

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 on the *Steel* *5/5* " *LIGHTFOOT* Port belonging to *Newcastle-on-Tyne*
 Reg. Book 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 (Nov 10/1466)
 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 1/2* arranged in the following groups:—

A Navigation & Forward	37 lights each of	16 1/2	candle power requiring a total current of	22.2	Amperes
B Engine & Aft	40 lights each of	"	candle power requiring a total current of	24.0	Amperes
C Engine & Aft	11 lights each of	"	candle power requiring a total current of	6.6	Amperes
D Wireless	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.

Main cables: *See Note: 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. Duck 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 *yes*

Is the installation supplied with a voltmeter *yes*, and with an amperemeter *yes*, fixed on main switch *yes*

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 *yes*

How are the lamps specially protected in places liable to the accumulation of vapour or gas *yes*

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:—

Cable carrying	Amperes	feet from standard compass	feet from steering compass
22.2	8	12	12
0.6	6	led into	led into
0.6	led into	led into	6

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

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 28/7/22. Paid 25/7/22.

28/7/22.

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.