

REPORT ON ELECTRIC LIGHTING INSTALLATION.

No. 4364

Port of *Hamburg* Date of First Survey *4/2.03* Date of Last Survey *14/3.03* No. of Visits *6*
 No. in on the ~~Steel~~ *St. Pr. "Lichtenfels"* Port belonging to *Bremen*
 Reg. Book *Supp. 137* Built at *Hamburg* By whom *Flamb. Schiffb. Ges* When built *1903*
 Owners *Deutsche Dampfk. Ges. Hansa* Owners' Address *Bremen*
 Yard No. *222* Electric Light Installation fitted by *builders* When fitted *1903*

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Single Cylinder Steam Engine coupled direct to Siemens & Halske Dynamo running at about 250 revolutions per minute.

Capacity of Dynamo *120* Amperes at *65* Volts, whether continuous or alternating current *continuous*

Where is Dynamo fixed *in Engine room*

Position of Main Switch Board *Engine room* 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 *1 in space for Steam Steering gear with 4 switches, 1 in Chartroom with 7 switches, 1 switch for Engine and 1 boiler space lamps on and near Main Switchboard.*

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 *no*

Are the cut outs of non-oxidizable metal *yes* and constructed to fuse at an excess of *25* per cent over the normal current

Are all cut outs fitted in easily accessible positions *yes* Are the fuses of standard dimensions *no* 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 *no*

Are all switches and cut-outs constructed of incombustible materials and fitted on incombustible bases *yes*

Total number of lights provided for *42* arranged in the following groups:—

A <i>Engine</i>	<i>32</i> lights each of <i>16</i> candle power requiring a total current of <i>13</i> Amperes
B <i>Staircase</i>	<i>2</i> lights each of <i>45 + 20 dup.</i> candle power requiring a total current of <i>65</i> Amperes
C <i>Cargo</i>	<i>2</i> lights each of <i>9 dup.</i> candle power requiring a total current of <i>18</i> Amperes
D <i>Masthead + Side lights</i>	<i>4</i> lights each of <i>40 + 100</i> candle power requiring a total current of <i>9</i> Amperes
E <i>Chartroom</i>	<i>2</i> lights each of <i>16</i> candle power requiring a total current of <i>1</i> Amperes
<i>in (2) Mast head light with 2 lamps each of 35</i>	<i>2</i> lamps each of <i>35</i> candle power requiring a total current of <i>4</i> Amperes
<i>side (2) Side light with 2 lamps each of 35 + 50</i>	<i>2</i> lamps each of <i>35 + 50</i> candle power requiring a total current of <i>6</i> Amperes
<i>board (2) Cargo lights of 9 dup. each</i>	<i>2</i> Cargo lights of <i>9 dup. each</i> candle power, whether incandescent or arc lights <i>Arc.</i>

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

Where are the switches controlling the masthead and side lights placed *In Chartroom for Side- & Fore-Masthead lights, in Steering gear space for aft-Masthead light.*

DESCRIPTION OF CABLES.

Main cable carrying <i>120</i> Amperes, comprised of <i>19</i> wires, each <i>—</i> L.S.G. diameter, <i>40</i> square <i>inches</i> total sectional area
Branch cables carrying <i>45</i> Amperes, comprised of <i>1</i> wires, each <i>—</i> L.S.G. diameter, <i>16</i> square <i>inches</i> total sectional area
Branch cables carrying <i>20</i> Amperes, comprised of <i>1</i> wires, each <i>—</i> L.S.G. diameter, <i>10</i> square <i>inches</i> total sectional area
Leads to lamps carrying <i>1/2 x 1</i> Amperes, comprised of <i>1</i> wires, each <i>—</i> L.S.G. diameter, <i>1.5 + 2.5</i> square <i>inches</i> total sectional area
Cargo light cables carrying <i>9</i> Amperes, comprised of <i>7</i> wires, each <i>—</i> L.S.G. diameter, <i>10</i> square <i>inches</i> total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Copper wires laminated, coated with layers of Para rubber, vulcanized, cablehouse, coated with hemp tape impregnated with cablehouse solution, covered with lead and iron bound where exposed to moisture, and hemp tape.

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 *No special protection except where cables are exposed to heat or moisture, where cables are led through iron pipes.*



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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 Iron bound cables carried through pipes where exposed to sea spray.

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

What special protection has been provided for the cables near boiler casings Iron bound

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

How are cables carried through beams hard wood ferrules through bulkheads, &c. hard wood ferrules

How are cables carried through decks brass standpipes lined with hardwood.

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 —

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel by brass tap bolt and washer

How are the returns from the lamps connected to the hull by brass screws and washers

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 yes supplied with a voltmeter and yes an amperemeter, fixed main panel 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 50 Million Siemens Units ~~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.

The Builders are the Electrical Engineers. Date —

COMPASSES.

Distance between dynamo or electric motors and standard compass abt. 96 ft.

Distance between dynamo or electric motors and steering compass 86 ft.

The nearest cables to the compasses are as follows:— All cables near compasses are laid bipolar.

A cable carrying	<u>2</u>	Amperes	<u>3</u>	feet from standard compass	<u>8</u>	feet from steering compass
A cable carrying	<u>2</u>	Amperes	<u>3</u>	feet from standard compass	<u>8</u>	feet from steering compass
A cable carrying	<u>—</u>	Amperes	<u>—</u>	feet from standard compass	<u>—</u>	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 imperceptible degrees on — course in the case of the standard compass and imperceptible degrees on — course in the case of the steering compass.

Flensburger Schiffsbau-Gesellschaft

Brau Builder's Signature, Date 13th March 1903

GENERAL REMARKS.

The electric light installation on board of this vessel is in my opinion fitted in conformity with the Society's Rules and eligible for a vessel classed in the Society's Register Book with the notation of: "Elec. light."

M. H. ...

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

Committee's Minute —

It is submitted that this installation appears to be satisfactory.

Lloyd's Register Foundation

19.3.03

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

REPORT FORM No. 13.