

REPORT ON ELECTRIC LIGHTING INSTALLATION.

Port of Sunderland

Received at London Office MON. 4 DEC 1893

No. 17162 *
 No. in Reg. Book. _____ Name of Ship Umfuli Built at Sunderland When built 1893
 Electric Light Installation fitted by Messrs J. H. Holmes & Co. when fitted 1893

DESCRIPTION OF DYNAMO AND ENGINE.—

1. 7x6" Open Auto vertical engine coupled direct to
 1. No. 13 Dynamo Castle type

Capacity of Dynamo 110 Amperes at 60 Volts, whether continuous or alternating current continuous

Where is Dynamo fixed Starting Platform

LAMPS.—

Is vessel wired on single or double wire system Double Total number of lights 107 arranged in the following groups:—

Group	Description	Lights	Candle Power	Amperes
A	Aft	41	16	36.9
B	Midships	41	16	36.9
C	Forward	9	16	8.1
D	Engine Room	16	16	14.4
E				
	Mast head light with _____ lamps each of _____			
	Side light with _____ lamps each of _____			
	<u>4</u> Cargo lights of <u>5x16</u> candle power, whether incandescent or arc lights <u>Incandescent</u>			

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

SWITCHES AND CUT-OUTS—

Position of Main Switch Board Near Dynamo having switches to groups A. B. C. & D. of lights as above

Positions of other switch boards and numbers of switches on each

1 Aux. switchboard in Engine Room fitted with 5 switches
 1 " " " Painting aft " " 6 "
 1 " " " Midships " " 7 "

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 yes

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

DESCRIPTION OF CABLES.—

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 98% per cent. that of pure copper.

Insulation of cables is guaranteed to have a resistance of not less than 2,000 megohms per statute mile after 24 hours' immersion in seawater

DESCRIPTION OF INSULATION, PROTECTION, &c.—

Tinned copper, pure para rubber + two coats vulcanising rubber J. R. proofed tape the whole vulcanised together, braided & compounded.

Joints in cables, how made, insulated, and protected The wires to be joined are first bared & thoroughly cleaned, then twisted or woven together & soldered, so as to make a strong metallic joint, the joint is then lapped with rubber, tape &c + varnished with shellac.

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 wood casing*

What special protection has been provided for the cables in open alleyways *Lead covered wire*

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 " " "

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

How are cables carried through decks *W. I. Deck tubes* and through bulkheads *Stuffing boxes*

Are any cables run through coal bunkers *yes* or cargo spaces *—* If so, how are they protected *Iron pipes*

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

If so, how are they specially protected *—*

Cargo light cables, whether portable or permanently fixed *Portable* How fixed *Sockets*

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 *—*

TESTING, &c.—

Has the installation been thoroughly tested to its full capacity during a trial of *5* hours' duration *yes*

The insulation resistance of the whole installation was not less than *150000* ohms *No*

The installation is *not* supplied with a voltmeter and *not* an amperemeter, fixed *On main board*

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.

J. H. Holmes Electrical Engineers

Date *Nov 16/93*

COMPASSES.—

Distance between dynamo and standard compass *about 56 feet on Bridge*

Distance between dynamo and steering compass *132 feet on Poop.*

The nearest cables to the compasses are as follows:—

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

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.

James Caird Builder's Signature
James Caird Surveyor's Signature
P. K. Salmon

Date *24 December 1893*

