

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 11052

Port of **WEST HARTLEPOOL**. Date of First Survey **28th Sept** Date of Last Survey **21st Nov** No. of Visits **11**
 No. in Reg. Book **195** on the Iron or Steel **S.S. "Manchester Commerce"** Port belonging to **Manchester**
 Built at **West Hartlepool** By whom **Furness, Withy & Co Ltd** When built **1899**
 Owners **Messrs The Manchester Liners Ltd** Owners Address **Manchester**
 Yard No. **244** Electric Light Installation fitted by **Messrs W. B. Martin & Co Glasgow** When fitted **1899**

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Compound wound Dynamo, direct driven by single cylinder double acting Engine, fitted with automatic shaft governor & automatic lubrication
 Capacity of Dynamo **1.32** Amperes at **100** Volts, whether continuous or alternating current **continuous**
 Where is Dynamo fixed **In recess at Starting platform**
 Position of Main Switch Board **near 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 **A. (Saloon Cabin 5) B. (Entrance to Engine Room 5) C. (Entrance to Engine Room 2) D. (Engine Room bottom platform 6)**
 If cut outs are fitted on main switch board to the cables of main circuit **Yes** and on each auxiliary switch boards 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 cessel 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**

Total number of lights provided for **192** arranged in the following groups:—

A	50	lights each of	16	candle power requiring a total current of	30	Amperes
B	66	lights each of	16	candle power requiring a total current of	39.6	Amperes
C	48	lights each of	16	candle power requiring a total current of	28.8	Amperes
D	25	lights each of	16	candle power requiring a total current of	15.1	Amperes
E	4	lights each of	16	candle power requiring a total current of	2.4	Amperes
1	Mast head light with 1 lamp	each of	32	candle power requiring a total current of	1.2	Amperes
2	Side lights with 1 lamp	each of	32	candle power requiring a total current of	2.4	Amperes
8	Cargo lights of 6 lights	of 16	candle power, whether incandescent or arc lights	Incandescent		

If arc lights, what protection is provided against fire, sparks, &c. **No Arc Lamps**

Where are the switches controlling the masthead and side lights placed **In a box in Wheel House on Bridge**

DESCRIPTION OF CABLES.

Main cable carrying **117** Amperes, comprised of **37** wires, each **16** L.S.G. diameter, **.1219** square inches total sectional area
 Branch cables carrying **33.6** Amperes, comprised of **19** wires, each **18** L.S.G. diameter, **.0349** square inches total sectional area
 Branch cables carrying **15** Amperes, comprised of **19** wires, each **20** L.S.G. diameter, **.0198** square inches total sectional area
 Leads to lamps carrying **1.8** 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 **133** wires, each **38** L.S.G. diameter, **.0038** square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

A. C. copper wire tinned, insulated with pure & vulcanised rubber & tape, the whole vulcanised together. Braided & compounded. Enclosed in strong wood casing in cabins etc. and sheathed in steel armour in engine room, cattle space etc.
 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 **No joints** 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 **No joints**
 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 in cabins etc. Steel armoured wire only is used in engine room, cattle space & other open parts.**

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 *Enclosed in watertight metal tubes*

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *Armoured wire used*

What special protection has been provided for the cables near boiler casings *Armoured wire used*

What special protection has been provided for the cables in engine room *Armoured wire used.*

How are cables carried through beams *Insulating bushes where unarmoured through bulkheads, &c. watertight glands*

How are cables carried through decks *Through tubes fitted watertight to Deck.*

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 *Armoured cables carried through beams close to Deck.*

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage *In Cattledeck*

If so, how are the lamp fittings and cable terminals specially protected *By strong iron covers.*

Where are the main switches and cut outs for these lights fitted *In engine room and forward alleyway.*

~~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~~

~~How are the returns from the lamps connected to the hull~~

~~Are all the joints with the hull in accessible positions~~

VESSELS SUITABLE 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 all switches, cut outs, or joints of cables fitted in the pump room or compartment~~

~~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 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 *2,000* 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.

W. C. Martinbo

Electrical Engineers

Date *17th Nov. 1899*

COMPASSES.

Distance between dynamo or electric motors and standard compass *84 ft*

Distance between dynamo or electric motors and steering compass *84 ft*

The nearest cables to the compasses are as follows:—

A cable carrying	<i>.6</i>	Amperes	<i>5 Port</i>	feet from standard compass	<i>5 Port</i>	feet from steering compass
A cable carrying	<i>.6</i>	Amperes	<i>5 Star^d</i>	feet from standard compass	<i>5 Star^d</i>	feet from steering compass
A cable carrying	<i>5.4</i>	Amperes	<i>9</i>	feet from standard compass	<i>6</i>	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, WITBY & CO., LIMITED.

Per H. Mills

Builder's Signature

Date *Nov 20th 1899*

GENERAL REMARKS.

The bulkheads & decks, where pierced, are made H.F. by fitting the cables thro' H.F. metal glands. No cables are led thro' the bunkers. The cables are led up inside engine casing & along under side of upper deck thro' the beams, to cattle spaces &c. Portable lights to cargo holds.

C. J. Burney & Richard Hirst

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

Committee's Minute

It is submitted that this installation meets the requirements of the Rules.

Lloyd's Register Foundation

5.12.99

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

REPORT FORM No. 13.