

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 4322.

Port of Copenhagen Date of First Survey 6th August Date of Last Survey 10th Octbr. 14 No. of Visits 20.
 No. in g. Book on the Iron or Steel Twin Sc. 4 Mst. Sr. "Touking" Port belonging to Copenhagen
875 Built at Copenhagen By whom Akt. Burmeister & Wain When built 1914
 Owners Akt. Det Ostasiatiska Kompagni Owners' Address Copenhagen
 Ord No. 295 Electric Light Installation fitted by Akt. Burmeister & Wain When fitted 1914

DESCRIPTION OF DYNAMO, ENGINE, ETC. 2 Compound wound dynamos - one driven by a shunt wound motor taking current from one of the 3 compound wound dynamos driven by the 3 auxiliary Diesel engines and one driven by an ordinary internal combustion oil engine.
 Capacity of Dynamo one of 130 & one of 100 Amperes at 110 Volts, whether continuous or alternating current Continuous
 There is Dynamo fixed in the engine room Whether single or double wire system is used double wire system
 Position of Main Switch Board in the engine room having switches to groups 6 of lights, &c., as below
 Positions of auxiliary switch boards and numbers of switches on each one in chart room with 6 switches, one in passengers stowaways with 6 switches, - one amidships with 6 switches, - one amidships with no switches, - one in fore house aft with no switches, - and one in engine room with 12 switches.
 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 yes
 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 Edison's tools used
 Are all switches and cut-outs constructed of incombustible materials and fitted on incombustible bases yes

Total number of lights provided for 201 arranged in the following groups :-

A	<u>18</u>	lights each of	<u>16, 25 & 32</u>	candle power requiring a total current of	<u>10</u>	Amperes
B	<u>35</u>	lights each of	<u>10, 16 & 25</u>	candle power requiring a total current of	<u>18</u>	Amperes
C	<u>40</u>	lights each of	<u>" " "</u>	candle power requiring a total current of	<u>20</u>	Amperes
D	<u>15</u>	lights each of	<u>" " "</u>	candle power requiring a total current of	<u>7</u>	Amperes
E	<u>65</u>	lights each of	<u>" " "</u>	candle power requiring a total current of	<u>32</u>	Amperes
F	<u>2</u>	Mast head light with <u>one</u> lamps each of	<u>32</u>	candle power requiring a total current of	<u>2</u>	Amperes
G	<u>2</u>	Side light with <u>one</u> lamps each of	<u>32</u>	candle power requiring a total current of	<u>2</u>	Amperes
	<u>7</u>	Cargo lights of	<u>100</u>	candle power, whether incandescent or arc lights	<u>incandescent</u>	

 If are lights, what protection is provided against fire, sparks, &c. The arc lamps are entirely enclosed with glass globes and lamps provided with lantern are wire guarded.
 Where are the switches controlling the masthead and side lights placed In the chart room.

DESCRIPTION OF CABLES.
 Main cable carrying 130 Amperes, comprised of 19 wires, each 2.52 ^{sq. in.} ~~sq. in.~~ diameter, 95 ^{sq. in.} ~~sq. in.~~ total sectional area
 Branch cables carrying 32 Amperes, comprised of 7 wires, each 2.13 ^{sq. in.} ~~sq. in.~~ diameter, 25 ^{sq. in.} ~~sq. in.~~ total sectional area
 Branch cables carrying 30-27 Amperes, comprised of 7 wires, each 1.35 ^{sq. in.} ~~sq. in.~~ diameter, 10 ^{sq. in.} ~~sq. in.~~ total sectional area
 Leads to lamps carrying 20-7 Amperes, comprised of 7 wires, each 1.05 ^{sq. in.} ~~sq. in.~~ diameter, 6 ^{sq. in.} ~~sq. in.~~ total sectional area
 Cargo light cables carrying 6 Amperes, comprised of flexible wires, each 2.5 ^{sq. in.} ~~sq. in.~~ diameter, 2.5 ^{sq. in.} ~~sq. in.~~ total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.
Insulated with pure and vulcanized india rubber, taped and lead covered.
Insulated with pure and vulcanized india rubber, taped and lead covered, and armoured with galvanized iron wires.
Insulated with pure and vulcanized india rubber, taped and lead covered, and armoured with 2 layers of steel tape as per Rules.
 Joints in cables, how made, insulated, and protected in watertight junction boxes with screwed connections.

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 In cargo spaces made in cast iron watertight junction 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 or iron screens.



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 boiler casings.*

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 *In 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 by iron screens 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 spaces.*

If so, how are the lamp fittings and cable terminals specially protected *Lamps wire guarded, cable terminals protected by screwed metal covers.*

Where are the main switches and cut outs for these lights fitted *The switches placed where not exposed to damage, the fuses fitted outside these spaces.*

If in the spaces, how are they specially protected *By strong iron boxes.*

Are any switches or cut outs fitted in bunkers *No bunkers.*

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 *✓*

The installation is _____ supplied with a voltmeter and _____ an amperemeter, fixed on the main switchboard in motor space.

VESSELS BUILT FOR CARRYING PETROLEUM.

The vessel is built for carrying liquid fuel.

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 fitted.*

How are the lamps specially protected in places liable to the accumulation of vapour or gas *In engine room, protected by thick, tight glass 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.

ARTIESELSKABET
BURMEISTER & WAINS
MASKIN- og SKIBSBYGERI

Electrical Engineers

Date *22nd Octbr. 1914*

COMPASSES.

Distance between dynamo or electric motors and standard compass *94 feet.*

Distance between dynamo or electric motors and steering compass *100 feet*

The nearest cables to the compasses are as follows:—

A cable carrying	<i>20</i>	Amperes	<i>20</i>	feet from standard compass	<i>20.</i>	feet from steering compass
A cable carrying	<i>0.5</i>	Amperes	<i>to the lamps in the</i>	feet from standard compass	<i>and in the</i>	feet from steering compass
A cable carrying	<i>✓</i>	Amperes	<i>✓</i>	feet from standard compass	<i>✓</i>	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 the standard compass and *all* degrees on *all* course in the case of the steering compass.

ARTIESELSKABET
BURMEISTER & WAINS
MASKIN- og SKIBSBYGERI

Builder's Signature.

Date *22nd Octbr. 1914*

GENERAL REMARKS.

The whole electric lighting installation as above described and the electric power installation are in accordance with the Rules, the approved plan and London letter E dated the 5th December 1913.

The material and workmanship are of good description 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.

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

Committee's Minute *FRI OCT 30 1914*