

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 72895.

Port of Newcastle on Tyne Date of First Survey 31/12/19 Date of Last Survey 4/3/20 No. of Visits 7
 No. in on the Steel "Santee" Port belonging to Liverpool
 Reg. Book Built at Howden By whom Northumberland Ship Co When built 1920
 Owners Elder Dempster & Co Owners' Address
 Yard No. 277 Electric Light Installation fitted by Campbell & Sherwood & Co When fitted 1920

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Makes of dynamo Campbell & Sherwood & Co 4 pole compound wound.
 "engine Rohy & Co Single cylinder open type.
 Capacity of Dynamo 100 Amperes at 100 Volts, whether continuous or alternating current continuous
 Where is Dynamo fixed engine room, port side Whether single or double wire system is used double
 Position of Main Switch Board engine room store bulkhead having switches to groups 5 (A.B.C.D.E) of lights, &c., as below
 Positions of auxiliary switch boards and numbers of switches on each 1-5 way + 1-9 way dis box in pantry, 1-2 way dis box in chart house, 2-3 way section boxes, 1-6 way + 1-7 way dis box in engine room, 1-4 way dis box in alleyway aft.
 If 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
 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 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
 Total number of lights provided for 144 arranged in the following groups :-
 A Navigation 12 lights each of 6-32CP, 6-16 candle power requiring a total current of 9.6 Amperes
 B Marconi lights each of 25.0 candle power requiring a total current of 25.0 Amperes
 C Cargo 37 lights each of 33-16CP, 3-200CP, 1-32 candle power requiring a total current of 25.0 Amperes
 D Accommodation 13 lights each of 16 0001 candle power requiring a total current of 27.4 Amperes
 E Engine Room 30 lights each of 16 candle power requiring a total current of 8.6 Amperes
2 Mast head light with 2 lamps each of 32 candle power requiring a total current of 2.2 Amperes
2 Side light with 2 lamps each of 32 candle power requiring a total current of 2.2 Amperes
5 Cargo lights of 6-16CP, 3-200CP candle power, whether incandescent or arc lights incandescent
 If arc lights, what protection is provided against fire, sparks, &c.

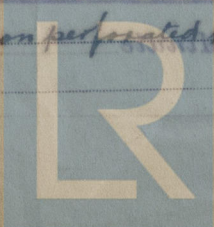
Where are the switches controlling the masthead and side lights placed chart house

DESCRIPTION OF CABLES.

Main cable carrying	<u>70.0</u> Amperes, comprised of	<u>37</u> wires, each	<u>16</u> S.W.G. diameter,	<u>.117</u> square inches total sectional area
Branch cables carrying	<u>25.0</u> Amperes, comprised of	<u>7</u> wires, each	<u>16</u> S.W.G. diameter,	<u>.022</u> square inches total sectional area
Branch cables carrying	<u>9.2</u> Amperes, comprised of	<u>7</u> wires, each	<u>20</u> S.W.G. diameter,	<u>.007</u> square inches total sectional area
Leads to lamps carrying	<u>3.2</u> Amperes, comprised of	<u>1</u> wires, each	<u>18</u> S.W.G. diameter,	<u>.0018</u> square inches total sectional area
Cargo light cables carrying	<u>3.6</u> Amperes, comprised of	<u>110</u> wires, each	<u>38</u> S.W.G. diameter,	<u>.0041</u> square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Main cables lead covered armoured & braided in bunkers, engine & boiler rooms
 & I.R. lead covered in cables, armoured & lead covered in crew quarters
 Joints in 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 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
 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 clipped on underside of deck or run on perforated plating secured by strong iron clips.



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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 *Lead covered armoured and braided cables protected by wood casing where necessary.*

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *120*

What special protection has been provided for the cables near boiler casings *80*

What special protection has been provided for the cables in engine room *60*

How are cables carried through beams *bushed holes (fibres)* through bulkheads, &c. *waterlight glands*

How are cables carried through decks *iron deck pipe flanged with nut on underside of deck*

Are any cables run through coal bunkers *yes* 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 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

Cargo light cables, whether portable or permanently fixed *portable* How fixed *Cast iron watertight 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

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

Electrical Engineers

Date *23rd March 1920*

COMPASSES.

Distance between dynamo or electric motors and standard compass *97 feet*

Distance between dynamo or electric motors and steering compass *102 feet*

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
<i>.55</i>	<i>1</i>	<i>1</i>	<i>1</i>
<i>1.65</i>	<i>3</i>	<i>4</i>	<i>4</i>
<i>6.0</i>	<i>12</i>	<i>12</i>	<i>12</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* courses in the case of the *standard compass and* *nil* degrees on *all* courses in the case of the *steering compass.*

FOR THE NORTHUMBRIA SHIPBUILDING COMPANY, LIMITED.

Builder's Signature.

Date *25-3-20*

GENERAL REMARKS.

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

It is submitted that this vessel is eligible for THE RECORD. ELEC. LIGHT 29/3/20

W.T. Badger
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.