

# REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 20841

Port of Sunderland Date of First Survey ✓ Date of Last Survey 27<sup>th</sup> July 02 No. of Visits ✓  
 No. in 1 the Iron Steel S. S. "Kelvin-side" Port belonging to Glasgow  
 Reg. Book Built at Sunderland By whom Short Bros Ltd When built 1902  
 Owners Glasgow S.S. Coy Owners' Address Glasgow  
 Yard No. 303 Electric Light Installation fitted by S. Hand, Forge & Engr. Coy When fitted 1902

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

Inverted open type engine coupled direct to  
Compound wound multipolar dynamo  
 Capacity of Dynamo 90 Amperes at 100 Volts, whether continuous or alternating current Continuous  
 Where is Dynamo fixed In engine room  
 Position of Main Switch Board near dynamo having switches to groups three of lights, &c., as below  
 Positions of auxiliary switch boards and numbers of switches on each out board controlling cable lights  
fixed at top of engine room

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 of cables of all circuits including lamp circuits Yes  
 Are the cut outs of non-oxidizable metal Lin 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

Total number of lights provided for 140 arranged in the following groups :-

Group	Number of lights	Each of	Candle power	Requiring a total current of	Amperes
A	<u>39</u>	<u>16</u>	<u>16</u>	<u>23.4</u>	<u>Amperes</u>
B	<u>38</u>	<u>16</u>	<u>16</u>	<u>22.8</u>	<u>Amperes</u>
C	<u>29</u>	<u>16</u>	<u>16</u>	<u>17.4</u>	<u>Amperes</u>
D					<u>Amperes</u>
E					<u>Amperes</u>
	<u>2</u>	<u>Mast head light with 1 lamp each of</u>	<u>32</u>	<u>2.4</u>	<u>Amperes</u>
	<u>2</u>	<u>Side light with 1 lamp each of</u>	<u>32</u>	<u>2.4</u>	<u>Amperes</u>
	<u>5</u>	<u>Cargo lights with 6.16 c/p lamps each</u>			<u>incandescent</u>

If arc lights, what protection is provided against fire, sparks, &c. -

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 12 L.S.G. diameter, .13 square inches total sectional area  
 Branch cables carrying 24 Amperes, comprised of 7 wires, each 16 L.S.G. diameter, .024 square inches total sectional area  
 Branch cables carrying 12 Amperes, comprised of 7 wires, each 18 L.S.G. diameter, .012 square inches total sectional area  
 Leads to lamps carrying .6 Amperes, comprised of 1 wires, each 18 L.S.G. diameter, .001 square inches total sectional area  
 Cargo light cables carrying .6 Amperes, comprised of 19 wires, each 30 L.S.G. diameter, .005 square inches total sectional area

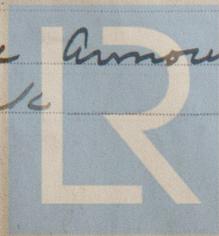
## DESCRIPTION OF INSULATION, PROTECTION, ETC.

Copper wires tinned and insulated with pure & vulcanising India Rubber Paper & charred & the whole vulcanised together & compounded  
 Joints in cables, how made, insulated, and protected Working carried out without joints on the double pole distribution system

Are all the joints of cables thoroughly soldered, resin only having been used as a flux - 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 Lead covered and armoured cables are clipped up to under side of shelter deck



**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 and armoured wire used

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

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

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

How are cables carried through beams Holes bored with hard wood through bulkheads, &c. W.T. & do used

How are cables carried through decks W.T. Deck. Lubes used

Are any cables run through coal bunkers do 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 and armoured wire used

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 Fittings protected with strong C.I. covers

Where are the main switches and cut outs for these lights fitted In Engine Room

If in the spaces, how are they specially protected as above

Are any switches or cut outs fitted in bunkers do

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 -

**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 an ammeter, fixed on Switchboard

The installation is also supplied with a rollmeter and

The copper used is guaranteed to have a conductivity of 98 per cent. that of pure copper.

Insulation of cables is guaranteed to have a resistance of not less than 2000 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.

**THE SUNDERLAND FORGE & ENGINEERING CO., LTD.**

Electrical Engineers

Date 17<sup>th</sup> March 1902

**COMPASSES.**

Distance between dynamo or electric motors and standard compass 106 feet

Distance between dynamo or electric motors and steering compass 150 feet

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	and on	feet from steering compass
6	on	feet from standard compass	and on	feet from steering compass
5	14	feet from standard compass	6	feet from steering compass
✓	✓	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 E till S course in the case of the standard compass and nil degrees on E till S course in the case of the steering compass.

**FOR SHORT BROTHERS, LIMITED**

Builder's Signature.

Date 17. 3. 02

**GENERAL REMARKS.**

This installation appears to merit the favorable consideration of the Committee

J. W. F. Moore

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

Committee's Minute



THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

REPORT FORM NO. 14