

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 29330

Port of Glasgow Date of First Survey 25th Aug Date of Last Survey 9-9-10 No. of Visits 7
 No. in on the Iron or Steel S/S PORTO-SEGURO Port belonging to Bahia
 Reg. Book Built at Port of Glasgow By whom Hurdock & Murray When built 1910
 Owners Empresa Navegacao Bahiana Owners' Address Bahia
 Yard No. Electric Light Installation fitted by Haddow & Co Glasgow When fitted 1910

DESCRIPTION OF DYNAMO, ENGINE, ETC.

One Compound Wound Dynamo Coupled Direct to
One Double Acting Open Fronted Steam Engine
 Capacity of Dynamo 60 Amperes at 100 Volts, whether continuous or alternating current Continuous
 Where is Dynamo fixed Engine Room Whether single or double wire system is used Double
 Position of Main Switch Board Alongside Dynamo having switches to groups A. B. C. D. of lights, &c., as below
 Positions of auxiliary ^{fuse} switch boards and numbers of switches on each Deck House, Forward, Midships, Aft.

If cut outs 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 cut outs fitted to both flow and return wires or cables of all circuits including lamp circuits Yes

Are the cut outs of non-oxidizable metal Yes and constructed to fuse at an excess of 25 per cent over the normal current

Are all cut outs 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 cut-outs constructed of incombustible materials and fitted on incombustible bases Yes

Total number of lights provided for 82 arranged in the following groups:—

A	<u>11</u>	lights each of		candle power requiring a total current of	<u>6.6</u>	Amperes
B	<u>16</u>	lights each of		candle power requiring a total current of	<u>9.6</u>	Amperes
C	<u>{ 22 }</u>	lights each of	<u>16 }</u>	candle power requiring a total current of	<u>18</u>	Amperes
D	<u>22</u>	lights each of		candle power requiring a total current of	<u>13.2</u>	Amperes
E		lights each of		candle power requiring a total current of	<u>1.2</u>	Amperes
1	<u>Mast head light with 2 lamps each of 32</u>			candle power requiring a total current of	<u>2.4</u>	Amperes
2	<u>Side light with 2 lamps each of 32</u>			candle power requiring a total current of		Amperes
2	<u>Cargo lights of 4 lamps of 32</u>			candle power, whether incandescent or arc lights	<u>Included in above</u>	

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

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

DESCRIPTION OF CABLES.

Main cable carrying 60 Amperes, comprised of 19 wires, each 16 L.S.G. diameter, .06000 square inches total sectional area
 Branch cables carrying 6.6 Amperes, comprised of 4 wires, each 18 L.S.G. diameter, .01246 square inches total sectional area
 Branch cables carrying 18 Amperes, comprised of 4 wires, each 16 L.S.G. diameter, .02214 square inches total sectional area
 Leads to lamps carrying 0.6 Amperes, comprised of 1 wires, each 18 L.S.G. diameter, .001810 square inches total sectional area
 Cargo light cables carrying 4.8 Amperes, comprised of 3 wires, each 18 L.S.G. diameter, .005323 square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Pure Rubber, Vulcanized Rubber, Taping
Braiding & Compounding Overall

Joints in cables, how made, insulated, and protected Soldered & Insulated with Pure Para Rubber, Vulcanized Tape & Rubber Solution

Are all the joints of cables thoroughly soldered, resin only having been used as a flux 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 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

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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 Tubes* ✓

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

What special protection has been provided for the cables near boiler casings *Lead Covered & As required* ✓

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

How are cables carried through beams *Lead Liners* ✓ through bulkheads, &c. *Stuffing Glands* ✓

How are cables carried through decks *Iron tubes flanged to deck* ✓

Are any cables run through coal bunkers *No* or cargo spaces *No* or spaces which may be used for carrying cargo, stores, or baggage *No*

If so, how are they protected

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 cut outs for these lights fitted

If in the spaces, how are they specially protected

Are any switches or cut outs fitted in bunkers *No* ✓

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

The installation is _____ supplied with a voltmeter and _____ an amperemeter, fixed *Main Switch Bd.*

VESSELS BUILT FOR CARRYING PETROLEUM.

In vessels built for carrying petroleum, are all switches and cut-outs fitted in positions not liable to the accumulation of petroleum vapour or gas

Are any switches, cut outs, 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 *99* ✓ per cent. that of pure copper.

Insulation of cables is guaranteed to have a resistance of not less than *600* ✓ megohms per statute mile after 24 hours' immersion in seawater.

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.

Hadden & Co, Glasgow

Electrical Engineers

Date *Sept 21st 1910*

COMPASSES.

Distance between dynamo or electric motors and standard compass *40 feet*

Distance between dynamo or electric motors and steering compass *42*

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
<i>6.6</i>	<i>15</i>	<i>16</i>	<i>16</i>
<i>18</i>	<i>25</i>	<i>28</i>	<i>28</i>
_____	_____	_____	_____

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

Murdoch & Murray

Builder's Signature.

Date *29th Sept 1910*

GENERAL REMARKS.

This installation has been fitted on board under special survey, tested under full working conditions and found satisfactory.

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

JWD 9/10/10

Bewick Davis

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

Committee's Minute

GLASGOW 4-OCT. 1910

Elec. light. Board



Lloyd's Register Foundation

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.