

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 26835

Port of SUNDERLAND Date of First Survey 21 Oct Date of Last Survey 24 Oct 16 No. of Visits 3
 No. in Reg. Book on the Iron or Steel S.S. "Lightfoot" Port belonging to Newcastle
 Built at Sunderland By whom Messrs J. Brown & Sons Ltd When built 1916
 Owners Witherington & Everett Owners' Address Newcastle
 Yard No. 159 Electric Light Installation fitted by Sunderland Forge & Eng Co Ltd When fitted 1916

DESCRIPTION OF DYNAMO, ENGINE, ETC.

1- Combined Plant consisting of vertical inverted open type engine 6x5, 350 R.P.M. 100lb steam coupled to multipolar compound wound dynamo (both by S.E. & Co Ltd)

Capacity of Dynamo 80 Amperes at 100 Volts, whether continuous or alternating current continuous

Where is Dynamo fixed Bottom Platform Eng Rm Stbd Side Whether single or double wire system is used double

Position of Main Switch Board close to Dynamo having switches to groups three of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each in wheel house with 7 switches controlling masthead lights - side lights - move light - compass & telegraphs

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 100 per cent over the normal current

Are all fuses fitted in easily accessible positions yes Are the fuses of standard dimensions No 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 88 arranged in the following groups:—

| | | | | |
|----------|-----------------------------|------------------------------------|--|---------|
| A | <u>Saloon & Nav.</u> | <u>35</u> lights each of <u>16</u> | candle power requiring a total current of <u>19.6</u> | Amperes |
| B | <u>Engs & Eng Rm</u> | <u>32</u> lights each of <u>16</u> | candle power requiring a total current of <u>17.9</u> | Amperes |
| C | <u>Aft</u> | <u>21</u> lights each of <u>16</u> | candle power requiring a total current of <u>11.8</u> | Amperes |
| D | | lights each of | candle power requiring a total current of | Amperes |
| E | | lights each of | candle power requiring a total current of | Amperes |
| <u>2</u> | <u>Mast head light with</u> | <u>1</u> lamps each of <u>32</u> | candle power requiring a total current of <u>2.24</u> | Amperes |
| <u>2</u> | <u>Side light with</u> | <u>1</u> lamps each of <u>32</u> | candle power requiring a total current of <u>2.24</u> | Amperes |
| <u>4</u> | <u>Cargo lights of</u> | <u>six 16 p.</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 Wheelhouse

DESCRIPTION OF CABLES.

| | | | |
|-----------------------------|-----------------------------------|---------------------------------|--|
| Main cable carrying | <u>80</u> Amperes, comprised of | <u>19</u> wires, each <u>16</u> | S.W.G. diameter, <u>"0.060"</u> square inches total sectional area |
| Branch cables carrying | <u>19.6</u> Amperes, comprised of | <u>7</u> wires, each <u>18</u> | S.W.G. diameter, <u>"0.125"</u> square inches total sectional area |
| Branch cables carrying | <u>17.9</u> Amperes, comprised of | <u>7</u> wires, each <u>20</u> | S.W.G. diameter, <u>"0.007"</u> square inches total sectional area |
| Leads to lamps carrying | <u>3</u> Amperes, comprised of | <u>1</u> wires, each <u>18</u> | S.W.G. diameter, <u>"0.018"</u> square inches total sectional area |
| Cargo light cables carrying | <u>5</u> Amperes, comprised of | <u>7</u> wires, each <u>2.3</u> | S.W.G. diameter, <u>"0.031"</u> square inches total sectional area |

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Mains - Pure Para Rubber - Vulcanised I. R. Taped - braided & compounded
 Accom. Spaces ditto Lead covered
 Machinery Spaces - do - - do - armoured & braided

Joints in cables, how made, insulated, and protected

None

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 —

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 V. I. R. in pipe



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Lightfoot

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 Iron Pipe

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

What special protection has been provided for the cables near boiler casings do

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

How are cables carried through beams holes bushed with fibre through bulkheads, &c. W.I. Glands ✓

How are cables carried through decks W.I. Deck Tubes ✓

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

If so, how are they protected Iron 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 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 Main S'board

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.

P. PRO THE BUNDERLAND FORGE & ENGINEERING CO., LTD.

Electrical Engineers

Date 11-12-16

COMPASSES.

Distance between dynamo or electric motors and standard compass Director about 60 feet

Distance between dynamo or electric motors and steering compass about 56 feet

The nearest cables to the compasses are as follows:—

| | | | | | | |
|------------------|-----|--------|----------|----------------------------|----------|----------------------------|
| A cable carrying | 8.4 | Ampere | abt 9 ft | feet from standard compass | about 14 | feet from steering compass |
| A cable carrying | .56 | Ampere | abt 6 ft | feet from standard compass | led into | feet from steering compass |
| A cable carrying | .56 | Ampere | led into | feet from standard compass | about 6 | 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 all course in the case of the standard compass and nil degrees on all course in the case of the steering compass.

Builder's Signature.

Date

H Crown

GENERAL REMARKS.

The above installation has been fitted in accordance with the requirements, it has been seen running under full power with satisfactory results. In my opinion the vessel is eligible for the record Elec. Light.

Per Pro. J. H. Crown & Sons, Ltd.

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

Committee's Minute