

REPORT ON ELECTRIC LIGHTING INSTALLATION.

Port of *Newcastle-on-Tyne*

Received at London Office

No. *30983**

No. in

Name of Ship

Bauffshire

Built at

Newcastle

When built

1894

Reg. Book.

77

Electric Light Installation fitted by

*Clarke Chapman & Co when fitted**Nov. 1894*

DESCRIPTION OF DYNAMO AND ENGINE.—

One vertical double acting engine with cylinder $9\frac{1}{2}$ inches dia. + of 8 in. stroke, running at 225 Revs. per minute driving by belt one compound wound, drum armature dynamo which runs at 750 Revs. per minute.

Capacity of Dynamo *10,000 Watts*; 150 Amperes at *65* Volts, whether continuous or alternating current *Continuous*

Where is Dynamo fixed *On starboard side of engine room on a level with H.P. Cylinder Cover.*

LAMPS.—

Is vessel wired on single or double wire system *Single* Total number of lights *143* arranged in the following groups:—

✓ A	<i>16 and 3</i>	lights each of <i>16 cp. + 32 cp.</i>	candle power requiring a total current of <i>20</i>	Amperes
✓ B	<i>8</i>	lights each of <i>16 cp.</i>	candle power requiring a total current of <i>7.5</i>	Amperes
✓ C	<i>38</i>	lights each of <i>16</i>	candle power requiring a total current of <i>34</i>	Amperes
✓ D	<i>78</i>	lights each of <i>16</i>	candle power requiring a total current of <i>70</i>	Amperes
E		lights each of	candle power requiring a total current of	Amperes
1	Master head light with	1 double filament lamp each of <i>32</i>	candle power requiring a total current of <i>1.8</i>	Amperes
2	Side light with	1 double filament lamp each of <i>32</i>	candle power requiring a total current of each <i>1.8</i>	Amperes
5	Cargo lights	<i>3 of 112</i> <i>2 of 80</i>	each candle power, whether incandescent or arc lights <i>16 cp. incandescents</i>	

If arc lights, what protection is provided against fire, sparks, &c. *No arc lights.*

SWITCHES AND CUT-OUTS.—

Position of Main Switch Board *Close to dynamo* having switches to groups *A, B, C, + D.* of lights as above

Positions of other switch boards and numbers of switches on each *No other switch boards.*

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 *50* 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 all of porcelain.*

DESCRIPTION OF CABLES.—

Main cable carrying	<i>132</i>	Amperes, comprised of	<i>37</i>	wires, each	<i>16</i>	legal standard wire gauge diameter
Branch cables carrying	<i>34</i>	Amperes, comprised of	<i>19</i>	wires, each	<i>16</i>	legal standard wire gauge diameter
Branch cables carrying	<i>7.5 and 20</i>	Amperes, comprised of	<i>7 and 7</i>	wires, each	<i>18 and 16</i>	legal standard wire gauge diameter
Leads to lamps	<i>0.9</i>	Amperes, comprised of	<i>1</i>	wires, each	<i>16</i>	legal standard wire gauge diameter
Cargo light cables carrying	<i>less than 6</i>	Amperes, comprised of	<i>1</i>	wires, each	<i>14</i>	legal standard wire gauge diameter

The copper used has a conductivity of *98* 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.—

Conductors of tinned copper wires, insulated pure india rubber, then vulcanising india rubber, india rubber coated tape and the whole vulcanised together, then braided, tinned lead and coated preservative compound; protection consists of lead covering braiding, galvanised armouring with ^{overlaid} lead.

Joints in cables, how made, insulated, and protected Conductors carefully lapped & twisted together soldered with resin as flux, insulated with pure india rubber, solution, & compound tape; protected by cast iron joint boxes.

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

How are cables led throughout the ship Cables run on Starboard side and where armoured are either in piping or put up by means of brass clips & brass screws.

What special protection has been provided for the cables in open alleyways Lead covered & armoured cables casing is used

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

What special protection has been provided for the cables near boiler casings Lead covered & armoured cables are used

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

How are cables carried through decks in W.I. or lead piping above combings and through bulkheads through hard wood insulators fitting cables tightly

Are any cables run through coal bunkers Yes or cargo spaces Yes If so, how are they protected by means of W.I. galvanised piping & lead covered & armoured cable is used.

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

If so, how are they specially protected with Cast iron covers.

Cargo light cables, whether portable or permanently fixed portable How fixed by means of 2 pole fork connectors

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel by means of brass earl plate bolted with 2 bolts to hull

How are the returns from the lamps connected to the hull by means of 3/8" brass screws with washers

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 6 hours' duration on full load.

The insulation resistance of the whole installation was not less than 85,000 ohms

The installation is also supplied with a voltmeter and an amperemeter, fixed on switchboard.

General Remarks.—

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.

John B. Hurmeaux

Electrical Engineers

Date Nov 14th 94.

MANAGING DIRECTOR.

COMPASSES.—

Distance between dynamo and standard compass 60 feet.

Distance between dynamo and steering compass 55 feet.

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
<u>25</u>	<u>20</u>	<u>15</u>	
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

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.

Builder's Signature

Date

J. Stoddart

Surveyor's Signature

Date

20th Nov 1894



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