

1 HUR. 21 APL 1904

REPORT ON ELECTRIC LIGHTING INSTALLATION.

No. 12294

Port of *W. Hartlepool* Date of First Survey *6th Jan* Date of Last Survey *23rd Feb 1904* No. of Visits *10*

Supp. No. in Reg. Book *49* on the ~~Iron~~ or Steel *S.S. Manchester* *Mariner* Port belonging to *Manchester*
 Built at *Hest Hartlepool* By whom *Furness, Withy & Co. Ltd.* When built *1904*
 Owners *Manchester Liners. Lim.* Owners' Address *Manchester*
 Yard No. *270* Electric Light Installation fitted by *Furness, Withy & Co. Ltd.* When fitted *1904*

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Compound wound Dynamo, coupled direct to single cylinder Engine, running at a speed of *350* revolutions at *80^{lbs}* steam pressure

Capacity of Dynamo *100* Amperes at *100* Volts, whether continuous or alternating current *Continuous*Where is Dynamo fixed *On bottom platform of engine room, starboard side.*Position of Main Switch Board *Near Dynamo* having switches to groups *4* of lights, &c., as belowPositions of auxiliary switch boards and numbers of switches on each *Forecastle 1 & 6 Navigation 1 & 6**Saloon 2 & 6 Engineers Accommodation 1 & 3 Aft 1 & 3**Engine Room 2 & 4, 2 & 3, 1 & 8*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 currentAre 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 *127* arranged in the following groups:—

A	<i>16</i>	lights each of	<i>16 cp.</i>	candle power requiring a total current of	<i>9.6</i>	Amperes
B	<i>14</i>	lights each of	<i>16 cp.</i>	candle power requiring a total current of	<i>6.6</i>	Amperes
C	<i>40</i>	lights each of	<i>16 cp.</i>	candle power requiring a total current of	<i>24</i>	Amperes
D	<i>27</i>	lights each of	<i>16 cp.</i>	candle power requiring a total current of	<i>16.2</i>	Amperes
E	<i>✓</i>	lights each of	<i>✓</i>	candle power requiring a total current of		Amperes
<i>1</i>	<i>Mast head light with 1 lamp</i>	each of	<i>32 cp.</i>	candle power requiring a total current of	<i>1.2</i>	Amperes
<i>2</i>	<i>Side lights with 1 lamp</i>	each of	<i>32 cp.</i>	candle power requiring a total current of	<i>2.4</i>	Amperes
<i>4</i>	<i>Cargo lights of 6 - 16 cp.</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 Wheel House on Bridge.*

DESCRIPTION OF CABLES.

Main cable carrying	<i>61.2</i> Amperes, comprised of	<i>37</i> wires, each	<i>16</i> L.S.G. diameter,	<i>.419</i> square inches total sectional area
Branch cables carrying	<i>12.7</i> Amperes, comprised of	<i>7</i> wires, each	<i>18</i> L.S.G. diameter,	<i>.0127</i> square inches total sectional area
Branch cables carrying	<i>7.14</i> Amperes, comprised of	<i>7</i> wires, each	<i>20</i> L.S.G. diameter,	<i>.00714</i> square inches total sectional area
Leads to lamps carrying	<i>35.2</i> Amperes, comprised of	<i>7</i> wires, each	<i>14</i> L.S.G. diameter,	<i>.0352</i> square inches total sectional area
Cargo light cables carrying	<i>35.2</i> Amperes, comprised of	<i>7</i> wires, each	<i>14</i> L.S.G. diameter,	<i>.0352</i> square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Best vulcanized rubber, taped & braided over, sheathed in steel armour in Engine Room, Storehold. Twin lead covered in Saloon & Accommodation

Joints in cables, how made, insulated, and protected *No joints*Are all the joints of cables thoroughly soldered, resin only having been used as a flux *—* 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 *No*How are the cables led through the ship, and how protected *Clipped under deck, armoured, passed through bulkheads by means of stuffingbox.*

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 *Steel Armour & lead covering.*

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *Steel Armour*

What special protection has been provided for the cables near boiler casings *Steel Armour & lead covering*

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

How are cables carried through beams *In fibre bushes.* through bulkheads, &c. *Watertight Stuffing Boxes*

How are cables carried through decks *Iron Pipes*

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

If so, how are they protected _____

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 *Brass Watertight Connections*

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 _____

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 Main 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.

Furness, Withy & Co. Ltd.
pro J. Jackson

Electrical Engineers

Date *18-4-04.*

COMPASSES.

Distance between dynamo or electric motors and standard compass *89 feet.*

Distance between dynamo or electric motors and steering compass *81 feet.*

The nearest cables to the compasses are as follows:—

A cable carrying <i>7.14</i> Amperes <i>7'-6"</i> feet from standard compass <i>6'-9"</i> feet from steering compass
A cable carrying _____ Amperes _____ 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 *No*

The maximum deviation due to electric currents, etc., was found to be _____ degrees on _____ course in the case of the standard compass and _____ degrees on _____ course in the case of the steering compass.

FURNESS, WITHY & CO., LIMITED.
pro J. Jackson

Builder's Signature.

Date *April 15/04*

GENERAL REMARKS.

The wiring of the vessel throughout is in accordance with the above and with the Committee's requirements.

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

Committee's Minute

It is submitted that this installation appears to meet the Rule requirements



Lloyd's Register
Foundation
21.4.04

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.