

## REPORT ON ELECTRIC LIGHTING INSTALLATION.

No. 28144

Port of SUNDERLAND Date of First Survey July 19 Date of Last Survey Aug 27 No. of Visits 6  
 No. in Reg. Book on the Steel "TILTHORN" Port belonging to Bergen  
 Built at SUNDERLAND By whom Wm. Dofford & Sons, Ltd. When built 1921  
 Owners D/S "Brittania" Owners' Address Bergen  
 Yard No. 554 Electric Light Installation fitted by Clarke Chapman & Co. Ltd. When fitted 1921

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

one single cylinder double acting open type vertical engine direct coupled to a continuous current compound wound dynamo

Capacity of Dynamo 120 Amperes at 100 Volts, whether continuous or alternating current continuous

Where is Dynamo fixed In Engine Room lower platform Whether single or double wire system is used Double

Position of Main Switch Board near Dynamo having switches to groups A B C D E of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each Each light & group of lights provided with switch as required

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 50 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 Yes

Are all switches and fuses constructed of incombustible materials and fitted on incombustible bases Yes slate & porcelain

Total number of lights provided for 166 arranged in the following groups:—

A Saloon & around 9 lights each of <u>16</u>	candle power requiring a total current of <u>27.4</u>	Amperes
B Engine & aft 78 lights each of <u>16</u>	candle power requiring a total current of <u>43.7</u>	Amperes
C Engine Room 28 lights each of <u>16</u>	candle power requiring a total current of <u>15.7</u>	Amperes
D Navigation 11 lights each of <u>16</u>	candle power requiring a total current of <u>6.2</u>	Amperes
E Windows lights each of <u>1</u>	candle power requiring a total current of <u>25</u>	Amperes
2 Mast head light with 1 lamp each of <u>32</u>	candle power requiring a total current of <u>2.2</u>	Amperes
2 Side light with 1 lamp each of <u>32</u>	candle power requiring a total current of <u>2.2</u>	Amperes
6 Cargo lights of <u>6-16</u>	candle power, whether incandescent or arc lights <u>incandescent</u>	

If arc lights, what protection is provided against fire, sparks, &c.

Where are the switches controlling the masthead and side lights placed In Chart Room

## DESCRIPTION OF CABLES.

Main cable carrying <u>120</u> Amperes, comprised of <u>37</u> wires, each <u>16</u> S.W.G. diameter, <u>.117</u> square inches total sectional area
Branch cables carrying <u>43.7</u> Amperes, comprised of <u>7</u> wires, each <u>16</u> S.W.G. diameter, <u>.022</u> square inches total sectional area
Branch cables carrying <u>15.7</u> Amperes, comprised of <u>7</u> wires, each <u>17</u> S.W.G. diameter, <u>.017</u> square inches total sectional area
Leads to lamps carrying <u>1.6</u> Amperes, comprised of <u>1</u> wires, each <u>18</u> S.W.G. diameter, <u>.0018</u> square inches total sectional area
Cargo light cables carrying <u>3.3</u> Amperes, comprised of <u>168</u> wires, each <u>38</u> S.W.G. diameter, <u>.0050</u> square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

Insulated india rubber taped & braided & lead covered where exposed steel armoured where

Joints in cables, how made, insulated, and protected No joints except mechanical ones

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 Yes

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 Lead & armoured cables run through twin decks & shipped to underside of deck with strong galvanized iron clips



**DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.**

Are they in places always accessible no

What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture lead covered & steel

Armoured cables

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat lead & armoured cables

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

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

How are cables carried through beams In lead bushes through bulkheads, &c. in WT. glands

How are cables carried through decks In galvanized iron deck tubes

Are any cables run through coal bunkers Yes 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 & steel armoured cables

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 to WT. connection boxes

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel Boiler 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 in Dutchland

**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 order and safe working condition.

*For Clarke, Chapman & Co. Ltd.*

Electrical Engineers

Date 31<sup>st</sup> August 1921

**COMPASSES.**

*K. Walker* Chairman  
Distance between dynamo or electric motors and standard compass 112 ft

Distance between dynamo or electric motors and steering compass 106 "

The nearest cables to the compasses are as follows:—

A cable carrying	<u>1.1</u>	Amperes	<u>12</u>	feet from standard compass	<u>6</u>	feet from steering compass
A cable carrying	<u>1.1</u>	Amperes	<u>6</u>	feet from standard compass	<u>12</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 no degrees on all course in the case of the standard compass and nil degrees on all course in the case of the steering compass.

*WILLIAM DOXFORD & SONS, Limited.*

Builder's Signature.

Date 6<sup>th</sup> September 1921

**GENERAL REMARKS.**

*K. Walker*  
This installation has been fitted in a satisfactory manner and in accordance with the rules. The vessel has been taken over by the owner who will complete the installation at a Port in Norway. In complete survey: wiring in accommodation to be completed and installation tried under working conditions

This vessel is eligible for  
Full £12 10 0 Elee Light  
Ed 31/8/21 How Both 16/9/21

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 15 DEC. 1921



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