

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 43644

Port of *Newcastle-on-Tyne* Date of First Survey *May 2, 1902* Date of Last Survey *June 6 '02* No. of Visits *6*
 No. in Reg. Book on the Iron or Steel *1/s "Pure Oil"* Port belonging to *Hamburg*
 Built at *Walker Shipyard* By whom *Messrs Sir H. G. Armstrong Whitworth & Co. Ltd.*
 Owners *Pure Oil Co.* Owners' Address *Hamburg*
 Yard No. *721* Electric Light Installation fitted by *Messrs Sir H. G. Armstrong Whitworth & Co. Ltd.* When fitted *June 1902*

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Compound round, fourpole Type Dynamo. Drum Armature
 The engine has one cylinder 7" dia. x 5" stroke. Double Acting & Direct Coupled
 Capacity of Dynamo *80* Amperes at *100* Volts, whether continuous or alternating current
 Where is Dynamo fixed *Forward end of Engine Room, on Starboard side*
 Position of Main Switch Board *By the side of Dynamo* having switches to groups of lights, &c., as below
 Positions of auxiliary switch boards and numbers of switches on each *No auxiliary boards fitted.*

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 on main cables*
 Are the cut outs of non-oxidizable metal *yes* and constructed to fuse at an excess of *25* 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 *no*
 Are all switches and cut-outs constructed of incombustible materials and fitted on incombustible bases *yes. Slate & china bases*
 Total number of lights provided for *76* arranged in the following groups:—
 A Forward Circuit 10 lights each of *16 cp.* candle power requiring a total current of *7* Amperes
 B Engine & Boiler Room 13 lights each of *16 cp.* candle power requiring a total current of *15* Amperes
 C Cabin 43 lights each of *16, 32, & 50 cp.* candle power requiring a total current of *27* Amperes
 D lights each of candle power requiring a total current of Amperes
 E lights each of candle power requiring a total current of Amperes
 1 Mast head light with 1 lamps each of *32 cp.* candle power requiring a total current of *1.1* Amperes
 2 Side light with 1 lamps each of *32 cp.* candle power requiring a total current of *2.2* Amperes
 2 Cargo lights of *50 cp.* candle power, whether incandescent or arc lights *3 amperes*
 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 the Wheel House on Bridge*

DESCRIPTION OF CABLES.

Main cable carrying *50* Amperes, comprised of *19* wires, each *14* L.S.G. diameter, *.09442* square inches total sectional area
 Branch cables carrying *22* Amperes, comprised of *7* wires, each *16* L.S.G. diameter, *.02227* square inches total sectional area
 Branch cables carrying *7* Amperes, comprised of *7* wires, each *20* L.S.G. diameter, *.00705* square inches total sectional area
 Leads to lamps carrying *2* Amperes, comprised of *1* wires, each *18* L.S.G. diameter, *.0018* square inches total sectional area
 Cargo light cables carrying *1.8* Amperes, comprised of *36* wires, each *38* L.S.G. diameter, *.0010* square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

All Cables & Wires in Cabins lead covered. Insulation resistance *600 megohms*
 " " Engine, Boiler Rooms & Bunkers are lead covered and armoured with Galvanized Steel Wires. Insulation Resistance *600 megohms*
 Joints in cables, how made, insulated, and protected *No joints in cables - where cables are sweated into adaptors, then joints are made good with "Manson" prepared tape.*
 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 *None*
 How are the cables led through the ship, and how protected *Clipped on to Bulkheads or Beams*
In Bunkers all wires are run in strong wood casing

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 None exposed

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

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

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

How are cables carried through beams Holes Bushed through bulkheads, &c. Where necessary W.T. glands are fitted

How are cables carried through decks In 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 Armoured wires in strong wood casing

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 In cast iron fittings

Where are the main switches and cut outs for these lights fitted Engine Room

If in the spaces, how are they specially protected

Are any switches or cut outs fitted in bunkers Yes, in strong metal boxes

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 —

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 Yes

Are any switches, cut outs, or joints of cables fitted in the pump room or companion No

How are the lamps specially protected in places liable to the accumulation of vapour or gas All H. 2. fittings

The installation is now supplied with a voltmeter and but not with an amperemeter, fixed on main switchboard

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 600 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.

SIR W. G. ARMSTRONG, WHITWORTH & CO. LIMITED

Edmund W. Lewis Electrical Engineers

Date June 7th 1902

COMPASSES.

Distance between dynamo or electric motors and standard compass 150 feet

Distance between dynamo or electric motors and steering compass 150 "

The nearest cables to the compasses are as follows:—

A cable carrying	6	Amperes	15	feet from standard compass	15	feet from steering compass
A cable carrying	2	Amperes	10	feet from standard compass	10	feet from steering compass
A cable carrying	8	Amperes	10	feet from standard compass	10	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 course in the case of the steering compass.

SIR W. G. ARMSTRONG, WHITWORTH & CO. LIMITED

Arthur Gustafson Builder's Signature. Date 7th 2nd June 1902

GENERAL REMARKS.

This installation appears to have been fitted in a satisfactory manner and in accordance with the rules.

G. A. H. K.

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

Committee's Minute

This installation appears to be fitted in accordance with the Rules

Lloyd's Register Foundation

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.