

REPORT ON ELECTRIC LIGHTING INSTALLATION.

Port of *Belfast*

Received at London Office 13 NOV 1893

No. *4309**

No. in Reg. Book. Name of Ship *Sachem*

Built at *Belfast*

When built *1893-10m.*

Electric Light Installation fitted by *W. H. Allen & Co.* when fitted *October 1893.*

DESCRIPTION OF DYNAMO AND ENGINE.—

Two compound wound vertical belt drive dynamos with drum armature, direct coupled to W. H. Allen 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*

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 C, 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 *18* legal standard wire gauge diameter

Cargo light cables carrying *8* Amperes, comprised of *11.5* 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



DESCRIPTION OF INSULATION, PROTECTION, &c.—

Vulcanised rubber of quality known as 2000 meg. insulated by galvanised iron wire in machinery space, lead covered in other spaces.

Joints in cables, how made, insulated, and protected *Copper joined in approved manner, insulated by pure rubber, vulcanised rubber afterwards ^{taped} 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 casing.*

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 hose*

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 cables.*

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

How are the returns from the lamps connected to the hull *brass earth 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* 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 Esq. Electrical Engineers Date *Nov 6 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	Amperes	feet from standard compass	feet from steering compass
<i>82</i>	<i>about 28.5"</i>	<i>21.5"</i>	<i>Double wiring within 20 feet of compass</i>
<i>68</i>			

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.

Stanley & Sons Ltd Builder's Signature Date *8 Nov 1893*

A. L. Jones Surveyor's Signature Date *8 Nov 1893*

