

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 62502.

Port of Liverpool Date of First Survey 18th Dec 1908 Date of Last Survey 4th Feb 1909 No. of Visits 5
 No. in 35 on the Iron or Steel Dredger Leviathan Port belonging to Liverpool
 Reg. Book 35 Built at Birkenhead By whom Cammell Laird & Co Ltd When built 1908
 Owners Mersey Docks & Harbour Board Owners' Address Dock Offices Liverpool
 Yard No. 286 Electric Light Installation fitted by Cammell Laird & Co Ltd When fitted 1908

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Engine, Make Allen & Co, Bedford Enclosed compound High Speed Forced Lubrication Type
 Dynamos, ditto 4 Pole compound Wound Type.

Capacity of Dynamo 250 Amperes at 60 Volts, whether continuous or alternating current Continuous

Where is Dynamo fixed Engine Rm. Whether single or double wire system is used Double wire

Position of Main Switch Board after Engine Room having switches to groups 4 in No of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each 1 Section Box in Engine Room

Distribution Boxes, 2 in Engine Rm, 2 in Star Pump Rm, 1 in Port Pump Rm, 1 in Boiler Rm

2 in bow space forward, 1 in Wheel House, 1 in After Port Passage, 1 in After Star Passage, & 2 in Galley

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 Yes

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

Total number of lights provided for 210, arranged in the following groups:—

A Accommodation 40 lights each of 16 candle power requiring a total current of 40 Amperes

B for Accommodation 38 lights each of 35, 16 c.p. & 3, 8 c.p. candle power requiring a total current of 36.5 Amperes

C Machinery Space 98 lights each of 95, 16 c.p. & 3, 8 c.p. candle power requiring a total current of 96.5 Amperes

D Dredging 5 lights each of 32 candle power requiring a total current of 10 Amperes

E Item 1 lights each of 32 candle power requiring a total current of 2 Amperes

1 Mast head light with 1 lamps each of 32 candle power requiring a total current of 2 Amperes

2 Side light with 1 lamps each of 32 candle power requiring a total current of 4 Amperes

6 Cargo lights of 3-32 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 Wheel House

DESCRIPTION OF CABLES.

Main cable carrying 230 Amperes, comprised of 61 wires, each 15 L.S.G. diameter, 0.2436 square inches total sectional area

Branch cables carrying 96.5 Amperes, comprised of 19 wires, each 14 L.S.G. diameter, 0.0937 square inches total sectional area

Branch cables carrying 15 Amperes, comprised of 19 wires, each 16 L.S.G. diameter, 0.0600 square inches total sectional area

Leads to lamps carrying 1 Amperes, comprised of 1 wires, each 18 L.S.G. diameter, 0.0018 square inches total sectional area

Cargo light cables carrying 6 Amperes, comprised of 227 wires, each 38 L.S.G. diameter, 0.0066 square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

The cables are of 2,500 megohm grade Vulcanized braided cables used except in Engine & Boiler Rms which are lead covered & armoured. Cables are protected in casing and where exposed to weather in simplex solid drawn steel conduits.

Joints in cables, how made, insulated, and protected None

Are all the joints of cables thoroughly soldered, resin only having been used as a flux — 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 being armoured & simplex solid drawn steel conduits



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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 *In simplex solid drawn steel tubing, & casing.*

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *None necessary.*

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 *Through fibre bushes, through bulkheads, &c. Watertight glands.*

How are cables carried through decks *Water tight brass 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 *yes.*

If so, how are they protected *Casing.*

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 cut outs for these lights fitted *—*

If in the spaces, how are they specially protected *—*

Are any switches or cut outs fitted in bunkers *None.*

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 *—*

The installation is *—* supplied with a voltmeter and *—* an amperemeter, fixed *Switchboard.*

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 copper used is guaranteed to have a conductivity of *100%* per cent. that of pure copper.

Insulation of cables is guaranteed to have a resistance of not less than *2,500.* 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.

See below.

Electrical Engineers

Date

COMPASSES.

Distance between dynamo or electric motors and standard compass *300 ft.*

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

The nearest cables to the compasses are as follows:—

A cable carrying	<i>15.</i>	Ampères	<i>4.</i>	feet from standard compass	<i>340.</i>	feet from steering compass
A cable carrying	<i>2.</i>	Ampères	<i>4.</i>	feet from standard compass	<i>340.</i>	feet from steering compass
A cable carrying	<i>2.</i>	Ampères	<i>340.</i>	feet from standard compass	<i>4.</i>	feet from steering compass

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

GAMMELL LAIRD AND COMPANY, LTD.

M. W. Jones

Builder's Signature.

Date *April 28/09*

GENERAL REMARKS.

This installation has been fitted under survey. The materials and workmanship are good. On completion it was satisfactorily tried at work.

R. D. Philston.

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

Committee's Minute

LIVERPOOL 30 APR 1909

Electric Light.

It is submitted that the Record Elec Light be noted in the Reg. Book.



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THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.