

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 43644

Port of *Newcastle-on-Tyne* Date of First Survey *May 8 1902* Date of Last Survey *June 6 '02* No. of Visits *6*
 No. in Reg. Book on the Iron or Steel *9/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* 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	23 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, these 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



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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.I. 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. I. fittings
 The installation is not 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 H. 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	<u>6</u>	Amperes	<u>15</u>	feet from standard compass	<u>15</u>	feet from steering compass
A cable carrying	<u>2</u>	Amperes	<u>10</u>	feet from standard compass	<u>10</u>	feet from steering compass
A cable carrying	<u>8</u>	Amperes	<u>10</u>	feet from standard compass	<u>10</u>	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 Gulston Builder's Signature. Date 7th 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
J. M. 23/6/02

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.