

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 4090

Port of Copenhagen Date of First Survey 19th Septbr. 13 Date of Last Survey 2nd March 1914 No. of Visits 20.
 No. in Reg. Book 21. on the ~~Iron or Steel~~ Twin S. 4 Mast. Str. "Fionia" Port belonging to Copenhagen.
 Built at Copenhagen By whom Akt. Burmeister & Wain When built 1914.
 Owners Akt. Det Ostasiatiske Kompagni Owners' Address Copenhagen
 Yard No. 293. Electric Light Installation fitted by Akt. Burmeister & Wain When fitted 1914.

DESCRIPTION OF DYNAMO, ENGINE, ETC.

2 Compound wound dynamos, one driven by an ordinary oil motor and one driven by a short wound motor taking current from one of 2 compound wound dynamos driven by the 2 auxiliary Diesel engines.

Capacity of Dynamo 2 off 200 Amperes at 110 Volts, whether continuous or alternating current Continuous.

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 of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each

<u>1</u>	<u>in Chart room with 8 switches.</u>
<u>2</u>	<u>in Saloon alleyways with 0</u>
<u>1</u>	<u>amidship</u>
<u>1</u>	<u>Fore</u>
<u>1</u>	<u>aft</u>
<u>1</u>	<u>in Engineer room</u>
<u>1</u>	<u>in</u>

If fuses 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 fuses fitted to both flow and return wires or cables of all circuits including lamp circuits

Are the fuses of non-oxidizable metal yes and constructed to fuse at an excess of 100 per cent over the normal current

Are all fuses 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 fuses constructed of incombustible materials and fitted on incombustible bases yes.

Total number of lights provided for 510 arranged in the following groups :-

A	<u>24</u> lights each of <u>10-16-25-32</u> candle power requiring a total current of <u>15</u> Amperes
B ₁	<u>124</u> lights each of <u>10-16-25</u> candle power requiring a total current of <u>45</u> Amperes
B ₂	<u>124</u> lights each of <u>- - -</u> candle power requiring a total current of <u>45</u> Amperes
C ₁	<u>29</u> lights each of <u>- - -</u> candle power requiring a total current of <u>15</u> Amperes
C ₂	<u>29</u> lights each of <u>- - -</u> candle power requiring a total current of <u>6</u> Amperes
D	<u>13</u> lights each of <u>- - -</u> candle power requiring a total current of <u>20</u> Amperes
E	<u>37</u> lights each of <u>- - -</u> candle power requiring a total current of <u>35</u> Amperes
F	<u>80</u> lights each of <u>- - -</u> candle power requiring a total current of <u>2</u> Amperes
	<u>2</u> Mast head lights with <u>1</u> lamps each of <u>32</u> candle power requiring a total current of <u>2</u> Amperes
	<u>2</u> Side lights with <u>1</u> lamps each of <u>32</u> candle power requiring a total current of <u>2</u> Amperes

9 Cargo lights of 100 candle power, whether incandescent or arc lights incandescent.

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

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

DESCRIPTION OF CABLES.

Main cable carrying	<u>180</u> Amperes, comprised of <u>37</u> wires, each <u>2.03</u> S.W.G. diameter, <u>120</u> ^{mm²} square inches total sectional area
Branch cables carrying	<u>45</u> Amperes, comprised of <u>7</u> wires, each <u>2.13</u> S.W.G. diameter, <u>25</u> square inches total sectional area
Branch cables carrying	<u>15</u> Amperes, comprised of <u>7</u> wires, each <u>1.35</u> S.W.G. diameter, <u>10</u> square inches total sectional area
Leads to lamps carrying	<u>6</u> Amperes, comprised of <u>7</u> wires, each <u>1.1</u> S.W.G. diameter, <u>6</u> square inches total sectional area
Cargo light cables carrying	<u>6</u> Amperes, comprised of <u>flexible</u> wires, each <u>-</u> S.W.G. diameter, <u>2.5</u> square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

- 1 Insulated with pure and vulc. india rubber taped and lead covered wires
- 2 - - - - - and armoured with galv. iron
- 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, and the flux used not containing acids or other corrosive substances - 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 led through 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

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 screws or tubes

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

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

Where are the main switches and fuses 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 fuses 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 from the lamps connected to the hull ✓

Are all the joints with the hull in accessible positions ✓

Is the installation supplied with a voltmeter — — — — —, and with an amperemeter for each dynamo, fixed on the switchboard

VESSELS BUILT FOR CARRYING PETROLEUM.

The vessel is built for carrying liquid fuel.

In vessels built for carrying petroleum, are all switches and fuses fitted in positions not liable to the accumulation of petroleum vapour or gas yes.

Are any switches, fuses, 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 tight glands

The copper used is guaranteed to have a conductivity of not less than that of the Engineering Standards Committee's standard and the wires are protected by tinning from the sulphur compounds present in the insulating material.

Insulation of cables is guaranteed to have a resistance of not less than 600 megohms per statute mile at 60° Fahrenheit after 24 hours' immersion in water, the test being made after one minute's electrification at not less than 500 volts and while the cable is still immersed.

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.

[Signature] **AKTIESELSKABET**
BURMEJSTER & WÅNNS MASKIN- OG SKIBSPYGGERI. Electrical Engineers Date

COMPASSES.

Distance between dynamo or electric motors and standard compass 50 feet

Distance between dynamo or electric motors and steering compass 33 feet.

The nearest cables to the compasses are as follows:—

A cable carrying	<u>15</u> Amperes	<u>7</u> feet from standard compass	<u>16</u> feet from steering compass
A cable carrying	<u>0.5</u> Amperes	<u>to lamps in</u> feet from standard compass	<u>and in</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 0 degrees on all course in the case of standard compass and 0 degrees on all course in the case of the steering compass.

[Signature] **AKTIESELSKABET**
BURMEJSTER & WÅNNS MASKIN- OG SKIBSPYGGERI. Builder's Signature. Date

GENERAL REMARKS. The Electric lighting installation as above described, and the electric power installation are in accordance with the Rules and with the approved plan and letter E dated the 4th March 1913.

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 *[Signature]* 10/3/14 Surveyor to Lloyd's Register of British and Foreign Shipping.

Committee's Minute 10th MAR. 10. 1914

Im. 11, 13.—Transfer.