

REPORT ON ELECTRIC LIGHTING INSTALLATION, No. 8609

Port of Belfast Date of First Survey March 1st Date of Last Survey Aug 15th No. of Visits 22
 No. in Reg. Book on the Iron or Steel T.S.S. Paradise Port belonging to Belfast
 Built at Belfast By whom Harland & Wolff L^{td} When built 1921
 Owners Peninsular & Oriental S. Co. Ltd. Address London
 Yard No. 283 Electric Light Installation fitted by Harland & Wolff L^{td} When fitted 1921

DESCRIPTION OF DYNAMO, ENGINE, ETC.

4 Comp^{ts} Vert^l two crank enclosed steam engines with cyls 9" x 14" x 7" each coupled to a 50 H.P. comp^{ts} wound multipolar dynamo to run at 450 R.P.M. also 1 emergency set, consisting of a vert^l oil engine, 4 cyl type petrol starting, coupled to a 25 H.P. comp^{ts} wound multipolar dynamo to run at 600 R.P.M.
 Capacity of Dynamo Main, each 476 Amperes at 105 Volts, whether continuous or alternating current Continuous
Emergency, 238

Where ~~are~~ Dynamos fixed in engine room Port. Main: on lower deck level Whether single or double wire system is used Single
Emergency on Boat Deck level
 Position of Main Switch Board in Eng. Rm. on Main dynamo flat having switches to groups A to L Inclusive of lights, &c., as below
 Positions of auxiliary switch boards and numbers of switches on each One board in wheelhouse with 5 switches for signals
Seven Boards in Eng. Room each with 10 switches. One board in wheelhouse with 16 switches for
Compasses, Telegraphs etc.

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 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 1212 arranged in the following groups:—

A	lights each of	<u>See Attached Schedule</u>	candle power requiring a total current of	Amperes
B	lights each of	<u>See Attached Schedule</u>	candle power requiring a total current of	Amperes
C	lights each of	<u>See Attached Schedule</u>	candle power requiring a total current of	Amperes
D	lights each of	<u>See Attached Schedule</u>	candle power requiring a total current of	Amperes
E	lights each of	<u>See Attached Schedule</u>	candle power requiring a total current of	Amperes
2	Mast head lights with 1 lamp each of	<u>32</u>	candle power requiring a total current of	<u>2-125</u> Amperes
2	Side lights with 1 lamp each of	<u>32</u>	candle power requiring a total current of	<u>2-125</u> Amperes
10- 1/2 Watt 10- 3 light	Cargo lights of	<u>1000 48</u>	candle power, whether incandescent or arc lights	<u>Incandescent</u>

If arc lights, what protection is provided against fire, sparks, &c. None fitted
 Where are the switches controlling the masthead and side lights placed In wheelhouse

DESCRIPTION OF CABLES.

Main cable carrying	<u>238</u> Amperes, comprised of	<u>37</u> wires, each	<u>.105"</u> L.S.G. diameter,	<u>.3</u> square inches total sectional area
Branch cables carrying	<u>23</u> Amperes, comprised of	<u>19</u> wires, each	<u>.052"</u> L.S.G. diameter,	<u>.04</u> square inches total sectional area
Branch cables carrying	<u>7.7</u> Amperes, comprised of	<u>7</u> wires, each	<u>.064"</u> L.S.G. diameter,	<u>.0225</u> square inches total sectional area
Leads to lamps carrying	<u>.6</u> Amperes, comprised of	<u>3</u> wires, each	<u>.029"</u> L.S.G. diameter,	<u>.002</u> square inches total sectional area
Cargo light cables carrying	<u>4.75</u> Amperes, comprised of	<u>7</u> wires, each	<u>.036"</u> L.S.G. diameter,	<u>.007</u> square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Cables are insulated with pure vulc^l Rubber Taped, braided & compounded overall: protected generally throughout in stout wood casing. Main cables in cargo spaces & branch wires where exposed to heat or weather generally, are protected in steel conduit. Branch wires in crew spaces are protected by lead covering & in cargo spaces by lead covering, serving, steel armouring or braiding over all
 Joints in cables, how made, insulated, and protected soldered & insulated with pure rubber tape, served with prepared tapes & protected in stout wood casing

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 stout wood casing generally throughout. In cargo spaces the main cables are protected by steel conduit & the branch wires by lead covering, serving, steel armouring & braiding over all. Branch wires in machinery spaces & places where exposed to moisture protected by steel conduit.

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 Conduit

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

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

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

How are cables carried through beams Three Fibre bushes through bulkheads, &c. in glands, if watertight, otherwise fibre bushed

How are cables carried through decks Iron beam tubes bushed with Fibre

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 by steel conduit, also by lead covering, sewing, steel armouring, & braiding overall

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage Yes in portable 3rd b.h. Rooms & Cargo

If so, how are the lamp fittings and cable terminals specially protected Cast iron Covers

Where are the main switches and cut outs for these lights fitted on Main Switchboard

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 Permanent How fixed in strong wood casing

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel through special earth plates

How are the returns from the lamps connected to the hull screwed to 3/8 brined brass screws tapped into beams etc

Are all the joints with the hull in accessible positions Yes

The installation is — supplied with a voltmeter and — four amperemeters fixed on Main Switchboard
also " " " " " an amperemeter " " Energy " "

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 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.



Electrical Engineers Date 2/9/21

COMPASSES.

Distance between dynamo or electric motors and standard compass 160 ft to dynamo 36 ft to nearest motor

Distance between dynamo or electric motors and steering compass 160 ft to dynamo 36 ft to nearest motor

The nearest cables to the compasses are as follows:—

A cable carrying	<u>10</u>	Amperes	<u>10 1/2</u>	feet from standard compass	<u>17</u>	feet from steering compass
A cable carrying	<u>30</u>	Amperes	<u>40</u>	feet from standard compass	<u>40</u>	feet from steering compass
A cable carrying	<u>32</u>	Amperes	<u>32</u>	feet from standard compass	<u>32</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 nil degrees on all courses in the case of the standard compass and nil degrees on all courses in the case of the steering compass.



S. Johnston Builder's Signature. Date 2/9/21

GENERAL REMARKS.

This installation is of good description throughout, and has been fitted in accordance with the Rules

It is submitted that this vessel is eligible for **RECORD** class light

Fee £ 37-2-6 advised 5-9-21

R. L. T. Bennett Surveyor to Lloyd's Register of British and Foreign Shipping.

REPORT FORM No. 15—5m, 34.

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

Committee's Minute

