

# REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 9686.

Port of MIDDLESBRO' Date of First Survey And Date of Last Survey White Building No. of Visits 1  
 No. in Reg. Book on the Iron or Steel S.S. IKEDA Port belonging to Liverpool  
 Built at Stockton By whom Messrs Richardson Duck & Co When built 1917  
 Owners The Union S.S. Co Ltd of B.C. Owners' Address Liverpool  
 Yard No. 650 Electric Light Installation fitted by Messrs Campbell & Isherwood 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 Starboard side Engine Room Whether single or double wire system is used Single

Position of Main Switch Board Starboard Bulkhead having switches to groups 5 of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each Engine Room 6, Masthouse 2, and 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 cessel 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% 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

Total number of lights provided for 63 of 16 cp + 6 of 32 arranged in the following groups :-

- A Saloon Navigation lights each of 54 of 16 cp + 5 of 32 candle power requiring a total current of 35.2 Amperes
- B Engineers lights each of 46 of 16 cp candle power requiring a total current of 25.3 Amperes
- C Aft lights each of 25 of 16 cp + 1 of 32 candle power requiring a total current of 14.8 Amperes
- D Engine Room lights each of 32 of 16 cp candle power requiring a total current of 20.9 Amperes
- E Marconi lights each of 15 candle power requiring a total current of 15 Amperes
- 2 Mast head light with 1 lamps each of 32 candle power requiring a total current of Included in A Amperes
- 2 Side light with 1 lamps each of 32 candle power requiring a total current of Included in A Amperes
- 7 Cargo lights of 5 of 16 candle power, whether incandescent or arc lights Incandescent

If arc lights, what protection is provided against fire, sparks, &c. None

Where are the switches controlling the masthead and side lights placed Masthouse

### DESCRIPTION OF CABLES.

Main cable carrying 111.2 Amperes, comprised of 34 wires, each 16 S.W.G. diameter, .117 square inches total sectional area

Branch cables carrying 35.2 Amperes, comprised of 7 wires, each 16 S.W.G. diameter, .022 square inches total sectional area

Branch cables carrying 25.3 Amperes, comprised of 7 wires, each 18 S.W.G. diameter, .0125 square inches total sectional area

Leads to lamps carrying 1.65 Amperes, comprised of 1 wires, each 18 S.W.G. diameter, .0018 square inches total sectional area

Cargo light cables carrying 2.75 Amperes, comprised of 70 wires, each 36 S.W.G. diameter, .006 square inches total sectional area

### DESCRIPTION OF INSULATION, PROTECTION, ETC.

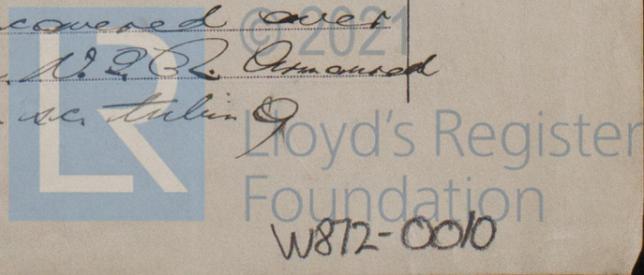
Accommodation lead covered over Vulcanized Rubber & taped. Engine Room N.B. Armoured & Braided Exposed places N.B. in sc. tubing

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 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 Accommodation lead covered over Vulcanized Rubber & taped. Engine Room N.B. Armoured & Braided. Exposed places N.B. in sc. tubing



**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 in 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 Fibre Jesmules through bulkheads, &c. Glands

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 tap bolt of amphi

How are the returns from the lamps connected to the hull tap screws & washers

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 1000 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 & Sherrard Electrical Engineers Date 16th June 1917

**COMPASSES.**

Distance between dynamo or electric motors and standard compass about 245 ft.

Distance between dynamo or electric motors and steering compass about 245 ft.

The nearest cables to the compasses are as follows:—

Cable	Amperes	Feet from standard compass	Feet from steering compass
<u>double</u> A cable carrying <u>0.55</u>	<u>1</u>	<u>1</u>	<u>1</u>
<u>**</u> A cable carrying <u>1.65</u>	<u>3</u>	<u>3</u>	<u>3</u>
<u>**</u> A cable carrying <u>10</u>	<u>9.35</u>	<u>9.35</u>	<u>9.35</u>
<u>single</u> " " <u>35.2</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. Mobsaw Builder's Signature. Date 29 June 1917  
Managing Director

**GENERAL REMARKS.**

This installation has been fitted in accordance with the Rules. The materials and workmanship are good and on completion the installation was tested under full working conditions and found satisfactory.

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

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

Committee's Minute

Im. 914.—Transfer.

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.



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