

REPORT ON ELECTRIC LIGHTING INSTALLATION. *No. 12968.*

Port of Aberdeen Date of First Survey 4.10.21 Date of Last Survey 16.2.22 No. of Visits 14.
No. in on the ~~Iron or~~ Steel S.S. "DRACO" Port belonging to Hull.
Reg. Book 24014 N.S. Built at Aberdeen. By whom Ball Russell & Co. Ltd. When built 1922.
Owners Ellerman's Wilson Line Ltd. Owners' Address Hull.
Yard No. 680 Electric Light Installation fitted by Sunderland Forge & Engineering Co. Ltd. When fitted 1922.

DESCRIPTION OF DYNAMO, ENGINE, ETC.

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One contained plant consisting of single cylinder vertical open type inverted engine
100 H.P. steam 350 revs coupled to compound wound multiplex dynamo.

Capacity of Dynamo 80 Amperes at 100 Volts, whether continuous or alternating current continuous

Where is Dynamo fixed in Engine Room Starboard Whether single or double wire system is used double

Position of Main Switch Board Close to Dynamo having switches to groups Five of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each In chart room with switches controlling
Port Starboard, Foremast, Mainmast, Compasses, Telegraphs & Morse Lamp.

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 the fuses fitted in easily accessible positions yes Are the fuses of standard dimensions no 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 128 2/6% arranged in the following groups:—

A Navigational Salom 34 lights each of 16 candle power requiring a total current of 20.4 Amperes

B Accommodation ³⁶ lights each of — 11 — candle power requiring a total current of 21.6 Amperes

C. *barys*. 33 lights each of —H— candle power requiring a total current of 19.8 Amperes

D Engine & Boiler no. 25 lights each of candle power requiring a total current of 15.0 Amperes

E *Wireless* lights each of — candle power requiring a total current of — Amperes

2 Mast head lights with 1 lamp each of 32 candle power requiring a total current of 2.4 Amperes

2 Side light with 1 lamp each of 32 candle power requiring a total current of 2.4 Amperes

5 Cargo lights of 6 - 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. In Chart Room

DESCRIPTION OF CABLES.

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Main cable carrying 80 Amperes, comprised of 19 wires, each .085 S.W.G. diameter, .10 square inches total sectional area

Branch cables carrying 21.6 Amperes, comprised of 7 wires, each .064 S.W.G. diameter, .02 square inches total sectional area

Branch cables carrying 15.0 Amperes, comprised of 7 wires, each .036 S.W.G. diameter, .007 square inches total sectional area

Leads to lamps carrying 6 Amperes, comprised of 3 wires, each .029 S.W.G. diameter, .002 square inches total sectional area

Cargo light cables carrying 3.6 Amperes, comprised of 3 wires, each .029 S.W.G. diameter, .002 square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

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Mains & machinery spaces: - Pure & White: 1 R. Dated & Sulcan & then Lead covered & armoured
Armouring & spaces: - " - " - " - " then 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 None made.

How are the cables led through the ship, and how protected *Lead covered & Armoured each clipped to beams*

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 *Lead covered & armoured*

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 *Holes bushed with fibre* through bulkheads, &c. *W/T. Glant.*

How are cables carried through decks *W/T. Deck Tubes.*

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 *Lead covered & armoured*

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage —

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 —

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* and with an amperemeter *Yes*, fixed on *main 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 *2500* 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.
p.pro THE SUNDERLAND FORGE & ENGINEERING CO. LTD.

COMPASSES.

Distance between dynamo or electric motors and standard compass

Distance between dynamo or electric motors and steering compass

The nearest cables to the compasses are as follows:—

A cable carrying	<i>20.4</i>	Amperes	<i>10</i>	feet from standard compass	<i>6</i>	feet from steering compass
A cable carrying	<i>.6</i>	Amperes	<i>6</i>	feet from standard compass	<i>led into</i>	<i>from steering compass</i>
A cable carrying		Amperes	<i>led into</i>	<i>from</i> standard compass	<i>10.</i>	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 *nil* degrees on *any* course in the case of the standard compass and *nil* degrees on *any* course in the case of the steering compass.

FOR HALL, RUSSELL & CO., LTD.

James Hunter DIRECTOR.

Builder's Signature. Date *8th March 1922*

GENERAL REMARKS.

The various parts of the installation were examined during the fitting on board: the materials, and workmanship are good and on completion the light was tried at full power, and everything found satisfactory.

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

See £ 8.0.0.

paid 16/3/22

17/3/22

Ridley Howell

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUE. 21 MAR. 1922