

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 9925.

t of MIDDLESBRO' Date of First Survey and Date of Last Survey while building No. of Visits
 in on the Iron or Steel S. S. Cardigan Port belonging to Cardiff
 Book Built at Stockton-on-Tees By whom Messrs Richardson Duck & Co When built 1917
 rs Cardigan S S Co Ltd Owners' Address Cardiff
 No. 653 Electric Light Installation fitted by Messrs Clarke Chapman & Co When fitted 1917
Gathead

DESCRIPTION OF DYNAMO, ENGINE, ETC.

A single cylinder double acting open type vertical engine direct coupled to a
 continuous current compound wound dynamo.
 Capacity of Dynamo 105 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
 Location of Main Switch Board near Dynamo having switches to groups A B C & D of lights, &c., as below
 Locations of auxiliary switch boards and numbers of switches on each Each light & group of lights provided
with switches as required

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
 Where is the dynamo 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 there 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

Number of lights provided for 115 arranged in the following groups:-

<u>46</u>	lights each of	<u>16</u>	candle power requiring a total current of	<u>25.7</u>	Amperes
<u>43</u>	lights each of	<u>16</u>	candle power requiring a total current of	<u>24.1</u>	Amperes
<u>26</u>	lights each of	<u>16</u>	candle power requiring a total current of	<u>14.5</u>	Amperes
<u>Wireless</u>	lights each of	<u>-</u>	candle power requiring a total current of	<u>25</u>	Amperes
<u>-</u>	lights each of	<u>-</u>	candle power requiring a total current of	<u>-</u>	Amperes
<u>✓ Mast head light with</u>	<u>1</u> lamps each of	<u>32</u>	candle power requiring a total current of	<u>2.2</u>	Amperes
<u>✓ Side light with</u>	<u>1</u> lamps each of	<u>32</u>	candle power requiring a total current of	<u>2.2</u>	Amperes
<u>5 Cargo lights of</u>	<u>4-32</u>		candle power, whether incandescent or arc lights	<u>incandescent</u>	

 Are there 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.

One cable carrying	<u>105</u> Amperes, comprised of	<u>37</u> wires, each	<u>16</u> S.W.G. diameter,	<u>.117</u> square inches total sectional area
Each cables carrying	<u>25.7</u> Amperes, comprised of	<u>7</u> wires, each	<u>16</u> S.W.G. diameter,	<u>.022</u> square inches total sectional area
Each cables carrying	<u>14.5</u> Amperes, comprised of	<u>7</u> wires, each	<u>20</u> S.W.G. diameter,	<u>.0070</u> square inches total sectional area
Wires to lamps carrying	<u>.56</u> Amperes, comprised of	<u>1</u> wires, each	<u>18</u> S.W.G. diameter,	<u>.0018</u> square inches total sectional area
Light cables carrying	<u>4.4</u> Amperes, comprised of	<u>168</u> wires, each	<u>38</u> S.W.G. diameter,	<u>.0050</u> square inches total sectional area

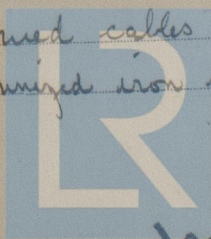
DESCRIPTION OF INSULATION, PROTECTION, ETC.

Armoured india rubber lined & braided & lead covered where exposed steel
removed overall

Are the 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 No
 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 covered & steel armoured cables run through
in decks & clipped 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 covered & steel Armoured

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 bunkers through bulkheads, &c. in WT glands ✓

How are cables carried through decks in galvanized iron deck tiles ✓

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 C. W. T. connection boxes

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 switchboard

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 650 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.

Electrical Engineers

Date 5th Nov. 1917

COMPASSES. *W. Walker* Chairman

Distance between dynamo or electric motors and standard compass 100 ft

Distance between dynamo or electric motors and steering compass 100 "

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
<u>.56</u>	<u>12</u>	<u>6</u>	<u>12</u>
<u>.56</u>	<u>6</u>	<u>12</u>	<u>12</u>
<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>

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 nil degrees on all course in the case of the standard compass and nil degrees on all course in the case of the steering compass.

FOR RICHARDSON, DUCK & CO. LTD.

E. Robson

Builder's Signature.

Date 10th Nov. 1917

GENERAL REMARKS.

Managing Director

This installation has been fitted in accordance with the Rules, is of good materials and workmanship and on completion was tested under full working conditions and found satisfactory. The vessel is fitted with "Wireless"

It is submitted that

this vessel is eligible for
THE RECORD. Elec. light

J. W. Morrison
13/11/17

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

Committee's Minute

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.