

# REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 12581.

Port of Leith Date of First Survey 25<sup>th</sup> Feb Date of Last Survey 9<sup>th</sup> Mar 1909 No. of Visits 1  
 No. in 26 on the Iron or Steel "Netravati" Port belonging to Bombay  
 Reg. Book 26 Built at Grangemouth By whom Messrs. The Grangemouth Dockyard Co. Ltd. When built 1909  
 Owners Bombay Steam Navigation Co. Owners' Address Bombay  
 Yard No. 310 Electric Light Installation fitted by H. J. Robertson & Co. When fitted 1909

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

Dynamo Compound wound of Multipolar {4 pole} type Coupled direct to a Vertical Engine with cylinder 8" dia. by 6" Stroke  
 Capacity of Dynamo 140 Amperes at 100 Volts, whether continuous or alternating current continuous  
 Where is Dynamo fixed Engine Room Starting platform  
 Position of Main Switch Board Engine Room near Dynamo having switches to groups A, A', B, C, D, E & F of lights, &c., as below  
 Positions of auxiliary switch boards and numbers of switches on each \_\_\_\_\_

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 100 per cent over the normal current  
 Are all cut outs fitted in easily accessible positions Yes Are the fuses of standard dimensions wire 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

Total number of lights provided for 159 arranged in the following groups:—

A Cargo	18	lights each of	16	candle power requiring a total current of	10.8	Amperes
A' "	18	" "	"	" " " " " " " "	10.8	"
B Forecastle	23	lights each of	32	" " " " " " " "	17.4	Amperes
C Officers	20	lights each of	16	candle power requiring a total current of	15.6	Amperes
+ 10 Bridge	3	" "	32	" " " " " " " "	"	"
D Engineers	21	lights each of	16	candle power requiring a total current of	15.0	Amperes
+ Poop	2	" "	32	" " " " " " " "	"	"
E Saloon Etc.	29	lights each of	16	candle power requiring a total current of	14.4	Amperes
F Engine Room	23	" " "	16	" " " " " " " "	13.2	"
2 Mast head light with	1	lamps each of	32	candle power requiring a total current of	included in C & D Amperes	
4 Side lights with	1	lamps each of	32	candle power requiring a total current of	" " C & B Amperes	
6 Cargo lights of			96	candle power, whether incandescent or arc lights	Incandescent	

If arc lights, what protection is provided against fire, sparks, &c. No Arcs

Where are the switches controlling the masthead and side lights placed Forward Side Lt., Lamp Room and Bridge Side Lt. & Masthead Lt., Bridge Wheel House

## DESCRIPTION OF CABLES.

Main cable carrying 100 Amperes, comprised of 19 wires, each 14 L.S.G. diameter, .0956 square inches total sectional area  
 Branch cables carrying 15.6 Amperes, comprised of 4 wires, each 14 L.S.G. diameter, .0142 square inches total sectional area  
 Branch cables carrying 10.8 Amperes, comprised of 4 wires, each 18 L.S.G. diameter, .0124 square inches total sectional area  
 Leads to lamps carrying .6 Amperes, comprised of 1 wires, each 16 L.S.G. diameter, .00322 square inches total sectional area  
 Cargo light cables carrying 3.6 Amperes, comprised of 114 wires, each 38 L.S.G. diameter, .00322 square inches total sectional area

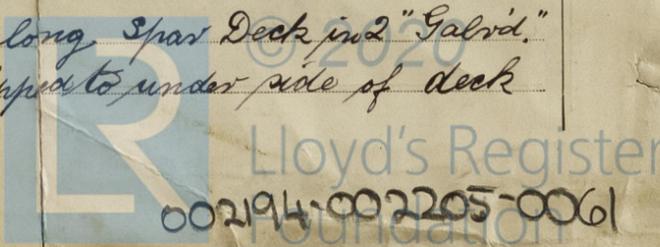
## DESCRIPTION OF INSULATION, PROTECTION, ETC.

Pure india rubber then vulcanizing india rubber, india rubber coated tape; the whole vulcanized together, Braided tarred jute coated with preservative compound, in Strong Wood Casing, other portions Armoured & Lead & Armoured  
 Joints in cables, how made, insulated, and protected Spliced joints, soldered & re-insulated with a layer of felt strip, built up with several layers of pure india rubber strip finished with proof tape and varnished

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 no joints Bunkers or Spaces

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 Armoured Cables along Spar Deck in 2" Galv'd. iron pipe & through tween decks Armoured Cables Clipped to under side of deck



A. Y. Robertson Co.

DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.

Are they in places always accessible Yes except Cargo Spaces

What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture Armoured in Galv'd. iron pipe and Lead Covered & Armoured

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

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

What special protection has been provided for the cables in engine room Armoured & Lead Covered & Armoured

How are cables carried through beams thro" fibre ferrules through bulkheads, &c. thro" fibre bushes

How are cables carried through decks in Galv'd. iron pipes bushed with fibre

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 Armoured with Galv'd. iron wire

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage Cargo Spaces only

If so, how are the lamp fittings and cable terminals specially protected Strong Cast iron Shutters

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

If in the spaces, how are they specially protected none in spaces

Are any switches or cut outs fitted in bunkers No

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 —

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 installation is also supplied with a voltmeter and with an amperemeter, fixed on Switch-board

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.

A. Y. Robertson Co. Electrical Engineers Date 16<sup>th</sup> March 1909.

COMPASSES.

Distance between dynamo or electric motors and standard compass 46 Feet

Distance between dynamo or electric motors and steering compass 42 Feet

The nearest cables to the compasses are as follows:—

A cable carrying	15.6	Amperes	6	feet from standard compass	5	feet from steering compass
A cable carrying	1	Amperes	4	feet from standard compass	4	feet from steering compass
A cable carrying	.6	Amperes	into	feet from standard compass	+ into	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 every course in the case of the standard compass and Nil degrees on every course in the case of the steering compass.

FOR THE GREENOCK AND GRANGEMOUTH DOCKYARD CO., LTD.

J. Hawley Builder's Signature. Date 20<sup>th</sup> March 1909

GENERAL REMARKS.

The foregoing appears to be a correct description of this installation which has been fitted in a satisfactory manner  
A. Y. Graham  
Surveyor to Lloyd's Register of British and Foreign Shipping.

Committee's Minute

It is submitted that the Record Elec. Light be noted in the Reg. Book.



THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

REPORT FORM No. 13.