

# REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 69670

Port of Newcastle-on-Tyne Date of First Survey 9<sup>th</sup> Feb 1917 Date of Last Survey 21<sup>st</sup> Feb 1917 No. of Visits 6  
 No. in Reg. Book 17 on the Iron or Steel J. S. Markworth Port belonging to Newcastle  
 Built at South Shields By whom John Rendhead & Son Ltd when built 1917  
 Owners R. J. Dalgleish Owners' Address Newcastle  
 Yard No. 452 Electric Light Installation fitted by The Sunderland Forge & Eng. Co. Ltd. When fitted 1917

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

One combined plant, consisting of "I.F. & S." open type, inverted Engine 8" x 7" 300 revs. 100 lbs steam coupled to "I.F. & S." compound wound multipolar dynamo.

Capacity of Dynamo 175 Amperes at 100 Volts, whether continuous or alternating current continuous ✓

Where is Dynamo fixed Eng. Room, Top of Stairs, Starboard side Whether single or double wire system is used double ✓

Position of Main Switch Board Aft End, Bunker B'd. having switches to groups five of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each in Chart Room with 7 switches controlling sidelights - masthead lights - binnacles & Morse lights

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 No 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 132 @ 16 c.p. arranged in the following groups :-

A	Projector	lights each of		candle power requiring a total current of	<u>55/60</u>	Amperes
B	Wireless	lights each of		candle power requiring a total current of	<u>25</u>	Amperes
C	Eng. Room 27 @ 16 c.p.	lights each of	<u>16</u>	candle power requiring a total current of	<u>15.1</u>	Amperes
D	Eng. Room & Aft 44	lights each of	<u>40 @ 16 c.p. &amp; 2 @ 32 c.p.</u>	candle power requiring a total current of	<u>22.4</u>	Amperes
E	Saloon & No. 61	lights each of	<u>49 @ 16 c.p. &amp; 6 @ 32 c.p.</u>	candle power requiring a total current of	<u>34.1</u>	Amperes
	2 Mast head light with 1 lamps each of		<u>32</u>	candle power requiring a total current of	<u>2.24</u>	Amperes
	2 Side light with 1 lamps each of		<u>32</u>	candle power requiring a total current of	<u>2.24</u>	Amperes
	5 Cargo lights of		<u>6 - 16</u>	candle power, whether incandescent or arc lights	<u>incandescent</u>	

If arc lights, what protection is provided against fire, sparks, &c. 2-15 amp open-type Arc lamps fitted with hexagonal glazed lanterns

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

## DESCRIPTION OF CABLES.

Main cable carrying	<u>175</u> Amperes, comprised of	<u>4-19</u> wires, each	<u>16</u> S.W.G. diameter,	<u>.240</u> square inches total sectional area
Branch cables carrying	<u>34.1</u> Amperes, comprised of	<u>19</u> wires, each	<u>18</u> S.W.G. diameter,	<u>.034</u> square inches total sectional area
Branch cables carrying	<u>25</u> Amperes, comprised of	<u>7</u> wires, each	<u>18</u> S.W.G. diameter,	<u>.0125</u> square inches total sectional area
Leads to lamps carrying	<u>5</u> Amperes, comprised of	<u>7</u> wires, each	<u>25</u> S.W.G. diameter,	<u>.0022</u> square inches total sectional area
Cargo light cables carrying	<u>15</u> Amperes, comprised of	<u>7</u> wires, each	<u>21 1/2</u> S.W.G. diameter,	<u>.0049</u> square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

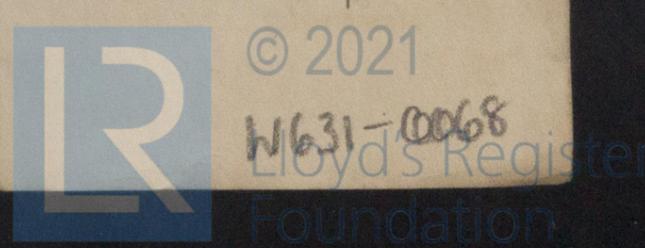
Mains etc. Pure Para Rubber, Vulcanized I.R. Taped, Braided and compound overall  
 Machinery spaces etc. ditto Armoured and Braided  
 Cabin Accommodation etc. ditto Lead covered.

Joints in cables, how made, insulated, and protected None.

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.

How are the cables led through the ship, and how protected V.I.R. run in pipe.



**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 V.I.R. rim in pipe

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

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

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

How are cables carried through beams holes bushed with fibre through bulkheads, &c. W.F. Glands ✓

How are cables carried through decks W.F. 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 No

If so, how are they protected V.I.R. rim in pipe

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 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 Main I'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.

**P. PRO THE SUNDERLAND FORGE & ENGINEERING CO., LTD.**, Electrical Engineers Date Feb 19<sup>th</sup> 1917

**COMPASSES.**

Distance between dynamo or electric motors and standard compass Director about 140 feet

Distance between dynamo or electric motors and steering compass about 130 feet.

The nearest cables to the compasses are as follows:—

A cable carrying	<u>8.9</u>	Amperes	<u>about 12</u>	feet from standard compass	<u>about 12</u>	feet from steering compass
A cable carrying	<u>1.12</u>	Amperes	<u>about 9</u>	feet from standard compass	<u>led into</u>	<u>feet from steering compass</u>
A cable carrying	<u>1.12</u>	Amperes	<u>led into</u>	<u>feet from standard compass</u>	<u>about 9</u>	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 - course in the case of the standard compass and - degrees on - course in the case of the steering compass.

**FOR JOHN READHEAD & SONS, LIMITED,** Builder's Signature. Date Feb 27<sup>th</sup> 1917

**GENERAL REMARKS.**

This electric lighting installation has been fitted in accordance with the rules & satisfactorily tested with all lamps burning.

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

J.W.D. 5/3/17.

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

Committee's Minute

FRI 9-MAR. 1917

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

