

WED. OCT. 22. 1913

## REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 16538

Port of Greenock Date of First Survey 31<sup>st</sup> July/13 Date of Last Survey 13<sup>th</sup> Sept 1913 No. of Visits 14  
 on the Iron or Steel S.S. Tokushima Maru Port belonging to \_\_\_\_\_  
 Book Built at Port Glasgow By whom Russell 1604 When built 1913  
 Owners' Address \_\_\_\_\_  
 No. 648 Electric Light Installation fitted by Bennett & Hunter for Glasgow When fitted 1913

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

One combined coupled plant  $4\frac{1}{2} \times 4$  open type vertical  
 engine direct coupled to 6 pole S.C. Dynamo running at 300 revs  
 Capacity of Dynamo 98 Amperes at 100 Volts, whether continuous or alternating current Continuous  
 Where is Dynamo fixed Main platform Engine Room Whether single or double wire system is used double  
 Position of Main Switch Board near Dynamo having switches to groups six of lights, &c., as below  
 Positions of auxiliary switch boards and numbers of switches on each Engine Room, Steering Gear Space  
Engineers mess, Saloon, Pantry, Chart Room

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 25 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 125 arranged in the following groups:—  
 A 28 lights each of 16 candle power requiring a total current of 16.8 Amperes  
 B 19 lights each of 16 candle power requiring a total current of 11.4 Amperes  
 C 23 lights each of 16 candle power requiring a total current of 13.8 Amperes  
 D 30 lights each of 16 candle power requiring a total current of 18.0 Amperes  
 E 25 lights each of 16 candle power requiring a total current of 15.0 Amperes  
2 Mast head light with 1 lamps each of 32 candle power requiring a total current of 1.2 Amperes  
2 Side light with 1 lamps each of 32 candle power requiring a total current of 1.2 Amperes  
5 Cargo lights of 80 candle power, whether incandescent or arc lights Incandescent

If arc lights, what protection is provided against fire, sparks, &c. Inner & Outer Globes 4-5/8 amp

Enclosed are Lamps  
 Where are the switches controlling the masthead and side lights placed Chart Room

## DESCRIPTION OF CABLES.

Main cable carrying 98 Amperes, comprised of 19 wires, each 14 S.W.G. diameter, .094 square inches total sectional area  
 Branch cables carrying 11.4 Amperes, comprised of 7 wires, each 18 S.W.G. diameter, .0125 square inches total sectional area  
 Branch cables carrying 13.8 Amperes, comprised of 7 wires, each 17 S.W.G. diameter, .017 square inches total sectional area  
 Leads to lamps carrying 3 Amperes, comprised of 3 wires, each 20 S.W.G. diameter, .003 square inches total sectional area  
 Cargo light cables carrying 18 Amperes, comprised of 7 wires, each 17 S.W.G. diameter, .017 square inches total sectional area

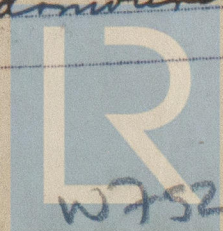
## DESCRIPTION OF INSULATION, PROTECTION, ETC.

In accommodation Cables are protected by Pure  
 India Rubber Taped & vulcanized, then covered with lead wrapping. In  
 Hold etc cables are armoured with galvanized iron wires  
 Joints in cables, how made, insulated, and protected None all mechanical boxes used

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 Clipped to deck, armoured



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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 Armoured

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

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

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

How are cables carried through beams Lead Ferrets

through bulkheads, &c. W.I. glands

How are cables carried through decks Iron deck tubes 2 ft high screw down

Are any cables run through coal bunkers No

or cargo spaces Yes

or spaces which may be used for carrying cargo, stores, or baggage Yes

If so, how are they protected Armoured

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 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

Is the installation supplied with a voltmeter Yes

and with an amperemeter Yes

fixed on 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 2000 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.

Bennett & Rutherford

Electrical Engineers

Date

13<sup>th</sup> Oct 1913

COMPASSES.

Distance between dynamo or electric motors and standard compass 150 feet

Distance between dynamo or electric motors and steering compass 140 "

The nearest cables to the compasses are as follows:—

A cable carrying 6

Amperes

one

feet from standard compass

one

feet from steering compass

A cable carrying 1.2

Amperes

four

feet from standard compass

two

feet from steering compass

A cable carrying 11.0

Amperes

eight

feet from standard compass

five

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

course in the case of the

standard compass and

degrees on

course in the case of the steering compass.

GENERAL REMARKS.

The materials and workmanship are good, on completion the installation was tested and found to work well.

It is submitted that this vessel is eligible for

THE RECORD Elec light

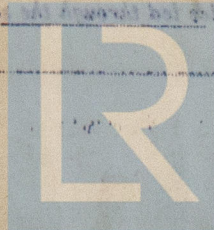
Wm. Austin

Surveyor to Lloyd's Register of British and Foreign Shipping

Committee's Minute

GLASGOW 21 OCT 1913

Elec. Light



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THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

AC 20-10-13

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