

## REPORT ON ELECTRIC LIGHTING INSTALLATION.

No. 14439

Port of W. Hartlepool Date of first Survey White Building White No. of Visits -  
 No. in on the Steel S.S. El Panaguayo Port belonging to Liverpool  
 Reg. Book Built at West Hartlepool By whom Messrs J. & E. G. Co. When built 1912  
 Owners Houlder Line Ltd Owners' Address London  
 Yard No. 504 Electric Light Installation fitted by Messrs H. J. Boothroyd & Co. When fitted 1912

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

2 sets Boothroyd Multipolar - Compound - wound - Dynamos - Coupled direct  
to "Houlder" single crank - forced lubrication - compound - engines.  
 Capacity of Dynamo 12 KW - 120 Amperes at 100 Volts, whether continuous or alternating current Continuous  
 Where is Dynamo fixed On platform port side Whether single or double wire system is used Double  
 Position of Main Switch Board Near Dynamos having switches to groups 8 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 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 Yes

Total number of lights provided for 320 arranged in the following groups:—

Group	Number of lights	Candle power	Current (Amperes)
FORWARD	21	16 CP	13.5
ASALOOM - NAVIGATION	52 lights each of	16	33.5 Amperes
CARGO - HOLDS	30	16	32
BOATMEN - ACCOM	55 lights each of	16	36 Amperes
APT RECOMM	35	16	22.5
CHARCONI	lights each of	16	22
DEMIGRANTS	34 lights each of	16	33.5 Amperes
E ENGINE ROOM	83 lights each of	16	2.6
2 Mast head light with 1 lamp each of	32	2.6	Amperes
2 Side lights with 1 lamp each of	32	2.6	Amperes
50 Cargo lights of	16		

If arc lights, what protection is provided against fire, sparks, &c. 2 Arc lamps. Enclosed type.  
Exemption Hexagonal Sense

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

## DESCRIPTION OF CABLES.

Main cable carrying 120 Amperes, comprised of 19 wires, each .092 L.S.G. diameter, .126312 square inches total sectional area  
 Branch cables carrying 35 Amperes, comprised of 7 wires, each .080 L.S.G. diameter, .035182 square inches total sectional area  
 Branch cables carrying 60 Amperes, comprised of 19 wires, each .064 L.S.G. diameter, .061123 square inches total sectional area  
 Leads to lamps carrying 1.8 Amperes, comprised of 1 wires, each .048 L.S.G. diameter, .001809 square inches total sectional area  
 Cargo light cables carrying 3.2 Amperes, comprised of 110 wires, each .0060 L.S.G. diameter, .00310970 square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

Insulated with Blue and blackened India Rubber 600 Megohm grade

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 No joints

How are the cables led through the ship, and how protected Cables - Lead covered - clipped with brass clip 9" apart. Engine Room etc - Covered - clipped with galvanised clips 12" apart.

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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  
Armoured and Braided

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat Lead covered  
Armoured and Braided

What special protection has been provided for the cables near boiler casings Lead covered  
Armoured and Braided

What special protection has been provided for the cables in engine room Lead covered  
Armoured and Braided

How are cables carried through beams Beams drilled and free from burrs, through bulkheads, &c. W.L. Sealed.

How are cables carried through decks Tubes

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

If so, how are they protected Cables in insulated holds vulcanized and run in heavy steel galvanneal tubes.

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 Fittings heavy cast iron covers.

Where are the main switches and cut outs for these lights fitted Engineers' Room.

If in the spaces, how are they specially protected —

Are any switches or cut outs fitted in bunkers No

Cargo light cables, whether portable or permanently fixed Portables 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 —

The installation is Yes supplied with a voltmeter and Yes 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 —

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 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 600 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.

H. T. BOOTHROYD, LIMITED.

*H. T. Boothroyd* Electrical Engineers

Date June 22 1912

COMPASSES.

Distance between dynamo or electric motors and standard compass 116 ft.

Distance between dynamo or electric motors and steering compass 110 ft.

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
17	14	14	14
2.6	14	14	14
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 No. degrees on No. course in the case of the standard compass and No. degrees on No. course in the case of the steering compass.

FOR IRVINE'S SHIP BUILDING & DRY DOCKS CO., LIMITED

Builder's Signature. Date

GENERAL REMARKS.

MANAGING DIRECTOR

*The above installation has been well fitted & in accordance with the Rules & worked satisfactorily. Eligible in my opinion to be recorded in Register Book. "Electric Light" 6 1/2*

*This vessel is eligible for the Record.*

*Elect Light 5 1/2*

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

Committee's Minute

FRI. JUN. 28. 1912



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THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.