

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 8046.

Received at London Office 1.10.1917

Port of DUNDEE Date of First Survey 8.10.16 Date of Last Survey 14.11.17 No. of Visits 15
 No. in Reg. Book 315 on the ~~Iron~~ Steel S.S. "AGUILA" Port belonging to Liverpool
 Built at Liverpool By whom Casson & Co. Ltd. When built 1914
 Owners James Yewand Bros. Owners' Address Liverpool
 Yard No. 242 Electric Light Installation fitted by N. D. Boothroyd, Ltd. When fitted 1914

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Two Boothroyd Compound Wound-Multipolar Dynamos 16.4 K.W. 100 Volts, each
Two "Shanks" 8 x 6" Open Type, Vertical Engines. 325 Revs, 100 lbs pressure.
 Capacity of Dynamo 164 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
 Position of Main Switch Board Near Dynamos having switches to groups Nine of lights, &c., as below
 Positions of auxiliary switch boards and numbers of switches on each Four Aux. Boards in Engine Room being:
Three of these have 4 switches each and one has 5 switches.

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 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 343 arranged in the following groups:-

A	<u>118</u>	lights each of	<u>16</u>	candle power requiring a total current of	<u>50</u>	Amperes
B	<u>121</u>	lights each of	<u>16</u>	candle power requiring a total current of	<u>50</u>	Amperes
C	<u>35</u>	lights each of	<u>16</u>	candle power requiring a total current of	<u>20</u>	Amperes
D	<u>19</u>	lights each of	<u>16</u>	candle power requiring a total current of	<u>10</u>	Amperes
E	<u>14</u>	lights each of	<u>16</u>	candle power requiring a total current of	<u>11</u>	Amperes
<u>2</u>	<u>118</u>	Mast head light with <u>1</u> lamps each of <u>32</u>		candle power requiring a total current of	<u>2.2</u>	Amperes
<u>2</u>	<u>118</u>	Side light with <u>1</u> lamps each of <u>32</u>		candle power requiring a total current of	<u>2.2</u>	Amperes
<u>118</u>	<u>118</u>	Cargo lights of <u>100 & 5/6 & 1/2</u> candle power, whether incandescent or arc lights <u>Both</u>				

If arc lights, what protection is provided against fire, sparks, &c. Lenses & Cutters Glasses & Metal Tray

Where are the switches controlling the masthead and side lights placed In the Chart Room/also on Bridge.

DESCRIPTION OF CABLES.

Main cable carrying 164 Amperes, comprised of 37 wires, each 14 S.W.G. diameter, .182 square inches total sectional area
 Branch cables carrying 50 Amperes, comprised of 19 wires, each 16 S.W.G. diameter, .060 square inches total sectional area
 Branch cables carrying 20 Amperes, comprised of 7 wires, each 16 S.W.G. diameter, .022 square inches total sectional area
 Leads to lamps carrying 2/2 Amperes, comprised of 1 wires, each 18 S.W.G. diameter, .0018 square inches total sectional area
 Cargo light cables carrying 3 Amperes, comprised of 7 wires, each 20 S.W.G. diameter, .007 square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Rubber & V.T. Rubber Taped & Braided & Lead covered in covered accommodation spaces.
Main cables in extra protection of Wood Casing.
Cables & etc in Machinery Spaces & other exposed positions are armoured.
 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 — 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 No.

How are the cables led through the ship, and how protected Armoured or in Wood Casing / Efficiently Clipped.

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 covering & Rimming or in tubing as position requires*

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

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

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

How are cables carried through beams *Lead & Fibre Bus bars* through bulkheads, &c. *W. T. Glends*

How are cables carried through decks *W. T. 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 *Tubing or Lead Rimming as required*

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

If so, how are the lamp fittings and cable terminals specially protected *Special Heavy Iron Guards*

Where are the main switches and fuses for these lights fitted *On aux. Switchboards in Eng. casing*

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 W. T. Boxes*

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 *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 *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.

H. T. Boothroyd & Co. Limited,

J. W. Whitfield

Electrical Engineers

Date *12/12/17*

COMPASSES.

Distance between dynamo or electric motors and standard compass *about 140 feet*

Distance between dynamo or electric motors and steering compass *about 90 feet*

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	Feet from standard compass	Feet from steering compass
<i>1/2</i>	<i>1/2</i>	<i>1/2</i>	<i>1/2</i>
<i>10</i>	<i>10</i>	<i>20</i>	<i>20</i>
<i>15</i>	<i>15</i>	<i>15</i>	<i>15</i>

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 *—* degrees on *—* course in the case of the standard compass and *—* degrees on *—* course in the case of the steering compass.

Frank W. Barclay

Builder's Signature...

Date *14 Dec 1917*

GENERAL REMARKS.

The electric lighting installation of this vessel has been fitted on board under special survey: Examined under full working conditions & found in good order. It is signified in my opinion to have record "Electric light"

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

J. W. Whitfield

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

Committee's Minute

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.