

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 10947.

Port of *Middlesbrough* Date of First Survey *As "Rigi"* and Date of Last Survey *while building* No. of Visits
 No. in Reg. Book *81334* on the *Iron* Steel *As "Rigi"* Port belonging to *Christiania*
 Built at *Middlesbrough* By whom *Hurness Shipbuilding Co* When built *1921*
 Owners *Camillo Titzen & Co.* Owners' Address *Christiania*
 Yard No. *3* Electric Light Installation fitted by *Hurness Shipbuilding Co* When fitted *1921*

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Dynamo, open type soupsound wound, by *Sunderland Forge Coy.*
 Engine, open, single cylinder type, by *Sunderland Forge Coy.*
 Capacity of Dynamo *85* Amperes at *100* Volts, whether continuous or alternating current *Continuous*
 Where is Dynamo fixed *Main engine room* Whether single or double wire system is used *double*
 Position of Main Switch Board *Main engine room* having switches to groups *A, B, C, D & E* of lights, &c., as below
 Positions of auxiliary *fuse* boards and numbers of switches on each *"A" Chart House, 8 switches, "B" Saloon & pantry 10 switches, "C" Crew space aft, 6 switches, "D" Engine room, 8 switches, "E" Engine room entrance, 6 switches.*
 If fuses are fitted on main switch board to the cables of main circuit *Yes* and on each auxiliary *fuse* 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 *Yes*
 Are the fuses of non-oxidizable metal *Yes* and constructed to fuse at an excess of *50* 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 *Cartridge fuses used*
 Are all switches and fuses constructed of incombustible materials and fitted on incombustible bases *Yes*

Total number of lights provided for *138* arranged in the following groups:—
 A *Navigation* { *5* lights each of *32 cp* } candle power requiring a total current of *8.5* Amperes
 B *Midship* { *30* lights each of *30 watts (M.F.)* } candle power requiring a total current of *22.5* Amperes
 C *Aft* { *25* lights each of *16 cp* } candle power requiring a total current of *16.8* Amperes
 D *Engine room* { *16* lights each of *16 cp* } candle power requiring a total current of *13.6* Amperes
 E *Clusters* { *25* lights each of *16 cp* } candle power requiring a total current of *15* Amperes
 2 Mast head light with 1 lamp each of *32* candle power requiring a total current of *included in "A"* Amperes
 2 Side light with 1 lamp each of *32* candle power requiring a total current of *" " "* Amperes
 5 Cargo lights of *80* candle power, whether incandescent or arc lights *incandescent (included in E.)*

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

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

DESCRIPTION OF CABLES.

Main cable carrying *85* Amperes, comprised of *19* wires, each *14* S.W.G. diameter, *.1* square inches total sectional area
 Branch cables carrying *22.5* Amperes, comprised of *19* wires, each *.052* S.W.G. diameter, *.04* square inches total sectional area
 Branch cables carrying *13.6* Amperes, comprised of *4* wires, each *.064* S.W.G. diameter, *.0225* square inches total sectional area
 Leads to lamps carrying *3* Amperes, comprised of *3* wires, each *.029* S.W.G. diameter, *.002* square inches total sectional area
 Cargo light cables carrying *3* Amperes, comprised of *110* wires, each *.0076* S.W.G. diameter, *.0048* square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

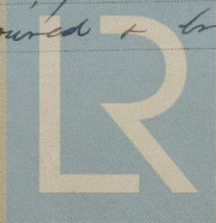
In cabins etc., lead covered cables, clipped with brass clips & screws
In engine & boiler rooms, tween decks, crew spaces, etc., twin V.I.R. armoured & braided cables used, clipped with galvanised iron clips & screws.

Joints in cables, how made, insulated, and protected *porcelain extensions, protected by cast iron covers where liable to damage.*

Are all the joints of cables thoroughly soldered, and the flux used not containing acids or other corrosive substances *solder not used, joints being mechanical* 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 *no.*

Are there any joints in or branches from the cable leading from dynamo to main switch board *none*

How are the cables led through the ship, and how protected *through beams in tween decks, protected by being armoured & braided.*



DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.

Are they in places always accessible *Yes, except when tween decks are stowed full of cargo.*

What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture *lead covering or armoring + braiding.*

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *armoring + braiding.*

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

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

How are cables carried through beams *lead tubes for lead covered cables* through bulkheads, &c. *Watertight glands v*

How are cables carried through decks *iron deck tubes with glands top + bottom of same v*

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, tween decks*

If so, how are they protected *by being armoured + braided.*

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage *no.*

If so, how are the lamp fittings and cable terminals specially protected */*

Where are the main switches and fuses for these lights fitted */*

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 *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 */*

Is the installation supplied with a voltmeter *yes* and with an amperemeter *yes*, fixed *switchboard*

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 *600* 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.

P. S. Glover **FURNESS SHIPBUILDING CO. LIMITED**

Electrical Engineer

Date *4th FEB 1921*

COMPASSES.

Distance between dynamo or electric motors and standard compass *approximately 150 ft.*

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

The nearest cables to the compasses are as follows:—

Cable	Amperes	Distance from standard compass	Distance from steering compass
A cable carrying	<i>8.5</i>	<i>12</i> feet	<i>10</i> feet
A cable carrying	<i>.3</i>	<i>inside</i> feet	<i>6</i> feet
A cable carrying	<i>.3</i>	<i>6 ft.</i> feet	<i>on the pedestal</i> feet

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.

FURNESS SHIPBUILDING CO. LIMITED

Wm. Christie Builder's Signature.

Date *4th February 1921*

GENERAL REMARKS.

Secretary.

This installation has been efficiently fitted and proved satisfactory under working conditions

It is submitted that this vessel is eligible for THE RECORD.

Elec. light. JWD 18/2/21.

Wm. Cowie

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUE FEB 22 1921



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THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.