

THU. JUL. 22, 1920

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 73338

At of Newcastle on Tyne Date of First Survey 8/4/20 Date of Last Survey 14/5/20 No. of Visits 7
 in on the Steel "Eale" Port belonging to Christiania
 Book Built at Howden on Tyne By whom Northumberland Ship Co Ltd When built 1920
 133 Owners' Address
 rs Aucty Halvorsen's Rederi
 No. 279 Electric Light Installation fitted by Campbell Isherwood & Co When fitted 1920

DESCRIPTION OF DYNAMO, ENGINE, ETC.

single cylinder, double acting, open type, vertical engine, direct coupled to a continuous current compound wound dynamo
 Capacity of Dynamo 100 Amperes at 100 Volts, whether continuous or alternating current continuous
 Where is Dynamo fixed engine room starboard side Whether single or double wire system is used double
 Location of Main Switch Board 50 on engine store having switches to groups 6 of lights, &c., as below
 Locations of auxiliary switch boards and numbers of switches on each 6 way D. Box in crew quarters, 6 way D. Box, 2-3 way
 Location boxes at top of engine room.

Fuses 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
 Is a fuse fitted 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 100 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 yes
 Are all switches and fuses constructed of incombustible materials and fitted on incombustible bases yes

Number of lights provided for 197 arranged in the following groups:—
 Compasses 5 lights each of 16 candle power requiring a total current of 2.8 Amperes
 Navigation 6 lights each of 32 candle power requiring a total current of 6.82 Amperes
 Masconi — lights each of candle power requiring a total current of 15 Amperes
 Cargo 35 lights each of 35 (5-16cp) candle power requiring a total current of 31.8 Amperes
 Accommodation lights each of 81 20 watt candle power requiring a total current of 16.2 Amperes
 Engineers " " 33 - 20 watt " " 6.6 Amperes
 Mast head light with 1 lamps each of 32 candle power requiring a total current of 1.2 Amperes
 2 Side light with 1 lamps each of 32 candle power requiring a total current of 1.2 Amperes

Light 5-300W Cargo lights of 30-16cp, 5-300W candle power, whether incandescent or are lights incandescent
 Are the lights, what protection is provided against fire, sparks, &c.

Where are the switches controlling the masthead and side lights placed in chartouse

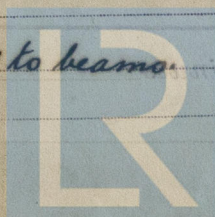
DESCRIPTION OF CABLES.

Cable carrying 100 Amperes, comprised of 19 wires, each 14 S.W.G. diameter, .094 square inches total sectional area
 Each cable carrying 31.8 Amperes, comprised of 7 wires, each .064 S.W.G. diameter, .0225 square inches total sectional area
 Each cable carrying 6.82 Amperes, comprised of 7 wires, each .036 S.W.G. diameter, .007 square inches total sectional area
 To lamps carrying 1.2 Amperes, comprised of 1 wires, each 18 S.W.G. diameter, .0018 square inches total sectional area
 Light cables carrying 2.8 Amperes, comprised of 7 wires, each .036 S.W.G. diameter, .007 square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Lead covered & as mounted cables in engine room, main running forward &
 4 V.I.R. cable in pipe, cabins V.I.R. in wood casing, crew's quarters lead covered.
 Are the cables, how made, insulated, and protected none made

Are all the joints of cables thoroughly soldered, and the flux used not containing acids or other corrosive substances 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
 Are the cables led through the ship, and how protected through iron pipe clipped to beams



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W332-0064

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 *V.I.R. cables run in steel conduit with screened connections*

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *lead covered & armoured cable*

What special protection has been provided for the cables near boiler casings *50*

What special protection has been provided for the cables in engine room *50*

How are cables carried through beams *bushed holes* through bulkheads, &c. *water tight glands*

How are cables carried through decks *water tight deck pipes*

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 *V.I.R. cable run in steel conduit with steel connections*

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

Cargo light cables, whether portable or permanently fixed *portable in connection box* How fixed *fixed lead clipped*

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 *on main 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 *1000* 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.

CAMPBELL & ISHERWOOD, LTD.
PER Thomas Meade

Electrical Engineers

Date *4th June 1920*

COMPASSES.

Distance between dynamo or electric motors and standard compass *80 feet*

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

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
<i>2.4</i>	<i>10</i>	<i>15</i>	<i>15</i>
<i>7.0</i>	<i>8</i>	<i>13</i>	<i>13</i>

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.

FOR THE NORTHUMBERLAND SHIPBUILDING COMPANY, LIMITED.

Ramsay Gellie

Builder's Signature.

Date

16/7/20

GENERAL REMARKS.

The above installation is in accordance with the Society's Rules. It has been tested & found satisfactory

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

W.D.
22/7/20

W.T. Badger.

Surveyor to Lloyd's Register of Shipping.

Committee's Minute