Rpt. 13.

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REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 32350

Port of GLASGOW Date of First Survey 27.12.12 Date of Last Survey 11.2.13 No. of Visits 13.

No. in Reg. Book ____ on the Iron or Steel S/S. "LANCEFIELD" Port belonging to Glasgow

Built at Glasgow By whom S Connell & Co When built 1913

Owners Glasgow S.S. Co Ltd. Owners' Address Glasgow

Yard No. ____ Electric Light Installation fitted by William Harvie & Co. Ltd. When fitted 1913

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Compound wound multipolar Dynamo, direct coupled to single cylinder vertical Engine

Capacity of Dynamo 70 Amperes at 100 Volts, whether continuous or alternating current continuous

Where is Dynamo fixed Engine Room, Starboard side Whether single or double wire system is used double

Position of Main Switch Board close to Dynamo having switches to groups ____ of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each Forecastle, 4 way Fuse Board; Saloon Passage, 6 way Fuse Board; Chart Room, 10 way F.B.; Steering Engine House, 8 way F.B.; Aft, 4 way F.B.; Engine Room, 8 way F.B.

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 — of pure tin and constructed to fuse at an excess of 50 to 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 — metal on porcelain bases.

Total number of lights provided for 126 (equiv. 16 cd.) arranged in the following groups :—

A	10	lights each of	16	candle power requiring a total current of	5.0	Amperes
B	46	lights each of	"	candle power requiring a total current of	23.0	Amperes
C	28	lights each of	"	candle power requiring a total current of	14.0	Amperes
D	16	lights each of	"	candle power requiring a total current of	8.0	Amperes
E	26	lights each of	"	candle power requiring a total current of	13.0	Amperes
2	Mast head lights with	2	lamps each of 32	candle power requiring a total current of	2.2	Amperes
2	Side lights with	2	lamps each of 32	candle power requiring a total current of	2.2	Amperes
5	Cargo lights	each of 5 — 16	candle power, whether incandescent or arc lights	incandescent		

If arc lights, what protection is provided against fire, sparks, &c. Also, 2 — 5 amp enclosed arc lamps, with carbons protected by inner glass globe and outer hexagonal lantern.

Where are the switches controlling the masthead and side lights placed at Fuse Box in Chart Room,

DESCRIPTION OF CABLES.

Main cable carrying	40	Amperes, comprised of	19	wires, each	16	L.S.G. diameter,	.0612 square inches total sectional area
Branch cables carrying	23	Amperes, comprised of	7	wires, each	16	L.S.G. diameter,	.022 square inches total sectional area
Branch cables carrying	14	Amperes, comprised of	7	wires, each	18	L.S.G. diameter,	.012 square inches total sectional area
Leads to lamps carrying	2.0	Amperes, comprised of	1	wires, each	18	L.S.G. diameter,	.00181 square inches total sectional area
Cargo light cables carrying	2.5	Amperes, comprised of	113	wires, each	38	L.S.G. diameter,	.0032 square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Conductors of tinned copper, insulated with pure and vulcanised rubber and taped; in accommodation, lead covered overall; in Tween Decks, holds & Engine Room, cables twin, braided, armoured with gal. iron wires and braided and compounded overall.

Joints in cables, how made, insulated, and protected No joints in cables, junction boxes with porcelain interior used throughout.

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.

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 Armoured and braided cables run through deck beams and clipped up to decks, bulkheads etc.

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DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.

Are they in places always accessible All cables accessible.

What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture all exposed cables lead covered; up masts, cables runs in gal. iron tubing.

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

What special protection has been provided for the cables near boiler casings armoured & braided

What special protection has been provided for the cables in engine room armoured & braided, also gal. iron tubing

How are cables carried through beams through lead lined holes *through bulkheads, &c.* W. T. glands.

How are cables carried through decks through gal. iron deck tube flanged to deck, 12" high.

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 & braided, clipped close to deck.

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 —

The installation is ——— *supplied with a voltmeter and* ——— *an amperemeter, fixed* on main Switchboard

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 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.

For WILLIAM HARVIE & CO., LIMITED.

Allen O'Byrne SECRETARY. *Electrical Engineers* *Date* 13 Feby 1913

COMPASSES.

Distance between dynamo or electric motors and standard compass 125 ft

Distance between dynamo or electric motors and steering compass ditto

The nearest cables to the compasses are as follows:—

A cable carrying .25 *Amperes* led into ~~*feet from*~~ *standard compass* & led into ~~*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 CHARLES CONNELL & CO., Limited.

William Connell DIRECTOR. *Builder's Signature.* *Date*

GENERAL REMARKS. This installation has been fitted on board under Special Survey, tested under full working conditions, found Satisfactory

It is submitted that this vessel is eligible for THE RECORD. Elec. light. J.W.D. 20/2/13.

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

Committee's Minute GLASGOW 18 FEB. 1913

Elec Light.

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

5,8,11.—Transfer.