

# REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 7500

Port of NEWCASTLE-ON-TYNE Date of First Survey 22/8/21 Date of Last Survey 11/11/21 No. of Visits 15  
 No. in on the ~~Steel~~ "Arran Fieth" Steel "Arran Fieth" Port belonging to Glasgow  
 Reg. Book Suph. 36153. Built at South Shields By whom Hepples (1919) Ltd. When built 1921  
 Owners Ferrum S.S. Co Ltd Owners' Address Mrs. G. T. Gillie & Co  
 Yard No. 657. Electric Light Installation fitted by Campbell & Sherwood & Co. When fitted 1921.

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

Main dynamo compound wound multipolar coupled direct to a "Widdop Invincible" oil engine 50HP. 400 RPM  
 Aux dynamo compound wound coupled direct to a paraffin engine.

Capacity of Dynamo 228 Amperes at 100 Volts, whether continuous or alternating current Continuous  
 " " 12 " " 110 " " " " " 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 port side having switches to groups 5 power +, 1 of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each 1-3 way S.B, 1-3 way W.B in engine room,  
1-4 way W.B forward, 1-3 way in chart house, 1-3 way W.B in engo qts 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 42. arranged in the following groups :-

A	<u>42</u> lights each of <u>2-300 H.W., 2-100 H.W.</u>	<u>4-32 CP, 34-16</u> candle power requiring a total current of	<u>31.52.</u>	Amperes
B	<u>Capstan motor</u> light <u>each</u> of	<u>each</u> power requiring a total current of	<u>43.0</u>	Amperes
C	<u>Steering motor</u> light <u>each</u> of	<u>each</u> power requiring a total current of	<u>68.0</u>	Amperes
D	<u>Aft winch motor</u> light <u>each</u> of	<u>each</u> power requiring a total current of	<u>81.0</u>	Amperes
E	<u>Forward winch motor</u> light <u>each</u> of	<u>each</u> power requiring a total current of	<u>81.0</u>	Amperes
F	<u>Windlass motor</u> light <u>each</u> of	<u>each</u> power requiring a total current of	<u>120.0</u>	"
	<u>1</u> Mast head light with <u>1</u> lamps each of <u>32</u>	candle power requiring a total current of	<u>1.12</u>	Amperes
	<u>2</u> Side light with <u>1</u> lamps each of <u>32.</u>	candle power requiring a total current of	<u>2.24.</u>	Amperes
	<u>2</u> Cargo lights of <u>600</u>	candle power, whether incandescent or arc lights	<u>incandescent</u>	

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

Where are the switches controlling the masthead and side lights placed in chart house, navigation light indicator fitted

## DESCRIPTION OF CABLES.

Main cable carrying	<u>228.</u> Amperes, comprised of	<u>61</u> wires, each	<u>.093</u> S.W.G. diameter,	<u>.64</u> square inches total sectional area
B Branch "	<u>43</u> " " " "	<u>19</u> " " "	<u>.052</u> " " "	<u>.04</u> " " " " "
C Branch cables carrying	<u>68</u> Amperes, comprised of	<u>19</u> wires, each	<u>.064</u> S.W.G. diameter,	<u>.06</u> square inches total sectional area
D " " "	<u>81</u> " " " "	<u>19</u> " " "	<u>.064</u> " " "	<u>.06</u> " " " " "
E Branch cables carrying	<u>81</u> Amperes, comprised of	<u>19</u> wires, each	<u>.064</u> S.W.G. diameter,	<u>.06</u> square inches total sectional area
F " " "	<u>120</u> " " " "	<u>37</u> " " "	<u>.083</u> " " "	<u>.2</u> " " " " "
Leads to lamps carrying	<u>1.12</u> Amperes, comprised of	<u>3</u> wires, each	<u>.029</u> S.W.G. diameter,	<u>.002</u> square inches total sectional area
Cargo light cables carrying	<u>1.5</u> Amperes, comprised of	<u>40</u> wires, each	<u>.0076</u> S.W.G. diameter,	<u>.0017</u> square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

Main cables are R.I. R in galvanised iron pipe with screwed connections + junction boxes. Cables in engine room are lead covered. accommodation, engo qts + navigation circuits are lead covered.

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 no 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 no.

How are the cables led through the ship, and how protected R.I. R cables in galvanised iron pipe clipped to along deck + hatch coverings



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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 V.I.R in galvanised iron pipe.

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

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 lead lashed holes through bulkheads, &c. watertight glands.

How are cables carried through decks deck pipes

Are any cables run through coal bunkers no or cargo spaces no or spaces which may be used for carrying cargo, stores, or baggage no

If so, how are they protected \_\_\_\_\_

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 flexible from watertight sockets How fixed clipped to bulkhead.

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 1 for aux. dynamo and with an amperemeter yes, main dynamo, 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 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.

**CAMPBELL & ISHERWOOD, LTD.**  
*Thorvald*

Electrical Engineers

Date 15th Nov 1921

**COMPASSES.**

Distance between dynamo or electric motors and standard compass 27 feet.

Distance between dynamo or electric motors and steering compass 30 feet.

The nearest cables to the compasses are as follows:—

A cable carrying	<u>4.48</u>	Amperes	<u>6.0</u>	feet from standard compass	<u>9.0</u>	feet from steering compass
A <u>meter taking</u>	<u>68.0</u>	Amperes	<u>7</u>	feet from standard compass	<u>10.0</u>	feet from steering compass
A cable carrying		Amperes		feet from standard compass		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 all course<sup>s</sup> in the case of the standard compass and nil degrees on all course<sup>s</sup> in the case of the steering compass.

**FOR HEPPLER'S (1919) LIMITED,**

*W. J. Hepple*

Builder's Signature.

Date 17/11/21

**GENERAL REMARKS.**

*The above installation is in accordance with the Society's Rules. The electrical steering gear has been removed for alteration. This vessel is eligible in my opinion for notation Elec Light.*

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

*See 20-10-0 applied for 5/12/21 and 10/3/22*

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

Committee's Minute FRI 16 DEC. 1921  
FRI 20 JAN. 1922

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

