

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 5152

Port of *Newcastle on Tyne* Date of First Survey *July 27* Date of Last Survey *August 26* No. of Visits *6*
 No. in Reg. Book *21* on the *Iron* or Steel *1/2* "San Cristobal" Port belonging to *London*
 Built at *Low Walker* By whom *Sir W. G. Armstrong, Whitworth & Co. Ltd.* When built *1906*
 Owners *Pearson & Son Ltd* Owners' Address *London*
 Yard No. *781* Electric Light Installation fitted by *Clarke Chapman & Co. Ltd.* When fitted *1906*

DESCRIPTION OF DYNAMO, ENGINE, ETC.

One single cylinder double acting engine direct coupled to a continuous current compound wound dynamo.

Capacity of Dynamo *140* Amperes at *65* Volts, whether continuous or alternating current *continuous*
 Where is Dynamo fixed *in Engine room. Bottom Plate* Whether single or double wire system is used *Double*
 Position of Main Switch Board *near dynamo* having switches to groups *A. B. C* of lights, &c., as below
 Positions of auxiliary switch boards and numbers of switches on each *each light or group of lights provided with switches as required*

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 & ambrin.*

Total number of lights provided for *83* arranged in the following groups:—

A	<i>20" Projector</i>	lights each of	<i>20000</i>	candle power requiring a total current of	<i>60</i>	Amperes
B	<i>32</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>29.5</i>	Amperes
C	<i>51</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>46.1</i>	Amperes
D		lights each of		candle power requiring a total current of		Amperes
E		lights each of		candle power requiring a total current of		Amperes
	<i>2 Mast head light with</i>	<i>1</i> lamps each of	<i>32</i>	candle power requiring a total current of	<i>3.4</i>	Amperes
	<i>2 Side light with</i>	<i>1</i> lamps each of	<i>32</i>	candle power requiring a total current of	<i>3.4</i>	Amperes
	<i>2 Cargo lights of</i>	<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. *Totally enclosed in hexagonal clear glass lantern.*

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

DESCRIPTION OF CABLES.

Main cable carrying	<i>140</i>	Amperes, comprised of	<i>37</i>	wires, each	<i>14</i>	L.S.G. diameter, <i>.1838</i>	square inches total sectional area
Branch cables carrying	<i>60</i>	Amperes, comprised of	<i>19</i>	wires, each	<i>16</i>	L.S.G. diameter, <i>.0603</i>	square inches total sectional area
Branch cables carrying	<i>4</i>	Amperes, comprised of	<i>4</i>	wires, each	<i>20</i>	L.S.G. diameter, <i>.0070</i>	square inches total sectional area
Leads to lamps carrying	<i>.9</i>	Amperes, comprised of	<i>1</i>	wires, each	<i>18</i>	L.S.G. diameter, <i>.0018</i>	square inches total sectional area
Cargo light cables carrying	<i>4</i>	Amperes, comprised of	<i>4</i>	wires, each	<i>20</i>	L.S.G. diameter, <i>.0070</i>	square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Vulcanized india-rubber taped and braided, lead covered overall, where exposed steel armouring 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 steel armoured*
Cables led in galvanized iron pipes fixed in N. 1. Chains on deck

DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.

Are they in places always accessible *no*

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 & armoured*

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

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

How are cables carried through beams *in lead bushes* through bulkheads, &c. *in watertight glands.*

How are cables carried through decks *through pipes & galvanized iron deck tubes.*

Are any cables run through coal bunkers *no* or cargo spaces *no* or spaces which may be used for carrying cargo, stores, or baggage *yes*

If so, how are they protected *Lead covered & armoured in pipes*

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 *—*

Cargo light cables, whether portable or permanently fixed *Portable* How fixed *in Watertight Cl. 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 *—*

The installation is *now* supplied with a voltmeter and *also* an amperemeter, fixed *switchboard*

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 *yes*

Are any switches, cut outs, or joints of cables fitted in the pump room or companion *no, all switches & connections outside.*

How are the lamps specially protected in places liable to the accumulation of vapour or gas *all fittings guarded & airtight.*

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 *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.

FOR CLARKE, CHAPMAN & CO. LTD.

Robert Scope

Electrical Engineers

Date *Oct 22nd 1906.*

COMPASSES.

Distance between dynamo or electric motors and standard compass *Director. 120 feet.*

Distance between dynamo or electric motors and steering compass *112 "*

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
<i>.9</i>	<i>12</i>	<i>6</i>	<i>6</i>
<i>.9</i>	<i>6</i>	<i>12</i>	<i>12</i>
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

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* courses in the case of the steering compass.

SIR W. G. ARMSTRONG & CO. LTD.

Builder's Signature.

Date

25/10/06

GENERAL REMARKS.

R. S. Saxton tele. etc.

This installation examined and as far as seen appears satisfactory

J. Y. Threlkay

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

Committee's Minute

It is submitted that the Record Elec. Light be noted in the Reg. Book.

Lloyd's Register Foundation

30.10.06

REPORT FORM No. 13.—5m.34.

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.