

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 28378

Port of Sunderland. Date of First Survey May 8 Date of Last Survey 13th July 1922 No. of Visits 6
 No. in Reg. Book on the Steel 5/5 " LIGHTFOOT Port belonging to Newcastle on Tyne
 Built at Sunderland By whom Messrs Brown & Sons Ltd When built
 Owners Witherington & Everett Owners' Address Newcastle
 Yard No. 169 Electric Light Installation fitted by Messrs The Sunderland Forge & Eng. Co. Ltd When fitted 1922

DESCRIPTION OF DYNAMO, ENGINE, ETC.

An additional 4.5 kW dynamo fitted 8.43 (Nuc 101468)
 One combined plant consisting of single cylinder vertical open type inverted engine 100 lbs steam coupled to compound wound multipolar dynamo.
 Capacity of Dynamo 80 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 Close to Dynamo having switches to groups Four of lights, &c., as below
 Positions of auxiliary switch boards and numbers of switches on each In chart room with switches controlling navigation, Morse, compass & Telegraph lights.

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 @ 16 CP arranged in the following groups :-

A Navigation & Forward	37 lights each of	16 CP	candle power requiring a total current of	22.2	Amperes
B Eng'g & Aft	40 lights each of	"	candle power requiring a total current of	24.0	Amperes
C Engine & Boiler Room	11 lights each of	"	candle power requiring a total current of	6.6	Amperes
D Stairs	lights each of	-	candle power requiring a total current of	-	Amperes
E -	lights each of	-	candle power requiring a total current of	-	Amperes
2 Mast head lights with	1 lamp each of	32	candle power requiring a total current of	2.4	Amperes
2 Side lights with	1 lamp each of	"	candle power requiring a total current of	2.4	Amperes
4 Cargo lights of		6-16	candle power, whether incandescent or arc lights	Incandescent	

If are lights, what protection is provided against fire, sparks, &c. None fitted

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

DESCRIPTION OF CABLES.

Main cable carrying	80 Amperes, comprised of	19 wires, each 0.064 S.W.G. diameter,	0.06 square inches total sectional area
Branch cables carrying	24.0 Amperes, comprised of	7 wires, each 0.044 S.W.G. diameter,	0.06 square inches total sectional area
Branch cables carrying	22.2 Amperes, comprised of	7 wires, each 0.036 S.W.G. diameter,	0.007 square inches total sectional area
Leads to lamps carrying	0.6 Amperes, comprised of	3 wires, each 0.029 S.W.G. diameter,	0.002 square inches total sectional area
Cargo light cables carrying	3.6 Amperes, comprised of	3 wires, each 0.029 S.W.G. diameter,	0.002 square inches total sectional area

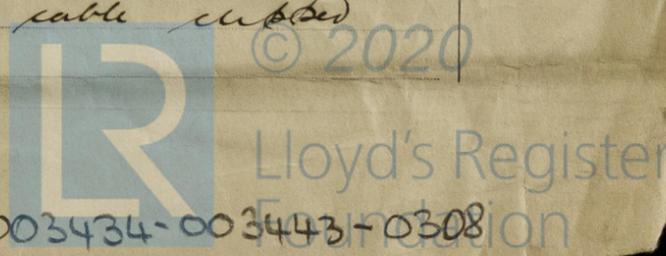
DESCRIPTION OF INSULATION, PROTECTION, ETC.

Mains :- Pure Silk: I.R. taped & vulcanized then Armoured & Braided.
 Accommodation :- " " " " then Lead covered.
 Machinery Spaces :- " " " " then Lead covered Armoured & Braided.
 Joints in cables, how made, insulated, and protected None made.

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 None made

How are the cables led through the ship, and how protected Armoured & Braided cable clipped to beams.



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 Armoured & Braided

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

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

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

How are cables carried through beams Fibre Bushed Holes through bulkheads, &c. W/T. Glands.

How are cables carried through decks W/T. 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 Armoured & Braided

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 switch.

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 SUNDERLAND FORGE & ENGINEERING CO. LTD.

Electrical Engineers

Date 21st. July 1922.

COMPASSES.

Distance between dynamo or electric motors and standard compass 78

Distance between dynamo or electric motors and steering compass 84.

The nearest cables to the compasses are as follows:—

A cable carrying	<u>22.2.</u>	Amperes	<u>8</u>	feet from standard compass	<u>12</u>	feet from steering compass
A cable carrying	<u>0.6</u>	Amperes	<u>6</u>	feet from standard compass	<u>led into</u>	<u>led into</u> feet from steering compass
A cable carrying	<u>0.6</u>	Amperes	<u>led into</u>	<u>led into</u> feet from standard compass	<u>6</u>	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 any course in the case of the standard compass and No. degrees on any course in the case of the steering compass.

JOHN CROWN & SONS Ltd.

J. H. Crown

Builder's Signature.

Date 25 JUL 1922

Director.

GENERAL REMARKS.

The installation has been satisfactorily fitted in the vessel, tested and found good.

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

Fee £ 8-0-0

Applied for 20/7/22. Paid 26/7/22.

J. H. Crown

S. Davis

Surveyor to Lloyd's Register of Shipping.

Committee's Minute