

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 44089

Port of *Newcastle-on-Tyne* Date of First Survey *Aug 5* Date of Last Survey *Aug 29 02* No. of Visits *6*
 No. in Reg. Book *798* on the Iron or Steel *3/8 Turakina* Port belonging to *Plymouth*
 Built at *Widdowson & Co* By whom *R. W. Hawthorn Leslie & Co* When built *1902*
 Owners *New Zealand S.S. Co Ltd* Owners' Address *Plymouth*
 Yard No. *382* Electric Light Installation fitted by *Clarke Chapman & Co Ltd* When fitted *1902*

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Two single cylinder double acting engines direct coupled to continuous current compound wound dynamos.
 Capacity of Dynamos *each 197* Amperes at *100* Volts, whether continuous or alternating current *continuous*
 Where is Dynamo fixed *after end engine room starting platform.*
 Position of Main Switch Board *bulkhead near dynamos* having switches to groups *ABCDEFCH* of lights, &c., as below
 Positions of auxiliary switch boards and numbers of switches on each *each light is provided with a switch fitted near to light.*

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 *50* 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, slate and ambrion.*

Total number of lights provided for *350-16 C.P.* arranged in the following groups :-

Group	Number of Lights	Each of	Candle Power	Requiring a total current of	Amperes
A	<i>16</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>9.6</i>
B	<i>29</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>43.8</i>
C	<i>61</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>17.4</i>
D	<i>58</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>36.6</i>
E	<i>38</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>22.8</i>
<i>2</i>	<i>37</i>	Mast head light with <i>1</i> lamps each of	<i>32-C.P.</i>	candle power requiring a total current of	<i>22.2</i>
<i>2</i>		Side light with <i>1</i> lamps each of	<i>32-C.P.</i>	candle power requiring a total current of	<i>2.4</i>
<i>5</i>		Cargo lights of each	<i>8-16</i>	candle power, whether incandescent or arc lights	<i>incandescent</i>
<i>3</i>		" " " "	<i>7-16</i>		

If are lights, what protection is provided against fire, sparks, &c. *none fitted*

Where are the switches controlling the masthead and side lights placed *Wheel House*

DESCRIPTION OF CABLES.

Main cable carrying *210* Amperes, comprised of *37* wires, each *13* L.S.G. diameter, *.243* square inches total sectional area
 Branch cables carrying *43.5* Amperes, comprised of *19* wires, each *17* L.S.G. diameter, *.046* square inches total sectional area
 Branch cables carrying *22.8* Amperes, comprised of *7* wires, each *16* L.S.G. diameter, *.022* square inches total sectional area
 Leads to lamps carrying *.6* Amperes, comprised of *1* wires, each *18* L.S.G. diameter, *.0018* square inches total sectional area
 Cargo light cables carrying *4.8* Amperes, comprised of *7* wires, each *20* L.S.G. diameter, *.007* square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

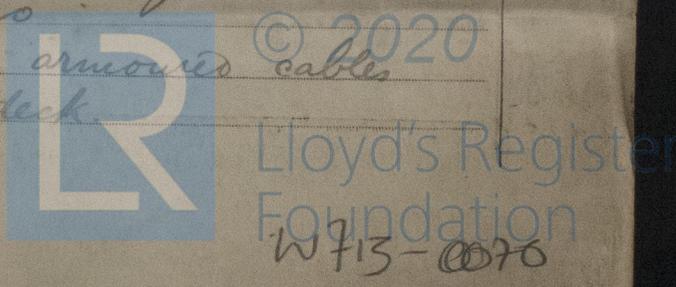
Vulcanized rubber taped and braided and lead covered overall and where exposed steel armoured over the lead covering.

Joints in cables, how made, insulated, and protected *No joints except mechanical ones*

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, no.*

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 armoured cables secured by brass clips fixed close up to deck.*



DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.

Are they in places always accessible *no*

What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture *lead covered and steel armoured*

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 and steel armoured*

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

How are cables carried through beams *in bushes* through bulkheads, &c. *in glands*

How are cables carried through decks *in galvanized iron watertight 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 fixed close up to deck*

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

If so, how are the lamp fittings and cable terminals specially protected *terminals in special C.I. boxes. Fittings portable.*

Where are the main switches and cut outs for these lights fitted *in cast iron boxes*

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 *portable* How fixed *in C.I. watertight boxes.*

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel *Double wire system.*

How are the returns from the lamps connected to the hull _____

Are all the joints with the hull in accessible positions _____

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 installation is _____ supplied with a voltmeter and _____ an amperemeter, fixed *in engine room*

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 *1000* 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.

For CLARKE, CHAPMAN & Co. LTD.

W. Walker Electrical Engineers Date *Oct 1902.*

COMPASSES.

Distance between dynamo or electric motors and standard compass *Director, 85 ft.*

Distance between dynamo or electric motors and steering compass *75*

The nearest cables to the compasses are as follows:—

A cable carrying <i>6</i> Amperes <i>lighted up</i> feet from standard compass <i>lighted up</i> feet from steering compass <i>electrically lighted</i>
A cable carrying <i>✓</i> Amperes <i>-</i> feet from standard compass <i>-</i> feet from steering compass
A cable carrying <i>✓</i> Amperes <i>-</i> feet from standard compass <i>-</i> feet from steering compass

Have the compasses been adjusted with and without the electric installation at work at full power _____

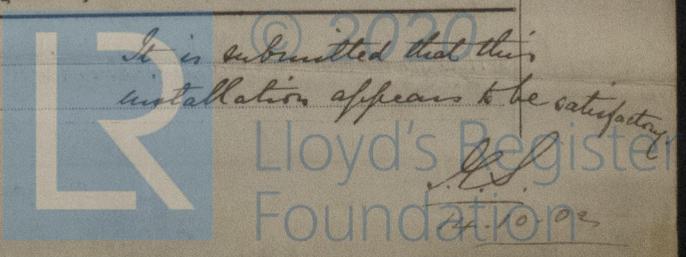
The maximum deviation due to electric currents, etc., was found to be *nil* degrees on *the* course in the case of the standard compass and *nil* degrees on *the* course in the case of the steering compass.

B. & W. HAWTHORN, LESLIE & CO. LIMITED Builder's Signature. Date *11 Oct 1902.*

GENERAL REMARKS. *The installation examined & found satisfactory.*

John H Heck-
Surveyor to Lloyd's Register of British and Foreign Shipping.

Committee's Minute _____



THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

REPORT FORM No. 13.