

## REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 35647

Port of Glasgow Date of First Survey 17/3/15 Date of Last Survey 7/12/15 No. of Visits 14  
 No. in Reg. Book 1050 on the Iron or Steel by S. Bostonian Port belonging to Liverpool  
 Built at Govan, Glasgow By whom Harland & Wolff Ltd. When built 1915  
 Owners Federick Leyland & Co. Ltd. Owners' Address 27 James Street, Liverpool  
 Yard No. 466 G. Electric Light Installation fitted by Harland & Wolff Ltd. When fitted 1915

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

Two messrs Lawrence Scott & Co's Dynamos 150 H.P. 220 Volts, 682 amps @ 250 R.P.M.  
& to messrs Barmeister & Wain's Engines, cylinders 4/50 in.

Capacity of Dynamo each 682 Amperes at 220 Volts, whether continuous or alternating current continuous

Where is Dynamo fixed motor room Whether single or double wire system is used Double

Position of Main Switch Board motor room having switches to groups A, B, C, D & E of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each 1 auxiliary switchboard in workshop controlling the Tusham Dynamos, with fuses controlling the auxiliary circuit to wireless.

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 Tinned copper 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, to 33 S.W.G. 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, porcelain

Total number of lights provided for 36 1/2 horse lamp arranged in the following groups:—

|   |   |       |         |
|---|---|-------|---------|
| A Capt. Signals 35 lights each of 9 of 32 C.P. 21 of 16   | candle power requiring a total current of | 15.25 | Amperes |
| B Officers' Mess 52 lights each of 16                     | candle power requiring a total current of | 15.6  | Amperes |
| C Enginerooms 43 lights each of 7 1/2 of 16 C.P. & 1 of 8 | candle power requiring a total current of | 21.7  | Amperes |
| D Motor Room 111 lights each of 16                        | candle power requiring a total current of | 33.3  | Amperes |
| E Cargo 96 lights each of 16 C.P. & 2 arc lamps           | candle power requiring a total current of | 48.8  | Amperes |
| 2 Mast head lights with 2 lamps each of 32                | candle power requiring a total current of | 2.4   | Amperes |
| 2 Side lights with 2 lamps each of 32                     | candle power requiring a total current of | 2.4   | Amperes |

Twelve 8 ft. 16 C.P. Cargo lights of and 2-10 amp arc lamps candle power, whether incandescent or arc lights both

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

Where are the switches controlling the masthead and side lights placed in wheelhouse.

## DESCRIPTION OF CABLES.

|  |
|--|
| Main cable carrying <u>86</u> Amperes, comprised of <u>19</u> wires, each <u>15</u> S.W.G. diameter, <u>.075</u> square inches total sectional area          |
| Branch cables carrying <u>42</u> Amperes, comprised of <u>19</u> wires, each <u>18</u> S.W.G. diameter, <u>.034</u> square inches total sectional area       |
| Branch cables carrying <u>15.6</u> Amperes, comprised of <u>7</u> wires, each <u>18</u> S.W.G. diameter, <u>.0125</u> square inches total sectional area     |
| Leads to lamps carrying <u>2.4</u> Amperes, comprised of <u>3</u> wires, each <u>20</u> S.W.G. diameter, <u>.003</u> square inches total sectional area      |
| Cargo light cables carrying <u>2.4</u> Amperes, comprised of <u>90</u> wires, each <u>36</u> S.W.G. diameter, <u>.004</u> square inches total sectional area |

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

Cables throughout of 2500 megohm quality, classed to C.W.A., insulated with pure and vulcanized rubber protected with lead covering in accommodation, cables in motor room and where run along exposed Deck further protected by steel armouring and braiding.

Joints in cables, how made, insulated, and protected none

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 Lead covered in accommodation exposed, Lead covered & Braided exposed throughout motor room, Lead covered & Braided protected by steel iron plates where run along exposed Deck.



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 & Braided exposed in open alleyways.

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

What special protection has been provided for the cables near boiler casings Lead covered Armoured & Braided exposed.

What special protection has been provided for the cables in engine room Lead covered Armoured & Braided exposed.

How are cables carried through beams Beams bushed with Lead through bulkheads, &c. in Glands if W.T.

How are cables carried through decks in bushed & S. Deck Pipes.

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 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 Permanent to socket How fixed shut permanent Lead covered Armoured & Braided

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 to 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.

FOR HARLAND & WOLFF, LTD.

John Dickinson

Electrical Engineers

Date 27th Dec. 1915

COMPASSES.

Distance between dynamo or electric motors and standard compass 60 feet.

Distance between dynamo or electric motors and steering compass 50 feet.

The nearest cables to the compasses are as follows:—

|                  |              |         |           |                            |           |                            |
|------------------|--------------|---------|-----------|----------------------------|-----------|----------------------------|
| A cable carrying | <u>20</u>    | Amperes | <u>20</u> | feet from standard compass | <u>20</u> | feet from steering compass |
| A cable carrying | <u>15.25</u> | Amperes | <u>10</u> | feet from standard compass | <u>15</u> | feet from steering compass |
| A cable carrying | <u>2.4</u>   | Amperes | <u>6</u>  | feet from standard compass | <u>8</u>  | 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 all the course in the case of the standard compass and nil degrees on all the course in the case of the steering compass.

FOR HARLAND & WOLFF, LTD.

John Dickinson

Builder's Signature.

Date 27th Dec. 1915

GENERAL REMARKS.

This installation has been fitted in a satisfactory manner and has been tried under full working conditions and found to work well.

It is submitted that this vessel is eligible for

THE RECORD Elec. light.

J.W.D.

6/1/16

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

Committee's Minute

GLASGOW 55 JAN 1916

Electric Light

APD