

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 8397

Port of Belfast Date of First Survey 21st August 1919 Date of Last Survey 2nd Sept. 1920 No. of Visits 17
 No. in Reg. Book on the Iron or Steel T.S.S. Larkshire Port belonging to Liverpool
 Built at Belfast By whom Hauland & Wolff L^{ts} When built 1920
 Owners Bibby Bros. Owners' Address Liverpool
 Yard No. 509 Electric Light Installation fitted by Hauland & Wolff L^{ts} When fitted 1920

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Two Enclosed Forced Lubrication Engines & Dynamos. Cylinders 9" x 14" x 6 Stroke. Speed 500 R.P.M. — One Emergency Paraffin Engine & Dynamo. # Cylinders 6 1/2" dia x 7 1/2 Stroke. Speed 400 R.P.M.
 Capacity of Dynamo 2 - 550. } Amperes at 100. Volts, whether continuous or alternating current continuous.
1 - 200

Where is Dynamo fixed 2 in Engine Room. Starb. } Whether single or double wire system is used Single.
1. Deck back. aft.

Position of Main Switch Board Engine Room. Starb. having switches to groups A.B.C.D.E.F.G.H.I.J. of lights, &c., as below
Emergency. Deck back. aft. K.L.M.N.O.

Positions of auxiliary switch boards and numbers of switches on each One Board containing 18 switches in wheelhouse.

One Board containing 10 switches and one Board containing 12 switches. For Entrance. Bridge Stk.
One Board containing 8 switches and one Board containing 10 switches in aft. Entrance. Bridge Stk.

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

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 1160. arranged in the following groups:—

A Captain & Signals etc. <u>46.</u>	lights each of <u>4 of 32 cp. 39 of 27 cp.</u>	candle power requiring a total current of	<u>18.0</u>	Amperes
B Passenger Port. <u>311.</u>	lights each of <u>13 of 200 cp. 128 of 27 cp.</u>	candle power requiring a total current of	<u>76.0</u>	Amperes
C Passenger Starb. <u>224.</u>	lights each of <u>12 of 200 cp. 89 of 27 cp.</u>	candle power requiring a total current of	<u>62.0</u>	Amperes
D Daylight. <u>144</u>	lights each of <u>3 of 200 cp. 135 of 27 cp.</u>	candle power requiring a total current of	<u>46.1</u>	Amperes
E Crew Aft. <u>46</u>	lights each of <u>42 of 27 cp. & 4 of 3</u>	candle power requiring a total current of	<u>15.0</u>	Amperes
2 Mast head lights with <u>1</u> lamp each of <u>32</u>	candle power requiring a total current of	<u>1.2</u>	Amperes	
2 Side light with <u>1</u> lamp each of <u>32</u>	candle power requiring a total current of	<u>1.2</u>	Amperes	
7 Cargo Lamps } Cargo lights of <u>Each. 1000 cp.</u>	Each. 1000 cp.	candle power, whether incandescent or arc lights	<u>Incandescent.</u>	
6 Clusters }	containing <u>4 of 16.</u>			
10 " }	<u>3 of 16.</u>			

If arc lights, what protection is provided against fire, sparks, &c.

Where are the switches controlling the masthead and side lights placed in wheelhouse.

DESCRIPTION OF CABLES.

Main cable carrying <u>76.</u> Amperes, comprised of <u>19</u> wires, each <u>15.</u> S.W.G. diameter, <u>.0758</u> square inches total sectional area
Branch cables carrying <u>62</u> Amperes, comprised of <u>19</u> wires, each <u>16</u> S.W.G. diameter, <u>.06</u> square inches total sectional area
Branch cables carrying <u>46</u> Amperes, comprised of <u>19</u> wires, each <u>18</u> S.W.G. diameter, <u>.0338</u> square inches total sectional area
Leads to lamps carrying <u>2.8</u> Amperes, comprised of <u>3</u> wires, each <u>20</u> S.W.G. diameter, <u>.003</u> square inches total sectional area
Cargo light cables carrying <u>2.4</u> Amperes, comprised of <u>90</u> wires, each <u>60</u> S.W.G. diameter, <u>.00407</u> square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Cables throughout are of 2500 megohm class and C.M.A. quality, insulated with pure rubber and vulcanised rubber, braided & compounded overall. In Engine Room, Boiler Room & Gallies, cables are protected by lead covering, steel armouring & braided overall. Cables in insulated spaces, are protected by lead covering.

Joints in cables, how made, insulated, and protected

Soldered, using resin as a flux and insulated with pure rubber and prepared tape and protected by strong wood casing.

Are all the joints of cables thoroughly soldered, and the flux used not containing acids or other corrosive substances Yes 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 Yes.

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 in strong wood casing. In cargo spaces protected by lead covering, steel armouring & braided overall, and are further protected by a steel covering plate. In Engine & Boiler Rooms and Galley cables are clipped direct to Bulkhead rare protected by lead covering, steel armouring and braided overall.

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 Capacity of Dynamo 2 - 550. Amperes at 100. Volts, whether continuous or alternating current continuous.
1 - 200

Where is Dynamo fixed 2 - in Engine Room, Starb.} Whether single or double wire system is used Single.
1. Deck back aft.

Position of Main Switch Board Engine Room, Starb. having switches to groups A.B.C.D.E.F.G.H.I.J. of lights, &c., as below
Emergency Deck back aft. K.L.M.N. & O.

