Taped & Lead Covered & Armoured With Galvanized Steel Wires & Served Overall with Braid.  
 Joints in cables, how made, insulated, and protected NO JOINTS — PORCELAIN EXTENSION BOXES USED.

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 Clipped To Wood Bulkheads or direct to Ships Iron With Brass or Galvanized Clips by Means of Brass Screws.



**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.

Armoured & Braided Cable.

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat L.C. & A.

What special protection has been provided for the cables near boiler casings L.C. & A.

What special protection has been provided for the cables in engine room L.C. & A.

How are cables carried through beams HOLE BORED & BUSHED WITH FIBRE through bulkheads, &c. W/T BULKHEAD GLANDS

How are cables carried through decks W/T DECK TUBES

Are any cables run through coal bunkers N° 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, ARMOURD, & BRAIDED OVERALL.

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 —

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 —

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.

**SIEMENS BROS & COY LTD**

*C. Hedden & Co. Ltd.*  
Electrical Engineers

Date 10<sup>th</sup> Nov 1920.

**COMPASSES.**

Distance between dynamo or electric motors and standard compass ABOUT 190 FT.

Distance between dynamo or electric motors and steering compass ABOUT 190 FT.

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
<u>.3</u>	<u>4</u>	<u>3</u>	<u>3</u>
<u>6.2</u>	<u>12</u>	<u>13</u>	<u>13</u>
<u>16.8</u>	<u>12</u>	<u>13</u>	<u>13</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.

**FOR BARCLAY, CURLE & CO., LTD.**

Builder's Signature.

Date 12<sup>th</sup> Nov. 1920

**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.

Elec Light Bell 26/11/20

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

Committee's Minute

GLASGOW 23 NOV 1920

Elec. Light. W.M.



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THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

St. 22.11.20

Im. 7.19.—Transfer.