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REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 25775

Port of Sunderland Date of First Survey 4 July Date of Last Survey 25 July No. of Visits 4
 No. in on the Iron or Steel H "Lucellum" Port belonging to Liverpool
 Reg. Book Supp 21 Built at Sunderland By whom Sir James Langston When built 1913
 Owners H.E. Innes & Co. Owners' Address
 Yard No. 642 Electric Light Installation fitted by M. Boothroyd Ltd. When fitted 1913

DESCRIPTION OF DYNAMO, ENGINE, ETC.

One Boothroyd open type dynamo direct coupled to Robey 7x6

Capacity of Dynamo 75 Amperes at 100 Volts, whether continuous or alternating current Continuous
 Where is Dynamo fixed In engine Room Whether single or double wire system is used Double
 Position of Main Switch Board near dynamo having switches to groups 3 (a, b, c) of lights, &c., as below
 Positions of auxiliary switch boards and numbers of switches on each near officers accomm. 3 way.

If fuses 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 fuses fitted to both flow and return wires or cables of all circuits including lamp circuits Yes

Are the fuses of non-oxidizable metal Yes and constructed to fuse at an excess of 50% 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 102 arranged in the following groups:—

| | | | | | | |
|---|-----------|---|--------------|--|----------------------|---------|
| A | <u>3</u> | lights each of | <u>8 CP</u> | candle power requiring a total current of | <u>.96</u> | Amperes |
| B | <u>92</u> | lights each of | <u>16 CP</u> | candle power requiring a total current of | <u>58.9</u> | Amperes |
| C | <u>7</u> | lights each of | <u>32 CP</u> | candle power requiring a total current of | <u>8.9</u> | Amperes |
| D | | lights each of | | candle power requiring a total current of | <u>—</u> | Amperes |
| E | | lights each of | | candle power requiring a total current of | <u>—</u> | Amperes |
| | <u>2</u> | Mast head light with <u>1</u> lamps each of | <u>32</u> | candle power requiring a total current of | <u>1.1</u> | Amperes |
| | <u>2</u> | Side light with <u>1</u> lamps each of | <u>32</u> | candle power requiring a total current of | <u>1.1</u> | Amperes |
| | <u>1</u> | Cargo lights of <u>6 lights of 16</u> | | candle power, whether incandescent or arc lights | <u>Incandescent.</u> | |

If arc lights, what protection is provided against fire, sparks, &c.

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

DESCRIPTION OF CABLES.

| | Capacity. | | | | | |
|-----------------------------|-------------------------------------|------------------------|-----------|------------------|---------------|------------------------------------|
| Main cable carrying | <u>80-100</u> Amperes, comprised of | <u>19</u> wires, each | <u>14</u> | S.W.G. diameter, | <u>.09442</u> | square inches total sectional area |
| Branch cables carrying | <u>30</u> Amperes, comprised of | <u>7</u> wires, each | <u>18</u> | S.W.G. diameter, | <u>.0125</u> | square inches total sectional area |
| Branch cables carrying | <u>15</u> Amperes, comprised of | <u>7</u> wires, each | <u>22</u> | S.W.G. diameter, | <u>.00426</u> | square inches total sectional area |
| Leads to lamps carrying | <u>5</u> Amperes, comprised of | <u>1</u> wires, each | <u>18</u> | S.W.G. diameter, | <u>.00187</u> | square inches total sectional area |
| Cargo light cables carrying | <u>384</u> Amperes, comprised of | <u>110</u> wires, each | <u>38</u> | S.W.G. diameter, | <u>.0031</u> | square inches total sectional area |

DESCRIPTION OF INSULATION, PROTECTION, ETC.

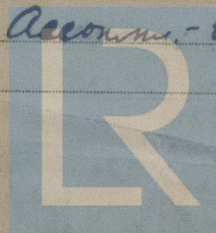
Lead covered carried through galv. tubing
Leads to lamps lead covered

Joints in cables, how made, insulated, and protected Porcelain extensions cast iron covers.

Are all the joints of cables thoroughly soldered, and the flux used not containing acids or other corrosive substances 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 trains in galv tubing - Accommodations - brass dips



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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 cov. in Galv. tubing

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

What special protection has been provided for the cables near boiler casings Galv. tubing

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

How are cables carried through beams filre bushes through bulkheads, &c. water-tight glands

How are cables carried through decks Gal. Iron deck tubes

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

If so, how are they protected ✓

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 fuses for these lights fitted ✓

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 ✓

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 ✓

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 Yes

Are any switches, fuses, 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 Gastight fittings & guards

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 1000 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, LIMITED.

Electrical Engineers

Date 19 AUG 1913 3 PM

COMPASSES.

Distance between dynamo or electric motors and standard compass 235'

Distance between dynamo or electric motors and steering compass 235'

The nearest cables to the compasses are as follows:—

A cable carrying 5 Amperes 6 feet from standard compass 10' 6" feet from steering compass

A cable carrying 5 Amperes 6 feet from standard compass 10' 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 any course in the case of the standard compass and Nil degrees on any course in the case of the steering compass.

J. JAMES LING & SONS, LIMITED.

Builder's Signature.

Date August 21st 1913

GENERAL REMARKS.

The installation has been satisfactorily fitted on board the vessel listed under full load and found good.

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

Levisle Davis.

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

Committee's Minute



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