

REPORT ON ELECTRIC LIGHTING INSTALLATION.

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No. 44564

Port of *Newcastle-on-Tyne* Date of First Survey *Oct. 21st* Date of Last Survey *Dec. 10th 1902* No. of Visits *6*
 No. in Reg. Book *on the Iron or Steel s/s "Grigua"* Port belonging to *London*
 Built at *Newcastle-on-Tyne* By whom *W. G. Armstrong Whitworth* When built *1902*
 Owners *Bucknall Bros.* Owners' Address *London*
 Yard No. *730* Electric Light Installation fitted by *Clarke Chapman & Co Ltd.* When fitted *1902*

DESCRIPTION OF DYNAMO, ENGINE, ETC.

One tandem compound double cylinder double acting engine direct coupled to continuous current compound wound dynamo.
 Capacity of Dynamo *100* Amperes at *100* Volts, whether continuous or alternating current *continuous*
 Where is Dynamo fixed *Starting platform engine room starboard side.*
 Position of Main Switch Board *Below platform abaft dynamo* having switches to groups *A B C D* of lights, &c., as below
 Positions of auxiliary switch boards and numbers of switches on each *each light is provided with a switch fitted near to light.*

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 or cables of all circuits including lamp circuits *yes*

Are the cut outs of non-oxidizable metal *yes* 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, slate and ambroin.*

Total number of lights provided for *115* arranged in the following groups:—

A	<i>36</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>21.6</i>	Amperes
B	<i>19</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>11.4</i>	Amperes
C	<i>18</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>10.8</i>	Amperes
D	<i>42</i>	lights each of	<i>38-16</i> <i>4-32</i>	candle power requiring a total current of	<i>27.6</i>	Amperes
E		lights each of		candle power requiring a total current of		Amperes
<i>2</i>	Mast head light with	<i>2</i> lamps each of	<i>32</i>	candle power requiring a total current of	<i>2.4</i>	Amperes
<i>2</i>	Side light with	<i>2</i> lamps each of	<i>32</i>	candle power requiring a total current of	<i>2.4</i>	Amperes
<i>5</i>	Cargo lights of each	<i>8-16</i>		candle power, whether incandescent or arc lights	<i>incandescent</i>	

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 Chart House.*

DESCRIPTION OF CABLES.

Main cable carrying *71.4* Amperes, comprised of *19* wires, each *14* L.S.G. diameter, *.0944* square inches total sectional area
 Branch cables carrying *27.6* Amperes, comprised of *7* wires, each *14* L.S.G. diameter, *.0348* square inches total sectional area
 Branch cables carrying *10.8* Amperes, comprised of *7* wires, each *18* L.S.G. diameter, *.0125* square inches total sectional area
 Leads to lamps carrying *.6* Amperes, comprised of *1* wires, each *18* L.S.G. diameter, *.0018* square inches total sectional area
 Cargo light cables carrying *4.8* Amperes, comprised of *7* wires, each *20* L.S.G. diameter, *.0072* square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

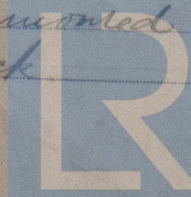
Vulcanized rubber taped and braided and lead covered overall and where exposed steel armoured over the lead covering.

Joints in cables, how made, insulated, and protected *No joints except mechanical ones.*

Are all the joints of cables thoroughly soldered, resin only having been used as a flux *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, no*

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 secured by brass clips fixed close up to deck.*



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DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.

Are they in places always accessible *except in upper green deck bunkers, yes*
 What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture *lead covered and steel armoured.*
 What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *lead covered steel armoured*
 What special protection has been provided for the cables near boiler casings *lead covered steel armoured.*
 What special protection has been provided for the cables in engine room " " " "
 How are cables carried through beams *in bushes* through bulkheads, &c. *in watertight glands.*
 How are cables carried through decks *in watertight galvanized iron deck tubes.*
 Are any cables run through coal bunkers *yes* 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 steel armoured fixed close up to deck*
 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 cut outs for these lights fitted _____
 If in the spaces, how are they specially protected _____
 Are any switches or cut outs fitted in bunkers *no*
 Cargo light cables, whether portable or permanently fixed *portable* How fixed *in cast iron watertight boxes.*
 In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel *Double wire system.*
 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
 The installation is *now* supplied with a voltmeter and *also* an amperemeter, fixed *main switchboard*

The copper used is guaranteed to have a conductivity of *100* per cent. that of pure copper.
 Insulation of cables is guaranteed to have a resistance of not less than *1000* 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.

For CLARKE, CHAPMAN & Co. LTD.

Electrical Engineers

Date *Novem. 29th 1902*

COMPASSES.

Distance between dynamo or electric motors and standard compass *Director. 66 ft.*
 Distance between dynamo or electric motors and steering compass *60 ft.*
 The nearest cables to the compasses are as follows:—
 A cable carrying *4.8* Amperes *15* feet from standard compass *9* feet from steering compass
 A cable carrying *.6* Amperes *6* feet from standard compass *lighted up.* feet from steering compass
 A cable carrying _____ Amperes _____ 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 *all courses* course in the case of the standard compass and *Nil* degrees on *all* course in the case of the steering compass.

SIR W. B. ARMSTRONG, WHITWORTH & Co. LTD.

Builder's Signature.

Date *13th Dec 1902*

GENERAL REMARKS.

This installation appears to have been fitted in a satisfactory manner and in accordance with the rules.

H. A. Stokes

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

Committee's Minute

It is submitted that this installation appears to meet the Rules requirements.

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22.12.02

THE SURVEYORS ARE REQUESTED TO WRITE ACROSS THIS MARGIN.