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REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 6122

Port of Belfast Date of First Survey April 23 Date of Last Survey May 12th No. of Visits 7

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

Built at Belfast By whom Harland & Wolff Ld When built 1906

Owners T. Brocklebank & Cay Ld Owners' Address Liverpool

Yard No. 375 Electric Light Installation fitted by H. Allen Son & Cay Ld When fitted 1906

DESCRIPTION OF DYNAMO, ENGINE, ETC.

2 Engines having cylinders 6" diameter x 5" stroke, two dynamos, multipolar type compound wound

Capacity of Dynamo 60 Amperes at 100 Volts, whether continuous or alternating current continuous

Where is Dynamo fixed on starting platform starboard side.

Position of Main Switch Board on bulkhead over dynamo having switches to groups A. B. C. D. E. of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each —

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 — 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 143 arranged in the following groups :—

A Accommodation & officers	41 lights each of	16	candle power requiring a total current of	24.6	Amperes
B Engine Room	42 lights each of	16	candle power requiring a total current of	25.2	Amperes
C Forecastle	6 lights each of	16	candle power requiring a total current of	3.6	Amperes
D Poop	18 lights each of	16	candle power requiring a total current of	10.8	Amperes
E Cargo as below	lights each of	—	candle power requiring a total current of	—	Amperes
2 Mast head lights with	1 lamp each of	32	candle power requiring a total current of	1.2	Amperes
2 Side lights with	1 lamp each of	32	candle power requiring a total current of	1.2	Amperes
4 Cargo lights each of	8	16	candle power, whether incandescent or arc lights	incandescent.	

If arc lights, what protection is provided against fire, sparks, &c. Two arc lamps included in Suez Canal Plant. totally enclosed in lanterns with glass sides protected by wire netting

Where are the switches controlling the masthead and side lights placed in Chart House.

DESCRIPTION OF CABLES.

Main cable carrying	60 Amperes, comprised of	19	wires, each	16	L.S.G. diameter,	.0624	square inches total sectional area
Branch cables carrying	22.8 Amperes, comprised of	7	wires, each	16	L.S.G. diameter,	.0229	square inches total sectional area
" " "	25.2 " " "	19	" "	18	" "	.035	" " " " "
Branch cables carrying	10.8 Amperes, comprised of	7	wires, each	18	L.S.G. diameter,	.0129	square inches total sectional area
" " "	4.0 " " "	7	" "	22	" "	.0043	" " " " "
Leads to lamps carrying	3.0 Amperes, comprised of	1	wires, each	16	L.S.G. diameter,	.0032	square inches total sectional area
Cargo light cables carrying	4.8 Amperes, comprised of	145	wires, each	38	L.S.G. diameter,	.0043	square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

The conductor is insulated with two layers pure Para rubber, then one layer vulcanizing rubber, the whole vulcanized together & finally taped & braided, wire in machinery spaces after vulcanizing are lead covered served & specially armoured with G. S. Wire

Joints in cables, how made, insulated, and protected Thoroughly soldered insulated with two layers pure rubber and two layers prepared tape & varnished

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 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 strong wood casing.

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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 ✓

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

What special protection has been provided for the cables near boiler casings lead covered served & armored with G.S. Wire

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

How are cables carried through beams in fibre ferrules *through bulkheads, &c.* in fibre ferrules

How are cables carried through decks in G.S. pipes bushed with fibre

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 in strong wood casing

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage no

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 no

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 screwed to yoke of magnet

How are the returns from the lamps connected to the hull soldered to 3/8" Brass earth screws

Are all the joints with the hull in accessible positions yes

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 ammeter~~, *fixed* on switchboard

The copper used is guaranteed to have a conductivity of 100 per cent. that of pure copper.

Insulation of cables is guaranteed to have a resistance of not less than 2500. 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 W. H. ALLEN, SON & CO. Lᵀᵈ

C. C. Hawkins. *Electrical Engineers* *Date* May 1906

COMPASSES.

Distance between dynamo or electric motors and standard compass 104 feet

Distance between dynamo or electric motors and steering compass 110 feet.

The nearest cables to the compasses are as follows:—

A cable carrying ~~22.8~~ *Amperes* 24 *feet from standard compass* 24 *feet from steering compass*

A cable carrying The amperes is double *feet from standard compass* 5 *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* every *course in the case of the standard compass and* nil *degrees on* every *course in the case of the steering compass.*

HARLAND & WOLFF, LTD. BELFAST SHIPBUILDERS & ENGINEERS

Builder's Signature. *Date* 30/5/06

GENERAL REMARKS. This installation appears to be of good description, and has been fitted in accordance with the Rules.

C. J. Reynolds

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

Committee's Minute It is submitted that the Record Elec. Light be noted in the Reg. Book.

G.S. 1.6.06

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

REPORT FORM No. 13.

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