Positions of auxiliary switch boards and numbers of switches on each One Board containing 18 switches in wheelhouse.

One Board containing 10 switches and one Board containing 12 switches. For Entrance. Bridge &c.

One Board containing 8 switches in A. L.

One Board containing 12 switches & one Board containing 36 switches, in Passage
port side of 1st. bb. Pantry. Upper &c.

One Board containing 12 switches in Entrance to Cold Stores. Upper &c.

Two Boards, one containing 10 switches and one containing 8 switches, in
Engine Room.

One Board containing 6 switches in Boiler Room.

A. Signal etc.	lights each of 4 of 32 cp. 39 of 27 cp. candle power requiring a total current of	18.0	Amperes
B. Passenger Port. 311.	lights each of 13 of 200 cp. 128 of 27 cp. candle power requiring a total current of	76.0	Amperes
C. Passenger Starb. 224.	lights each of 12 of 200 cp. 89 of 27 cp. candle power requiring a total current of	62.0	Amperes
D. Daylight. 144	lights each of 3 of 200 cp. 135 of 27 cp. candle power requiring a total current of	46.1	Amperes
E. Crew Aft. 46	lights each of 42 of 27 cp. & 4 of 9 candle power requiring a total current of	15.0	

F. Officers & crew Ford. 62 Lights:— 53 of 27 cp. each & 9 of 16 cp. each.
 Requiring a total current of 21.3 Amperes.

G. Personnel Stores. 68 Lights:— 59 of 27 cp. each & 9 of 16 cp. each. Total current = 23. Amperes.

H. Engine Room. 88 Lights:— 2 of 200 cp. each, 66 of 27 cp. each, and 20 of 16 cp.
 Total current of 33.8 Amperes.

J. Boiler Room. 36. Lights:— 25 of 27 cp. and 11 of 16 cp. = " " " 14.1 "

K. Emergency Lights. 58 Lights:— 55 of 27 cp. and 3 of 16 cp. = " " " 18.3 "

L. Steering Gear etc. Aft. 16 Lights:— 12 of 27 cp, 1 of 32 cp, 2 of 16 cp, and 1 of 8 cp.
 = Total current of 6.3 Amperes.

M. Cargo Lights. 54 Lights:— Each of 16 cp. = " " " 32 "

N. Cargo Lanterns. 7 Lights:— Each of 1000 cp. = " " " 35 "

O. Same as A. — Being the alternative Emergency supply to this circuit.

Are all the joints of cables thoroughly soldered, and the flux used not containing acids or other corrosive substances Yes 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 Yes.

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 in strong wood casing. In cargo spaces protected
by lead covering, steel armouring braided overall, and are further protected by a steel
covering plate. In Engine & Boiler Rooms and Galley cables are clipped direct to
Bulkhead rare protected by lead covering, steel armouring and braided overall.

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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 *cables protected by lead covering Steel armoring & braided overall.*

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

What special protection has been provided for the cables near boiler casings *Lead covered steel armoured.*

What special protection has been provided for the cables in engine room *Lead covered steel armoured.*

How are cables carried through beams *Beams bushed with Fibre.* through bulkheads, &c. *Glands if water tight, otherwise Fibre bushed.*

How are cables carried through decks *in Iron backpipes, bushed with Fibre.*

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, steel armoured & braided overall, & covered by a steel plate.*

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

If so, how are the lamp fittings and cable terminals specially protected *in strong steel guarded Pendants.*

Where are the main switches and fuses for these lights fitted *Switches at Entrance to Baggage Room. Fuses in*

If in the spaces, how are they specially protected *Switches protected by b. Iron covers. Engineers Passage. Starb.*

Are any switches or fuses fitted in bunkers *no.*

Cargo light cables, whether portable or permanently fixed *permanently.* How fixed *Strong wood casing.*

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel *by Earth Terminal fixed to*

How are the returns from the lamps connected to the hull *Screwed to 3/8" turned Brass tap screws in beams etc.*

Are all the joints with the hull in accessible positions *Yes*

Is the installation supplied with a voltmeter _____, and with an amperemeter _____, fixed on *Switchboard* for each machine.

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

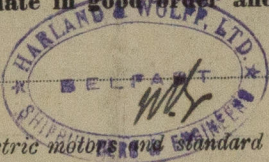
Are any switches, fuses, or joints of cables fitted in the pump room or companion

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 2500 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.



Electrical Engineers

Date

1/10/20

COMPASSES.

Distance between dynamo or electric motor and standard compass *125 ft. to main dynamo. 275 ft. to Emergency dynamo, and 30 ft. to steering motor.*

Distance between dynamo or electric motors and steering compass *150 ft. to main dynamo. 315 ft. to Emergency dynamo, and 68 ft. to steering motor.*

The nearest cables to the compasses are as follows:—

A cable carrying	18	Amperes	30	feet from standard compass	8	feet from steering compass
A cable carrying	40	Amperes	30	feet from standard compass	8	feet from steering compass
A cable carrying	20	Amperes	30	feet from standard compass	68	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* courses in the case of the standard compass and *Nil* degrees on *all* courses in the case of the steering compass.



Builder's Signature.

Date

1. 10. 20.

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 Rules.

Elect

6/10/20

R. F. Pennington

Surveyor to Lloyd's Register of Shipping.

Committee's Minute



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THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.