

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 18513

Port of Glasgow Date of First Survey Date of Last Survey 28th Nov 1900 No. of Visits
 No. in Reg. Book on the Iron or Steel S.S. Vaderland Port belonging to Liverpool
 Built at Clydebank By whom John Brown & Co. Ltd. Glasgow When built 1900
 Owners' Address Liverpool
 No. 341 Electric Light Installation fitted by John Brown & Co. Ltd. Glasgow When fitted 1900

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Generating Sets, each comprising a 4 pole Compound Wound Dynamo coupled direct to a double cylinder upright Engine
 Capacity of Dynamo each 300 Amperes at 110 Volts, whether continuous or alternating current continuous
 are fixed in Dynamo Room Orlop Deck

Position of Main Switch Board Dynamo Room having switches to groups 9 fans & 23 groups of lights, &c., as below
 Positions of Distributing boxes auxiliary switch boards and numbers of switches on each 40 Distributing Boxes in various parts of the ship, with an average of 4 switches per box.

Cut outs are fitted on main switch board to the cables of main circuit yes and on each Distributing box 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

On 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 no

Are all switches and cut-outs constructed of incombustible materials and fitted on incombustible bases yes

Total number of lights provided for equivalent 16 cp 1254, 11 fans & 2 1/2 HP Washing Machines arranged in the following groups:—

57	36	36	57	lights each of	16	candle power requiring a total current of	34	22	22	34	Amperes
30	45	26	42	" " "	16	" " "	18	27	16	25	Amperes
43	66	(58)	89	lights each of	84	candle power requiring a total current of	26	40	38	53	Amperes
(34)	20	(2 HP W.M.)	33	" " "	16	" " "	23	12	59	20	Amperes
(23)	73	(65)	(65)	lights each of	16	candle power requiring a total current of	75	44	50	50	Amperes
39	77	(40)	40	" " "	16	" " "	23	46	24		
12 1/2 HP	10 HP	10 1/2 HP	16 1/2 HP	lights each of		candle power requiring a total current of	100	80	100	100	Amperes
12 1/2 HP	10 HP	10 1/2 HP	16 1/2 HP	lights each of		candle power requiring a total current of	96	40	96		Amperes
2	Mast head lights	with	2	lamps each of	16	candle power requiring a total current of		1.2			Amperes
2	Side lights	with	2	lamps each of	16	candle power requiring a total current of		1.2			Amperes
10	Cargo lights	of			96	candle power, whether incandescent or arc lights					incandescent

Are lights, what protection is provided against fire, sparks, &c. none fitted

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

DESCRIPTION OF CABLES.

Main cable carrying	300	Amperes, comprised of	550	wires, each	20	L.S.G. diameter,	.55	square inches total sectional area
Branch cables carrying	88	" " "	19	" " "	12	" " "	.1649	" " "
Branch cables carrying	54	Amperes, comprised of	37	wires, each	16	L.S.G. diameter,	.1220	square inches total sectional area
Branch cables carrying	60	" " "	19	" " "	15	" " "	.0790	" " "
Branch cables carrying	65	Amperes, comprised of	19	wires, each	16	L.S.G. diameter,	.0624	square inches total sectional area
Leads to lamps carrying	.6	Amperes, comprised of	1	wires, each	16	L.S.G. diameter,	.0032	square inches total sectional area
Cargo light cables carrying	3.6	Amperes, comprised of	1	wires, each	16	L.S.G. diameter,	.0032	square inches total sectional area

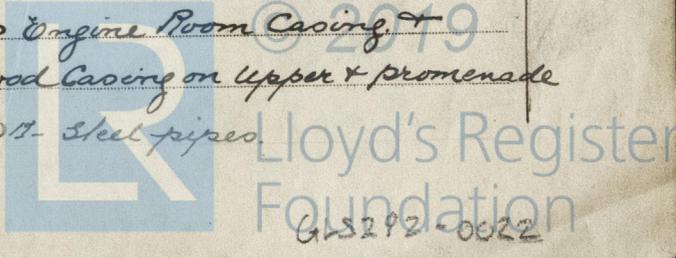
DESCRIPTION OF INSULATION, PROTECTION, ETC.

Conductors of tinned copper wires insulated with pure & vulcanized india-rubber, then taped, the whole thoroughly vulcanized together, covered with longitudinal narrow strong braiding well served with preservative & weather resisting comp. thickness of dielectric 1/10 inch.
 Joints in cables, how made, insulated, and protected soldered with resin as a flux then india rubber strip insulation & india rubber tape & waterproof tape

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 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 From Dynamo Room, up Engine Room Casing, along Lower, Main, Upper & Promenade Decks. Protected by wood casing on Upper & Promenade Decks. Main Deck - wood casing & steel pipes. Lower Deck - steel pipes.



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 Steel pipes

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

What special protection has been provided for the cables near boiler casings Steel pipes

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

How are cables carried through beams Hard wood plugs through bulkheads, &c. Watertight glands

How are cables carried through decks Watertight Deck tubes

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 Steel tubes

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

If so, how are the lamp fittings and cable terminals specially protected Fixed lights within a strong G.I. casing. Connections for same outside of Bunkers

Where are the main switches and cut outs for these lights fitted No switches. Cut-outs outside of Bunkers

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 —

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 2 voltmeters and 4 amperemeters fixed on face of switchboard

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 5000 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.

John Brown & Company, Limited.

A.M. Millan Assistant Secretary. Electrical Engineers Date —

COMPASSES.

Distance between dynamo or electric motors and standard compass Dynamo 180 ft. Nearest generator 68 ft

Distance between dynamo or electric motors and steering compass 50 178 ft 20 00 66 ft

The nearest cables to the compasses are as follows:—

A cable carrying	<u>20</u>	Ampere	<u>20</u>	feet from standard compass	<u>17</u>	feet from steering compass
A cable carrying	<u>29</u>	Ampere	<u>34</u>	feet from standard compass	<u>29</u>	feet from steering compass
A cable carrying	<u>9.6</u>	Ampere	<u>30</u>	feet from standard compass	<u>23</u>	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 0 degrees on — course in the case of standard compass and — degrees on — course in the case of the steering compass.

John Brown & Company, Limited.

A.M. Millan Assistant Secretary. Builder's Signature. Date —

GENERAL REMARKS.

The Electric lighting of this vessel has been carried out in an efficient manner and tried under full power throughout & in our opinion satisfactory

James Morrison

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

Committee's Minute —

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



Lloyd's Register
6.12.00
Foundation

TESTED NOT TO WRITE ABOVE THIS MARGIN

REPORT FORM NO. 11.