

REPORT ON ELECTRIC LIGHTING INSTALLATION.

No. 1153448

Port *Newcastle-on-Tyne* Date of First Survey *17th March* Date of Last Survey *22nd May* No. of Visits *6*
 No. in Reg. Book *5* on the Iron or Steel *5/8 "6 anodes"* Port belonging to *Dunedin*
 Built at *Wallend-on-Tyne* By whom *C.S. Swan & Hunter Ltd.* When built *1903*
 Owners *Woolport Coal Co. Ltd.* Owners' Address *Dunedin - New Zealand.*
 Yard No. *286* Electric Light Installation fitted by *C.S. Swan & Hunter Ltd.* When fitted *1903*

DESCRIPTION OF DYNAMO, ENGINE, ETC.

By *J. R. Hall & Co. 51tham* of vertical double acting simple type direct connected to four pole dynamo of following capacity
 Capacity of Dynamo *70* Amperes at *102* Volts, whether continuous or alternating current *Continuous*
 Where is Dynamo fixed *in engine room on starting platform*
 Position of Main Switch Board *close to Dynamo* having switches to groups *A. B & C.* of lights, &c., as below
 Positions of auxiliary switch boards and numbers of switches on each *junction boxes in engine room, one in accommodation.*

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 *yes*

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

Are all switches and cut-outs constructed of incombustible materials and fitted on incombustible bases

Total number of lights provided for *101* arranged in the following groups:—

Group	Description	Number of Lights	Each of	Candle Power	Requiring a total current of	Amperes
A	Aft	28	lights each of	16	16.8	Amperes
B	Middle	25	lights each of	16	15.0	Amperes
C	Cargo	48	lights each of	16	28.8	Amperes
D			lights each of			Amperes
E			lights each of			Amperes

Two Mast head lights with *1* lamps each of *32 cp double filament* candle power requiring a total current of *2.4 amps* included above Amperes

Two Side light with *1* lamps each of *32* candle power requiring a total current of *2.4* included above Amperes

8 Cargo lights of *4* candle power, whether incandescent or arc lights *incandescent*

If are lights, what protection is provided against fire, sparks, &c. *none*

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

DESCRIPTION OF CABLES.

Cable Type	Amperes	Comprised of	Wires	Each	L.S.G. diameter	Square inches total sectional area
Main cable carrying	60.6	19	wires	16	.06039	square inches
Branch cables carrying	28.8	7	wires	15	.02822	square inches
Branch cables carrying	16.8	7	wires	17	.01706	square inches
Leads to lamps carrying	15.0	7	wires	17	.01706	square inches
Cargo light cables carrying	2.4	110	wires	38	.005	square inches

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Wires & cables insulated with *fine rubber, vulcanised rubber, taped & braided & lead covered & in addition armoured with steel armoring where exposed to mechanical injury or carried in galvanised iron pipes*

Joints in cables, how made, insulated, and protected *joints made mechanically by means of proper junction boxes fitted with terminals & fuses*

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 *none*

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 *along decks in galvanised iron pipes, in accommodation room armoured & clipped & in accommodation secured by brass clips to woodwork.*

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 *carried in pipes & lead covered*

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *in pipes & steel armour*

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

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

How are cables carried through beams *holes bushed with fibre ferrules* through bulkheads, &c. *brass stuffing glands*

How are cables carried through decks *through pipes standing 18" or more above decks*

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

If so, how are they protected *steel armour, clipped to inner side of beams*

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage *yes in coal bunkers*

If so, how are the lamp fittings and cable terminals specially protected *lamps portable & guarded, with plugs of admiralty type*

Where are the main switches and cut outs for these lights fitted *in engine room*

If in the spaces, how are they specially protected *lamps portable & detachable with watertight plug connectors of admiralty type*

Are any switches or cut outs fitted in bunkers *none*

Cargo light cables, whether portable or permanently fixed *portable & permanent* How fixed *to deck between beams fitted in custom houses with strong lids.*

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel *double wire system*

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 *now* supplied with a voltmeter and *one* ~~an~~ amperemeter, fixed *on main switch board*

The copper used is guaranteed to have a conductivity of *99%* per cent. that of pure copper.

Insulation of cables is guaranteed to have a resistance of not less than *750* 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 C.S. Swan & Hunter Ltd.

Ernest Hunter. Electrical Engineers

Date *June 1903*

COMPASSES.

Distance between dynamo or electric motors and standard compass *about 55 ft.*

Distance between dynamo or electric motors and steering compass *about 50 ft.*

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
<i>16.8</i>	<i>12</i>	<i>10</i>	
<i>2</i>	<i>5</i>	<i>5</i>	

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 *nil* degrees on *any* course in the case of the standard compass and *nil* degrees on *any* course in the case of the steering compass.

FOR C. S. SWAN & HUNTER, LIMITED.

M. Hudson SECRETARY

Builder's Signature.

Date *2nd July 1903*

GENERAL REMARKS.

This installation appears to have been fitted in a satisfactory manner and in accordance with the Rules

G. A. Baker

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

Committee's Minute

It is submitted that this installation appears to meet the Rule requirements.

Lloyd's Register Foundation

7.7.03

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.