

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 26374

Port of Sunderland Date of First Survey 27 Jan Date of Last Survey 17-2-15 No. of Visits 3
 No. in on the ~~Iron~~ or Steel "Bay State" Port belonging to Liverpool
 Reg. Book Built at Sunderland By whom Sir J. Laing & Sons Ltd When built 1915
 Owners H. Warren Hobbs (Mesa) Owners' Address Liverpool
 Yard No. 651 Electric Light Installation fitted by Sunderland Forge & Engineering Co. Ltd When fitted 1915

DESCRIPTION OF DYNAMO, ENGINE, ETC.

One multipolar compound wound dynamo coupled direct to open type inverted engine.

Capacity of Dynamo 150 Amperes at 100 Volts, whether continuous or alternating current continuous
 Where is Dynamo fixed Starboard side bottom E.R. Whether single or double wire system is used double
 Position of Main Switch Board close to plant having switches to groups 5 of lights, &c., as below
 Positions of auxiliary switch boards and numbers of switches on each one in chartroom controlling
2 mast, 2 side, 2 compass, 3 telegraph, 1 morse and 12-6 light cargo clusters

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 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 187 arranged in the following groups:—

A	72	lights each of	16	candle power requiring a total current of	40.32	Amperes
B	29	lights each of	16	candle power requiring a total current of	16.24	Amperes
C	47	lights each of	16	candle power requiring a total current of	26.32	Amperes
D	59	lights each of	16	candle power requiring a total current of	21.84	Amperes
E	Wireless	lights each of	-	candle power requiring a total current of	30.00	Amperes
2	Mast head light with	1	lamps each of	32 D.F.	candle power requiring a total current of	2.24
2	Side light with	1	lamps each of	32 D.F.	candle power requiring a total current of	2.24
12	Cargo lights of	6-16		candle power, whether incandescent or arc lights	incandescent	

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

there are none

Where are the switches controlling the masthead and side lights placed in Chartroom

DESCRIPTION OF CABLES.

Main cable carrying	134.72 Amperes, comprised of	37	wires, each	14	S.W.G. diameter,	.182	square inches total sectional area
Branch cables carrying	40.32 Amperes, comprised of	7	wires, each	14	S.W.G. diameter,	.035	square inches total sectional area
Branch cables carrying	26.32 Amperes, comprised of	7	wires, each	14	S.W.G. diameter,	.035	square inches total sectional area
Leads to lamps carrying	2.24 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	1	wires, each	16	S.W.G. diameter,	.0032	square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Wiring in berths etc., lead covered.

Wiring in engine room etc. Armoured and braided

Wiring for mains and masts V.I.R. in iron pipe

Joints in cables, how made, insulated, and protected

there are 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.R. in iron pipe.



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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 Armoured and braided

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat armoured and braided

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 holes bushed fibre through bulkheads, &c. W.T. glands

How are cables carried through decks W.T. iron deck tubes

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 V.I.R. in iron pipe

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 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.

Electrical Engineers

Date 20/2/1915

COMPASSES.

Distance between dynamo or electric motors and standard compass about 112 feet

Distance between dynamo or electric motors and steering compass " 116 "

The nearest cables to the compasses are as follows:—

A cable carrying	<u>.56</u>	Amperes	<u>led into</u>	feet from standard compass	<u>about 4</u>	feet from steering compass
A cable carrying	<u>.56</u>	Amperes	<u>about 5</u>	feet from standard compass	<u>led into</u>	feet from steering compass
A cable carrying	<u>.56</u>	Amperes	<u>led into</u>	<u>after</u>	<u>feet from standard compass</u>	<u>feet from steering compass</u>

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

SIR JAMES LAING & SONS, LIMITED.

Builder's Signature.

Date March 1st 1915

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.

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

Committee's Minute