

REPORT ON ELECTRIC LIGHTING INSTALLATION: No. 30020.

Port of Glasgow Date of First Survey 17th 3/11 Date of Last Survey 25/4/11 No. of Visits 11
 No. in Reg. Book on the Iron or Steel S.S. "HAVILDAR" Port belonging to Liverpool
 Built at Glasgow By whom Messrs Chas. Connell & Co. Ltd When built 1911
 Owners None Owners' Address None
 Yard No. 337 Electric Light Installation fitted by Messrs J. Robertson & Co. Glasgow When fitted 1911

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Compound wound multipolar (4 pole) type coupled direct on cast iron extended bedplate to a vertical engine having cylinder 7" dia x 6" stroke at 250 rev
 Capacity of Dynamo 130 Amperes at 60 Volts, whether continuous or alternating current continuous
 Where is Dynamo fixed Engine room starting platform Whether single or double wire system is used single wire
 Position of Main Switch Board near Dynamo having switches to groups A. B. C. D. E. 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 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 cessel 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 where double wired

Are the cut outs of non-oxidizable metal yes and constructed to fuse at an excess of 90 per cent over the normal current

Are all cut outs fitted in easily accessible positions yes Are the fuses of standard dimensions wire 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 122 arranged in the following groups:—

A	Saloon	24	lights each of	16	candle power requiring a total current of	32	Amperes
B	Engine room	26	lights each of	16	candle power requiring a total current of	26	Amperes
C	Poop	11	lights each of	16	candle power requiring a total current of	11	Amperes
D	cargo	25	lights each of	16	candle power requiring a total current of	25	Amperes
E	Engine Room	29	lights each of	16	candle power requiring a total current of	29	Amperes
one	Mast head light with	1	lamps each of	32	candle power requiring a total current of	included in A	Amperes
Two	Side light with	1	lamps each of	32	candle power requiring a total current of	" "	Amperes
Five	Cargo lights of			80	candle power, whether incandescent or arc lights	incandescent	

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

Where are the switches controlling the masthead and side lights placed in chart room.

DESCRIPTION OF CABLES.

Main cable carrying 122 Amperes, comprised of 19 wires, each 13 L.S.G. diameter, .126 square inches total sectional area
 Branch cables carrying 26 Amperes, comprised of 7 wires, each 15 L.S.G. diameter, .0285 square inches total sectional area
 Branch cables carrying 11 Amperes, comprised of 7 wires, each 18 L.S.G. diameter, .0127 square inches total sectional area
 Leads to lamps carrying 1 Amperes, comprised of 1 wires, each 18 L.S.G. diameter, .00181 square inches total sectional area
 Cargo light cables carrying 5 Amperes, comprised of 119 wires, each 38 L.S.G. diameter, .00407 square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

all main cables vulcanised india rubber lead covered served & armoured with vulcanised taped & braided, branch wiring from distributing boxes throughout accommodation & living rooms in strong wood casing
 Joints in cables, how made, insulated, and protected splined joints, soldered & re insulated with layer of felt tape built up with several layers of pure india rubber then adhesive proof tape & 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 none in Bunkers or Spaces.

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 along starboard side thro beams under the bridge deck, forward to Forecastle & aft to Poop along the waterway, lead covered, served & armoured cables in galval iron pipes

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 served & armoured in galvd iron pipes*

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

What special protection has been provided for the cables near boiler casings *Lead covered served & armoured*

What special protection has been provided for the cables in engine room *Lead covered served & armoured*

How are cables carried through beams *Fibre or Lead bushes* through bulkheads, &c. *Fibre bushes or glands*

How are cables carried through decks *in galvd iron pipes*

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

If so, how are they protected *Lead covered served & armoured*

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage *under Bridge Deck*

If so, how are the lamp fittings and cable terminals specially protected *strong cast iron shutters*

Where are the main switches and cut outs for these lights fitted *In engine room*

If in the spaces, how are they specially protected *no*

Are any switches or cut outs fitted in bunkers *no*

Cargo light cables, whether portable or permanently fixed *Portable* How fixed *By brass stud in dynamo pole piece*

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel *By 1/2" Brass screw*

How are the returns from the lamps connected to the hull *yes*

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

The installation is *also* supplied with a voltmeter and *with* an amperemeter, fixed *on switchboard*

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 *no*

Are any switches, cut outs, or joints of cables fitted in the pump room or companion *no*

How are the lamps specially protected in places liable to the accumulation of vapour or gas *no*

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 *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.

A. J. Robertson & Co

Electrical Engineers

Date *18th May 1911*

COMPASSES.

Distance between dynamo or electric motors and standard compass *112 Feet*

Distance between dynamo or electric motors and steering compass *118 Feet*

The nearest cables to the compasses are as follows:—

A cable carrying	<i>32</i>	Amperes	<i>16</i>	feet from standard compass	<i>19</i>	feet from steering compass
A cable carrying	<i>2</i>	Amperes	<i>8</i>	feet from standard compass	<i>6</i>	feet from steering compass
A cable carrying	<i>1</i>	Amperes	<i>into</i>	feet from standard compass	<i>9 into</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 *CHARLES CONNELL & CO., Limited*

William McNeill Director

Builder's Signature.

Date *22nd May 1911*

GENERAL REMARKS.

This Installation has been fitted on board under Special Survey in accordance with the Rules & tested under full working conditions

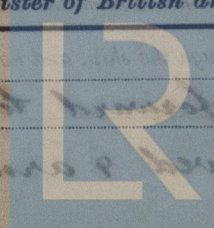
It is submitted that this vessel is eligible for THE RECORD Elec. light

JWD

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

Committee's Minute

Glasgow
Elec. Light



Lloyd's Register Foundation

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

27-5-11