

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 27087

Port of SUNDERLAND Date of First Survey 6 Oct. Date of Last Survey 19 Oct. 1917 No. of Visits 3
 No. in Reg. Book on the Iron or Steel S/S "Zenterden" Port belonging to Londoy
 Built at Sunderland By whom Messrs J.L. Thompson & Son When built 1917
 Owners (Messrs Furness, Withy & Co. Ltd.) Owners' Address
 Yard No. 516 Electric Light Installation fitted by The Sunderland Forge & Eng. Co. Ltd. When fitted 1917

DESCRIPTION OF DYNAMO, ENGINE, ETC.

One combined plant consisting of Vertical, Double acting Open type engine 7' x 5" 300 revs. 100 lbs. steam, coupled to compound wound multipolar dynamo, both by J.F. & Co. Ltd.

Capacity of Dynamo 60 Amperes at 100 Volts, whether continuous or alternating current continuous

Where is Dynamo fixed Engine Room Bottom Star Platform Whether single or double wire system is used double

Position of Main Switch Board near dynamo having switches to groups Four of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each One in Chart Room having 7 switches controlling lights as follows:- 1-Stern light, 1-Morse lamp, 1-Mainmast Headlight, 1-Foremast Headlight, 1-Port Bowlight, 1-Starboard Bowlight, 1-Chart Room Lights.

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 No 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 38 arranged in the following groups :-

A Cargo	lights each of = 32 @ 16	candle power requiring a total current of	18.0	Amperes
B Saloon & Nav.	lights each of = 51 @ 16	candle power requiring a total current of	28.6	Amperes
C Wireless	lights each of —	candle power requiring a total current of	15.0	Amperes
D Eng. & Boiler Rooms	lights each of = 15 @ 16	candle power requiring a total current of	8.45	Amperes
E	lights each of —	candle power requiring a total current of		Amperes
2 Mast head lights with each 1 lamp each of 32		candle power requiring a total current of	1.12	Amperes
2 Side lights with each 1 lamp each of 32		candle power requiring a total current of	1.12	Amperes
4 Cargo lights of 8 lights @ 16		candle power, whether incandescent or arc lights	Incandescent.	

If arc lights, what protection is provided against fire, sparks, &c. None fitted.

Where are the switches controlling the masthead and side lights placed In Chart Room.

DESCRIPTION OF CABLES.

Main cable carrying	60 Amperes, comprised of	19 wires, each 16 S.W.G. diameter,	.06 square inches total sectional area
Branch cables carrying	18 Amperes, comprised of	7 wires, each 16 S.W.G. diameter,	.022 square inches total sectional area
" "	28.6 " " " "	7 " " " "	.022 " " " "
Branch cables carrying	15.0 Amperes, comprised of	7 wires, each 16 S.W.G. diameter,	.022 square inches total sectional area
" "	8.45 " " " "	7 " " " "	.0125 " " " "
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	45 Amperes, comprised of	7 wires, each 21 1/2 S.W.G. diameter,	.00486 square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Mains Pure Rubber, Vulc. Rubber, taped, braided & compounded & run in Iron Pipe.
 Machinery Spaces do, do, do, Lead covered & Galv. Wire Armoured.
 Accommodation do, do, do & do.
 Joints in cables, how made, insulated, and protected None.

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.

How are the cables led through the ship, and how protected V.I.P. in Iron Pipe.



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 *L.C. & A.*

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

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

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

How are cables carried through beams *Cables brushed with fibre* through bulkheads, &c. *W. J. Glands.* ✓

How are cables carried through decks *W. J. Deck Tubes.* ✓

Are any cables run through coal bunkers *Yes* or cargo spaces — or spaces which may be used for carrying cargo, stores, or baggage —

If so, how are they protected *L.C. & A run in protected places.*

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 *Portable* How fixed —

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 Board.*

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.

Electrical Engineers Date *Oct 30th 1917.*

COMPASSES.

Distance between dynamo or electric motors and standard compass *95 feet*

Distance between dynamo or electric motors and steering compass *93 feet.*

The nearest cables to the compasses are as follows:—

A cable carrying	<i>11</i>	Amperes	<i>13</i>	feet from standard compass	<i>16</i>	feet from steering compass
A cable carrying	<i>1.12</i>	Amperes	<i>4</i>	feet from standard compass	<i>4.</i>	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 in the case of the standard compass and *all* degrees on *all* course in the case of the steering compass.

JOSEPH L. THOMPSON & SONS, LTD.

J. Thompson

Builder's Signature. Date *31st November 1917*

GENERAL REMARKS.

DIRECTOR AND WORKS MANAGER

This installation has been fitted in accordance with the requirements, it has been tried under full working conditions. In my opinion this vessel is eligible for the record of Elec. Light.

It is submitted that this vessel is eligible for THE RECORD. Elec. light. *J.W.D. 8/11/17.*

Charles Cooper 5.11.1917
Surveyor to Lloyd's Register of Shipping.

Committee's Minute **TUE NOV 13 1917.**

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

Fig. 7.17.—Transfer.

