

THUR. 25 JAN 1906

Received at London Office

18

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 6021

Port of *Belfast* Date of First Survey *Dec 21st* Date of Last Survey *January 13* No. of Visits *4*
 No. in Reg. Book *on the Register* *Manipur* Port belonging to *Liverpool*
 Built at *Belfast* By whom *Harland & Wolff* When built *1906*
 Owners *W. H. McKelbank* Owners' Address *Liverpool*
 Yard No. *344* Electric Light Installation fitted by *W. H. Allen & Son Ltd* When fitted *1906*

DESCRIPTION OF DYNAMO, ENGINE, ETC.

2 Engines having 6 cylinders 6" diam. x 5" stroke, two Dynamos, multipolar type, compound wound
 Capacity of Dynamo *60* Amperes at *100* Volts, whether continuous or alternating current *continuous*
 Where is Dynamo fixed *on starting platform, Starboard side*
 Position of Main Switch Board *on bulkhead over dynamo* having switches to groups *A, B, C, D, E* of lights, &c., as below
 Positions of auxiliary switch boards and numbers of switches on each *—*

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 *—* 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 *100* per cent over the normal current *Yes*

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*

Total number of lights provided for *143* arranged in the following groups:—

A Accommodation and signals <i>41</i> lights each of <i>16</i>	candle power requiring a total current of <i>24.6</i>	Amperes
B Engine room <i>42</i> lights each of <i>16</i>	candle power requiring a total current of <i>25.2</i>	Amperes
C Forecastle <i>6</i> lights each of <i>16</i>	candle power requiring a total current of <i>3.6</i>	Amperes
D Poop <i>18</i> lights each of <i>16</i>	candle power requiring a total current of <i>10.8</i>	Amperes
E Cargo as below lights each of	candle power requiring a total current of	Amperes
<i>2</i> Mast head lights with <i>1</i> lamp each of <i>32</i>	candle power requiring a total current of <i>1.2</i>	Amperes
<i>2</i> Side lights with <i>1</i> lamp each of <i>32</i>	candle power requiring a total current of <i>1.2</i>	Amperes
<i>4</i> Cargo lights <i>each of eight 16</i>	candle power, whether incandescent or arc lights <i>Incandescent</i>	

If arc lights, what protection is provided against fire, sparks, &c. *Two arc lamps included in suerbanal plant totally enclosed in lanterns with glass slides protected by wire netting*

Where are the switches controlling the masthead and side lights placed *in chart house*

DESCRIPTION OF CABLES.

Main cable carrying <i>60</i> Amperes, comprised of <i>19</i> wires, each <i>16</i>	L.S.G. diameter, <i>.0624</i> square inches total sectional area
Branch cables carrying <i>20.8</i> Amperes, comprised of <i>7</i> wires, each <i>16</i>	L.S.G. diameter, <i>.0229</i> square inches total sectional area
Branch cables carrying <i>25.2</i> Amperes, comprised of <i>19</i> wires, each <i>18</i>	L.S.G. diameter, <i>.035</i> square inches total sectional area
Branch cables carrying <i>10.8</i> Amperes, comprised of <i>7</i> wires, each <i>22</i>	L.S.G. diameter, <i>.0189</i> square inches total sectional area
Leads to lamps carrying <i>4</i> Amperes, comprised of <i>7</i> wires, each <i>16</i>	L.S.G. diameter, <i>.0043</i> square inches total sectional area
Cargo light cables carrying <i>4.8</i> Amperes, comprised of <i>145</i> wires, each <i>38</i>	L.S.G. diameter, <i>.0043</i> square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

The conductor is insulated with two layers pure Para rubber, then one layer vulcanizing rubber the whole vulcanized together and finally taped and braided. Lugs in machinery spaces after vulcanizing are lead covered, served and spirally armoured with G. I. wires.
 Joints in cables, how made, insulated, and protected *Thoroughly soldered, insulated with two layers pure rubber and two layers prepared tape and varnished*

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*

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 *in strong wood casing*



© 2021

Lloyd's Register Foundation

W1525-0242

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

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, sewed and armoured with G.I. wire*

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

How are cables carried through beams *in fibre ferrules* through bulkheads, &c. *in fibre ferrules*

How are cables carried through decks *in G.I. pipes bushed with fibre*

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 *in strong wood casing*

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 vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel *Screwed to Yoke of magnet*

How are the returns from the lamps connected to the hull *soldered to 3/8" brass earth screws*

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 with board.*

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 *2500* 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.A. Allenson & Co. Ltd.,

F. W. Harrison

Electrical Engineers

Date *15th January 1906.*

COMPASSES.

Distance between dynamo or electric motors and standard compass *104 feet*

Distance between dynamo or electric motors and steering compass *110 feet*

The nearest cables to the compasses are as follows:—

A cable carrying *22.8* Amperes *24* feet from standard compass *24* feet from steering compass

A cable carrying *the above is double wired* feet from standard compass 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 *every* course in the case of the standard compass and *nil* degrees on *every* course in the case of the steering compass.

For Harland & Wolff Ltd

Builder's Signature.

Date *22nd January 1906*

GENERAL REMARKS.

This installation appears to be of good description throughout, and has been fitted in accordance with the Rules.

R. F. Reid

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

Committee's Minute

It is submitted that this installation appears to be satisfactory.



© 2021

Lloyd's Register Foundation

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.