

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 7084.

Port of Belfast Date of First Survey 8th Feb Date of Last Survey 20th Apr 1912 No. of Visits 10
 No. in Reg. Book on the Iron or Steel T.S.S. "Makarini" Port belonging to London.
 Built at Belfast By whom Workman Clark & Co. Ltd. When built 1912
 Owners Tyser Line Ltd Owners' Address London.
 Yard No. 310 Electric Light Installation fitted by The Sunderland Forge & Eng. Co. Ltd. When fitted 1912

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Two Multipolar Compound wound dynamos coupled to Workman Clark & Co's Single

Acting enclosed engine.

Capacity of Dynamo 140 Amperes at 100 Volts, whether continuous or alternating current Continuous
 Where is Dynamo fixed In thrust recess Whether single or double wire system is used double
 Position of Main Switch Board In thrust recess having switches to groups Six of lights, &c., as below
 Positions of auxiliary switch boards and numbers of switches on each No. auxiliary.

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 YesAre the cut outs of non-oxidizable metal Tin fuse wire 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 Fitted on slate or porcelain.Total number of lights provided for 574 arranged in the following groups:—

A	81	lights each of	16	candle power requiring a total current of	48.6	Amperes
B	16	lights each of	16	candle power requiring a total current of	9.6	Amperes
C	46	lights each of	16	candle power requiring a total current of	27.6	Amperes
D	70	lights each of	16	candle power requiring a total current of	42.0	Amperes
E	33	lights each of	16	candle power requiring a total current of	19.8	Amperes
2	Mast head light with	1	lamps each of	32	candle power requiring a total current of	2.4
2	Side light with	1	lamps each of	32	candle power requiring a total current of	2.4

7 Cargo lights of 160 candle power, whether incandescent or arc lights incandescent
2 Arc lamps 1600 Candle power each.

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

Arc enclosed in Glazed lantern.

Where are the switches controlling the masthead and side lights placed In wheelhouse.

DESCRIPTION OF CABLES.

Main cable carrying	141	Amperes, comprised of	37	wires, each	15	L.S.G. diameter, .151	square inches total sectional area
Branch cables carrying	42	Amperes, comprised of	19	wires, each	16	L.S.G. diameter, .0612	square inches total sectional area
Branch cables carrying	9.6	Amperes, comprised of	7	wires, each	18	L.S.G. diameter, .0127	square inches total sectional area
Leads to lamps carrying	3	Amperes, comprised of	7	wires, each	23	L.S.G. diameter, .00315	square inches total sectional area
Cargo light cables carrying	6.0	Amperes, comprised of	7	wires, each	20	L.S.G. diameter, .00714	square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Insulated with pure rubber vulcanised rubber taped lead covered.

In machinery spaces cargo holds etc., Armoured and braided overall.

Joints in cables, how made, insulated, and protected There are 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 bunkers, 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 ☒How are the cables led through the ship, and how protected In accommodation spaces clipped to wood grounds

In Holds clipped to Iron Decks with galvanised clips.

Circuit.—

(G). 328 lights of 8 c.p. each requiring a total current of 98.4 amps.273 of these are temporary wired.

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 cables used.**

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat **ditto.**

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 **Fibre bushes.** through bulkheads, &c. **Watertight glands.**

How are cables carried through decks **in Galvanised Iron deck pipes 4 ft. 6" high.**

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 **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 **✓**

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 **✓**

The installation is **for each dynamo** supplied with a voltmeter and an amperemeter, fixed **on main switchboard**

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.

Phym Man

Electrical Engineers

Date **9th. May. 1912.**

COMPASSES.

Distance between dynamo or electric motors and standard compass **Dynamo. 130 ft.**

Distance between dynamo or electric motors and steering compass **" 128 "**

The nearest cables to the compasses are as follows:—

Cable	Amperes	Distance from standard compass	Distance from steering compass
A cable carrying 10.2	10	10	10
A cable carrying 1.2	10	10	10
A cable carrying .6	in Compass	in Compass	in 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** 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.

R. Beacham

SECRETARY.

Builder's Signature.

Date

GENERAL REMARKS.

The installation has been well fitted and proved satisfactory on trial

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

Electric Light

A. J. Lomas

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

Committee's Minute

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.



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