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Surveyor

# REPORT ON ELECTRIC LIGHTING INSTALLATION.

25 JUL 1900

Port of Glasgow Date of First Survey 17 July 1900 No. of Visits 1  
 No. in Reg. Book on the Iron or Steel Ss Achilles Port belonging to Glasgow  
 Built at Burnie By whom Burnie Coy Ltd When built 1900  
 Owners J.P. Huchison Owners' Address Glasgow  
 Yard No. 22 Electric Light Installation fitted by Jas. Espey When fitted 1900

### DESCRIPTION OF DYNAMO, ENGINE, ETC.

One Compound wound Dynamo coupled direct on combined cast iron bedplate to 4'2" x 4' vertical engine, running at 400 rev. pr. min -  
 Capacity of Dynamo 37 Amperes at 80 Volts, whether continuous or alternating current continuous  
 Where is Dynamo fixed Above Main Engine space.

Position of Main Switch Board at Dynamo having switches to groups A. B. C. of lights, &c., as below  
 Positions of auxiliary ~~switch~~ <sup>D.P. fuse</sup> boards and ~~number of switches on each~~ Chart Room & Forecastle.  
with separate D.P. fuses for each circuit -

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 43 arranged in the following groups :-

A	Forward	6	lights each of	16	candle power requiring a total current of	4.8	Amperes
B	Engine Room	7	lights each of	16	candle power requiring a total current of	5.6	Amperes
C	Aft	11	lights each of	16	candle power requiring a total current of	8.8	Amperes
D			lights each of		candle power requiring a total current of		Amperes
E			lights each of		candle power requiring a total current of		Amperes
A.	One Mast head light with	one	lamps each of	32	candle power requiring a total current of	1.6	Amperes
A.	Two Side lights with	two	lamps <sup>in all</sup>	32	candle power requiring a total current of	3.2	Amperes
A.	Two Cargo lights	with 8.	16 CP lamps in each		candle power, whether incandescent or arc lights.	incandescent	

If are lights, what protection is provided against fire, sparks, &c. \_\_\_\_\_

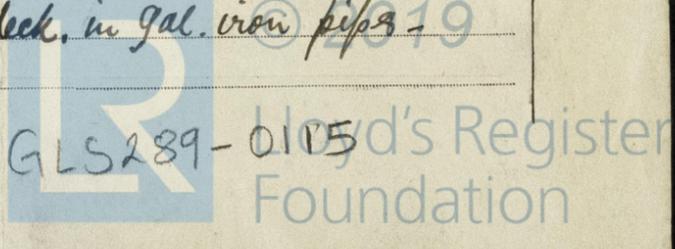
Where are the switches controlling the masthead and side lights placed Masthead in Forecastle under lock and key  
Side lights in Chart Room.

### DESCRIPTION OF CABLES.

Main cable carrying	37	Amperes, comprised of	19	wires, each	16	L.S.G. diameter,	.0612	square inches total sectional area
Branch cables carrying	7.2	Amperes, comprised of	7	wires, each	20	L.S.G. diameter,	.00713	square inches total sectional area
Branch cables carrying	5.6	Amperes, comprised of	7	wires, each	20	L.S.G. diameter,	.00713	square inches total sectional area
Leads to lamps carrying	8	Amperes, comprised of	1	wires, each	18	L.S.G. diameter,	.00181	square inches total sectional area
Cargo light cables carrying	6.4	Amperes, comprised of	14	wires, each	23	L.S.G. diameter,	.00632	square inches total sectional area

### DESCRIPTION OF INSULATION, PROTECTION, ETC.

Pure vulcanized rubber, tape & braiding (400 megohms)  
 Joints in cables, how made, insulated, and protected None used, wires run direct to distributing boards -  
The only joints are at the sweating thimbles on boards -  
 Are all the joints of cables thoroughly soldered, resin only having been used as a flux 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 none in such spaces  
 Are there any joints in or branches from the cable leading from dynamo to main switch board none  
 How are the cables led through the ship, and how protected along ship side under deck, in gal. iron pipes



**DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.**

Are they in places always accessible *yes. Except in the Hall.*

What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture *gal. iron pipes*

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

What special protection has been provided for the cables near boiler casings *wood casing in galley removed from heat*

What special protection has been provided for the cables in engine room *gal. iron pipes*

How are cables carried through beams *in oak wood plugs* through bulkheads, &c. *iron pipes with nuts and washers on each side*

How are cables carried through decks *yes. gal. iron pipes standing 18" above deck*

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 *gal. iron pipes*

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage *none*

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 \_\_\_\_\_

**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 *also* supplied with a voltmeter and \_\_\_\_\_ an ammeter, fixed *on Main Switch Board*

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.

*James Espe* 173<sup>rd</sup> St Vincent St Glasgow Electrical Engineers

Date *23<sup>rd</sup> July 1900*

**COMPASSES.**

Distance between dynamo or electric motors and standard compass *15 feet*

Distance between dynamo or electric motors and steering compass *30 -*

The nearest cables to the compasses are as follows:—

A cable carrying <i>8</i> Amperes	<i>4</i> feet from standard compass	<i>4</i> 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 \_\_\_\_\_ degrees on \_\_\_\_\_ course in the case of the standard compass and \_\_\_\_\_ degrees on \_\_\_\_\_ course in the case of the steering compass.

THE IRVINE SHIPBUILDING AND ENGINEERING COY., LTD.

*Wm. Mann Rogers* Managing Director Builder's Signature. Date *24<sup>th</sup> July 1900*

**GENERAL REMARKS.**

*The materials and workmanship are good. When completed the installation was tried and worked satisfactorily.*

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

Committee's Minute *Glasgow. 30 JUL 1900*

Record Elec. Light

It is submitted that this installation appears to meet the requirements of the Rules of Lloyd's Register Foundation

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

REPORT FORM No. 11.