

## REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 22367

Port of Sunderland Date of First Survey 31<sup>st</sup> January Date of Last Survey 4<sup>th</sup> August No. of Visits 57  
 No. in on the Iron or Steel S. S. "Madrid" Port belonging to Buenos Ayres  
 Reg. Book 65 Built at Sunderland By whom Sir James Laing & Co. When built 1905  
 Owners Navegacion a Vapor Nicolas Owners' Address Buenos Aires  
 Yard No. 607 Electric Light Installation fitted by Sunderland Forge & Eng. Co. Ltd. When fitted 1905

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

Two four pole compound wound dynamos by Sland Forge Co. direct coupled to Sissons engines.

Capacity of Dynamo 60 amp. each Amperes at 110 Volts, whether continuous or alternating current continuous.

Where is Dynamo fixed Bottom of engine room at back of port engine.

Position of Main Switch Board Between dynamos having switches to groups eight of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each - All switches on main switchboard are of the change over type so that any groups of lamps can be run of either dynamo.

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 100% 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 190 arranged in the following groups:—

A	21	lights each of	16	candle power requiring a total current of	10.5	Amperes
B	19	lights each of	16	candle power requiring a total current of	9.5	Amperes
C	16	lights each of	16	candle power requiring a total current of	8.0	Amperes
D	32	lights each of	16	candle power requiring a total current of	16	Amperes
E	27	lights each of	16	candle power requiring a total current of	13.5	Amperes
F	39	lights each of	16	candle power requiring a total current of	19.5	Amperes
G	13	lights each of	16	candle power requiring a total current of	6.5	Amperes
H	22	lights each of	16	candle power requiring a total current of	11.0	Amperes
1	Mast head light with 1 lamp each of 32 c.p. D. 7	candle power requiring a total current of	1	Amperes		
2	Side light with 1 lamp each of 32 c.p. D. 7	candle power requiring a total current of	2	Amperes		
3	Cargo lights of 4-32	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 In chart room.

## DESCRIPTION OF CABLES.

Main cable carrying 60 Amperes, comprised of 19 wires, each 1/4 L.S.G. diameter, .095 square inches total sectional area

Branch cables carrying 19.5 Amperes, comprised of 7 wires, each 1/6 L.S.G. diameter, .0225 square inches total sectional area

Branch cables carrying 13.5 Amperes, comprised of 7 wires, each 1/8 L.S.G. diameter, .0127 square inches total sectional area

Leads to lamps carrying .5 Amperes, comprised of 1 wires, each 1/8 L.S.G. diameter, .00181 square inches total sectional area

Cargo light cables carrying 4 Amperes, comprised of 1 wires, each 1/6 L.S.G. diameter, .00322 square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

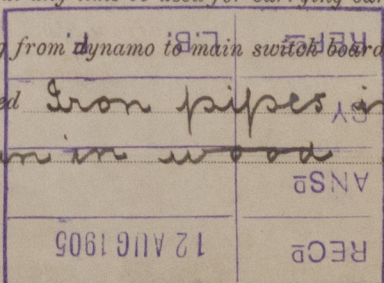
Raw rubber, Vulcan. Rubber, taped & braided.

Joints in cables, how made, insulated, and protected There are 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 Iron pipes in cargo spaces, Stakehole & tunnels, remainder run in wood casing.



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DO 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

Iron pipes.

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

do.

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

Strong wood casing + special fittings.

How are cables carried through beams

all holes bushed

through bulkheads, &c.

do.

How are cables carried through decks

long iron decktubes.

Are any cables run through coal bunkers

no.

or cargo spaces

yes

or spaces which may be used for carrying cargo, stores, or baggage

If so, how are they protected

iron pipes.

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

in baggage room only

If so, how are the lamp fittings and cable terminals specially protected

yes.

Where are the main switches and cut outs for these lights fitted

outside.

If in the spaces, how are they specially protected

Are any switches or cut outs fitted in bunkers

no.

Cargo light cables, whether portable or permanently fixed

portable.

How fixed

Admiralty pattern 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

VESSLS 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 installation is

yes

supplied with

voltmeter and

2

ampere-meter, fixed

on main

switchboards.

The copper used is guaranteed to have a conductivity of

98%

per cent. that of pure copper.

Insulation of cables is guaranteed to have a resistance of not less than

600

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.

THE SUNDERLAND FORGE & ENGINEERING CO. LTD.

Electrical Engineers

Date Aug. 10<sup>th</sup> 1905

COMPASSES.

Distance between dynamo or electric motors and standard compass

150 feet.

Distance between dynamo or electric motors and steering compass

150 feet.

The nearest cables to the compasses are as follows:—

A cable carrying

5

Amperes

6

feet from standard compass

6

feet from steering compass

A cable carrying

Amperes

feet from standard compass

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

course in the case of the

standard compass and

nil

degrees on

course in the case of the steering compass.

FOR SIR JAMES LAING & SONS LIMITED.

J. A. Muir,

Naval Architect.

Builder's Signature.

Date 14<sup>th</sup> August 1905.

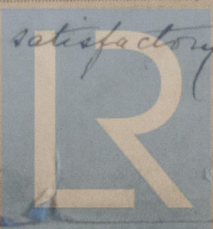
GENERAL REMARKS.

The above installation appears to comply with the Rules & worked well, rendering this vessel eligible in my opinion for the record Electric Light in the Register Book  
B. R. Coomber.

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

Committee's Minute

It is submitted that this installation appears to be satisfactory



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WRITTEN.

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.