

## REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 7658

Port of Belfast Date of First Survey Feb 9<sup>th</sup> Date of Last Survey April 7 No. of Visits 19  
 No. in on the Iron or Steel H. M. S. Pentstemon No. of Book 1916  
 Built at Belfast By whom Workman Clark & Co When built 1916  
 Owners The Admiralty Owners' Address "  
 Ord No. 366 Electric Light Installation fitted by Sunderland Forge Co Ltd fitted 1916

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

2. Direct-coupled Generating sets consisting of compound enclosed high speed steam engines coupled to compound-wound, multipolar dynamos.

Capacity of Dynamos each 250 Amperes at 105 Volts, whether continuous or alternating current continuous

Where is Dynamo fixed In Engine room Whether single or double wire system is used double wiring

Position of Main Switch Board Do Do having switches to groups 7 of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each ① Chartroom ② Wireless Telegraph Office

③ Crew Space for ④ Engine room ⑤ Engine room ⑥ Engine room ⑦ Officers passage aft

All standard Admiralty pattern watertight fuse boxes.

If cut outs 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 cut outs fitted to both flow and return wires or cables of all circuits including lamp circuits Yes

Are the cut outs of non-oxidizable metal Yes and constructed to fuse at an excess of 100 per cent over the normal current

Are all cut outs 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 Standard Admiralty Type Fuses used

Are all switches and cut-outs constructed of incombustible materials and fitted on incombustible bases Yes

Total number of lights provided for 207 @ 16<sup>W</sup> arranged in the following groups:—

A	19	lights each of	16	candle power requiring a total current of	11.4	Amperes
B	3- 1/2" Fans } 8- Cabin " } 1 Radiator } 1 Fan } 1- 1/2" Fan } 1- Rotary }	130	lights each of	16	candle power requiring a total current of	91.8
C	4	lights each of	16	candle power requiring a total current of	12.4	Amperes
D	54	lights each of	16	candle power requiring a total current of	66.4	Amperes
E & F	Two 20" search lights each of	—	candle power requiring a total current of	160.0	Amperes	
G	1 - Mine sweep circuit					
	2	Mast head lights with 1 lamp each of	16	candle power requiring a total current of	10.0	"
	2	Side light with 1 lamp each of (Port) (Starboard)	16 32	candle power requiring a total current of	1.2	Amperes
	2	Cargo lights of 8/amps of 50		candle power, whether incandescent or arc lights	1.8	Amperes

If arc lights, what protection is provided against fire, sparks, &c. No Arc Lights

Where are the switches controlling the masthead and side lights placed In Chartroom on Bridge

## DESCRIPTION OF CABLES.

Main cable carrying 250 Amperes, comprised of 37 wires, each 13 L.S.G. diameter, 0.25 square inches total sectional area

Branch cables carrying 91.8 Amperes, comprised of 19 wires, each 14 L.S.G. diameter, 0.0937 square inches total sectional area

Branch cables carrying 66.4 Amperes, comprised of 19 wires, each 14 L.S.G. diameter, 0.0937 square inches total sectional area

Leads to lamps carrying 2.4 Amperes, comprised of 1 wires, each 17 L.S.G. diameter, 0.00246 square inches total sectional area

Cargo light cables carrying 15 Amperes, comprised of 19 wires, each 22 L.S.G. diameter, 0.01148 square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

Tinned copper conductor, insulated with pure and vulcanising India-rubber, taped, vulcanised together and lead-covered overall.

All to British Admiralty specification & tests and passed by Overseer at maker's works.

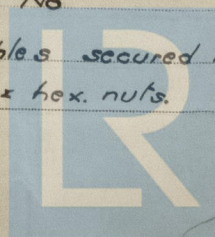
Joints in cables, how made, insulated, and protected

No Joints

Are all the joints of cables thoroughly soldered, resin only having been used as a flux — 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 Lead-covered Admiralty pattern cables secured to special dished steel cable plates by copper or brass clips and R.H. Brass screws & hex. nuts.



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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 *Lead-covered*

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *Lead-covered*

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

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

How are cables carried through beams *Lead bushings fitted* through bulkheads, &c. *Waterlight brass glands*

How are cables carried through decks *Through waterlight deck tubes*

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

If so, how are they protected *Lead-covered*

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage *Yes*

If so, how are the lamp fittings and cable terminals specially protected *Strong brass guard and glass globe*

Where are the main switches and cut outs for these lights fitted *In engine room*

If in the spaces, how are they specially protected —

Are any switches or cut outs fitted in bunkers *No*

Cargo light cables, whether portable or permanently fixed *Portable* How fixed *Attached to Admiralty pattern waterlight brass terminal boxes*

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 —

The installation is *Yes* supplied with *two* voltmeters and *also* *two* amperemeter, fixed *in engine room*.

VESSELS BUILT FOR CARRYING PETROLEUM.

In vessels built for carrying petroleum, are all switches and cut-outs fitted in positions not liable to the accumulation of petroleum vapour or gas —

Are any switches, cut outs, 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 *All standard Admiralty pattern cable, tested and passed by* per cent. that of pure copper.

Insulation of cables is guaranteed to have a resistance of not less than *Admiralty Overseer at Maker's Works* megohms per statute mile after 24 hours' immersion in seawater.

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.

*H. Wright* Electrical Engineers Date *18<sup>th</sup> April 1916*

COMPASSES.

Distance between dynamo or electric motors and standard compass *105 feet*

Distance between dynamo or electric motors and steering compass *100 "*

The nearest cables to the compasses are as follows:—

Cable	Amperes	Feet from standard compass	Feet from steering compass
A cable carrying <i>0.6</i>	<i>3</i>	<i>3</i>	<i>3</i>
A cable carrying <i>10.2</i>	<i>18</i>	<i>10</i>	<i>10</i>
A cable carrying —	—	—	—

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.

PRO WORKMAN, BLANK & CO., LIMITED,

Builder's Signature. Date

GENERAL REMARKS.

*This installation has been fitted in accordance with the Admiralty Specifications, and is of good description throughout. It is generally over the Rule requirements, except the short length of main cable from dynamo to R.F. Board of Main Switchboard. The approved plans are appended.*

Committee's Minute

THE RECORD ELEC. LIGHT.



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