

W1080-0026 1/2

VI	Emergency 243 lights each of 30 watts + 5 W.T. down controls	requiring a total current of 105 amps
VII	Deck Boats 128 lights each of 16 c.p. + 6 12 amp arc lamps	" " " " 148.8
VIII	Daylight 424 lights each of 30 watts	" " " " 148.4
IX	Mach. Spaces 171 " " " 16 c.p.	" " " " 102.6
X	Spare	
XI	Spare	
XII	Spare	
XIII	Spare	
XIV	Engine Room Motors & Fans	" " " " 312
XV	Hot Air & Public Rm. Fans	" " " " 219
XVI	Aft Bilge Pump	" " " " 200
XVII	Forward Bilge Pump	" " " " 200
XVIII	Fire Extinguishers	" " " " 120
XIX	Domestic Motors	" " " " 263
XX	Stoke hold Fans	" " " " 480
XXI	Ventilating Cabin Fans	" " " " 605
XXII	Forward Boat Deck Winches	" " " " 640
XXIII	Aft Boat Deck Winches	" " " " 640
XXIV	Aft Boat Platform Winch	" " " " 320
XXV	Spare	

of pure paper under two layers vulcanizing rubber & one layer prepared tape. The vulcanized

# REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 7 335

Part of Belfast Date of First Survey 24 Oct 1913 Date of Last Survey 22 Jan 1914 No. of Visits 32  
 No. in Reg. Book on the Iron or Steel S.S. Ardara Port belonging to Liverpool  
 Built at Belfast By whom Harland & Wolff L<sup>o</sup> When built 1914  
 Owners Pacific S. N. Coy L<sup>o</sup> Owners' Address Liverpool  
 Yard No. 438 Electric Light Installation fitted by Harland & Wolff L<sup>o</sup> When fitted 1914

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

Three enclosed forced lubrication engines having cylinders 10" & 12" stroke direct coupled to ten compound wound multipole dynamo running at 450 R.P.M. & six cylinder Diesel oil engine direct coupled to one multipole compound wound dynamo.

Capacity of Dynamo (each Steam & Diesel) 740 Amperes at 100 Volts, whether continuous or alternating current Continuous  
 " " Diesel 1000 " " " " " " Continuous

Where is Dynamo fixed Steam sets in Engine Room Diesel sets in Diesel House on Aft Deck Whether single or double wire system is used Single

Position of Main Switch Board in Engine Room having switches to groups I to XXV of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each one auxiliary emergency switch board fitted in Diesel House having 11 switches

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 2414 arranged in the following groups:—

I	Passenger	308 lights each of 36 of 60 watt & 272 of 30 watt candle power	requiring a total current of	116.8	Amperes
II	Public Rms.	464 lights each of various candle power	requiring a total current of	180.0	Amperes
III	Public Rms.	122 lights each of 30 watts candle power	requiring a total current of	42.7	Amperes
IV	Service	554 lights each of 30 watts candle power	requiring a total current of	192.5	Amperes
V	Wipers	lights each of — candle power	requiring a total current of	25	Amperes
2	Mast head light with 1 lamp each of 32 candle power	requiring a total current of	1.2	Amperes	
2	Side light with 1 lamp each of 32 candle power	requiring a total current of	1.2	Amperes	
22	Cargo lights of 16 of 12 amp & 6 of 12 amp arc lamps	candle power, whether incandescent or arc lights			Both

If arc lights, what protection is provided against fire, sparks, &c. The arcs are enclosed in glass globes protected by wire guards

Where are the switches controlling the masthead and side lights placed In Wheel House on Navigating Bridge

## DESCRIPTION OF CABLES.

Main cable carrying 145 Amperes, comprised of 37 wires, each 14 S.W.G. diameter, .182 square inches total sectional area

Branch cables carrying 60 Amperes, comprised of 19 wires, each 17 S.W.G. diameter, .046 square inches total sectional area

Branch cables carrying 20 Amperes, comprised of 7 wires, each 18 S.W.G. diameter, .0125 square inches total sectional area

Leads to lamps carrying 2.8 Amperes, comprised of 3 wires, each 20 S.W.G. diameter, .0030 square inches total sectional area

Cargo light cables carrying 4.8 Amperes, comprised of 90 wires, each 36 S.W.G. diameter, .0040 square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

The Cables throughout are of 2500 Mvohm grade R.M.A. standard. On deck the conductor is covered with one layer of pure Para rubber, two layers vulcanizing rubber & one layer prepared Tapes, the vulcanized together & bridged. In machinery spaces the cables after vulcanizing are lead covered, sewed & armoured with G.I. wire & finally braided. Joints in cables, how made, insulated, and protected Well soldered using resin as a flux then covered with pure Para rubber & prepared Tapes

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 bunks, 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 accommodation & in solid drawn steel pipe when exposed to weather



**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 are led through solid drawn steel tubes

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat cables are lead covered

What special protection has been provided for the cables near boiler casings sawed & armored with G.I. wire then braided

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

How are cables carried through beams in fibre bushes through bulkheads, &c. if W.T. in W.T. stands otherwise in fibre bushes

How are cables carried through decks in G.I. pipes bushed with fibre

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

If so, how are they protected in strong wood casing

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

If so, how are the lamp fittings and cable terminals specially protected in Brass fittings with strong steel guards

Where are the main switches and fuses for these lights fitted in box at head of stair

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 Permanently How fixed in wood casing

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel The' south terminal fixed to dynamo frame.

How are the returns from the lamps connected to the hull soldered to 3/8" turned brass tap screws fixed in beams.

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

Is the installation supplied with 3 voltmeters, and with 5 amperemeters, fixed on Switchboards

**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.

For Harland & Wolff Ltd.  
J.W.D.

Electrical Engineers

Date 16 Feb 1914.

**COMPASSES.**

Distance between dynamo or electric motors and standard compass 182 1/2 ft to dynamo 26 1/2 ft. to standard motor

Distance between dynamo or electric motors and steering compass 181 1/2 " " 30 " "

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
<u>55</u>	<u>12</u>	<u>10</u>	<u>10</u>
<u>20</u>	<u>25.5</u>	<u>17</u>	<u>17</u>
<u>320</u>	<u>26.5</u>	<u>30</u>	<u>30</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 Nil degrees on Grey course in the case of the standard compass and Nil degrees on Grey course in the case of the steering compass.

For Harland & Wolff Ltd.  
J.W.D.

Builder's Signature.

Date 16 Feb 1914.

**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. F. Beveridge

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

Committee's Minute

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.