

5 OCT. 1899

Received at London Office

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REPORT ON ELECTRIC LIGHTING INSTALLATION.

No. 17374

Port of *Glasgow* Date of First Survey ☒ Date of Last Survey ☒ No. of Visits ☒
 No. in Reg. Book on the Iron or Steel *S.S. Montezuma* Port belonging to
 Built at *Glasgow* By whom *A. Stephens* When built *1899*
 Owners *Elder Dempster* Owners' Address *Liverpool*
 Yard No. *383* Electric Light Installation fitted by *W. H. Allen Son & Co* When fitted *1899*

DESCRIPTION OF DYNAMO, ENGINE, ETC.

One single cylinder engine ~~running~~ direct coupled to a pole drum dynamo

Capacity of Dynamo *175* Amperes at *60* Volts, whether continuous or alternating current *continuous*

Where is Dynamo fixed *Engine room Starting platform, Thrust recess*

Position of Main Switch Board *Thrust recess* having switches to groups *A B C D E F* of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each

One at top of engine room containing 5 switches & fuses for cattle deck lights and fuses for the cargo light clusters

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

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

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 *wire* 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 *186* arranged in the following groups:—

A	<i>12</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>14</i>	Amperes
B	<i>22</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>28</i>	Amperes
C	<i>31</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>31</i>	Amperes
D	<i>42</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>43</i>	Amperes
E	<i>20</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>20</i>	Amperes
F	<i>54</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>54</i>	Amperes
	<i>1</i>	Mast head light with <i>1</i> lamp each of	<i>32</i>	candle power requiring a total current of	<i>8</i>	Amperes
	<i>2</i>	Side light with <i>1</i> lamp each of	<i>32</i>	candle power requiring a total current of	<i>4</i>	Amperes
F	<i>9</i>	Cargo lights of	<i>96</i>	candle power, whether incandescent or arc lights	<i>Incandescent</i>	

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

Where are the switches controlling the masthead and side lights placed *in wheelhouse on bridge*

DESCRIPTION OF CABLES.

Main cable carrying *175* Amperes, comprised of *37* wires, each *14* L.S.G. diameter, *.186* square inches total sectional area
 Branch cables carrying *54* Amperes, comprised of *19* wires, each *16* L.S.G. diameter, *.0612* square inches total sectional area
 Branch cables carrying *28* Amperes, comprised of *7* wires, each *15* L.S.G. diameter, *.0285* square inches total sectional area
 Leads to lamps carrying *1* Amperes, comprised of *1* wires, each *18* L.S.G. diameter, *.00181* square inches total sectional area
 Cargo light cables carrying *6* Amperes, comprised of *145* wires, each *38* L.S.G. diameter, *.000408* square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Pure india rubber then vulcanised india rubber, India rubber coated tape vulcanised together with braided cotton & preservative compound, in strong wood casing; Cattle Deck, lead covered in wood casing
 Joints in cables, how made, insulated, and protected *Splined joints, soldered then insulated with a layer of felt. Rubber strip then finished off with cyokerite tape & insulating varnish*

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 *none in Bunkers*

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 *Through the beams close to Deck from the Engine Room Fore & aft along starboard alleyway under 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 *no wires in open alleyway. Mast & Side light wires in Iron pipe*

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *none near undue heat*

What special protection has been provided for the cables near boiler casings *Lead covered & armoured*

What special protection has been provided for the cables in engine room *Lead covered & armoured*

How are cables carried through beams *In Fibre Bushes* through bulkheads, &c. *Through Fibre Bushes*

How are cables carried through decks *In Galv'd iron pipes bushed with fibre*

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 *Strong wood casing & lead sheathed wire*

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage *none in Bunkers, Portables for cargo space*

If so, how are the lamp fittings and cable terminals specially protected *-----*

Where are the main switches and cut outs for these lights fitted *Engine room entrance*

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 *By brass coupling*

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel *Screwed to dynamo pole piece*

How are the returns from the lamps connected to the hull *Brass screws with wire soldered on*

Are all the joints with the hull in accessible positions *yes*

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 *supplied with a voltmeter and an ammeter, fixed on Switchboard*

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.

For W. H. ALLEN, SON & Compy.
E. Catene

Electrical Engineers

Date *September 23/99*

COMPASSES.

Distance between dynamo or electric motors and standard compass *190*

Distance between dynamo or electric motors and steering compass *182*

The nearest cables to the compasses are as follows:—

Cable	Amperes	Feet from standard compass	Feet from steering compass
A cable carrying <i>28</i>	<i>28</i>	<i>20</i>	<i>feet from steering compass</i>
A cable carrying <i>6</i>	<i>20</i>	<i>12</i>	<i>feet from steering compass</i>
A cable carrying <i>1</i>	<i>4</i>	<i>into</i>	<i>feet from steering compass</i>

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 *every* course in the case of the standard compass and *nil* degrees on *every* course in the case of the steering compass.

Ally. Stephens & Son Builder's Signature. Date *28th Sept. 1899.*

GENERAL REMARKS. *This installation has been well fitted on board & is in accordance with the rules*

A. McRae

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

Committee's Minute

It is submitted that this installation appears to be in accordance with the Rules