

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 40372

Port of Glasgow Date of First Survey 31 May Date of Last Survey 8th Sept. No. of Visits 9
 No. in on the Steel S.S. Lalande Port belonging to Liverpool
 Reg. Book 63984 Built at Meadowside By whom Wm. J. W. Henderson When built 1900
 Owners Lw. Bragil + Riv. Plate St Nav Co Owners' Address Lampart + Hill (Managers)
 Yard No. 503 Electric Light Installation fitted by Boothroyd & Co. When fitted 1920

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Boothroyd multipolar compound wound dynamo direct coupled to high speed vertical engine with cylinder 8" x 8".

Capacity of Dynamo 164 Amperes at 110 Volts, whether continuous or alternating current continuous.

Where is Dynamo fixed In engine room. Whether single or double wire system is used Single.

Position of Main Switch Board near dynamo. having switches to groups eight of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each None fitted.

If fuses are fitted on main switch board to the cables of main circuit Yes and on each auxiliary 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 fuses fitted to both flow and return wires or cables of all circuits including lamp circuits -

Are the fuses of non-oxidizable metal Yes and constructed to fuse at an excess of 100 per cent over the normal current

Are all fuses 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 fuses constructed of incombustible materials and fitted on incombustible bases Yes

Total number of lights provided for 233 arranged in the following groups :-

A	39	lights each of	16	candle power requiring a total current of	20	Amperes
B	34	lights each of	16	candle power requiring a total current of	17	Amperes
C	42	lights each of	16	candle power requiring a total current of	21	Amperes
D	38	lights each of	16	candle power requiring a total current of	19	Amperes
E	46	lights each of	16	candle power requiring a total current of	23	Amperes
2	Mast head light with	1	lamps each of	32	candle power requiring a total current of	1.2
2	Side light with	1	lamps each of	32	candle power requiring a total current of	1.2
30	in six cluster cargo lights of	32	candle power, whether incandescent or arc lights	Incandescent		

If arc lights, what protection is provided against fire, sparks, &c. No arc lamps fitted - only 4 half-watt lamps.

Where are the switches controlling the masthead and side lights placed In Chart Room.

DESCRIPTION OF CABLES.

Main cable carrying	164	Amperes, comprised of	37	wires, each	14	S.W.G. diameter, .182	square inches total sectional area
Branch cables carrying	23	Amperes, comprised of	7	wires, each	18	S.W.G. diameter, .0125	square inches total sectional area
Branch cables carrying	21	Amperes, comprised of	7	wires, each	18	S.W.G. diameter, .0125	square inches total sectional area
Leads to lamps carrying	1/22	Amperes, comprised of	1	wires, each	18	S.W.G. diameter, .0018	square inches total sectional area
Cargo light cables carrying	4	Amperes, comprised of	3	wires, each	20	S.W.G. diameter, .003	square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

V.I.P. taped, lead covered cables and where exposed in machinery spaces and etc. armoured over the lead with galv. steel wire armour. And where necessary further protected in Steel tubing.

Joints in cables, how made, insulated, and protected No joints except mechanical ones.

Are all the joints of cables thoroughly soldered, and the flux used not containing acids or other corrosive substances - 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 Lead covered and armoured and efficiently clipped.

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 armoured and where necessary in wrought iron tubing.**

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

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

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

How are cables carried through beams **Lead or Fibre Bushes.** through bulkheads, &c. **Watertight Glands.**

How are cables carried through decks **Watertight Deck Tubes.**

Are any cables run through coal bunkers **Yes** or cargo spaces **Yes** or spaces which may be used for carrying cargo, stores, or baggage **Yes**

If so, how are they protected **As described above.**

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

If so, how are the lamp fittings and cable terminals specially protected **Specially guarded fittings.**

Where are the main switches and fuses for these lights fitted **In Engine Room.**

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

Are any switches or fuses fitted in bunkers **No.**

Cargo light cables, whether portable or permanently fixed **Portable.** How fixed **To Watertight Connectors.**

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel **Bolted through sweating sockets**

How are the returns from the lamps connected to the hull **ditto.**

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

Is the installation supplied with a voltmeter **Yes**, and with an amperemeter **Yes**, fixed **On switchboard.**

VESSELS BUILT FOR CARRYING PETROLEUM.

In vessels built for carrying petroleum, are all switches and fuses fitted in positions not liable to the accumulation of petroleum vapour or gas **-**

Are any switches, fuses, 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 copper used is guaranteed to have a conductivity of not less than that of the Engineering Standards Committee's standard, and the wires are protected by tinning from the sulphur compounds present in the insulating material.

Insulation of cables is guaranteed to have a resistance of not less than **600** megohms per statute mile at 60° Fahrenheit after 24 hours' immersion in water, the test being made after one minute's electrification at not less than 500 volts and while the cable is still immersed.

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.

H. T. BOOTHROYD (PORT-GLASGOW) LTD.

Electrical Engineers Date **24th Sept. 1920.**

COMPASSES.

Distance between dynamo or electric motor and standard compass **About 100 feet.**

Distance between dynamo or electric motor and steering compass **About 95 feet.**

The nearest cables to the compasses are as follows:—

A cable carrying	Ampères	In instrument	feet from standard compass	In instrument	feet from steering compass
1	6		8		
6	10		12		

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 **any** course in the case of the standard compass and **Nil** degrees on **any** course in the case of the steering compass.

Cable & William Henderson & Co., Limited

Builder's Signature. Date

GENERAL REMARKS.

This installation has been fitted on board under special survey. Tested under full load conditions found satisfactory

It is submitted that this vessel is efficient for the service.

Elec Lt. Red spots

J. S. Rankin
Surveyor to Lloyd's Register of Shipping.

Committee's Minute **GLASGOW 16 OCT 1920**

Elec. Light.