

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 5415

Port of *Relfact* Date of First Survey *Jan 22nd* Date of Last Survey *Jan 24th* No. of Visits *2*
 No. in Reg. Book *on the T.S.S. Niwamu* Port belonging to *London*
 Built at *Relfact* By whom *Worthman Clark & Co. Ltd.* When built *1902*
 Owners *Y. S. S. Niwamu* Owners' Address *London*
 Yard No. *1813* Electric Light Installation fitted by *Robert Wilson & Co. Relfact* When fitted *1902*

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Single Cylinder Engine direct coupled to two pole Dynamo
 Capacity of Dynamo *97* Amperes at *100* Volts, whether continuous or alternating current *continuous*
 Where is Dynamo fixed *Engine Room Rear*
 Position of Main Switch Board *Eng Room blkd. distribution* having switches to groups *A B C D* of lights, &c., as below
 Positions of auxiliary switch boards and numbers of switches on each *one four way board alongside dynamo*
one four way at stokehold door. one four way at tunnel rear. all having switch for each way
one eight way in Saloon. one four way in Room for carpenter. one four way in fore
all lights having its own switch
 If cut outs are fitted on main switch board to the cables of main circuit *5 DP* 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 *17%* 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 *159* arranged in the following groups :-

A	<i>49</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>27</i>	Amperes
B	<i>48</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>27</i>	Amperes
C	<i>12</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>7</i>	Amperes
D	<i>50</i>	lights each of	<i>16</i>	candle power requiring a total current of	<i>28</i>	Amperes
E		lights each of		candle power requiring a total current of		Amperes
<i>1</i>	<i>Mast head light with 1 lamps each of</i>	<i>32</i>		candle power requiring a total current of	<i>included in a</i>	Amperes
<i>2</i>	<i>Side light with 1 lamps each of</i>	<i>32</i>		candle power requiring a total current of		
<i>3</i>	<i>Cargo lights of</i>	<i>10</i>	<i>16</i>	candle power, whether incandescent or arc lights	<i>Incand.</i>	

If arc lights, what protection is provided against fire, sparks, &c.
 Where are the switches controlling the masthead and side lights placed *wheelhouse*

DESCRIPTION OF CABLES.

Main cable carrying *89* Amperes, comprised of *37* wires, each *16* L.S.G. diameter, *.119* square inches total sectional area
 Branch cables carrying *27* Amperes, comprised of *7* wires, each *14* L.S.G. diameter, *.035* square inches total sectional area
 Branch cables carrying *27* Amperes, comprised of *7* wires, each *14* L.S.G. diameter, *.035* square inches total sectional area
 Leads to lamps carrying *7* Amperes, comprised of *7* wires, each *18* L.S.G. diameter, *.072* square inches total sectional area
 Cargo light cables carrying *28* Amperes, comprised of *7* wires, each *14* L.S.G. diameter, *.035* square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Pure rubber. vulcan rubber & taped vulcanized together and braided
 Joints in cables, how made, insulated, and protected *no joints all in junction boxes*
 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 *Armoured & wood lined*



DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.

Are they in places always accessible

What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture *Armoured*

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *Wood casing varnished*

What special protection has been provided for the cables near boiler casings *Armoured*

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

How are cables carried through beams *Armoured* through bulkheads, &c.

How are cables carried through decks *W & J 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 *armoured*

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

If so, how are the lamp fittings and cable terminals specially protected *Cast iron covers*

Where are the main switches and cut outs for these lights fitted *Engine Room*

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 *cast iron boxes*

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

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 ~~ammeter~~, fixed *Main Switch Board*

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.

Robert Wilson

Electrical Engineers

Date *Mar 24th 02*

COMPASSES.

Distance between dynamo or electric motors and standard compass *180 ft. about*

Distance between dynamo or electric motors and steering compass *175 - -*

The nearest cables to the compasses are as follows:—

A cable carrying _____ Amperes _____ feet from standard compass _____ feet from steering compass

A cable carrying _____ Amperes _____ feet from standard compass _____ feet from steering compass

A cable carrying *2* Amperes *7* feet from standard compass *5* 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 _____ course in the case of the standard compass and *Nil* degrees on _____ course in the case of the steering compass.

PRO WORKMAN, CLARK & CO., LIMITED,

W. Finchan

Builder's Signature.

Date *16 April 1902*

GENERAL REMARKS.

The installation appears to be of good description and has been fitted in accordance with the Rules.

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

Committee's Minute

It is submitted that this installation appears to meet the Rule requirements



Lloyd's Register Foundation

21.11.02

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

REPORT FORM No. 11.