

## REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 15015

Port of West Hartlepool Date of First Survey and Date of Last Survey While building No. of Visits 1  
 No. in Reg. Book on the Iron Steel Steamer "Nirvana" Port belonging to Glasgow  
 Built at West Hartlepool By whom D. Gray & Co. Ltd. When built 1914  
 Owners British India S. N. Co. Owners' Address Glasgow  
 Yard No. 847 Electric Light Installation fitted by Clarke, Chapman & Co. Ltd. When fitted 1914

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

One single cylinder vertical open type double acting Engine direct coupled to a continuous current compound wound Dynamo  
 Capacity of Dynamo 170 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 near Dynamo having switches to groups A. B. C. D. E. of lights, &c., as below  
 Positions of auxiliary switch boards and numbers of switches on each each light & group of lights fitted with switches as required.

If fuses 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 fuses fitted to both flow and return wires or cables of all circuits including lamp circuits yes

Are the fuses of non-oxidizable metal yes and constructed to fuse at an excess of 60 per cent over the normal current

Are all fuses 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 fuses constructed of incombustible materials and fitted on incombustible bases yes

Total number of lights provided for 128 arranged in the following groups:—

A Saloon	42	lights each of	16	candle power requiring a total current of	25.2	Amperes
B Engine room	32	lights each of	16	candle power requiring a total current of	19.2	Amperes
C Engine room	31	lights each of	16	candle power requiring a total current of	18	Amperes
D Aft	23	lights each of	16	candle power requiring a total current of	13.8	Amperes
E Wireless	—	lights each of	—	candle power requiring a total current of	25	Amperes
2 Mast head light with	1	lamps each of	32	candle power requiring a total current of	1.2	Amperes
2 Side light with	1	lamps each of	32	candle power requiring a total current of	1.2	Amperes
2 Cargo lights of	3000	candle power, whether incandescent or arc lights	<u>arc lights</u>			

If arc lights, what protection is provided against fire, sparks, &c. Fitted with totally enclosed hexagonal glass lanterns

Where are the switches controlling the masthead and side lights placed in chart Room

## DESCRIPTION OF CABLES.

Main cable carrying 170 Amperes, comprised of 37 wires, each 14 S.W.G. diameter, .1824 square inches total sectional area  
 Branch cables carrying 25 Amperes, comprised of 7 wires, each 16 S.W.G. diameter, .02214 square inches total sectional area  
 Branch cables carrying 5 Amperes, comprised of 1 wires, each 14 S.W.G. diameter, .00502 square inches total sectional area  
 Leads to lamps carrying .6 Amperes, comprised of 1 wires, each 18 S.W.G. diameter, .00181 square inches total sectional area  
 Cargo light cables carrying 15 Amperes, comprised of 7 wires, each 18 S.W.G. diameter, .01246 square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

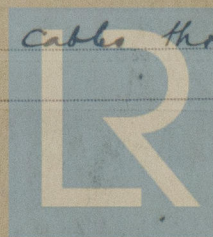
Vulcanized india rubber taped & braided and lead covered overall, where exposed steel armoured over the lead covering.

Joints in cables, how made, insulated, and protected no joints except mechanical ones.

Are all the joints of cables thoroughly soldered, and the flux used not containing acids or other corrosive substances 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 & armoured cables through beams & clipped to underside of deck.





DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.

Are they in places always accessible *No.*

What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture *Lead & armoured*

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

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

*do*

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

*do*

How are cables carried through beams *in lead bushes* through bulkheads, &c. *in W.T. glands*

How are cables carried through decks *in galvanized iron deck tubes*

Are any cables run through coal bunkers *yes* 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*

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 fuses for these lights fitted

If in the spaces, how are they specially protected

Are any switches or fuses fitted in bunkers

Cargo light cables, whether portable or permanently fixed

*portable*

How fixed *to W.T. connection 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

Is the installation supplied with a voltmeter

*yes*

and with an amperemeter

*yes*

fixed *Switchboard*

VESSELS BUILT FOR CARRYING PETROLEUM.

In vessels built for carrying petroleum, are all switches and fuses fitted in positions not liable to the accumulation of petroleum vapour or gas

Are any switches, fuses, 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 not less than that of the Engineering Standards Committee's standard, and the wires are protected by tinning from the sulphur compounds present in the insulating material.

Insulation of cables is guaranteed to have a resistance of not less than *600* megohms per statute mile at 60° Fahrenheit after 24 hours' immersion in water, the test being made after one minute's electrification at not less than 500 volts and while the cable is still immersed.

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.*

Electrical Engineers

Date *November 25<sup>th</sup> 1914*

COMPASSES.

*W. Walker* Chairman.

Distance between dynamo or electric motors and standard compass

*160 feet*

Distance between dynamo or electric motors and steering compass

*150 feet*

The nearest cables to the compasses are as follows:—

A cable carrying *6* Amperes *12* feet from standard compass *6* feet from steering compass

A cable carrying *6* Amperes *6* feet from standard compass *12* 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

*all*

courses in the case of the

standard compass and

*nil* degrees on *all*

courses in the case of the steering compass.

FOR WILLIAM GRAY & CO LIMITED.

*R. W. Dryden*

Builder's Signature.

Date *Nov 26. 1914*

GENERAL REMARKS.

*The fitting of the wire throughout this vessel is as stated in this report and appears to be in accordance with the Committee's requirements.*

*It is submitted that this vessel is eligible for*

THE RECORD Elec. light.

*J. W. D.*

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

Committee's Minute