Rpt. 13.

RETAIN

Received at London Office WED. APR. 14, 1915

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 34050

Port of Glasgow Date of First Survey 24/4/13 Date of Last Survey 14/8/14 No. of Visits 100

No. in Reg. Book ____ on the ~~Iron or~~ Steel S.S. "Aquitania" Port belonging to Liverpool

Built at Clydebank By whom John Brown & Co Ltd When built 1914

Owners Cunard S.S. Co. Ltd., Owners' Address Liverpool

Yard No. 409 Electric Light Installation fitted by W.C. Martin & Co Glasgow When fitted 1914

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Four Steam Turbines each direct-coupled to a 400 Kw. continuous current shunt wound Dynamos

Capacity of each Dynamo 1818 Amperes at 220 Volts, whether continuous or alternating current continuous

Where is Dynamo fixed Special Room Whether single or double wire system is used 2 wire for lights 3 wire for motors

Position of Main Switch Board Generating Station having switches to ~~groups~~ 24 groups of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each

Detailed in Continuation Sheet

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 50 per cent over the normal current

Are all fuses 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 fuses constructed of incombustible materials and fitted on incombustible bases yes

Total number of lights provided for See Continuation Sheet arranged in the following groups :—

A ____ lights each of ____ candle power requiring a total current of ____ Amperes

B ____ lights each of ____ candle power requiring a total current of ____ Amperes

C ____ lights each of ____ candle power requiring a total current of ____ 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

____ Mast head light with ____ lamps each of ____ candle power requiring a total current of ____ Amperes

____ Side light with ____ lamps each of ____ candle power requiring a total current of ____ Amperes

____ Cargo lights of ____ candle power, whether incandescent or arc lights ____

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

Where are the switches controlling the masthead and side lights placed in Wheelhouse on Bridge

DESCRIPTION OF CABLES.

Main cable carrying 1818 Amperes, comprised of Aluminium bars supported openly ~~wires, each ____ S.W.G. diameter, ____ square inches total sectional area~~

Branch cables carrying 450 Amperes, comprised of 91 wires, each ·101" ~~S.W.G.~~ diameter, ·75 square inches total sectional area

Branch cables carrying 314 Amperes, comprised of 61 wires, each ·104" ~~S.W.G.~~ diameter, ·5 square inches total sectional area

Leads to lamps carrying 1 Amperes, comprised of 1 wires, each 18 S.W.G. diameter, ·0018 square inches total sectional area

Cargo light cables carrying 3 Amperes, comprised of 108 wires, each — S.W.G. diameter, ·006 square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

H.C. Copper wire, tinned, insulated with pure & vulcanised rubber & tape, the whole vulcanised together, taped & braided, and compounded or sheathed with lead & steel armour & braided overall, also V.I.R. in tubes.

Joints in cables, how made, insulated, and protected

No joints

Are all the joints of cables thoroughly soldered, and the flux used not containing acids or other corrosive substances No joints 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 No joints

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 Mains erected on porcelain clamps protected by sheet iron or wood. Other cables protected by wood casing. Armoured cables clipped direct to iron or wood work

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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 and braided wires or Steel Tubing

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

What special protection has been provided for the cables near boiler casings Lead, Armoured & Braided

What special protection has been provided for the cables in engine room Do Do Do

How are cables carried through beams Insulated Holes *through bulkheads, &c.* W. T. Glands

How are cables carried through decks Metal Tubes fitted watertight to decks

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

If so, how are they protected Special Casings in 3rd Class & baggage rooms

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

If so, how are the lamp fittings and cable terminals specially protected Cunard Standard Fittings protected by beams

Where are the main switches and fuses for these lights fitted on stairway leading to spaces

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* Special Connectors

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 —

Is the installation supplied with a voltmeter yes. 4 voltmeters *and with an amperemeter* yes, 39 ammeters, *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° Farhenheit 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.

W. C. Martin & Co. *Electrical Engineers* *Date* 31st July 1914.

COMPASSES.

Distance between dynamos or electric motors and standard compass 26 ft

Distance between dynamos or electric motors and steering compass 34 ft

The nearest cables to the compasses are as follows:—

A cable carrying	22	*Amperes*	26	*feet from standard compass*	34	*feet from steering compass*
A cable carrying	5	*Amperes*	10	*feet from standard compass*	12	*feet from steering compass*
A cable carrying	¼	*Amperes*	1	*feet from standard compass*	1	*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* a certain *course in the case of the standard compass and* Nil *degrees on* the same *course in the case of the steering compass.*

John Brown & Company, Limited.
J. Henderson Assistant Secretary. *Builder's Signature.* *Date*

GENERAL REMARKS. This installation has been fitted in accordance with the rules and main lighting system working satisfactorily. To complete the survey the Diesel engines for emergency electric light set require to be connected up and tested. Liverpool Surveyors advised 18.5.14.

It is submitted that this vessel is eligible for THE RECORD Elec. light. subject to the emergency installation being examined when fitting.

H.W.R. 15/4/15 Harry Clarke.
Surveyor to Lloyd's Register of British and Foreign Shipping.

Committee's Minute GLASGOW 13 APR 1915

Deferred.

LR-FAF-TB11-100 1/2

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THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

50,6,12.—Transfer.

10/4/15

Port of | Continuation of Report No. | dated | on the

"Aquitania" continued

The installation is divided into 24 Main Circuits, Each circuit is supplied through two circuit breakers and in addition each machine is provided with two main circuit breakers.

The installation is also provided with a 40 Kw. 220 volt. Generator direct-coupled to an internal combustion engine fitted in Emergency Dynamo Room on "A" Deck Aft, for supplying 422 Emergency Lights throughout the ship, also the Wireless Apparatus.

No of Circuit	No of ways	Position of Auxiliary Switchboard	Lights	Fans	Cranes Elevators & Lifts	Search-lights	Radiators Hot Plates & Food warmers	other motors	Total Amps
1	10	In 3rd Class Promenade "E" Dk. Forward Port	679	8		1	1		312
2	10	Do Do Do Do Star.	700	13		1		3	336
3	12	At 1st Class Elevator "E" Dk. midships Fowd. Port	907	9	1		9		325
4	12	Do Do Do Do Star.	942	4	1		4	4	324
5	11	At Cold Stores "E" Dk Midships Aft Port Star.	1033	5			14		295
6	11	Do Do Do Do	1119	2			21	8	295
7	10	At Engineers Rooms "E" Dk Midships Aft Star.	935	6	1				288
8	10	Do Do Do Do	923	6	1		3	10	345
9	9	Midships Alleyway "E" Dk Aft Port	805	4	1	2		5	360
10	9	Do Do Do Star.	832	5	1		2		306
11	10	at Servants Mess Room "B" Dk Star.	422						135
12	6	"A" Dk Starb. at 1st Class Barbers Shop		12	2		2	2	441
13	5	"C" Dk Port at 2nd Class Bureau		3	2		2		314
14	5	Do Starb. Do Do		5	3				323
14	Ring main	Round Engine Room						11	836
15	8	Linen Store at Engine Rm. "F" Dk. Aft		4				3	456
16	4	Fan Room Port "F" Dk. Aft		4					340
17	4	Do Starb. Do Do		4					340
18	3	No 1 Fan Room		2				1	340
19	3	No 2 Do		2				1	340
20	3	No 3 Do		2				1	340
21	3	No 4 Do		2				1	340
22	3	No 5 Do		2				1	340
23	3	No 6 Do		2				1	340
24	3	No 7 Do		2				1	340
		Totals	9624	114	13	4	64	56	8764

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