

REPORT ON ELECTRIC LIGHTING INSTALLATION.

Port of Belfast

Received at London Office 12 DEC 1894

No. 4443 *

No. in
Reg. Book.

Name of Ship

"Urmston Grange"

Built at

Belfast

When built

Electric Light Installation fitted by

Alec Gavan Inrig

when fitted

September 1894

DESCRIPTION OF DYNAMO AND ENGINE.—

Direct Coupled Plant. Engine
& Dynamo on same bed-plate. Vertical inverted high speed Engine
Dynamo. two pole type. Compound wound & gramme armature
Capacity of Dynamo 110 Amperes at 65 Volts, whether continuous or alternating current Continuous

Where is Dynamo fixed

On Engine Room starting platform

LAMPS.—

Is vessel wired on single or double wire system Double Total number of lights 122 arranged in the following groups:—

A Engine Room lights each of 22 of 16 candle power requiring a total current of 19 Amperes
B Saloon lights each of 60 " 16 candle power requiring a total current of 54 Amperes
C Fore Ship lights each of 20 " 16 candle power requiring a total current of 18 Amperes
D Aft lights each of 20 " 16 candle power requiring a total current of 18 Amperes
E lights each of candle power requiring a total current of Amperes

one Mast head light with 2 lamps each of 16 candle power requiring a total current of 1.8 Amperes

two Side light with 2 lamps each of 16 candle power requiring a total current of 3.6 Amperes

Four Cargo lights of 2 lamps each. 16 candle power, whether incandescent or arc lights four Cargo Cluster
and two Arcs

If arc lights, what protection is provided against fire, sparks, &c. Resistance Coils fitted in metal sheathed
boxes. lined with asbestos between metal & wood. The arc completely
enclosed in U shaped flint glasses

SWITCHES AND CUT-OUTS—

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

Positions of other switch boards and numbers of switches on each Saloon Pantry 3 switches to control Port
Starboard & main saloon. This board has cut outs for each of the
3 circuits & is under lock & key, no joint or branch between this & main
switch-board; Wheel house board with 3 switches & cut outs for port. Starboard
& mast head lights. no branch or joint exists between this & main switch board
If cut outs are fitted to main circuit yes both lead & return and to each auxiliary circuit yes. both lead & return

and at each position where cable is branched or reduced in size in every instance

If vessel is wired on the double wire system are cut outs fitted on each wire There are 4 circuits each circuit has
its own return direct to main switch board where 8 cut outs are placed
Are the cut outs of non-oxidizable metal all tin wire and constructed to fuse at an excess of 15 per cent over the normal current

Are all cut outs fitted in easily accessible positions every cut-out is placed beside switch controlling
said circuit & all easily got at able

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 yes

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

Are all switches and cut-outs constructed of unflammable materials and fitted on unflammable bases all on Porcelain or Slate

DESCRIPTION OF CABLES.—

Main cable carrying 109 Amperes, comprised of 37 wires, each No 16 legal standard wire gauge diameter

Branch cables carrying 54 Amperes, comprised of 19 wires, each No 16 legal standard wire gauge diameter

Branch cables carrying 18 Amperes, comprised of 19 wires, each No 18 legal standard wire gauge diameter

Leads to lamps 8 Amperes, comprised of 7 wires, each No 18 legal standard wire gauge diameter

Cargo light cables carrying 7.2 Amperes, comprised of 19 wires, each No 24 legal standard wire gauge diameter

The copper used has a conductivity of 99 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.— Mains & sub mains
W & Glover & Co Class 88. 2,000 megohm grade. Tinned insulated pure &
vulcanizing rubber proofed taped. Vulcanized braided & lead covered.
in Engine Room braided again over the lead pipe. Lamp branches. no lead
Joints in cables, how made, insulated, and protected. Twisted together soldered. then made up to thickness
of original Cable or wire. with pure rubber strip & solution then
Tape & Compound

Are all the joints of cables thoroughly soldered, resin only having been used as a flux. all soldered & only resin used
How are cables led throughout the ship in galvanized iron pipes through the bunkers & in
wood casings throughout the rest of the ship

What special protection has been provided for the cables in open alleyways There are no cables in open alleyways

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat no cables near sources of heat

What special protection has been provided for the cables near boiler casings Carried them through iron pipes

What special protection has been provided for the cables in engine room Covered with lead then braided & heavy casings

How are cables carried through decks through iron pipes & filled with Compound and through bulkheads in fibre ferrules

Are any cables run through coal bunkers yes or cargo spaces yes If so, how are they protected galvanized iron

pipes in bunkers. heavy wood casings in cargo space

Are any lamps fitted in coal bunkers or spaces which may be used for cargo no

If so, how are they specially protected

Cargo light cables, whether portable or permanently fixed portable How fixed junction boxes brass unions

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 nine hours' duration

The insulation resistance of the whole installation was not less than 100,000 ohms 0.010 amperes

The installation is perfect & supplied with a voltmeter and yes and an amperemeter, fixed on main switchboard

General Remarks.— This installation has been carried with great care
& the best material that could be procured & is sub-divided as
far as practicable every circuit has a complete return to main
switch board. so also every branch circuit an independent return
to its sub-board, in no case has a common return been used.
cut outs are provided for both leads & returns for every main & branch circuit

The foregoing statements are a correct description of the Electric Light installation fitted by me on this vessel and I declare that it is at this date in good order
and safe working condition.

Alec Savan Inrig M.I.E.E. Electrical Engineer

Date December 5 1894

COMPASSES.—

Distance between dynamo and standard compass 74 feet

Distance between dynamo and steering compass 72 "

The nearest cables to the compasses are as follows:—

Double wire throughout.

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

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Have the compasses been adjusted with and without the electric installation at work at full power Yes

The maximum deviation due to electric currents, etc., was found to be 0 degrees on 0 course in the case of the standard compass

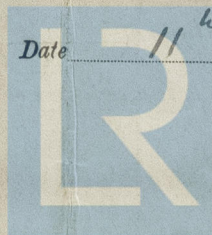
and 0 degrees on 0 course in the case of the steering compass.

Builder's Signature Date

A. L. Jones

Surveyor's Signature Date

11 December 1894



Lloyd's Register
Foundation