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REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 4576

Port of *Belfast* Date of First Survey *9th Dec* Date of Last Survey *Feb 15th 1896* No. of Visits *7*
 No. in Reg. Book *on the Iron or Steel Screw Steamer "Hyson"* Port belonging to *London*
 Built at *Belfast* By whom *Workman Clark & Co. Ltd* When built *1896*
 Owners *China Mutual Steam Navigation Co. Ltd* Owners Address
 Yard No. *123* Electric Light Installation fitted by *W. E. Martin & Co. Glasgow* When fitted *1896*

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Direct acting engine, coupled to compound wound dynamo

Capacity of Dynamo *65* Amperes at *100* Volts, ~~either~~ continuous ~~alternating~~ current
 Where is Dynamo fixed *Starting Platform in Engine Room*
 Position of Main Switch Board *Starting Platform* having switches to groups *29, 30 & 27* of lights, &c., as below
 Positions of auxiliary switch boards and numbers of switches on each *none*

If cut outs are fitted on main switch board to the cables of main circuit *yes* and on each auxiliary switch boards to the cables of auxiliary circuits *yes* and at each position where a cable is branched or reduced in size *yes* and to each lamp circuit *yes*
 If vessel is wired on the double wire system are cut outs fitted to both flow and return wires or cables of all circuits including lamp circuits *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* Are the fuses of standard dimensions *yes* If wire fuses are used are permanent instructions fitted on or near each switch board giving particulars of proper size of fuse for each circuit *yes*
 Are all switches and cut-outs constructed of incombustible materials and fitted on incombustible bases *all fitted on slate.*

Total number of lights provided for *86* arranged in the following groups:—
 A *71* lights each of *16* candle power requiring a total current of *42.6* Amperes
 B *12* lights each of *32* candle power requiring a total current of *14.4* Amperes
 C *3* lights each of *64* candle power requiring a total current of *7.2* Amperes
 D lights each of candle power requiring a total current of Amperes
 E lights each of candle power requiring a total current of Amperes
 1 Mast head light with *double filament* lamps each of *32* candle power requiring a total current of *2.4* Amperes
 2 Side lights with *double filament* lamps each of *32* candle power requiring a total current of *4.8* Amperes
 4 Cargo lights of *3 lamps each* candle power, ~~either~~ incandescent ~~light~~

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

Where are the switches controlling the masthead and side lights placed *in Wheel House on Bridge Deck.*

DESCRIPTION OF CABLES.

Main cable carrying *17.4* Amperes, comprised of *19* wires, each *.18* L.S.G. diameter, *.034* square inches total sectional area
 Branch cables carrying *1.6* Amperes, comprised of *1* wires, each *.16* L.S.G. diameter, *.003* square inches total sectional area
 Branch cables carrying *-* Amperes, comprised of *-* wires, each *-* L.S.G. diameter, square inches total sectional area
 Leads to lamps carrying *.6* Amperes, comprised of *1* wires, each *.16* L.S.G. diameter, *.003* square inches total sectional area
 Cargo light cables carrying *3.6* Amperes, comprised of *346* wires, each *.40* L.S.G. diameter, *.006* square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Pure Rubber insulation taped braided & vulcanized, covered with tarred hemp & armoured with galvanised iron wire, and an outer coating of tarred tape

Joints in cables, how made, insulated, and protected *no joints*

Are all the joints of cables thoroughly soldered, resin only having been used as a flux *no joints* Are all joints in accessible positions, none being made in bunkers, cargo spaces, or spaces which may at any time be used for carrying cargo, stores, or baggage

Are there any joints in or branches from the cable leading from dynamo to main switch board *none*

How are the cables led through the ship, and how protected *Through the alleyways & main & foreholds. In the main & foreholds the wires are enclosed in galvanised iron pipes, & also to mast & side lights. In the alleyways & Engine Room, Tunnel & Storehold, armoured cables with outer coating of tarred tape. In saloon, officers Rooms & in wood casing.*

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DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.

Are they in places always accessible *all except branch going to forecabin.*

What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture *armoured cables & galvanized iron pipes*

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

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

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

How are cables carried through beams *unarmoured wire in teakwood plugthrough bulkheads, &c. in galvanized iron tubes*

How are cables carried through decks *galv'd iron tubes*

Are any cables run through coal bunkers *not* cargo spaces *yes* or spaces which may be used for carrying cargo, stores, or baggage *yes*

If so, how are they protected *galvanized tubes & armoured cables*

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage *4 lamps in alleyways.*

If so, how are the lamp fittings and cable terminals specially protected *by iron shutters on teak back blocks*

Where are the main switches and cut outs for these lights fitted *distribution box in engine Room*

If in the spaces, how are they specially protected _____

Are any switches or cut outs fitted in bunkers *none*

Cargo light cables, whether portable or permanently fixed *portable* How fixed _____

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 _____

VESSELS BUILT FOR CARRYING PETROLEUM.

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 _____

Are any switches, cut outs, or joints of cables fitted in the pump room or companion _____

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

The installation is _____ supplied with a voltmeter, and _____ an amperemeter, fixed _____

The copper used is guaranteed to have 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.

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.

W. C. Martin & Co Electrical Engineers

Date *Feb'y 19th 1896*

COMPASSES.

Distance between dynamo or electric motors and standard compass *120 ft.*

Distance between dynamo or electric motors and steering compass *120 ft.*

The nearest cables to the compasses are as follows:—

A cable carrying	<i>1.8</i>	Amperes	<i>about 8</i>	feet from standard compass	<i>8</i>	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 *yes*

The maximum deviation due to electric currents, etc., was found to be *nil* degrees on *each* course in the case of the standard compass and *nil* degrees on *each* course in the case of the steering compass.

WORKMAN, CLARK & CO., LIMITED,
Chas. E. Allen DIRECTOR

Builder's Signature Date *20th Feb'y 1896*

GENERAL REMARKS.

A Voltmeter & an Ammeter are fitted on the switch-board.

A. L. Jones

Surveyor to Lloyd's Register of British and Foreign Shipping.

Committee's Minute

This installation appears to be in accordance with the Rules

J. H. 2/2/96

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.