

## REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 16733.

Port of Greenock Date of First Survey 23<sup>rd</sup> June Date of Last Survey 6<sup>th</sup> Aug. No. of Visits 10  
 No. in 10 on the Iron or Steel ss. Dogra Port belonging to Liverpool  
 Reg. Book Suppl. Built at Port Glasgow By whom Messrs. Russell & Co. When built 1914  
 Owners Asiatic Steam Nav. Co. Ltd. Owners' Address Liverpool  
 Yard No. 659 Electric Light Installation fitted by A. J. Robertson & Co. When fitted 1914

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

Dynamo compound wound multipolar (4 pole) type coupled direct to a vertical engine having single cylinder 7" dia. x 6" stroke @ 250 revolutions

Capacity of Dynamo 130 Amperes at 60 Volts, whether continuous or alternating current Continuous

Where is Dynamo fixed Engine room starting platform Whether single or double wire system is used Single wire

Position of Main Switch Board " near dynamo having switches to groups A, A', B, C, D & E of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each none

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 80 per cent over the normal current

Are all fuses fitted in easily accessible positions yes Are the fuses of standard dimensions wire 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 123 arranged in the following groups:—

A	For cargo	15	lights each of	16	candle power requiring a total current of	15	Amperes
A'	apt. cargo	10		"		10	
B	Saloon	19	lights each of	"	candle power requiring a total current of	29.5	Amperes
C	Engineers Etc	31	lights each of	32	candle power requiring a total current of	32	Amperes
D	Forecastle	9	lights each of	16	candle power requiring a total current of	9	Amperes
E	Engine room	28	lights each of	"	candle power requiring a total current of	28	Amperes
	Mast head light with	1	lamp each of	32	candle power requiring a total current of	included in B	Amperes
	Side light with	1	lamp each of	32	candle power requiring a total current of	" "	Amperes
	Five Cargo lights of	5-16 c.p.	= 80	candle power, whether incandescent or arc lights	Incandescent		

If arc lights, what protection is provided against fire, sparks, &c. no arc

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

## DESCRIPTION OF CABLES.

Main cable carrying 130 Amperes, comprised of 19 wires, each 13 S.W.G. diameter, .126 square inches total sectional area

Branch cables carrying 29.5 Amperes, comprised of 7 wires, each 15 S.W.G. diameter, .0285 square inches total sectional area

Branch cables carrying 9 Amperes, comprised of 7 wires, each 20 S.W.G. diameter, .00714 square inches total sectional area

Leads to lamps carrying 1 Amperes, comprised of 1 wire, each 18 S.W.G. diameter, .00181 square inches total sectional area

Cargo light cables carrying 5 Amperes, comprised of 119 wires, each 38 S.W.G. diameter, .00407 square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

Pure india rubber then vulcanizing india rubber, rubber coated tape, the whole vulcanized together with braided cotton & preservative compounds; run in strong wood casing clew are and covered & armoured.

Joints in cables, how made, insulated, and protected spliced joints, covered & insulated with layers of felt tape, built up with several layers of pure rubber finished with proof tape & varnish

Are all the joints of cables thoroughly soldered (and the flux used not containing acids or other corrosive substances) 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 yes

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 Two beams under bridge deck, forward & aft on starboard bulwark; lead, covered & armoured cables in galv 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 Lead, covered & armoured cables in galv. iron pipes.

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat Lead, covered & armoured.

What special protection has been provided for the cables near boiler casings Lead, covered & armoured

What special protection has been provided for the cables in engine room Lead, covered & armoured

How are cables carried through beams in fire bulkheads through bulkheads, &c. W. T. & glands

How are cables carried through decks in galv. iron pipes lashed with fibre

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

If so, how are they protected Lead, covered & armoured

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage Under bridge deck only

If so, how are the lamp fittings and cable terminals specially protected Strong cast-iron covers

Where are the main switches and fuses for these lights fitted in engine room

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 By large steel in dynamo pole

How are the returns from the lamps connected to the hull By 3/8" zinc brass screw

Are all the joints with the hull in accessible positions yes

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 2500 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.

H. J. Robertson Esq. Electrical Engineers Date 5<sup>th</sup> Oct 1914

**COMPASSES.**

Distance between dynamo or electric motors and standard compass 106 Feet

Distance between dynamo or electric motors and steering compass 104 Feet

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
<u>29.5</u>	<u>20</u>	<u>20</u>	<u>20</u>
<u>2</u>	<u>5</u>	<u>6</u>	<u>6</u>
<u>.5</u>	<u>into</u>	<u>into</u>	<u>into</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 every course in the case of the standard compass and Nil degrees on every course in the case of the steering compass.

Russell D. Copman Builder's Signature. Date 9<sup>th</sup> October 1914

**GENERAL REMARKS.**

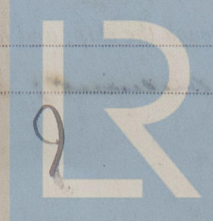
The materials and workmanship are good. The installation on being tested was found to work satisfactorily.

It is submitted that this vessel is eligible for THE RECORD. Elec. light.

Wm. R. Austin  
15/10/14

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

Committee's Minute GLASGOW  
Elec. light 13 OCT. 1914



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