

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. **9404**

Port of **Hamburg** Date of First Survey **18/10.06** Date of Last Survey **13/11.06** No. of Visits **5**
 No. in Reg. Book **38 Supp.** on the ~~Iron~~ **Steel** **S. S. "Hagen"** Port belonging to **Hamburg**
 Built at **Fleischburg** By whom **Hamburgischer Schiffbau-AG** When built **1906**
 Owners **Deutsche-Australische Dampfschiff-Fahrts-Gesellschaft** Owners' Address **Hamburg**
 Yard No. **266** Electric Light Installation fitted by **Hamburgischer Schiffbau-AG** When fitted **1906**

DESCRIPTION OF DYNAMO, ENGINE, ETC.

One Compound Steam Engine coupled direct to dynamo from the **Verd. Armaturen-Fabrik, Bremen**, running at abt. 400 rev. p. min.

Capacity of Dynamo **73** Amperes at **110** Volts, whether continuous or alternating current **continuous**
 Where is Dynamo fixed **Engine Room**, **Double wire system used.**

Position of Main Switch Board **Engine Room** having switches to groups **4, A, B, C, D**, of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each **Group A switched from Main Switch Board, Group B 1 switchboard with 5 switches in Steering Engine Room, Group C 1 switchboard with 6 switches in Passage of Deckhouse, Group D 1 switchboard in Steering house with 5 switches.**

Are cut outs 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**

Are all circuits 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 **30** 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 **99** arranged in the following groups:—

A **Eng. & Stm. Rm.** 13 lights each of **16** candle power requiring a total current of **8** Amperes

B **Deck Ladders** 24 lights each of **16** candle power requiring a total current of **15** Amperes

C **Fore. Cabin** 24 lights each of **16** candle power requiring a total current of **15** Amperes

D **Steering house &c.** 8 lights each of **4-16, 2-25, 2-32** candle power requiring a total current of **9** Amperes

E **—** lights each of **—** candle power requiring a total current of **—** Amperes

2 Mast head light with **2** lamps each of **16 + 32** candle power requiring a total current of **2** Amperes

2 Side light with **2** lamps each of **16 + 32** candle power requiring a total current of **2** Amperes

5 (30 lamps) Cargo lights of each **6 x 32 = 192** candle power, whether incandescent or are lights **incandescent**

If are lights, what protection is provided against fire, sparks, &c. **yes**

Where are the switches controlling the masthead and side lights placed **Steering house or bridge see Surveyor's letter dated 21.11.06**

DESCRIPTION OF CABLES.

Main cable carrying **73** Amperes, comprised of **7** wires, each **—** L.S.G. diameter, **35** square inches total sectional area

Branch cables carrying **15** Amperes, comprised of **7** wires, each **—** L.S.G. diameter, **10.5** square inches total sectional area

Branch cables carrying **8** Amperes, comprised of **1** wires, each **—** L.S.G. diameter, **4** square inches total sectional area

Leads to lamps carrying **65** Amperes, comprised of **1** wires, each **—** L.S.G. diameter, **1.5** square inches total sectional area

Cargo light cables carrying **6** Amperes, comprised of **16** wires, each **—** L.S.G. diameter, **2.5** square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Main & Branch cables: Copper, tinned, covered with Para rubber, coated with impregnated jute tape, lead covered, spun with impregnated with jute, double iron bound and jute spun. Circuit & Lamp Leads: Tinned copper wires, coated with enamel and covered with tape for lamp circuits and leads, metallic covered joints, contained in metal light boxes on incombustible bases for Main and branch cables.

Joints in cables, how made, insulated, and protected **Soldered and covered with enamel and tape for lamp circuits and leads, metallic covered joints, contained in metal light boxes on incombustible bases for Main and branch cables.**

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 **Main and branch cables covered with Para rubber, except where they are exposed to heat and moisture, where they are covered in iron pipes. Lamp leads are protected by road balloons.**

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 to lead covered cables.*

Cables protected by Iron tubes where exposed to heat.
What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *Iron bound cables.*

What special protection has been provided for the cables near boiler casings *yes yes*

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

How are cables carried through beams *handrived bushes* through bulkheads, &c. *secured brass bushes*

How are cables carried through decks *Iron galvanized standpipes, 8" high, filled with nonconduc-*
ing asphalt.

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 *yes*

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 *yes*

Where are the main switches and cut outs for these lights fitted *yes*

If in the spaces, how are they specially protected *yes*

Are any switches or cut outs fitted in bunkers *no*

Cargo light cables, whether portable or permanently fixed *portable* How fixed *yes*

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel *Double wired throughout*

How are the returns from the lamps connected to the hull *yes*

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 Switch 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 *Kilometer* 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 then Electrical Engineers

Date *10th November 1906*

COMPASSES.

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

Distance between dynamo or electric motors and steering compass *85 ft.*

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
<i>0.6</i>	<i>close to</i>	<i>close to</i>	
<i>—</i>	<i>—</i>	<i>—</i>	
<i>—</i>	<i>—</i>	<i>—</i>	

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 *nib* degrees on *—* course in the case of the standard compass and *nib* degrees on *—* course in the case of the steering compass.

Flensburger Schiffsbau-Gesellschaft.

[Signature]

Builder's Signature.

Date *10th November 1906*

GENERAL REMARKS.

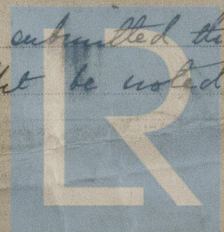
The Electric light installation on board of this vessel is in my opinion first in conformity with the Society's Rules and eligible to be recorded "Electric Light" in the Society's Register Book.

[Signature]

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

Committee's Minute

It is submitted that the Record Book Light be noted in the Reg. Book.



Lloyd's Register Foundation

22.11.06

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.