

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 26476

Port of Sunderland Date of First Survey 7 June Date of Last Survey 16 June 15 No. of Visits 3
 No. in on the Iron or Steel S.S. "ELFORD" Port belonging to Newcastle
 Reg. Book #79 Built at Sunderland By whom W. Pickersgill & Sons When built 1915
 Owners Sharp & Co. Ltd (Sharp & Co) Owners' Address Newcastle
 Card No. 189 Electric Light Installation fitted by Clarke, Chapman & Co. Ltd. When fitted 1915

DESCRIPTION OF DYNAMO, ENGINE, ETC.

One single cylinder double acting open type vertical engine direct coupled to a continuous current compound wound dynamo

Capacity of Dynamo 72 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 double

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

Positions of auxiliary switch boards and numbers of switches on each Each light & group of lights provided with switches as required

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 slate & porcelain

Total number of lights provided for 100 arranged in the following groups:

A	<u>25</u> lights each of <u>32</u>	candle power requiring a total current of <u>38.7</u> Amperes
B	<u>4</u> lights each of <u>32</u>	candle power requiring a total current of <u>27.5</u> Amperes
C	<u>18</u> lights each of <u>16</u>	candle power requiring a total current of <u>7.8</u> Amperes
D	<u>14</u> lights each of <u>—</u>	candle power requiring a total current of <u>—</u> Amperes
E	<u>—</u> lights each of <u>—</u>	candle power requiring a total current of <u>—</u> Amperes
2	Mast head light with <u>1</u> lamps each of <u>32</u>	candle power requiring a total current of <u>2.2</u> Amperes
2	Side light with <u>1</u> lamps each of <u>32</u>	candle power requiring a total current of <u>2.2</u> Amperes
4	Cargo lights of <u>8 - 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 in Chart Room

DESCRIPTION OF CABLES.

Main cable carrying 72 Amperes, comprised of 19 wires, each 14 S.W.G. diameter, .094 square inches total sectional area
 Branch cables carrying 38.7 Amperes, comprised of 7 wires, each 17 S.W.G. diameter, .017 square inches total sectional area
 Branch cables carrying 7.8 Amperes, comprised of 1 wires, each 14 S.W.G. diameter, .0050 square inches total sectional area
 Leads to lamps carrying .51 Amperes, comprised of 1 wires, each 18 S.W.G. diameter, .0018 square inches total sectional area
 Cargo light cables carrying .8 Amperes, comprised of 168 wires, each 38 S.W.G. diameter, .00502 square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Vulcanized india rubber taped & braided & lead covered where exposed steel armored cable

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. No.

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 & steel armored cables run through holds & clipped to underside of deck with strong galvanized iron clips.

DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.

Are they in places always accessible no
 What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture lead covered & steel
armoured cables
 What special protection has been provided for the cables near galleys or oil lamps or other sources of heat lead covered & steel armoured
 What special protection has been provided for the cables near boiler casings " " " "
 What special protection has been provided for the cables in engine room " " " "
 How are cables carried through beams in lead bushes through bulkheads, &c. in WT glands
 How are cables carried through decks in galvanized iron 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 lead covered & steel armoured cables
 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 to WT connection boxes
 In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel double wire system
 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 no, 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.

For Clarke, Chapman & Co., Ltd. Electrical Engineers Date July 1st 1915

COMPASSES. Director
 Distance between dynamo or electric motors and standard compass 64 feet
 Distance between dynamo or electric motors and steering compass 58 "

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
<u>.51</u>	<u>12</u>	<u>6</u>	<u>6</u>
<u>.51</u>	<u>6</u>	<u>12</u>	<u>12</u>
<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>

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.

W. J. Dickson Builder's Signature. Date July 8th 1915

GENERAL REMARKS.
The installation has been satisfactorily fitted in the vessel. Tested at full load and found good.

It is submitted that this vessel is eligible for
THE RECORD. Elec. light. JWR 15/7/15. Surveyor to Lloyd's Register of British and Foreign Shipping.

Committee's Minute —

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.