

## REPORT ON ELECTRIC LIGHTING INSTALLATION.

No. 19303

Port of *Glasgow*

Date of First Survey

Date of Last Survey

No. of Visits

No. in  
Reg. Book

On the Iron or Steel

*S.S. INDRASAMHA*

Port belonging to

*Liverpool*

Built at

*Glasgow*

By whom

*C. Connell & Co.*

When built

*1901*

Owners

*Indra Kinc Ltd*

Owners' Address

*Liverpool*Yard No. *338*

Electric Light Installation fitted by

*Haddon & Co.**Glasgow*When fitted *1901*

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

One compound wound dynamo coupled direct on same bed-plate  
to one double acting open ported engine.

Capacity of Dynamo

*74*

Amperes at

*100*Volts, whether continuous or alternating current *continuous*

Where is Dynamo fixed

*Engine Room*

Position of Main Switch Board

*Alongside dynamo*having switches to groups *A.B.C.D.E.*

of lights, &amp;c. as below

Positions of auxiliary switch boards and numbers of switches on each

*Forecastle - 4 circuits, Pantry - 8 circuits,**Miss Room - 6 circuits, Engine Room - 11 circuits, Engine Room - 4 circuits.*

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

*25*

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

*120*

arranged in the following groups:—

A	11	lights each of	16	candle power requiring a total current of	6.6	Amperes
B	24	lights each of	"	candle power requiring a total current of	14.4	Amperes
C	17	lights each of	"	candle power requiring a total current of	10.2	Amperes
D	38	lights each of	"	candle power requiring a total current of	22.8	Amperes
E	30	lights each of	"	candle power requiring a total current of	18	Amperes
2	Mast head light with 1 D.F. lamps each of		1	candle power requiring a total current of	2.4	Amperes
2	Side light with 1 D.F. lamps each of		"	candle power requiring a total current of	2.4	Amperes
5	Cargo lights of		6 - 16	candle power, whether incandescent or arc lights	<i>Incandescent</i>	

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

Where are the switches controlling the masthead and side lights placed

*Wheel House*

## DESCRIPTION OF CABLES.

Main cable carrying	74	Amperes, comprised of	19	wires, each	15	L.S.G. diameter, .07650 square inches	total sectional area
Branch cables carrying	11	Amperes, comprised of	7	wires, each	18	L.S.G. diameter, .01254 square inches	total sectional area
Branch cables carrying	24	Amperes, comprised of	4	wires, each	15	L.S.G. diameter, .02622 square inches	total sectional area
Leads to lamps carrying	16	Amperes, comprised of	3	wires, each	20	L.S.G. diameter, .008016 square inches	total sectional area
Cargo light cables carrying	3.6	Amperes, comprised of	3	wires, each	19	L.S.G. diameter, .003725 square inches	total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

Pure rubber, vulcanized rubber, tape  
braided & compounded over all

Joints in cables, how made, insulated, and protected

Soldered & insulated with Pure Para rubber  
vulcanized tape & rubber solution

Are all the joints of cables thoroughly soldered, resin only having been used as a flux

*Yes*

Are all joints in accessible positions, none

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

*In casing & armoured.*

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Foundation



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 tubes*

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

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 *vulcanised fibre tube through bulkheads, &c. Brass stuffing glands*

How are cables carried through decks *Iron pipes flanged to deck*

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 *Armoured*

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

If so, how are the lamp fittings and cable terminals specially protected *Cast-iron boxes*

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

If in the spaces, how are they specially protected *Cast-iron boxes*

Are any switches or cut outs fitted in bunkers *No*

Cargo light cables, whether portable or permanently fixed *Portable* How fixed *Cast-iron sockets*

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel *Dangle wire*

How are the returns from the lamps connected to the hull *—*

Are all the joints with the hull in accessible positions *—*

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 installation is supplied with a voltmeter and an amperemeter, fixed *Main Switch Board*

The copper used is guaranteed to have a conductivity of *99* 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.

*Hadden & Co Glasgow*

Electrical Engineers

Date *Dec. 4<sup>th</sup> 1901*

COMPASSES.

Distance between dynamo or electric motors and standard compass *Alt. 100 feet*

Distance between dynamo or electric motors and steering compass *do. do*

The nearest cables to the compasses are as follows:—

A cable carrying	14.4	Amperes	14	feet from standard compass	18	feet from steering compass
A cable carrying	6.6	Amperes	24	feet from standard compass	28	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 *no* degrees on *all* course in the case of the steering compass.

*John Connolly* Builder's Signature. Date *11<sup>th</sup> Dec 1901*

GENERAL REMARKS. *The installation of this vessel has been properly fitted on board tried with all lights on, & found to be satisfactory*

*J. W. Dinnick*  
Surveyor to Lloyd's Register of British and Foreign Shipping.

Don't  
Trade  
Committee's Minute *Glasgow, 16 DEC 1901*

Comm  
Assigne

*Receives "Electric Light"*

*It is submitted that this installation appears to meet the requirements of the Rules.*

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.