

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 11140.

Port of **WEST HARTLEPOOL** Date of First Survey **9th** Date of Last Survey **22nd Mar** No. of Visits **1**
 No. in Reg. Book **15** on the ~~Iron~~ Steel **S.S. "Freiburg"** Port belonging to **Bremen**
 Built at **West Hartlepool** By whom **Furness & Co. Ltd.** When built **1899-1900**
 Owners **Norddeutscher Lloyd** Owners Address **Bremen**
 Yard No. **246** Electric Light Installation fitted by **J. H. Holmes & Co. Ltd.** When fitted **Mar. 1900**

DESCRIPTION OF DYNAMO, ENGINE, ETC.

One $4\frac{1}{2} \times 4$ " Open Air Engine 100 lbs press. coupled to One No 14
 Dynamo comp. wound for 100 V. 90 A. 325 R 150 Lamps.

Capacity of Dynamo **90** Amperes at **100** Volts, whether continuous ~~current~~ **Continuous**

Where is Dynamo fixed **Engine room**

Position of Main Switch Board **Starboard side near 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 **Engine Room 5th Pantry 6th**

Forward 3rd Galley 4 fuses.

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 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 **not 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 **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 **129** ~~122~~ **16 cp.** arranged in the following groups:—

A **24 Saloon** lights each of **16** candle power requiring a total current of **15** Amperes

B **24** ~~4~~ **1.4** lights each of **"** candle power requiring a total current of **15** Amperes

C **25** **Cargoes** lights each of **"** candle power requiring a total current of **15½** Amperes

D **45** **Engineers** lights each of **"** candle power requiring a total current of **24** Amperes

E **6** **Signals** lights each of **32** **including stern & anchor lights** candle power requiring a total current of **7** Amperes

1 **Mast head light** with **1** lamp each of **32 D.F.** candle power requiring a total current of **"** Amperes

2 **Side lights** with **2** lamps each of **32** " candle power requiring a total current of **"** Amperes

6 **Cargo lights** of **5** **16 cp.** candle power, whether incandescent or arc lights **incandescent**

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.**

DESCRIPTION OF CABLES.

Main cable carrying **90** Amperes, comprised of **19** wires, each **14** L.S.G. diameter, **.0954** square inches total sectional area

Branch cables carrying **24** Amperes, comprised of **4** wires, each **15** ~~14~~ L.S.G. diameter, **.0289** square inches total sectional area

Branch cables carrying **115** Amperes, comprised of **4** wires, each **14** L.S.G. diameter, **.0142** square inches total sectional area

Leads to lamps carrying **.6** Amperes, comprised of **3** wires, each **22** L.S.G. diameter, **.0018** square inches total sectional area

Cargo light cables carrying **3** ~~5~~ Amperes, comprised of **108** wires, each **38** L.S.G. diameter, **.0032** square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Armoured in Engine Room **L.C. Between deck & in Cabin.**

Joints in cables, how made, insulated, and protected **Splined joints soldered & insulated with green rubber & protective tapes**

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 wood casing with Galv. iron or wood coverings & in engine room clipped to Bulkhead by brass clips**

DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.

Are they in places always accessible *yes when cargo is out.*

What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture *Lead covering*

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

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 *fibrous brushes* through bulkheads, &c. *W I Glands.*

How are cables carried through decks *By deck tubes of lead & iron*

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 *as above.*

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 *Portables* 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 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 *not* an amperemeter, fixed *on main bus board*

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.

Allen Crowe

Electrical Engineers

Date *28-3-1900.*

COMPASSES.

Distance between dynamo or electric motors and standard compass *93 ft*

Distance between dynamo or electric motors and steering compass *89 ft*

The nearest cables to the compasses are as follows:—

Cable	Amperes	Distance from standard compass	Distance from steering compass
A cable carrying <i>15</i>	<i>30</i>	<i>25</i> feet	<i>25</i> feet
A cable carrying <i>6</i>	<i>24</i>	<i>19</i> feet	<i>19</i> feet
A cable carrying <i>1 1/2</i>	<i>10</i>	<i>5</i> feet	<i>5</i> feet

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 *no* degrees on *no* course in the case of the standard compass and *no* degrees on *no* course in the case of the steering compass.

FURNESS WITHY & CO. LIMITED

Perf. Mills

Builder's Signature

Date *April 4/1900.*

GENERAL REMARKS.

The bulkheads and decks where pierced are made A.T. by fitting the cables through A.T. metal glands. No cables are led through the bunkers. The cables are led up through inside of engine casing & along underside of deck through the beams. Portable lights to cargo holds.

E. B. Hampshire. Richard Horst

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

Committee's Minute

Already posted

This installation appears to be fitted in accordance with the Rules

12/6/00

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.