

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 5200

Port of Copenhagen Date of First Survey 3rd May Date of Last Survey 24th June No. of Visits 8
 No. in Reg. Book 621 on the ~~Iron~~ Steel Se. Sr. Nordlys Port belonging to Copenhagen
 Built at Copenhagen By whom Akt. Burmeister & Wain When built 1915-16
 Owners Dampskibsselskabet Nordis (P. Brown) Owners' Address Copenhagen
 Yard No. 305 Electric Light Installation fitted by Akt. Burmeister & Wain When fitted 1916

DESCRIPTION OF DYNAMO, ENGINE, ETC.

The dynamo is a compound wound dynamo directly coupled to a single cylinder steam engine.

Capacity of Dynamo 90 Amperes at 110 Volts, whether continuous or alternating current continuous

Where is Dynamo fixed In engine room Whether single or double wire system is used double wire system

Position of Main Switch Board In engine room, near dynamo having switches to groups 4 of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each 1 forward with 2 switches, - 1 in the chart room with 7 switches, - 1 in the alleyway to saloon with 0 switches, - 1 in the engine room with 6 switches, - and 1 on the engine room top with 0 switches.

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 yes

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 144 arranged in the following groups:—

Group	Number of Lights	Wattage / Candle Power	Total Current (Amperes)
A	19	lights each of 16 - 25 & 1000 candle power	12 Amperes
B	17	lights each of 16 - 25 - 32 candle power	6 Amperes
C	34	lights each of 16 - 25 - 500 candle power	19 Amperes
D	39	lights each of 16 - 25 - 1000 candle power	25 Amperes
E	35	lights each of 16 - 10 candle power	22 Amperes
2 Mast head lights with 1 lamp each of 32 candle power			2 Amperes
2 Side lights with 1 lamp each of 32 candle power			2 Amperes
2 Cargo lights of 1000 candle power, whether incandescent or arc lights			<u>incandescent.</u>
1 " " " 500 " " " "			<u>incandescent.</u>

If arc lights, what protection is provided against fire, sparks, &c. No arc lights.

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

DESCRIPTION OF CABLES.

Description	Amperes	Wires	Diameter (S.W.G.)	Total Sectional Area (square inches)
Main cable carrying	84	19	1.9	50
Branch cables carrying	12	7	2.13	25
Branch cables carrying	25	7	1.35	10
Leads to lamps carrying	✓	✓	✓	✓
Cargo light cables carrying	6	flexible	✓	2.5

DESCRIPTION OF INSULATION, PROTECTION, ETC.

The copper wires are tinned - insulated with pure and vulcanized india rubber, taped and lead covered, - or insulated with pure and vulcanized india rubber, taped and lead covered, - then taped and armoured with galvanized wire or armoured with 2 layers of steel tape.

Joints in cables, how made, insulated, and protected In watertight junction boxes with screwed connections.

Are all the joints of cables thoroughly soldered, and the flux used not containing acids or other corrosive substances 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 All accessible. None in bunkers, in cargo spaces made in strong cast iron 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.

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 Lead covered and armoured cables used.

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

What special protection has been provided for the cables near boiler casings Do. Do.

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

How are cables carried through beams Armoured cables used. Watertight through bulkheads, &c. Watertight secured glands used.

How are cables carried through decks Through 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 Lead covered and armoured cables used and where necessary protected by iron tubes.

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage In space used for stores.

If so, how are the lamp fittings and cable terminals specially protected Lamps wire guarded, cable terminals covered up with strong metal covers.

Where are the main switches and fuses for these lights fitted Switches fitted where not exposed to damage, the fuses fitted outside these spaces.

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.

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 yes., and with an amperemeter yes, fixed On the main switch board.

VESSELS BUILT FOR CARRYING PETROLEUM.

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

Are any switches, fuses, 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 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 working condition.

BURMEISTER & WAINSKIN- OG SKIBSBYGGERI

Electrical Engineers

Date

COMPASSES.

Distance between dynamo or electric motors and standard compass about 92 feet.

Distance between dynamo or electric motors and steering compass 96 feet.

The nearest cables to the compasses are, as follows:—

A cable carrying	0.5	Amperes	to lamps in the	feet from standard compass	and in the	feet from steering compass
A cable carrying	6	Amperes	10	feet from standard compass	10	feet from steering compass
A cable carrying	"	Amperes	✓	feet from standard compass	✓	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 0 degrees on all course in the case of the steering compass.

Builder's Signature.

Date

GENERAL REMARKS. The whole electric lighting installation as above described is in accordance with the Rules, - the workmanship, and material 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, Elec. light.

JWR 25/10/16.

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

Committee's Minute

TUE. 27. MAR. 1917

