

## REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 3840

Port of *Copenhagen* Date of First Survey *29<sup>th</sup> January* Date of Last Survey *9<sup>th</sup> April 1913* No. of Visits *14*  
 No. in Reg. Book *136* on the ~~Iron or Steel~~ *Twin S. 4<sup>th</sup> Str. "Siam"* Port belonging to *Copenhagen*  
 Built at *Copenhagen* By whom *Akt. Burmeister & Wain* When built *1913*  
 Owners *Akt. Det Østasiatiske Kompagni* Owners' Address *Copenhagen*  
 Yard No. *287* Electric Light Installation fitted by *Akt. Burmeister & Wain* When fitted *1913*

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

*1100 emergency fuel oil engine replaced 9.40 by a 12.5 hp oil eng. set.*  
*2 compound wound dynamos, one driven by an ordinary oil engine and one driven by a*  
*shunt wound motor taking current from one of 2 compound wound dynamos driven by the 2 auxiliary diesel*  
 Capacity of Dynamo *1 of 100* } Amperes at *No* } Volts, whether continuous or alternating current *Continuous*  
*1 - 150* } *No* }  
 Where is Dynamo fixed *in Engineer room* Whether single or double wire system is used *double wire system*

Position of Main Switch Board *in Engineer room* having switches to groups *7* of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each *1 in chart room with 5 switches.*

<i>1</i>	<i>Passenger alleyway</i>	<i>5</i>
<i>1</i>	<i>amidship</i>	<i>2</i>
<i>1</i>	<i>Poole</i>	<i>6</i>
<i>1</i>	<i>Engine room</i>	<i>12</i>

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

Are the cut outs of non-oxidizable metal *yes* and constructed to fuse at an excess of *100* 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 *Edisons Tools used*

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

Total number of lights provided for *175* arranged in the following groups:—

A	<i>15</i>	lights each of	<i>16 · 25 · 32</i>	candle power requiring a total current of	<i>8</i>	Amperes
B	<i>21</i>	lights each of		candle power requiring a total current of	<i>11</i>	Amperes
C	<i>28</i>	lights each of		candle power requiring a total current of	<i>14</i>	Amperes
D	<i>15</i>	lights each of		candle power requiring a total current of	<i>8</i>	Amperes
E	<i>65</i>	lights each of		candle power requiring a total current of	<i>34</i>	Amperes
F	<i>2</i>	Mast head light with <i>1</i> lamp each of	<i>32</i>	candle power requiring a total current of	<i>2</i>	Amperes
G	<i>2</i>	Side light with <i>1</i> lamps each of	<i>32</i>	candle power requiring a total current of	<i>2</i>	Amperes
H	<i>7</i>	Cargo lights of	<i>100</i>	candle power, whether incandescent or arc lights	<i>incandescent</i>	

If arc lights, what protection is provided against fire, sparks, &c. *The arc is entirely enclosed with glass globes and the lamp provided with lantern, wire guarded.*

Where are the switches controlling the masthead and side lights placed *in chart room.*

## DESCRIPTION OF CABLES.

Main cable carrying	<i>150</i>	Amperes, comprised of	<i>19</i>	wires, each	<i>2.52</i> <sup>1/4</sup> / <sub>in</sub>	L.S.G. diameter,	<i>95</i> <sup>sq in</sup>	square inches total sectional area
Branch cables carrying	<i>34</i>	Amperes, comprised of	<i>7</i>	wires, each	<i>2.13</i>	L.S.G. diameter,	<i>25</i> <sup>sq in</sup>	square inches total sectional area
Branch cables carrying	<i>30-27</i>	Amperes, comprised of	<i>7</i>	wires, each	<i>1.35</i>	L.S.G. diameter,	<i>10</i> <sup>sq in</sup>	square inches total sectional area
Leads to lamps carrying	<i>14-8</i>	Amperes, comprised of	<i>7</i>	wires, each	<i>1.05</i>	L.S.G. diameter,	<i>6</i> <sup>sq in</sup>	square inches total sectional area
Cargo light cables carrying	<i>6</i>	Amperes, comprised of	<i>flexible</i>	wires, each		L.S.G. diameter,	<i>2.5</i> <sup>sq in</sup>	square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

*1 Insulated with pure and vulc. india rubber, taped and lead covered.*  
*2 - - - - - and covered with galv. iron wires.*  
*3 - - - - - 2 layers of steel tape.*  
 Joints in cables, how made, insulated, and protected *in jointing boxes with screwed connections.*

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 *In cargo spaces made in cast iron jointing boxes.*

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 *secured by screwed clips and where necessary protected by iron tubes.*

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 armoured cables used.*

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

What special protection has been provided for the cables near boiler casings *No boilers.*

What special protection has been provided for the cables in engine room *iron armoured cables used.*

How are cables carried through beams *iron armoured cables used through bulkheads, &c. if watertight, screwed glands used.*

How are cables carried through decks *iron tubes.*

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 *iron armoured cables used, and where necessary protected by iron sheaths or tubes.*

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage *yes in cargo and baggage rooms.*

If so, how are the lamp fittings and cable terminals specially protected *by wire guards on the lamps. Iron arm. cable used.*

Where are the main switches and cut outs for these lights fitted *the switches placed where not exposed to damage. The fuses in other rooms.*

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 *double wire system used.*

How are the returns of the lamps connected to the hull *"*

Are all the joints with the hull in accessible positions *"*

The installation is *"* supplied with a voltmeter and *for each dynamo an amperemeter fixed in the switch board*

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 *yes*

Are any switches, cut outs, or joints of cables fitted in the pump room or companion *No special pump room*

How are the lamps specially protected in places liable to the accumulation of vapour or gas *in engine room protected with wire guarded tight globes.*

The copper used is guaranteed to have a conductivity of *100* per cent. that of pure copper.

Insulation of cables is guaranteed to have a resistance of not less than *600* 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.

AKTIESELSKABET  
BURMEISTER & WAINSKIN- OG SKIBSBYGGERI.

*John M. M. M.*

Electrical Engineers

Date *12<sup>th</sup> April 1913.*

COMPASSES.

Distance between dynamo or electric motors and standard compass *80 ft*

Distance between dynamo or electric motors and steering compass *90 -*

The nearest cables to the compasses are as follows:—

Cable carrying	Amperes	feet from standard compass	feet from steering compass
A cable carrying <i>30</i>	<i>16</i>	<i>24</i>	
A cable carrying <i>0.5</i>	<i>to lamps in the</i>	<i>from standard compass</i>	<i>and in the feet from steering compass</i>
A cable carrying <i>✓</i>	<i>✓</i>	<i>feet from standard compass</i>	<i>✓ feet from steering compass</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 *0* degrees on *all* course in the case of the standard compass and *all* degrees on *all* course in the case of the steering compass.

AKTIESELSKABET  
BURMEISTER & WAINSKIN- OG SKIBSBYGGERI.

*John M. M. M.*

Builder's Signature.

Date *12<sup>th</sup> April 1913.*

GENERAL REMARKS.

The whole electric lighting installation is as above described, the electric power installation is in accordance with the approved plan and Secretary E letter dated the 29<sup>th</sup> Aug. 1912, and the material and workmanship is good in every respect.

Recommend the vessel to have notation of *Electric Light* in the Register Book.

It is submitted that

this vessel is eligible for

THE RECORD Elec. light.

*J. W. D.*

*14/4/13.*

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

Committee's Minute

TUE. APR. 15, 1913

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.



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