

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 25291

Port of *Colon* Date of First Survey *15 April* Date of Last Survey *16 May* No. of Visits *5*
 No. in Reg. Book on the *Iron* *Steel* *Ship* *Quilpue* Port belonging to *Liverpool*
 Built at *Belgium* *N.B.* By whom *William Beardmore & Co. Ltd.* When built *1907*
 Owners *Pacific Steam Navigation Co.* Owners' Address *James St. Liverpool*
 Yard No. *489* Electric Light Installation fitted by *Messrs W. Beardmore & Co. Ltd.* When fitted *May 1907*

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Two Direct driven steam dynamos by 10 H. Allan & Sons Bedford *6" x 10"*
Dynamos Compound wound multipolar 210 amperes 55 volt continuous current.
 Capacity of Dynamo *210* Amperes at *55* Volts, whether continuous or alternating current *Continuous*
 Where is Dynamo fixed *on Platform in Main Eng. Rm* Whether single or double wire system is used *Single*
 Position of Main Switch Board *Near the dynamos* having switches to groups *Five in number of lights, &c., as below*
 Positions of auxiliary switch boards and numbers of switches on each *On Top Platform. 9 switches for Cargo*
cluster & arc lamps. also 1 switch for Top platform of Engine Room.
 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
 Are the cut outs of non-oxidizable metal *Yes* and constructed to fuse at an excess of *50 %* 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 *Instructions given*
 Are all switches and cut-outs constructed of incombustible materials and fitted on incombustible bases *In every case*
 Total number of lights provided for *362* arranged in the following groups:—
 A *General* *57* lights each of *16* candle power requiring a total current of *66* Amperes
 B *State Room* *72* lights each of *16* candle power requiring a total current of *87* Amperes
 C *Engine Room* *92* lights each of *16* candle power requiring a total current of *106* Amperes
 D *Holds & Cluster* *81* lights each of *16* candle power requiring a total current of *98* Amperes
 E *Open Deck* *57* lights each of *16* candle power requiring a total current of *66* Amperes
Two Mast head lights with *One* lamp each of *32 c.p.* candle power requiring a total current of *2.32* Amperes
Two Side light with *One* lamp each of *32* candle power requiring a total current of *2.32* Amperes
Seven Cargo lights of *6.16 c.p.* candle power, whether incandescent or ~~arc~~ lights *6.96*
 If arc lights, what protection is provided against fire, sparks, &c. *Two arc lamps 20 amp. Square lantern covering the arc*
 Where are the switches controlling the masthead and side lights placed *in Wheel House*

DESCRIPTION OF CABLES.

Main cable carrying *210* Amperes, comprised of *52* wires, each *14* L.S.G. diameter, *.2562* square inches total sectional area
 Branch cables carrying *133.9* Amperes, comprised of *37* wires, each *15* L.S.G. diameter, *.1478* square inches total sectional area
 Branch cables carrying *33.9* Amperes, comprised of *19* wires, each *18* L.S.G. diameter, *.0337* square inches total sectional area
 Leads to lamps carrying *34* Amperes, comprised of *1* wires, each *16* L.S.G. diameter, *.0032* square inches total sectional area
 Cargo light cables carrying *6.9* Amperes, comprised of *234* wires, each *38* L.S.G. diameter, *.0066* square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Insulated with Pure & vulcanized India rubber Taped Lead covered & Armoured 2500 Megohm
" " " " " " Taped Braided & Compounded " "
 Joints in cables, how made, insulated, and protected *Thoroughly soldered to all lugs, resin only being used. Then insulated with pure I. Rubber & waterproof impregnated tape.*
 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 cables in bunkers*
 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 *Engine & Boiler Room Lead covered & Armoured, elsewhere in Heavy Lead casing.*

DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.

Are they in places always accessible *All cables wiring are accessible*

What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture *Solid drawn steel conduit and in heavy teak casing*

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

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 *Red fibre bushes and through bulkheads, &c. where non-watertight Red fibre*

How are cables carried through decks *In Deck tubes of galvanized iron sealed on top*

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

If so, how are they protected *In special heavy teak casing*

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

If so, how are the lamp fittings and cable terminals specially protected *Special metal covers screwed watertight*

Where are the main switches and cut outs for these lights fitted *At Distributing boxes on main deck*

If in the spaces, how are they specially protected *None*

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 *Earthed to dynamo bedplate*

How are the returns from the lamps connected to the hull *Cable lugs & brass set pins*

Are all the joints with the hull in accessible positions *Yes*

The installation is *one* supplied with a voltmeter and *Two* amperemeters fixed *on Switchboard*

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 *100* per cent. that of pure copper. *Engineer's Standard.*

Insulation of cables is guaranteed to have a resistance of not less than *2500* 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.

Messrs W. Beadmore & Co. Ltd. Electrical Engineers Date *20th May 1907*

COMPASSES.

Distance between dynamo or electric motors and standard compass *186 ft.*

Distance between dynamo or electric motors and steering compass *180 ft.*

The nearest cables to the compasses are as follows:—

Cable	Amperes	Distance from standard compass	Distance from steering compass
A cable carrying <i>1.16</i>	<i>Double wiring</i>	<i>On Standard compass</i>	<i>feet from steering compass</i>
A cable carrying <i>25</i>	<i>9 feet</i>	<i>feet from standard compass</i>	<i>5 ft. feet from steering compass</i>
A cable carrying	<i>All Double wired</i>	<i>30 ft. back</i>	<i>feet from steering compass</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 *0* degrees on *Straight* course in the case of the standard compass and *0* degrees on *Straight* course in the case of the steering compass.

For William Beadmore & Co. Limited. Builder's Signature. Date

GENERAL REMARKS. *The electric lighting installation of this vessel has been fitted in accordance with the rules and satisfactorily tested under full power.*

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

Committee's Minute *3 - JUN 1907* *Record Electric Light*

It is submitted that the Record Elec. Light be noted in the Reg. Book