

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 9892.

Port of *Leith* Date of First Survey *2nd Oct.* Date of Last Survey *18th Oct.* No. of Visits *3*
 No. in Reg. Book *on the Iron on Steel S.S. "Rajah of Sarawak"* Port belonging to *Sarawak*
 Built at *Leith* By whom *Ramage & Ferguson Ltd.* When built *1901*
 Owners *Borneo Co. Ltd.* Owners Address *Sarawak*
 Yard No. *178* Electric Light Installation fitted by *Messrs King & Co* When fitted *1901*

DESCRIPTION OF DYNAMO, ENGINE, ETC.

King & Co. compound wound dynamo coupled to Ransomes, Sims & Jeffries vertical open doubleacting engine, 6'2" x 6' 350 H.P.M.

Capacity of Dynamo *80* Amperes at *100* Volts, whether continuous or alternating current *Continuous*

Where is Dynamo fixed *Starboard side engine room*

Position of Main Switch Board *beside dynamo* having switches to groups *5* of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each

5 distributing fuse boards, bridge pattern, (1) Eng. room (2) aft engine in (3) bridge engine (4) forward engine (5)

If cut outs are fitted on main switch board to the cables of main circuit *yes* and on each auxiliary switch boards 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 *no*

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 *about 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 *no*

Are all switches and cut-outs constructed of incombustible materials and fitted on incombustible bases *yes*

Total number of lights provided for *105* arranged in the following groups:—

A Engine room	12 lights each of	16	candle power requiring a total current of	7.2	Amperes
B Aft engine	24 lights each of	16	candle power requiring a total current of	19	Amperes
	+ 8 fan motors		<i>incandescent</i>		
C Bridge	28 lights each of	16	candle power requiring a total current of	17	Amperes
	+ 1 fan motor				
D Forward	17 lights each of	16	candle power requiring a total current of	14	Amperes
	+ 1 fan motor		<i>incandescent</i>		
E Mast	24 lights each of	16	candle power requiring a total current of	14.4	Amperes
F Mast head light with	1 lamps each of	32	candle power requiring a total current of	1.2	Amperes
G Side lights with	1 lamps each of	32	candle power requiring a total current of	2.4	Amperes
H Cargo lights of		80	candle power, ^{each} whether incandescent or are lights <i>incandescent</i>		

If are lights, what protection is provided against fire, sparks, &c. *none*

Where are the switches controlling the masthead and side lights placed *in cabin room upper deck.*

DESCRIPTION OF CABLES.

Main cable carrying	12 Amperes, comprised of	19 wires, each	15 L.S.G. diameter, .076 square inches total sectional area
Branch cables carrying	19 Amperes, comprised of	7 wires, each	16 L.S.G. diameter, .022 square inches total sectional area
Branch cables carrying	Amperes, comprised of	wires, each	L.S.G. diameter, square inches total sectional area
Leads to lamps carrying	3 Amperes, comprised of	3 wires, each	20 L.S.G. diameter, .003 square inches total sectional area
Cargo light cables carrying	3 Amperes, comprised of	110 wires, each	38 L.S.G. diameter, square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

India Rubber Co. insulates with pure vulcanised rubber, taped, banded & compounded.

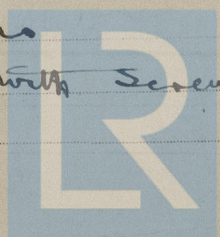
Joints in cables, how made, insulated, and protected

Twisted or spliced, soldered & insulated with pure rubber, w. p. tape & rubber solution.

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 *no*

How are the cables led through the ship, and how protected *in wood casing with screwed on covering*



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no reduction in power at lamp circuits.

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

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat none

What special protection has been provided for the cables near boiler casings none

What special protection has been provided for the cables in engine room none

How are cables carried through beams in hard wood fishes through bulkheads, &c. in bushes or W. Tight glands

How are cables carried through decks W. T. glands

Are any cables run through coal bunkers no or cargo spaces no or spaces which may be used for carrying cargo, stores, or baggage no

If so, how are they protected ~~~~~

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage none

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 ~~~~~

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 double wire

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 yes supplied with a voltmeter and no an amperemeter, fixed in main switchboard

The copper used is guaranteed to have a conductivity of 98% per cent. that of pure copper.

Insulation of cables is guaranteed to have a resistance of not less than 600 megohm 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.

Wing & Co

Electrical Engineers

Date 18th Oct^r 1901

COMPASSES.

Distance between dynamo or electric motors and standard compass 35 ft

Distance between dynamo or electric motors and steering compass 28 ft

The nearest cables to the compasses are as follows:—

A cable carrying	<u>15</u>	Amperes	<u>14</u>	feet from standard compass	<u>7</u>	feet from steering compass
A cable carrying		Amperes		feet from standard compass		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.

James J. Ferguson Ltd
Alex J. Ferguson Secy

Builder's Signature

Date

GENERAL REMARKS.

The above installation has been fitted in accordance with the Rules & in a satisfactory manner.

Thomas Field

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

Committee's Minute

It is submitted that this installation appears to meet the Rule requirements.

25/10.01