

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 7960

Port of BELFAST Date of First Survey Jan 16-18 Date of Last Survey Apr 30 18 No. of Visits 8
 No. in Reg. Book on the Iron or Steel T.S.S. PORT DENISON Port belonging to LONDON
 Built at BELFAST By whom WORKMAN CLARK & CO. LTD. When built 1918
 Owners COMMONWEALTH & DOMINION LINE LTD. Owners' Address LONDON
 Yard No. 352 Electric Light Installation fitted by SUNDERLAND FORGE & ENGINEERING CO When fitted 1918

DESCRIPTION OF DYNAMO, ENGINE, ETC.

2 - compound wound multipolar dynamos each coupled to vertical open type single cylinder steam engine, on combination bedplate, speed 275 rpm.

Capacity of Dynamos each 165 Amperes at 100 Volts, whether continuous or alternating current continuous

Where is Dynamo fixed in Engine room Whether single or double wire system is used double

Position of Main Switch Board in Engine room having switches to groups 10 of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each 1 in wheelhouse - 8 switches for navigating lights. 1 in engine room - 10 switches. 1 in Engine room - 8 switches.

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 668 arranged in the following groups :-

A	117	lights each of	16	candle power requiring a total current of	23.4	Amperes
B	Wireless installation				30.0	
C	96	lights each of	16	candle power requiring a total current of	19.2	Amperes
D	86	" "	16	" "	17.2	
E	59	lights each of	16 cp & 1 HCP lamp	candle power requiring a total current of	20.0	Amperes
F	35	" "	16 cp & 1 HCP lamp	" "	17.0	
G	122	lights each of	16	candle power requiring a total current of	24.4	Amperes
H	69	" "	16	" "	13.8	
I	90	lights each of	16	candle power requiring a total current of	18.0	Amperes
J	2	Mast head light with	16	candle power requiring a total current of	25.0	Amperes
K	2	Side light with	16	candle power requiring a total current of	1.2	Amperes
L	70	Cargo lights of	16 cp & 2 HCP lamps	candle power, whether incandescent or arc lights	incandescent	

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 on bridge (main mast light controlled from poop)

DESCRIPTION OF CABLES.

Main cable carrying	165	Amperes, comprised of	37	wires, each	14	L.S.G. diameter, .1824	square inches total sectional area
Branch cables carrying	30	Amperes, comprised of	19	wires, each	16	L.S.G. diameter, .060	square inches total sectional area
Branch cables carrying	23	Amperes, comprised of	7	wires, each	16	L.S.G. diameter, .0221	square inches total sectional area
Leads to lamps carrying	1.8	Amperes, comprised of	7	wires, each	25	L.S.G. diameter, .0021	square inches total sectional area
Cargo light cables carrying	10	Amperes, comprised of	114	wires, each	38	L.S.G. diameter, .00319	square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

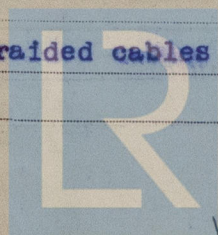
Tinned copper conductors, insulated with pure and vulcanising indiarubber, taped, and the whole vulcanised together and finished as follows: In accommodation - lead-covered and braided overall. In machinery and cargo spaces - lead covered armoured and braided.

Joints in cables, how made, insulated, and protected No joints.

Are all the joints of cables thoroughly soldered, resin only having been used as a flux --- Are all joints in accessible positions, none being made in bunks, cargo spaces, or spaces which may at any time be used for carrying cargo, stores, or baggage ---

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 lead covered armoured and braided cables secured to beams by galvanised iron saddles and brass screws.



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.**

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

What special protection has been provided for the cables near boiler casings **Ditto**

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

How are cables carried through beams **Through holes bushed with fibre** through bulkheads, &c. **through brass w.t.glands.**

How are cables carried through decks **through deck tubes made watertight.**

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 **lead-covered armoured and braided.**

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

If so, how are the lamp fittings and cable terminals specially protected **Glass well jar and strong brass guard.**

Where are the main switches and cut outs for these lights fitted **in engine room.**

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 **To heavy brass terminals fitted in cast iron boxes on deck.**

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 **Yes** supplied with **2** voltmeters and with **2** amperemeters fixed **in engine room.**

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.

P. PRO THE SUNDERLAND FORGE & ENGINEERING CO. LTD.

A. Wright

DIRECTOR.

Electrical Engineers

Date **9th. May, 1918.**

COMPASSES.

Distance between dynamo or electric motors and standard compass **124 feet**

Distance between dynamo or electric motors and steering compass **116 "**

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
6.4	7	7	7
0.2	3	3	3
-	-	-	-

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** course in the case of the standard compass and **Nil** degrees on **all** course in the case of the steering compass.

PRO WORKMAN, CLARK & CO., LIMITED.

[Signature]

SECRETARY.

Builder's Signature.

Date

GENERAL REMARKS.

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

It is submitted that this vessel is eligible for THE RECORD. Elec. light.

[Signature] **21/5/18**

R. F. Beveridge

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

Committee's Minute.

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.