

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 27567

Port of SUNDERLAND Date of First Survey 9 July '19 Date of Last Survey 15 July '19 No. of Visits 2
 No. in Reg. Book on the Iron or Steel S/S "HORNCHURCH" Port belonging to London
 Built at SUNDERLAND By whom OSBOURNE GRAHAM & Co. Ltd. When built 1919
 Owners John Hudson & Co. Ltd. Owners' Address 22 Billiter Street, London, E.C. 3
 Yard No. 258 Electric Light Installation fitted by J. Holmes & Co. Newcastle When fitted 1919

DESCRIPTION OF DYNAMO, ENGINE, ETC.

1-6 1/2" x 6" Open vertical Single Cylinder Engine Coupled direct to 1-12/7 W
Open Dynamo by J. & A. Holmes & Co.

Capacity of Dynamo 100 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 A. B. C. D. E of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each 1-6 way, 100 amp. box in Wheel Room. 1-4 way, 100 amp. box in Chart Room.

1-3 way, 100 amp. box in Accommodation. 1-3 way, 100 amp. box in Pastry Kitchen. 1-2 way, 100 amp. box in Eng. Acc. 1-2 way, 100 amp. box in Office Acc.
1-4 way, 100 amp. box in Steering Gear. 1-3 way, 100 amp. box in Steering Gear. 1-2 way, 100 amp. box in Lobby Kitchen. 1-6 way, 100 amp. box in Engine Room.

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

Are the fuses of non-oxidisable 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 110 arranged in the following groups:—

A	<u>12</u>	lights each of	<u>16</u>	candle power requiring a total current of approx <u>12.24</u>	Amperes
B	<u>5</u>	lights each of	<u>32</u>	candle power requiring a total current of " <u>14.5</u>	Amperes
C	<u>24</u>	lights each of	<u>32</u>	candle power requiring a total current of " <u>26.8</u>	Amperes
D	<u>20</u>	lights each of	<u>16</u>	candle power requiring a total current of " <u>11.2</u>	Amperes
E	<u>Masconi Mains</u>	lights each of		candle power requiring a total current of	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>2.24</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>2.24</u>	Amperes
	<u>4</u>	Cargo lights of	<u>6 x 32</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 ✓

DESCRIPTION OF CABLES.

Main cable carrying 100 Amperes, comprised of 19 wires, each 14 S.W.G. diameter, .094 square inches total sectional area

Branch cables carrying 12.2 Amperes, comprised of 7 wires, each 18 S.W.G. diameter, .012 square inches total sectional area

Branch cables carrying 14.5 Amperes, comprised of 7 wires, each 16 S.W.G. diameter, .022 square inches total sectional area

Leads to lamps carrying 56 Amperes, comprised of 1 wires, each 18 S.W.G. diameter, .0018 square inches total sectional area

Cargo light cables carrying 6.7 Amperes, comprised of 7 wires, each 2 1/2 S.W.G. diameter, .0048 square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

All Conductors are formed of Stripped Copper, Insulated with pure para rubber & vulcanized india rubber, Taped & Braided overall

Joints in cables, how made, insulated, and protected None, Looping in System Carried out

Are all the joints of cables thoroughly soldered, and the flux used not containing acids or other corrosive substances None 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 None

How are the cables led through the ship, and how protected In Engine room Armored & Braided Chopped up in Bulkheads &c. ditto in Cargo Spaces, In Accommodation Lead Covered Chopped up.

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DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.

Are they in places always accessible Yes, except when Cargo is in Holds.

What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture Armoured, braided or V.I.P. in 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 ditto

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

How are cables carried through beams brushed with fibre through bulkheads, &c. Stuffing glands

How are cables carried through decks in lead or iron tubes, flanged & made watertight

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 Armoured, braided

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage none

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 none

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 —, and with an amperemeter —, fixed on Main 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.

COMPASSES.

Distance between dynamo or electric motors and standard compass Approx 80 feet

Distance between dynamo or electric motors and steering compass Approx 74

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	inside	feet from standard compass	inside	feet from steering compass
56	12	12	8	8	8
7.2	15	15	10	10	10

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.

OSBOURNE GRAHAM & CO. LIMITED.

M. H. H. H. H.

Builder's Signature. Date Aug 9. 1917.

GENERAL REMARKS.

This installation appears to have been fitted in a satisfactory manner and in accordance with the rules

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

J.W.D.
18/8/19.

W. H. H. & S. Dairs.
Surveyor to Lloyd's Register of British and Foreign Shipping. 15.8.19

Committee's Minute

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.