

## REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 7728

Port of Belfast Date of First Survey Jan. 29<sup>th</sup> Date of Last Survey Aug 9 No. of Visits 19  
No. in on the Iron Steel T.S.S. Lancashire Port belonging to Liverpool  
Reg. Book Built at Belfast By whom Harland & Wolff L<sup>d</sup> When built 1917  
Owners Bulby S.S. Coy L<sup>d</sup> Owners' Address Liverpool  
Yard No. 459 Electric Light Installation fitted by Harland & Wolff L<sup>d</sup> When fitted 1917

### DESCRIPTION OF DYNAMO, ENGINE, ETC.

*Two Enclosed forced lubrication Engines & Dynamos, with cylinders 9"x14"x6" stroke.  
Sped 500 R.P.M. One Emergency set, 4 cylinder x 6 "Dia x7 1/2" Stroke. Paraffin Engine.*

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

Where is Dynamo fixed *2 in engine room.* Whether single or double wire system is used *Singles + Double  
at parts*

Position of Main Switch Board *Engine Room having switches to groups A.B.C.D.E.F.G.H.I.J.K.L.M.N.O.P.Q.R.S.T.U.V.W.X.Y.Z. of lights, f.c., as below*

" "*EMERGENCY*" " *Pooh OK aft.* " " "A.H.J.K.L."

Positions of auxiliary switch boards and numbers of switches on each *One board containing 18 switches in Wheelhouse.  
One board containing 18 switches & one board containing 8 switches in Ford entrance  
on Bridge Deck,*

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 in double  
fused area.*

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 *989.* arranged in the following groups :—

A Captain's signals *41* lights *each of 32 B.C. 37 C.D. 27* candle power requiring a total current of *14* Amperes

B Passage star *209* lights each of *27* candle power requiring a total current of *69* Amperes

C Passage port *207* lights each of *27* candle power requiring a total current of *68* Amperes

D Daylight *134* lights each of *27 E.P. 24 G.H. I J K L M N O P Q R S T U V W X Y Z* candle power requiring a total current of *46* Amperes

E Officers' cabins *60* lights each of *27 F.G. H.I. J K L M N O P Q R S T U V W X Y Z* candle power requiring a total current of *22* 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

*3 Cargo lanterns*  
*6 Cargo lights of 64*  
*10 " " "48"* } candle power, whether incandescent or arc lights *Incandescent.*

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

## DESCRIPTION OF CABLES.

Main cable carrying 69 Amperes, comprised of 19 wires, each 15 L.S.G. diameter, .045 square inches total sectional area

Branch cables carrying 35 Amperes, comprised of 7 wires, each 16 L.S.G. diameter, .022 square inches total sectional area

Branch cables carrying 24 Amperes, comprised of 7 wires, each 18 L.S.G. diameter, .0125 square inches total sectional area

Leads to lamps carrying 2.8 Amperes, comprised of 3 wires, each 20 L.S.G. diameter, .003 square inches total sectional area

Cargo light cables carrying 2.4 Amperes, comprised of 90 wires, each 36 L.S.G. diameter, .00405 square inches total sectional area

### DESCRIPTION OF INSULATION, PROTECTION, ETC.

cables throughout are 2500 megohm class, E. M. & quality, insulated with pure Rubber, & vulcanized Rubber, braided & compounded all over. In Eng. Boiler Room galleys, cables are protected by Lead covering, steel armouring & braided oversheath. In insulated spaces protected by lead covering. Joints in cables, how made, insulated, and protected. Soldered using resin as a flux, and insulated with pure rubber & prepared tape & protected by strong wood casings.

Are all the joints of cables thoroughly soldered, resin only having been used as a flux 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 *Yes*

How are the cables led through the ship, and how protected in strong wood casings in cargo holds by steel covering plates, where exposed to weather or moisture they are led through pipes. Cables in Eng. Boilers & galleys clipped direct to bulkhead & protected by lead covering, steel armouring & braided overalls.



- F. Eng'rs & crew aft. 59 lts. each of 24 C.P. Requiring a total current of 20 amps.
- G. Personnel & stores 49 lts. each of 24 C.P. Requiring a total current of 14 amps.
- H. Emergency boxes 50 lts. each of 24 C.P. Requiring a total current of 14.3 amps.
- J. Star. gear etc. 19 lts. each of 16 C.P. <sup>1-33 C.P.</sup> Requiring a total current of 9.5 amps.
- K. Cargo lts. 54 lts. each of 16 C.P. Requiring a total current of 27 amps.
- L. Cargo lanterns. 3 lanterns 1000 C.P. Requiring a tot. current of 15 amps.
- M. Machinery spaces. 99 lts. each of 16 C.P. Requiring a tot. current of 49.5 amps.

... candle power requiring a total current of 14 Amperes

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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 Piping.

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

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

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

How are cables carried through beams. Beams bushed with fibre through bulkheads, &c. Gland if W.T. otherwise Fibre.

How are cables carried through decks in Iron deck pipes 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 covd & steel armoured, covered over with 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 Rm.

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

Where are the main switches and cut outs for these lights fitted Switches at stairway to Baggage Rm. Fuses in Box at port passage. Upper

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 Permanently How fixed in strong wood casing.

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel through earth terminal fixed to dynamo base plate.

How are the returns from the lamps connected to the hull Screwed to 3/8" tinned brass tap screws, in beams, etc.

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

The installation is supplied with a voltmeter and an amperemeter, fixed on bulb for each machine.

**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 100 per cent. that of pure copper.

Insulation of cables is guaranteed to have a resistance of not less than 2500. 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.

Harland & Wolff Electrical Engineers

Date 28 Aug. 14.

**COMPASSES.**

Distance between dynamo or electric motors and standard compass 140 ft to Dynamo 30 ft to nearest motor

Distance between dynamo or electric motors and steering compass 153 ft to Dynamo 63 ft to nearest motor.

The nearest cables to the compasses are as follows:—

A cable carrying 14 Amperes 42 feet from standard compass 4 feet from steering compass

A cable carrying 40 Amperes 35 feet from standard compass 60 feet from steering compass

A cable carrying 15 Amperes 42 feet from standard compass 4 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.

**HARLAND & WOLFF Ltd.**

S. J. Phueber

Builder's Signature.

Date 28. 8. 14.

**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. JWD.

5/9/17

R. F. Beveridge

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

Committee's Minute

REPORT FORM No. 13-2m.34.

THE SURVEYORS ARE REQUESTED TO WRITE ACROSS THIS MARGIN



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