

# REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 8227

Port of Belfast Date of First Survey August 8 Date of Last Survey August 19 No. of Visits four  
 No. in Reg. Book on the Iron or Steel S.S. Togra (ex Tavis) Port belonging to Belfast  
 Built at Belfast By whom Worthington Clark & Co. Ltd When built 1919  
 Owners British India Steam Navigation Co. Ltd Address London  
 Yard No. 443 Electric Light Installation fitted by Simon & Schuster & Co. Ltd When fitted 1919

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

Two Combined Generating Plants consisting of Open Type Single Cylinder Steam Engine direct coupled to compound wound multipolar dynamo on combined bedplate.

Capacity of Dynamos each 100 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 in Engine Room having switches to groups six of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each

1 Board in Wheel House for Navigation Lights (11 switches)

1 Board " Engine Room (10 switches)

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 yes

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

Total number of lights provided for 141 arranged in the following groups:—

A	17	lights each of	16	candle power requiring a total current of	10.2	Amperes
B	45	lights each of	16	candle power requiring a total current of	27	Amperes
C	41	lights each of	16	candle power requiring a total current of	24.6	Amperes
D	38	lights each of	16	candle power requiring a total current of	22.8	Amperes
E	5	lights each of	1000	candle power requiring a total current of	25	Amperes
F	Wireless					
	2	Mast head light with 1 lamps each of	32	candle power requiring a total current of	2.4	Amperes
	2	Side light with 1 lamps each of	32	candle power requiring a total current of	2.4	Amperes
	5	Cargo lights of	1000	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 L.S.G. diameter 0.09372 square inches total sectional area

Branch cables carrying 30 Amperes, comprised of 19 wires, each 20 L.S.G. diameter 0.01899 square inches total sectional area

Branch cables carrying 22.8 Amperes, comprised of 7 wires, each 18 L.S.G. diameter 0.01246 square inches total sectional area

Leads to lamps carrying 2.4 Amperes, comprised of 7 wires, each 25 L.S.G. diameter 0.0021 square inches total sectional area

Cargo light cables carrying 5 Amperes, comprised of 114 wires, each 38 L.S.G. diameter 0.00319 square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

Tinned Copper Conductors insulated with pure and vulcanised india rubber, taped and the whole vulcanised together and finished as follows:— Mains, lead covered armoured & braided.

Accommodations: Lead covered & braided overall. Engine Room: Lead covd. armoured & braided.

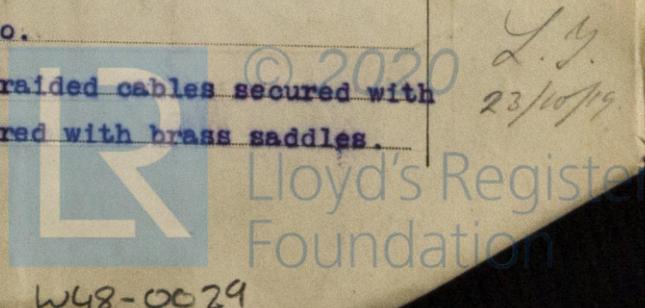
Joints in cables, how made, insulated, and protected

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 Mains lead covered armoured & braided cables secured with substantial saddles. In accommodation: lead covered & braided secured with brass saddles.



**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 armoured & braided, or Lead covered & braided.

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat Lead Covd. armoured & braided.

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 through holes bushed with fibre through bulkheads, &c. through brass W.T. Glands

How are cables carried through decks Through W.T. Deck Tubes.

Are any cables run through coal bunkers No. 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 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 cut outs for these lights fitted -

If in the spaces, how are they specially protected -

Are any switches or cut outs fitted in bunkers -

Cargo light cables, whether portable or permanently fixed Portable How fixed To heavy brass terminals in cast iron box 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 sey -

The installation is sey supplied with a voltmeter 2 and 2 an 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 sey -

How are the lamps specially protected in places liable to the accumulation of vapour or gas sey -

The copper used is guaranteed to have a conductivity of 100 per cent. that of pure copper.

Insulation of cables is guaranteed to have a resistance of not less than 2,500 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 BUNDESLAND FORGE & ENGINEERING CO. LTD.

H. W. Light Electrical Engineers Date 17th Sept. 1919.

**COMPASSES.**

Distance between dynamo or electric motors and standard compass 100 feet

Distance between dynamo or electric motors and steering compass 102 feet

The nearest cables to the compasses are as follows:—

A cable carrying <u>10.2</u> Amperes	<u>6</u> feet from standard compass	<u>6</u> feet from steering compass
A cable carrying <u>.6</u> Amperes	<u>3</u> feet from standard compass	<u>3</u> feet from steering compass
A cable carrying <u>-</u> Amperes	<u>-</u> feet from standard compass	<u>-</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 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.

P. WORKMAN, CLARK & CO., LIMITED.

R. J. Bennett Builder's Signature, Date 20th. October, 1919.

SECRETARY.

**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.

R. J. Bennett Surveyor to Lloyd's Register of British and Foreign Shipping.

Committee's Minute



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THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

REPORT FORM No. 15—5m.34.