

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 9765

Port of Middlesbrough Date of First Survey and Date of Last Survey while building No. of Visits 1
 No. in Reg. Book on the Iron or Steel ROBERT BRUCE Port belonging to Robert Bruce
 Built at Middlesbrough By whom Sir Raylton Dixon & Co When built 1917
 Owners' Address Electric Light Installation fitted by Messrs Campbell & Isherwood Ltd. When fitted 1917

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Campbell & Isherwood 4 pole compound wound Dynamo direct coupled to an open type engine.

Capacity of Dynamo 125 Amperes at 100 Volts, whether continuous or alternating current Continuous

Where is Dynamo fixed Steering Gear Shaft Whether single or double wire system is used Double

Position of Main Switch Board Main Bulkhead having switches to groups 4 of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each Engine Room 6, Chartroom 8,

and a switch in a convenient position to each light.

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 75/6 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

Total number of lights provided for 90/6 & 60/32 arranged in the following groups:—

A <u>Midships</u>	lights each of <u>42/16 & 60/32</u>	candle power requiring a total current of <u>29.7</u>	Amperes
B <u>Engine Room</u>	lights each of <u>30/16</u>	candle power requiring a total current of <u>16.5</u>	Amperes
C <u>Engine Room</u>	lights each of <u>24/16</u>	candle power requiring a total current of <u>13.2</u>	Amperes
D <u>Marconi</u>	lights each of	candle power requiring a total current of <u>15</u>	Amperes
E	lights each of	candle power requiring a total current of	Amperes

2 Mast head light with 1 lamp each of 32 candle power requiring a total current of included in A Amperes

2 Side light with 1 lamp each of 32 candle power requiring a total current of included in A Amperes

4 Cargo lights of 60/16 candle power, whether incandescent or arc lights Incandescent

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

Where are the switches controlling the masthead and side lights placed Chart House

DESCRIPTION OF CABLES.

Main cable carrying 74.4 Amperes, comprised of 37 wires, each 16 S.W.G. diameter, .117 square inches total sectional area

Branch cables carrying 29.7 Amperes, comprised of 7 wires, each 18 S.W.G. diameter, .0125 square inches total sectional area

Branch cables carrying 16.5 Amperes, comprised of 7 wires, each 20 S.W.G. diameter, .007 square inches total sectional area

Leads to lamps carrying 16.5 Amperes, comprised of 1 wires, each 18 S.W.G. diameter, .0018 square inches total sectional area

Cargo light cables carrying 3.3 Amperes, comprised of 70 wires, each 36 S.W.G. diameter, .006 square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

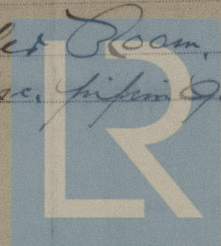
Engine Room & Boiler Room V.P.R. Armoured & Braided, Kolds, V.P.R. in use, piping, Galvan lead covered

Joints in cables, how made, insulated, and protected None made

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

How are the cables led through the ship, and how protected Engine Room & Boiler Room V.P.R. Armoured & Braided, Kolds V.P.R. in use, piping, Galvan lead covered



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 tubes*

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *Armoured & Braided*

What special protection has been provided for the cables near boiler casings *Armoured & Braided*

What special protection has been provided for the cables in engine room *Armoured & Braided*

How are cables carried through beams *Fiber spools through bulkheads, &c. Glazed.*

How are cables carried through decks *Deck tubes flanged to Deck*

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

If so, how are they protected *Armoured & Braided*

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

Cargo light cables, whether portable or permanently fixed *portable* How fixed *Special W.T. connection*

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 *yes*

Is the installation supplied with a voltmeter *yes* and with an amperemeter *yes*, fixed *Mainboard*

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 _____ 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.

Campbell & Shewood Ltd Electrical Engineers Date *11th July 1917*

COMPASSES.

Distance between dynamo or electric motors and standard compass *about 120 ft.*

Distance between dynamo or electric motors and steering compass *about 120 ft*

The nearest cables to the compasses are as follows:—

A cable carrying	55.	Amperes	1	feet from standard compass	1.	feet from steering compass
A cable carrying	1.65.	Amperes	6.	feet from standard compass	6.	feet from steering compass
A cable carrying	10.	Amperes	12	feet from standard compass	12	feet from steering compass

Have the compasses been adjusted with and without the electric installation at work at full power

The maximum deviation due to electric currents, etc., was found to be *no* degrees on *any* course in the case of the standard compass and *no* degrees on *any* course in the case of the steering compass. *N.B.*

FOR SIR RAYLTON DIXON & COMPANY, LIMITED.
J.H. Harroway Builder's Signature. Date *14 JUL 1917*

GENERAL REMARKS.

This Electric Light Installation has been fitted on board in accordance with the Rules tried under full working conditions and found good.

It is submitted that this vessel is eligible for THE RECORD Elec. light.

AWD 21/7/17

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

Committee's Minute

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.