

## REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 8048

Port of Belfast Date of First Survey 19<sup>th</sup> June Date of Last Survey 5<sup>th</sup> August No. of Visits 10  
 No. in Reg. Book on the Iron or Steel S/S "BRITISH LANTERN" Port belonging to  
 Built at Belfast. By whom Workman Clark & Co. Ltd. When built 1918  
 Owners' Address  
 Yard No. 424 Electric Light Installation fitted by The Sunderland Forge & Eng. Co. When fitted 1918

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

Two Combined Generating Plants each consisting of open type single cylinder steam engine direct coupled to compound wound multipolar dynamo on combined bedplate.

Capacity of Dynamo each 100 Amperes at 100 Volts, whether continuous or alternating current continuous  
 are In engine room. Whether single or double wire system is used double  
 Where is Dynamo fixed  
 Position of Main Switch Board In engine room having switches to groups five of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each

1 Board in wheelhouse for navigation lights - 9 Switches.

1 - " in engine room - 8 "

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 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 160 arranged in the following groups :-

A	54	lights each of	16	candle power requiring a total current of	32.4	Amperes
B	17	lights each of	16	candle power requiring a total current of	10.2	Amperes
C	21	lights each of	16	candle power requiring a total current of	12.6	Amperes
D	68	lights each of	16	candle power requiring a total current of	40.8	Amperes
E	Wireless	lights each of		candle power requiring a total current of	30.0	Amperes
1	Mast head light with	1	lamps each of	32	candle power requiring a total current of	1.2
2	Side light with	1	lamps each of	32	candle power requiring a total current of	2.4
24	Cargo lights of		16	candle power, whether incandescent or arc lights	incandescent	

If arc lights, what protection is provided against fire, sparks, &c. No arc lamps fitted.

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

## DESCRIPTION OF CABLES.

Main cable carrying	100	Amperes, comprised of	19	wires, each	14	S.W.G. diameter, 0.09372 square inches total sectional area
Branch cables carrying	32.4	Amperes, comprised of	19	wires, each	18	S.W.G. diameter, 0.03375 square inches total sectional area
Branch cables carrying	10.2	Amperes, comprised of	7	wires, each	20	S.W.G. diameter, 0.0070 square inches total sectional area
Leads to lamps carrying	2.4	Amperes, comprised of	7	wires, each	25	S.W.G. diameter, 0.0021 square inches total sectional area
Cargo light cables carrying	4.8	Amperes, comprised of	114	wires, each	38	S.W.G. diameter, 0.00319 square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

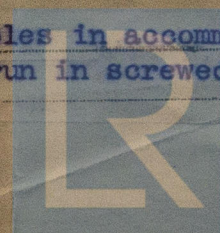
Tinned copper conductors insulated with pure and vulcanising indiarubber taped and the whole vulcanised together and finished as follows:- Mains in pipe - braided and compounded overall. In accommodation - lead-covered & braided overall. In engine room &c. lead-covered armoured and braided overall.

Joints in cables, how made, insulated, and protected No joints.

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 No.

How are the cables led through the ship, and how protected lead-covered and braided cables in accommodation secured with brass saddles. Mains under fore and aft gangway run in screwed galvanised watertight tubing.





**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 and braided or run in screwed galvd. watertight iron tubing.

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat lead-covered 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 through holes bushed with fibre through bulkheads, &c. through brass w.t. glands

How are cables carried through decks through deck tubes made watertight.

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

If so, how are they protected run in screwed galvd. iron pipe made watertight.

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 by glass well jar and strong brass guard.

Where are the main switches and fuses for these lights fitted In engine room.

If in the spaces, how are they specially protected by glass well jar and strong brass guard.

Are any switches or fuses fitted in bunkers No.

Cargo light cables, whether portable or permanently fixed portable. How fixed To heavy brass terminals in cast iron boxes on deck.

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 2 voltmeters Yes, and with 2 amperemeters Yes, fixed in engine room

**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 Lamps fitted outside such spaces with extra heavy bullseye glass to fitting shining through hole in roof of space

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.

PRO THE SUNDERLAND FORGE & ENGINEERING CO. LTD. Electrical Engineers Date 30th. Novr. 1918.

**COMPASSES.**

Distance between dynamo or electric motors and standard compass 232 feet.

Distance between dynamo or electric motors and steering compass 230 feet.

The nearest cables to the compasses are as follows:—

Cable	Amperes	Feet from standard compass	Feet from steering compass
A cable carrying <u>10.2</u>	<u>6</u>	<u>6</u>	<u>6</u>
A cable carrying <u>0.2</u>	<u>3</u>	<u>3</u>	<u>3</u>
A cable carrying <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 --- degrees on all course in the case of the standard compass and --- degrees on all course in the case of the steering compass.

PRO WORKMAN, CLARK & CO. LIMITED. Builder's Signature. Date 4th Dec. 1918

**GENERAL REMARKS.**  
This installation is of good description, and has been fitted in accordance with the Rules

It is submitted that this vessel is eligible for THE RECORD Elec. light. --- Surveyor to Lloyd's Register of Shipping.

Committee's Minute.



THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.