

# REPORT ON ELECTRIC LIGHTING INSTALLATION.

Port of *Glasgow*

12 FEB. 92

No. *11144*\*

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No. in *24* Name of Ship *Auahine* Built at *Dumbarton* When built *1891*

Reg. Book. *24 S. 44* Electric Light Installation fitted by *Messrs Wm Denny & Brown* when fitted *1891*

## DESCRIPTION OF DYNAMO AND ENGINE.—

*2 Phoenix dynamos by Messrs Paterson & Cooper*  
*2 Lower Spherical engines by Messrs Heenan & Grange*

Capacity of Dynamos *Each 192* Amperes at *100* Volts, ~~whether~~ continuous ~~or~~ alternating current

Where is Dynamo fixed *In Engine Room*

## LAMPS.—

Is vessel wired on single or double wire system *single* Total number of lights *299* arranged in ~~the following~~ *six* groups:—

A	lights each of		candle power requiring a total current of	Amperes
B	lights each of		candle power requiring a total current of	Amperes
C	lights each of		candle power requiring a total current of	Amperes
D	lights each of		candle power requiring a total current of	Amperes
E	lights each of		candle power requiring a total current of	Amperes

*1* Mast head light with *1* lamp each of *32* candle power requiring a total current of *1.3* Amperes

*2* Side lights with *1* lamp each of *32* candle power requiring a total current of *1.3* Amperes

*4* Cargo lights of *8* lamps each *16* candle power, ~~whether~~ incandescent ~~or~~ *are* lights

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

## SWITCHES AND CUT-OUTS.—

Position of Main Switch Board *Beside the dynamos* having switches *six* to groups of lights as above

Positions of other switch boards and numbers of switches on each *1<sup>st</sup> class Pantry, 8 switches, 2<sup>nd</sup> class passages 5 switches; transverse passages in 1<sup>st</sup> class 8 switches; Night board in engine room, 9 switches; engine room board, 10 switches; Forecastle, 6 switches.*

If cut outs are fitted to main circuit *Yes* and to each auxiliary circuit *yes*

and at each position where cable is ~~branched~~ or reduced in size *yes*

If vessel is wired on the double wire system are cut outs fitted on each wire

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

Are all cut outs fitted in easily accessible positions *Yes*

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

How are the lamps specially protected in places liable to the accumulation of vapour or gas

Are all switches and cut-outs constructed of unflammable materials and fitted on unflammable bases *Yes*

## DESCRIPTION OF CABLES.— *Current density in all cables under 1000 amperes 10 square inch.*

Main cable carrying Amperes, comprised of wires, each legal standard wire gauge diameter

Branch cables carrying Amperes, comprised of wires, each legal standard wire gauge diameter

Branch cables carrying Amperes, comprised of wires, each legal standard wire gauge diameter

Leads to lamps Amperes, comprised of wires, each legal standard wire gauge diameter

Cargo light cables carrying Amperes, comprised of wires, each legal standard wire gauge diameter

The copper used has a conductivity of *78* 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



# DESCRIPTION OF INSULATION, PROTECTION, &c.—

The main cables are insulated with pure rubber separator vulcanized rubber lead covered shaped. Most of the branch leads are insulated as above without the lead covering, the remainder are Fowler Waring lead covered armoured.

Joints in cables, how made, insulated, and protected All joints in the branch leads are made inside of watertight metal junction boxes. There are no joints in the main leads.

Are all the joints of cables thoroughly soldered, resin only having been used as a flux There are no soldered joints, an improved screwed junction being used.

How are cables led throughout the ship In wooden casing, except where armoured wire is used when the wires are fixed with clips.

What special protection has been provided for the cables in open alleyways None fitted

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat Kept away from source of heat

What special protection has been provided for the cables near boiler casings In Engine Room & Boiler Room lead covered armoured wire

What special protection has been provided for the cables in engine room Fowler Waring cable lead covered armoured is used

How are cables carried through decks in a lead pipe flanged to the deck and through bulkheads through a hard wood plug pitched

Are any cables run through coal bunkers No or cargo spaces Yes If so, how are they protected lead covered & placed in strong wooden casing.

Are any lamps fitted in coal bunkers or spaces which may be used for cargo Yes

If so, how are they specially protected In the event of the space being used for cargo the lamps would be unscrewed & the fuses withdrawn, cutting the wires off entirely from the dynamo.

Cargo light cables, whether portable or permanently fixed portable How fixed With concentric screwed socket

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel A large brass eye is soldered to the end of the cable & screwed to the skin of the ship with a 3/4 screw.

How are the returns from the lamps connected to the hull With 3/8 brass screws

Are all the joints with the hull in accessible positions Yes

## TESTING, &c.—

Has the installation been thoroughly tested to its full capacity during a trial of six hours' duration

The insulation resistance of the whole installation was not less than 40,000 ohms

The installation is supplied with a voltmeter and an amperemeter, fixed on the main switch-board

## General Remarks.—

The system is the same as in the "Scot" only improved in some details.

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.

*[Signature]*

Electrical Engineers

Date 1<sup>st</sup> Feb 1892

## COMPASSES.—

Distance between dynamo and standard compass

110 feet

Distance between dynamo and steering compass

170 feet

The nearest cables to the compasses are as follows:—

All wiring in double in way of compasses

A cable carrying Amperes feet from standard compass feet from steering compass

A cable carrying Amperes feet from standard compass feet from steering compass

A cable carrying Amperes feet from standard compass feet from steering compass

Have the compasses been adjusted with and without the electric installation at work at full power They were tested by the Captain with the current on & the current off & no deviation was observed.

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.

*[Signature]*  
A. Thearle

Builder's Signature

Date 1<sup>st</sup> Feb 1892

Surveyor's Signature

Date 1<sup>st</sup> Feb 1892



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