

Received at London Office
24 FEB. 1921
No. 6073.

REPORT ON ELECTRIC LIGHTING INSTALLATION.

Port of Copenhagen Date of First Survey _____ Date of Last Survey _____ No. of Visits _____
 No. in on the ~~Iron~~ or Steel St. St. "Hammershus" Port belonging to Copenhagen
 Reg. Book 59829 Built at Pt. Glasgow. By whom Russell & Co. When built 1903.
 Owners Dampskibs Selskabet Dannebrog (C. K. Hansen) Owners' Address Copenhagen
 Yard No. () Electric Light Installation fitted by Messrs. Burmeister & Wain, Copenhagen When fitted 1921.

DESCRIPTION OF DYNAMO, ENGINE, ETC.

A compound wound Dynamo directly coupled to a vertical single cylinder steam engine.

Capacity of Dynamo 120 ✓ Amperes at 100 ✓ Volts, whether continuous or alternating current continuous ✓
 Where is Dynamo fixed In engine room Whether single or double wire system is used double wire ✓
 Position of Main Switch Board In engine room having switches to groups in telegraph room on bridge of lights, etc., as below
 Positions of auxiliary switch boards and numbers of switches on each A in telegraph room 3 switches (wireless) B in telegraph room distribution board 6 switches C in chart room 7 switches D in accommodation amidship Stb. side 3 switches E in crew space aft 1 switch F in crew space forward 1 switch G in engine room casing 2 switches H in engine room 4 switches (on main switch board)
 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 Edison's type used
 Are permanent instructions fitted on or near each switch board giving particulars of proper size of fuse for each circuit
 Are all switches and fuses constructed of incombustible materials and fitted on incombustible bases yes.
 Total number of lights provided for 175 arranged in the following groups:—

CA Navigation lights	5 lights each of	16 - 25	candle power requiring a total current of	5	Amperes
DB { 25 lamps + 5 }	55 lights each of	10 - 16 - 25	candle power requiring a total current of	15.0	Amperes
EB { 7 lamps + 1 }	13 lights each of	10 - 16 - 25	candle power requiring a total current of	3.5	Amperes
FB { 15 lamps + 1 }	21 lights each of	10 - 16 - 25	candle power requiring a total current of	5.7	Amperes
GE { 15 lamps + 5 }	45 lights each of	10 - 16 - 25	candle power requiring a total current of	12.3	Amperes
H 2 Mast head light with 1 lamp each of	32 of 10-16-25 & 4 of 100	32	candle power requiring a total current of	11.5	Amperes
2 Side light with 1 lamp each of	32	32	candle power requiring a total current of	2.1	Amperes
1 Stern " " " 1 lamp each of	25	25	candle power requiring a total current of	0.8	Amperes

12 plug connections for cargo lights are fitted but only 6 cargo lights are now placed on board.
 If are lights, what protection is provided against fire, sparks, etc. No are light.

Where are the switches controlling the masthead and side lights placed In the chart room (switchboard C)

DESCRIPTION OF CABLES.

Main cable carrying	109 Amperes, comprised of	19 wires, each	2.16 m/m S.W.G. diameter,	70 ✓ square inches total sectional area
Branch cables carrying	53 Amperes, comprised of	7 wires, each	2.13 m/m S.W.G. diameter,	25 ✓ square inches total sectional area
Branch cables carrying	27.3 Amperes, comprised of	7 wires, each	1.35 m/m S.W.G. diameter,	10 ✓ square inches total sectional area
Leads to lamps carrying	5.7 Amperes, comprised of	1 wire, each	2.26 m/m S.W.G. diameter,	4 ✓ square inches total sectional area
Cargo light cables carrying	1.6 Amperes, comprised of	2 x 24 wires, each	0.2 m/m S.W.G. diameter,	2 x 1.51 ✓ square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Trimmed and insulated with pure and vulcanized india rubber, taped and lead covered, then taped and armoured with galvanized steel wire or with steel tape and braided.

Joints in cables, how made, insulated, and protected No joints in cables.

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 ✓

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, in cargo spaces and where necessary protected by iron tubes.



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W608-0190

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. *The cables are lead covered and armoured with steel wire and where necessary led through iron tubes.*

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *— do —*

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

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

How are cables carried through beams *— do —* through bulkheads, &c. Watertight screwed glands. ✓

How are cables carried through decks *through iron tubes.* ✓

Are any cables run through ^{upper} coal bunkers *yes* or cargo spaces *yes* or spaces which may be used for carrying cargo, stores, or baggage ✓

If so, how are they protected *lead covered wire armoured cables used, led through iron tubes.*

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 ✓

Where are the main switches and fuses for these lights fitted ✓

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 ✓

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, 2 off*, and with an amperemeter *yes, 2 off*, *1 on main switch board, fixed in telegraph room.*

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 *1250* 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.

Akties. Burmeister & Wains

Maskin- og Skibsbyggeri,

Electrical Engineers

Date *17-2-21*

COMPASSES.

Elektr. Afd. Refsh.

Distance between dynamo or electric motors and standard compass *76 feet*

Distance between dynamo or electric motors and steering compass *80 —*

The nearest cables to the compasses are as follows:—

A cable carrying	<i>109</i>	Ampères	<i>76</i>	feet from standard compass	<i>80</i>	feet from steering compass
A cable carrying	<i>5</i>	Ampères	<i>8</i>	feet from standard compass	<i>12</i>	feet from steering compass
A cable carrying	<i>0.25</i>	Ampères for illumination of	<i>feet from standard compass</i>	and for illumination of	<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 *0* degrees on *all* course in the case of the steering compass.

AKTIESELSKABET

BURMEISTER & WAIN'S MASKIN- OG SKIBSBYGERI.

Builder's Signature.

Date *18th. Feb. 1921*

GENERAL REMARKS.

The electric lighting installation as above described is in accordance with the requirements of the Rules, the approved plan, dated 9/1-21. London letter E dated 25/1-1921.

The workmanship and the material are of good description in every respect and the whole electric lighting installation has been tested under full working condition and found satisfactory. Recommend the vessel to have notation of "Electric Light" in the Register Book.

This vessel is eligible for THE RECORD Elec. light.

AKD 28/2/21

S. Clausen

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.