

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 6331

Port of *Belfast* Date of First Survey *mar 6* Date of Last Survey *may 7* No. of Visits *9*
 No. in Reg. Book *on the "Hulani"* Port belonging to *Liverpool*
 Built at *Belfast* By whom *Harland & Wolff Ltd* When built *1907*
 Owners *Elder Dempster & Co* Owners' Address *Liverpool*
 Yard No. *386* Electric Light Installation fitted by *H. H. Allen & Co Ltd* When fitted *1907*

DESCRIPTION OF DYNAMO, ENGINE, ETC.

One engine having cylinder 8" diameter by 7" stroke coupled direct to one four pole compound wound dynamo

Capacity of Dynamo *120* Amperes at *100* Volts, whether continuous or alternating current *continuous*

Where is Dynamo fixed *on starting platform starboard side*

Position of Main Switch Board *starboard side starting platform (near dynamo)* having switches to groups *A B C D E F G H* of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each

If cut outs are fitted on main switch board to the cables of main circuit *Yes* and on each auxiliary switch board 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 *100* 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 *Yes*

Total number of lights provided for *180* arranged in the following groups:—

A Signals Saloon	43	lights each of	16	candle power requiring a total current of	25.8	Amperes
B Forecastle	20	lights each of	16	candle power requiring a total current of	12.0	Amperes
C Personnel	20	lights each of	16	candle power requiring a total current of	12.0	Amperes
D Poop	19	lights each of	16	candle power requiring a total current of	11.4	Amperes
E Machinery spaces	42	lights each of	16	candle power requiring a total current of	25.2	Amperes
F Cargo lights as under		lights each of	—	candle power requiring a total current of	19.2	Amperes
G Arc light		lights each of	—	candle power requiring a total current of	25.0	Amperes
H Arc light		lights each of	—	candle power requiring a total current of	25.0	Amperes
2 Mast head lights with 1 lamp each of			32	candle power requiring a total current of	1.2	Amperes
2 Side lights with 1 lamp each of			32	candle power requiring a total current of	1.2	Amperes
4 Cargo lights of each of eight			16	candle power, whether incandescent or are lights	incandescent	

If are lights, what protection is provided against fire, sparks, &c. *2 are lamps totally enclosed in iron framed lanterns with glass sides and protected with suitable wire guards*

Where are the switches controlling the masthead and side lights placed *in wheelhouse under Bridge*

DESCRIPTION OF CABLES.

Main cable carrying	120	Amperes, comprised of	37	wires, each	16	L.S.G. diameter, .1176	square inches total sectional area
Branch cables carrying	25	Amperes, comprised of	7	wires, each	15	L.S.G. diameter, .02822	square inches total sectional area
" " "	19.2	" " "	7	" " "	16	" " " .02227	" " " "
Branch cables carrying	11.4	Amperes, comprised of	4	wires, each	18	L.S.G. diameter, .01254	square inches total sectional area
Leads to lamps carrying	3	Amperes, comprised of	1	wires, each	16	L.S.G. diameter, .003217	square inches total sectional area
Cargo light cables carrying	4.8	Amperes, comprised of	145	wires, each	38	L.S.G. diameter, .0042	square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

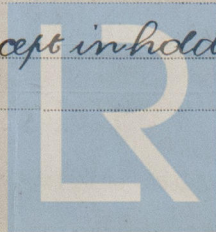
The conductor is tinned, covered with one layer pure Para rubber, then two layers of vulcanizing rubber, the whole vulcanized together and finally taped and braided. In machinery spaces the wires after vulcanizing are lead covered, served and spirally armoured with G.I. wires.

Joints in cables, how made, insulated, and protected *thoroughly soldered, insulated with two layers pure Para rubber, two layers prepared tape and then varnished.*

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

Are there any joints in or branches from the cable leading from dynamo to main switch board *No*

How are the cables led through the ship, and how protected *in strong wood casing, except in holds where they are enclosed in galvanised iron piping*



DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.

Are they in places always accessible *Yes*

What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture *lead covered and externally braided, in iron pipes where necessary*

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *None near undue heat*

What special protection has been provided for the cables near boiler casings *lead covered, served, and spirally armoured*

What special protection has been provided for the cables in engine room *with G. I. wires*

How are cables carried through beams *in fibre ferrules* through bulkheads, &c. *in fibre ferrules*

How are cables carried through decks *in G. I. pipes bushed with fibre*

Are any cables run through coal bunkers *no* or cargo spaces *Yes* or spaces which may be used for carrying cargo, stores, or baggage *Yes*

If so, how are they protected *in G. I. pipe*

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage *no*

If so, how are the lamp fittings and cable terminals specially protected *—*

Where are the main switches and cut outs for these lights fitted *—*

If in the spaces, how are they specially protected *—*

Are any switches or cut outs fitted in bunkers *—*

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 *screwed to yoke of magnet*

How are the returns from the lamps connected to the hull *soldered to 3/4" brass cheesehead earth screws*

Are all the joints with the hull in accessible positions *Yes*

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 *on switchboard*

The copper used is guaranteed to have a conductivity of *100* per cent. that of pure copper.

Insulation of cables is guaranteed to have a resistance of not less than *2500* 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.

For W. H. Allen Son & Co. Ltd.

J. W. Parvian

Electrical Engineers

Date *4th July 1907*

COMPASSES.

Distance between dynamo or electric motors and standard compass *82 feet*

Distance between dynamo or electric motors and steering compass *89 feet*

The nearest cables to the compasses are as follows:—

A cable carrying <i>10.8</i> Amperes <i>10</i> feet from standard compass <i>6</i> feet from steering compass
A cable carrying <i>The above doublewired</i> Amperes <i>—</i> feet from standard compass <i>—</i> feet from steering compass
A cable carrying <i>—</i> Amperes <i>—</i> feet from standard compass <i>—</i> 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 *every* course in the case of the standard compass and *nil* degrees on *every* course in the case of the steering compass.

For Harland & Wolff Ltd.

Builder's Signature.

Date

9th July 1907

GENERAL REMARKS.

This installation is of good description, and has been fitted in accordance with the Rules

R. F. Devenish

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

Committee's Minute

This installation appears to be fitted in accordance with the Rules

Lloyd's Register Foundation

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.