

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 52025.

Port of *Newcastle & Tyne* Date of First Survey *19th November '06* Date of Last Survey *6th December 1906* No. of Visits *6*
 No. in Reg. Book *37* on the Iron or Steel *S/S "Lindenfels"* Port belonging to *Bremen*
 Built at *Low Walker* By whom *Messrs. Swan Hunter & Wigham Richd. Ltd.* built *1906*
 Owners *Deutsche Dampfschiffahrts Ges. Harburg* Owners' Address *Bremen*
 Yard No. *768* Electric Light Installation fitted by *Messrs. Clarke Chapman & Co. Ltd.* When fitted *1906*

DESCRIPTION OF DYNAMO, ENGINE, ETC.

One vertical compound double acting open type engine coupled direct to a continuous current compound wound dynamo.

Capacity of Dynamo *120* Amperes at *110* Volts, whether continuous or alternating current *continuous*

Where is Dynamo fixed *Engine room lower Platf. Started* whether single or double wire system is used *Double*

Position of Main Switch Board *Near dynamo* having switches to groups *A. B. C. D. E. F.* of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each *light and groups of lights fitted with switches as required.*

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 *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 *Yes*

Are all switches and cut-outs constructed of incombustible materials and fitted on incombustible bases *Yes. Slate & Amboin.*

Total number of lights provided for *136* arranged in the following groups:—

A	1-20" Projector lights each of	20,000	candle power requiring a total current of	60.	Amperes
B	26	lights each of	16	candle power requiring a total current of	14.2
C	23	lights each of	16	candle power requiring a total current of	12.5
D	18	lights each of	16	candle power requiring a total current of	9.8
E	39	lights each of	16	candle power requiring a total current of	21.1
F	30	lights each of	16	candle power requiring a total current of	16.4
2	Mast head light with 1 lamp each of	82.	candle power requiring a total current of	1.1	Amperes
2	Side light with 1 lamp each of	32.	candle power requiring a total current of	1.1	Amperes
8	Cargo lights of each	5-16	candle power, whether incandescent or arc lights	incandescent.	

If arc lights, what protection is provided against fire, sparks, &c. *Totally enclosed in hexagonal clear glass lanterns.*

Where are the switches controlling the masthead and side lights placed *In chart room.*

DESCRIPTION OF CABLES.

Main cable carrying *120* Amperes, comprised of *37* wires, each *13* L.S.G. diameter, *24 310* square inches total sectional area

Branch cables carrying *14.2* Amperes, comprised of *7* wires, each *17* L.S.G. diameter, *01706* square inches total sectional area

Branch cables carrying *12.5* Amperes, comprised of *7* wires, each *18* L.S.G. diameter, *01254* square inches total sectional area

Leads to lamps carrying *54* Amperes, comprised of *1* wires, each *18* L.S.G. diameter, *0018* square inches total sectional area

Cargo light cables carrying *3* Amperes, comprised of *7* wires, each *20* L.S.G. diameter, *0070* square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Vulcanized rubber, taped & braided and lead covered overall and where exposed steel armoured. Braided and heavily bitumen compounded.

Joints in cables, how made, insulated, and protected *No joints except mechanical ones*

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. No.*

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, steel armoured, braided and heavily bitumen compounded.*

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 and steel armoured braided and heavily bitumen compounded

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

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

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

How are cables carried through beams In lead bushes. through bulkheads, &c. in watertight glands

How are cables carried through decks In galvanized iron watertight deck tubes

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 Lead covered armoured & braided overall and secured by brass clips

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 cast iron watertight boxes.

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel Double wire system.

How are the returns from the lamps connected to the hull —

Are all the joints with the hull in accessible positions —

The installation is now supplied with a voltmeter and also 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 2,000 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 CLARKE, CHAPMAN & Co. LTD.

J. C. Walker

Electrical Engineers

Date 3/1/07.

COMPASSES.

Distance between dynamo or electric motors and standard compass 112 feet.

Distance between dynamo or electric motors and steering compass 100 feet.

The nearest cables to the compasses are as follows:—

A cable carrying	<u>.6</u>	Amperes	<u>3</u>	feet from standard compass	<u>6</u>	feet from steering compass
A cable carrying	<u>.6</u>	Amperes	<u>6</u>	feet from standard compass	<u>3</u>	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 — course in the case of the standard compass and nil degrees on — course in the case of the steering compass.

SWAN, HUNTER, & WIGHAM RICHARDSON, LTD.

J. Anderson Committee

Builder's Signature.

Date 5 January 1907

GENERAL REMARKS.

The installation examined & found satisfactory

John H. Heck.

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

Committee's Minute

It is submitted that the Record Rec. light be noted in the Reg. Book.

Lloyd's Register Foundation

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.