

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 27619

Port of SUNDERLAND Date of First Survey 17 Sep Date of Last Survey 19 Sep 19 No. of Visits 3
 No. in Reg. Book on the Iron or Steel "WESTERN COAST" Port belonging to Liverpool
 Built at SUNDERLAND By whom Swan, Hunter & Wigham Richards When built 1919
 Owners Coast Lines Ltd Owners' Address Liverpool
 Yard No. 1133 Electric Light Installation fitted by J. A. Malcolm Newcastle When fitted 1919

DESCRIPTION OF DYNAMO, ENGINE, ETC.

1- 8"x6" Open Vertical Single Cylinder "Kaiser Engine" Coupled Direct to 1- 12 1/2 H.P. Open Type Dynamo Compound wound by J. A. Malcolm
 Capacity of Dynamo 63 Amperes at 100 Volts, whether continuous or alternating current Continuous
 Where is Dynamo fixed In Engine Rm Whether single or double wire system is used Double
 Position of Main Switch Board Near Dynamo having switches to groups A B C & D of lights, &c., as below
 Positions of auxiliary switch boards and numbers of switches on each 5-way fuse & switch board near main Board, 1-3 way fuse switch board near main Board, 18-way fuse switch board in Chart Rm, 1-3 way fuse board in Steward's Cabin, 1-5 way fuse board in Engine Rm, 1-3 way board in Firemen's mess.
 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-oxidisable 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 106 arranged in the following groups :-
 A 49 lights each of 16 candle power requiring a total current of 27.5 Amperes
 B 19 } lights each of 16 candle power requiring a total current of 16.9 Amperes
 C 18 } lights each of 18 candle power requiring a total current of 18 Amperes
 D Wires Circuit lights each of — candle power requiring a total current of — Amperes
 E lights each of — candle power requiring a total current of — Amperes
2 Mast head light with 1 lamps each of 32 candle power requiring a total current of 2.24 Amperes
2 Side light with 1 lamps each of 32 candle power requiring a total current of 2.24 Amperes
5 Cargo lights of 6 @ 16 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 In Chart Rm

DESCRIPTION OF CABLES.

Main cable carrying 63 Amperes, comprised of 19 wires, each 16 S.W.G. diameter, .06 square inches total sectional area
 Branch cables carrying 16.9 Amperes, comprised of 7 wires, each 17 S.W.G. diameter, .017 square inches total sectional area
 Branch cables carrying 18 Amperes, comprised of 7 wires, each 17 S.W.G. diameter, .017 square inches total sectional area
 Leads to lamps carrying .56 Amperes, comprised of 1 wires, each 18 S.W.G. diameter, .0018 square inches total sectional area
 Cargo light cables carrying 3.36 Amperes, comprised of 3 wires, each 20 S.W.G. diameter, .003 square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

All conductors are formed of 26 Copper tinned Insulated with pure Paron Rubber & Vulcaused Insula Rubber Tapes & Braided Overall
 Joints in cables, how made, insulated, and protected None. Hooping in System Carried Out
 Are all the joints of cables thoroughly soldered, and the flux used not containing acids or other corrosive substances None 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 —
 How are the cables led through the ship, and how protected In Engine Rm Armoured & Braided Copper up to Bulkheads etc, In Cargo Spaces & St in Iron Pipe, In Accommodation head Covered, Clipped up by Brassclips.



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 None in Iron Pipes
Armoured & Braided

What special protection has been provided for the cables near gulleys or oil lamps or other sources of heat Armoured & Braided

What special protection has been provided for the cables near boiler casings Armoured & Braided

What special protection has been provided for the cables in engine room Armoured & Braided

How are cables carried through beams Bushed with Lubric through bulkheads, &c. Shuffling Boxes Etc

How are cables carried through decks In Leads from Pt Tubes Flanged & Made Water-tight

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 In Iron Pipes

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, stores, 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 W. & S. Socket Connections

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 Bel.

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.

J. K. Holmes & Co Electrical Engineers Date 23/9/19

COMPASSES.

Distance between dynamo or electric motors and standard compass Approx 84 ft.

Distance between dynamo or electric motors and steering compass " 81 ft.

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	Location	feet from standard compass	Location	feet from steering compass
<u>.56</u>		<u>inside</u>		<u>inside</u>	
A cable carrying <u>Approx 10</u>	<u>12</u>		<u>10</u>		<u>10</u>
A cable carrying <u>" 16.9</u>	<u>14</u>		<u>12</u>		<u>12</u>

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 all courses in the case of the standard compass and nil degrees on all courses in the case of the steering compass.

SWAN, HUNTER, & WIGHAM & RICHARDSON, LTD.
A. G. Harey Builder's Signature. Date Oct 1st 1919.

GENERAL REMARKS. The installation has been satisfactorily fitted in the vessel, tested at full load and found good.

It is submitted that this vessel is eligible for THE RECORD. Elec. light. AWD
6/10/19

Ed. W. Putter - 2 OCT 1919
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.



Im. 8. 11. — Transfer.