

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 3699.

Port of Middlesbrough Date of First Survey Sept 1st Date of Last Survey Sept 29 1903 No. of Visits ten
 No. in on the Iron or Steel S.S. Zambezia Port belonging to Lisbon
 Reg. Book MP Built at Middlesbrough By whom Sir R. Dixon & Co. Ltd When built 1903-9
 Owners Compania Nacional de Nav a Vapor Owners' Address Lisbon
 Yard No. 501 Electric Light Installation fitted by J. H. Holmes & Co When fitted 1903

DESCRIPTION OF DYNAMO, ENGINE, ETC.

One $5\frac{1}{2} \times 5$ " open type inverted vertical steam engine with auto escap^m for 80 lbs. coupled to a hoiz dynamo gramme path comp^d wound by J. H. A. C. O.

Capacity of Dynamo 80 Amperes at 65 Volts, whether continuous or alternating current continuous

Where is Dynamo fixed in engine room Port side

Position of Main Switch Board near dynamo having switches to groups A B C D of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each 1-4 way D.P. fusebox aft feeding 2-6 way boxes one cargo & 3 hold lamps: 1-6 way swbd in eng room feeding 6-4 way f boxes. 1-6 way board in Pantry to feed 5 boxes one cargo: 1-6 way fusebox fwd.

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 no

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

Total number of lights provided for 92 arranged in the following groups:—

A	Aft	20	lights each of	16	candle power requiring a total current of	18	Amperes
B	Engines	23	lights each of	16	candle power requiring a total current of	22	Amperes
C	Midships	33	lights each of	16	candle power requiring a total current of	30	Amperes
D	Forward	16	lights each of	16	candle power requiring a total current of	16	Amperes
E			lights each of		candle power requiring a total current of		Amperes
	2 Mast head lights with	en	1 lamp each of	32	candle power requiring a total current of	4	Amperes
	2 Side lights with	en	1 lamp each of	32	candle power requiring a total current of	4	Amperes
	2 Cargo lights of			4 x 16	candle power, whether incandescent or arc lights	incand	

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

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

DESCRIPTION OF CABLES.

Main cable carrying 90 Amperes, comprised of 19 wires, each 14 L.S.G. diameter, .945 square inches total sectional area
 Branch cables carrying 18 Amperes, comprised of 7 wires, each 17 L.S.G. diameter, .017 square inches total sectional area
 Branch cables carrying 30 Amperes, comprised of 7 wires, each 15 L.S.G. diameter, .0282 square inches total sectional area
 Leads to lamps carrying 9 Amperes, comprised of 1 wire, each N=18 L.S.G. diameter, .0018 square inches total sectional area
 Cargo light cables carrying 4 Amperes, comprised of 7 wires, each 5 1/2 L.S.G. diameter, .005 square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

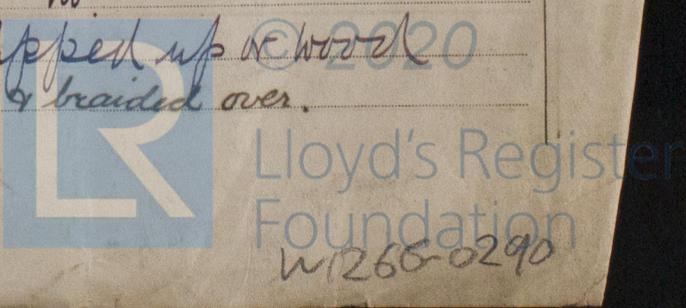
Cables are insulated with fine rubber, taped & braided & further sheathed in iron wire & compounded where exposed to weather &c.

Joints in cables, how made, insulated, and protected Spliced soldered and insulated with approved rubber tapes &c

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, accessible & none in spaces

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 (Iron sheathed) clipped up at wood casing Armoured with galvanized iron wire & braided over.



DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.

Are they in places always accessible *yes when cargo is out.*

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

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

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

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

How are cables carried through beams *insulating bushes* through bulkheads, &c. *stuffing boxes*

How are cables carried through decks *in lead or iron flange tubes made watertight*

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 *as above.*

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 *strong joints*

Where are the main switches and cut outs for these lights fitted *in ship's not in spaces.*

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 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 *not* an amperemeter, fixed *on main fd.*

The copper used is guaranteed to have a conductivity of *98* per cent. that of pure copper.

Insulation of cables is guaranteed to have a resistance of not less than *600* 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 J. H. HOLMES & CO

L. Sambidge

Electrical Engineers

Date *5-10-03*

COMPASSES.

Distance between dynamo or electric motors and standard compass *64 ft.*

Distance between dynamo or electric motors and steering compass *60 ft.*

The nearest cables to the compasses are as follows:—

A cable carrying	<i>16</i>	Amperes	<i>16</i>	feet from standard compass	<i>12</i>	feet from steering compass
A cable carrying	<i>30</i>	Amperes	<i>30</i>	feet from standard compass	<i>24</i>	feet from steering compass
A cable carrying	<i>5</i>	Amperes	<i>16</i>	feet from standard compass	<i>10</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 _____ degrees on _____ course in the case of the standard compass and _____ degrees on _____ course in the case of the steering compass.

THE SHIPBUILDING COMPANY LIMITED

Builder's Signature.

Date

GENERAL REMARKS.

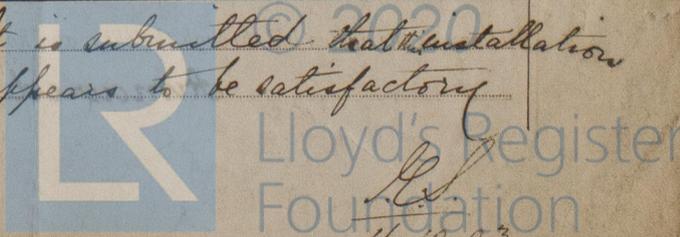
This installation has been fitted under special survey. The materials & workmanship are good. On completion the installation seen at work satisfactorily. See Secretary's letter of 23rd Sept. regarding protection of cables in holds.

R.D. Shilston

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

Committee's Minute

It is submitted that installation appears to be satisfactory



16.10.03

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

REPORT FORM No. 14.