

# REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 11194

Port of Middlesbrough Date of First Survey 19.10.21 Date of Last Survey 12.1.22 No. of Visits 15  
 No. in Reg. Book on the Iron or Steel S.S. ILLINGWORTH Port belonging to  
 Built at Stockton By whom Messrs Richardson Duck & Co When built 1922  
 Owners' Address  
 Yard No. 669 Electric Light Installation fitted by Messrs The Sunderland Forge & Coy Co When fitted 1922

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

One combined plant consisting of single cylinder vertical steam type inverted engine 3000 revs, 100 lbs steam coupled to compound wound multipolar dynamo. - Both by S.F. & C.  
 Capacity of Dynamo 200 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 Close to Dynamo having switches to groups Six of lights, &c., as below  
 Positions of auxiliary switch boards and numbers of switches on each In Chart Room with switches controlling Port, Starboard, Foremast, Mainmast, Stern, Compasses, Telegraphs, amuse lamps.

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 136 @ 16 1/2 arranged in the following groups :-

|  |                   |        |  |              |         |
|--|-------------------|--------|--|--------------|---------|
| A Navigation                           | 20 lights each of | 16     | candle power requiring a total current of        | 12.0         | Amperes |
| B Saloon & Hold Cargo                  | 37 lights each of | "      | candle power requiring a total current of        | 22.2         | Amperes |
| C Eng'g, App' & Cargo                  | 55 lights each of | "      | candle power requiring a total current of        | 33.0         | Amperes |
| D Engine Room                          | 24 lights each of | "      | candle power requiring a total current of        | 14.4         | Amperes |
| E Wireless                             | - lights each of  | -      | candle power requiring a total current of        | -            | Amperes |
| F Projector                            | - lights each of  | -      | candle power requiring a total current of        | -            | Amperes |
| 2 Mast head lights with / lamp each of |                   | 32     | candle power requiring a total current of        | 2.4          | Amperes |
| 2 Side lights with / lamp each of      |                   | 32     | candle power requiring a total current of        | 2.4          | Amperes |
| 5 Cargo lights of                      |                   | 6 - 16 | candle power, whether incandescent or arc lights | Incandescent |         |

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 200 Amperes, comprised of 37 wires, each 0.093 S.W.G. diameter, 0.25 square inches total sectional area  
 Branch cables carrying 33.0 Amperes, comprised of 7 wires, each 0.064 S.W.G. diameter, 0.022 square inches total sectional area  
 Branch cables carrying 12.0 Amperes, comprised of 7 wires, each 0.036 S.W.G. diameter, 0.007 square inches total sectional area  
 Leads to lamps carrying 0.6 Amperes, comprised of 3 wires, each 0.029 S.W.G. diameter, 0.002 square inches total sectional area  
 Cargo light cables carrying 3.6 Amperes, comprised of 3 wires, each 0.029 S.W.G. diameter, 0.002 square inches total sectional area

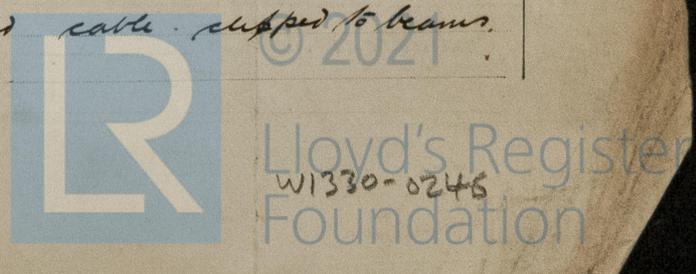
**DESCRIPTION OF INSULATION, PROTECTION, ETC.**

Mains :- Pure Vulcanized I.R. Taped Vulcanized then Armoured & Braided  
 Machinery Spaces :- " " " " " then Lead covered Armoured & Braided  
 Accommodation :- " " " " " then Lead covered.  
 Joints in cables, how made, insulated, and protected none made.

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 none made.

How are the cables led through the ship, and how protected Armoured Braided cable slipped to beams.



**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. *Armoured & Braided in iron tubes or lead sheathed*

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

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

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

How are cables carried through beams *Holes bushed with fibre* through bulkheads, &c. *H/P. Glants.*

How are cables carried through decks *H/P. 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 *Armoured & Braided*

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 *both on main 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.

p.pro. THE SUNDERLAND FORGE & ENGINEERING CO. LTD.,

Director. *Electrical Engineers* Date *21st January 1922.*

**COMPASSES.**

Distance between dynamo or electric motors and standard compass *165 feet*

Distance between dynamo or electric motors and steering compass *215*

The nearest cables to the compasses are as follows:—

|                  |           |        |                 |                            |          |                            |
|------------------|-----------|--------|-----------------|----------------------------|----------|----------------------------|
| A cable carrying | <i>12</i> | Ampere | <i>11</i>       | feet from standard compass | <i>—</i> | feet from steering compass |
| A cable carrying | <i>.6</i> | Ampere | <i>led into</i> | feet from standard compass | <i>—</i> | feet from steering compass |
| A cable carrying | <i>-</i>  | Ampere | <i>—</i>        | feet from standard compass | <i>—</i> | 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. *90.*

FOR RICHARDSON, DUCK & CO. LTD.

*E. Robson.* Builder's Signature. Date *29th January 1922*

**GENERAL REMARKS.**

*Managing Director*

*This installation has been fitted in accordance with the Rules. The materials and workmanship are sound and good and on completion the installation was examined under full working conditions and found satisfactory*

*Applied for 13/1/22 Elec. Light. Wm Morrison*  
*Received 15/1/22 29/30/22* Surveyor to Lloyd's Register of Shipping.

Committee's Minute

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.



Small, 20. - Transfer.