

REPORT ON ELECTRIC LIGHTING INSTALLATION.

Port of Belfast

Received at London Office 13 NOV 1893

No. 4309*

No. in Name of Ship Sachem

Built at Belfast

When built 1893-10m.

Reg. Book.

Electric Light Installation fitted by W. H. Allen & Co.

when fitted October 1893.

DESCRIPTION OF DYNAMO AND ENGINE.—

Two compound wound, vertical, belt-driven dynamos with drum armature, direct coupled to W.H. Allen's single cylinder engines with hand regulation governors at 240 to 250 revs.

Capacity of Dynamo 145 Amperes at 102 Volts, whether continuous or alternating current continuous

Where is Dynamo fixed on starting platform.

LAMPS.—

Is vessel wired on single or double wire system single Total number of lights 202 arranged in the following groups:—

A 41 lights each of 16 candle power requiring a total current of 41 Amperes

B 11 lights each of 16 candle power requiring a total current of 11 Amperes

C 82 lights each of 16 candle power requiring a total current of 82 Amperes

D 68 lights each of 16 candle power requiring a total current of 68 Amperes

E lights each of candle power requiring a total current of Amperes

1 Mast head light with 1 lamps each of 32 candle power requiring a total current of 2 Amperes

2 Side light with 1 lamps each of 32 candle power requiring a total current of 4 Amperes

4 Cargo lights of 128 candle power, whether incandescent or arc lights incandescent

included in 6 + 2.

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

SWITCHES AND CUT-OUTS—

Position of Main Switch Board starting platform having switches to groups A B C D of lights as above

Positions of other switch boards and numbers of switches on each Chart Room entrance has a switchboard with 10 switches, 4 on circuit B, 6 on circuit D.

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 where sufficiently reduced to require it.

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

Are the cut outs of non-oxidizable metal pure tin plated copper and constructed to fuse at an excess of 5% 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.—

Main cable carrying 121 Amperes, comprised of 24 wires, each 16 legal standard wire gauge diameter

Branch cables carrying 41 Amperes, comprised of 19 wires, each 18 legal standard wire gauge diameter

Branch cables carrying 82 Amperes, comprised of 4 wires, each 18 legal standard wire gauge diameter

Leads to lamps 68 Amperes, comprised of 19 wires, each 15 legal standard wire gauge diameter

Cargo light cables carrying 8 Amperes, comprised of 145 wires, each 38 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 2000 megohms per statute mile after 24 hours' immersion in seawater



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DESCRIPTION OF INSULATION, PROTECTION, &c.—

Mulcaised rubber of quality known as 2000 meg. ^{insulated by galvanized iron wire}
in machinery space, lead covered in cable spaces.

Joints in cables, how made, insulated, and protected ^{rubber} copper joined in approved manner, insulated by pure
~~rubber~~ ^{resin} afterwards ^{tapes} compounded & finally coated with flexible
varnish.

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

How are cables led throughout the ship *in strong casing*

What special protection has been provided for the cables in open alleyways *Strong cases*

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

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

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

How are cables carried through decks *in ducts* and through bulkheads *fibre hush*

Are any cables run through coal bunkers *no* or cargo spaces *yes* If so, how are they protected *lead sheath*

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

If so, how are they specially protected *cast iron covers*

Cargo light cables, whether portable or permanently fixed *portable* How fixed *attached to wooden*

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel *through iron pipe, led down hole etc.*

How are the returns from the lamps connected to the hull *brass exit 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 *10* hours' duration *yes*

The insulation resistance of the whole installation was not less than *—* ohms

The installation is *—* supplied with *1* voltmeter and *2* ~~ampere~~ amperemeters, 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.

for W. H. Allen

Electrical Engineers

Date *Nov 6th 1893*

COMPASSES.—

Distance between dynamo and standard compass *88'*

Distance between dynamo and steering compass *82'*

The nearest cables to the compasses are as follows:—

| | | | | | | | |
|------------------------------------|----------------|------------------------------|---------|------------------------------|---|------------------------------|------------------------------|
| A cable carrying <i>82</i> Amperes | } about 28' 0" | } feet from standard compass | } 21.5' | } feet from steering compass | } Double wire within 20 feet of compass | | |
| A cable carrying <i>68</i> 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.

W. H. Allen Builder's Signature

Date *8 Nov 1893*

A. L. Jones Surveyor's Signature

Date *8th Nov 1893*

