

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 13 DEC 1926

Date of writing Report 10th Dec 1926 When handed in at Local Office 10th Dec 1926 Port of Southampton

No. in Survey held at Southampton Date, First Survey 6th Oct. Last Survey 2nd Dec 1926
Reg. Book. on the Ferry Steamer Imbuhy (Number of Visits 6)

Built at Woolston By whom built Messrs J. I. Thornycroft Yard No. 1060 When built 1926
Tons { Gross 480.29
Net 216.13

Owners Companhia Cantareira Viacao Fluminense Port belonging to Rio de Janeiro

Electric Light Installation fitted by Messrs J. I. Thornycroft Co. Contract No. 1060 When fitted 1926

System of Distribution Two wire Insulated ✓
Pressure of supply for Lighting 110 Volts ✓ volts, Heating _____ volts, Power _____ volts.

Direct or Alternating Current, Lighting Direct ✓ Power _____

If alternating current system, state frequency of periods per second _____
Has the Automatic Governor been tested and found efficient when the whole load is suddenly thrown on or off Yes ✓

Generators, do they comply with the requirements regarding overload Yes ✓, are they compound wound Yes ✓
are they over compounded 5 per cent. Yes ✓, if not compound wound state distance between each generator _____

Where more than one generator is fitted are they arranged to run in parallel No, only one machine running at time, is an adjustable regulating resistance fitted in series with each shunt field Yes ✓

Are all terminals accessible and clearly marked Yes ✓, are they so spaced or shielded that they cannot be accidentally earthed, or short circuited Yes ✓

Position of Generators In Engine Room ✓
is the ventilation in way of the generators satisfactory Yes ✓, are they clear of all inflammable material Yes ✓

if situated near unprotected woodwork or other combustible material, state distance of same horizontally from or vertically above the generators _____ and _____, are the generators protected from mechanical injury and damage from water, steam or oil Yes ✓

are their axis of rotation fore and aft Yes ✓

Earthing, are the bedplates and frames of the generating plant efficiently earthed Yes ✓ are the prime movers and their respective generators in metallic contact Yes ✓

Main Switch Boards, where placed In Engine Room near Generators ✓
If the generators and main switchboard are not placed in the same compartment, is each generator provided with a fuse on each insulated pole as near as possible to the terminals of the generator, additional to that provided on the main switchboard _____

Switchboards, are they placed in accessible positions, free from inflammable gases and acid fumes Yes ✓

are they protected from mechanical injury and damage from water, steam or oil Yes ✓, if situated near unprotected woodwork or other combustible material, state distance of same horizontally from or vertically above the switchboards _____ and _____

are they constructed wholly of durable, incombustible non-absorbent materials _____, is all insulation of high dielectric strength and of permanently high insulation resistance Yes ✓

if semi-insulating material is used, are all conducting parts connected to one pole insulated from the slab with mica or micanite and the slab similarly insulated from its framework _____, and is the frame effectively earthed Yes ✓

Are the following fittings as per Rule, viz.:— spacing or shielding of live parts Yes ✓, accessibility of all parts Yes ✓, absence of fuses on back of board Yes ✓, proportion of omnibus bars Yes ✓

individual fuses to voltmeter, pilot or earth lamp Yes ✓, connections of switches Yes ✓

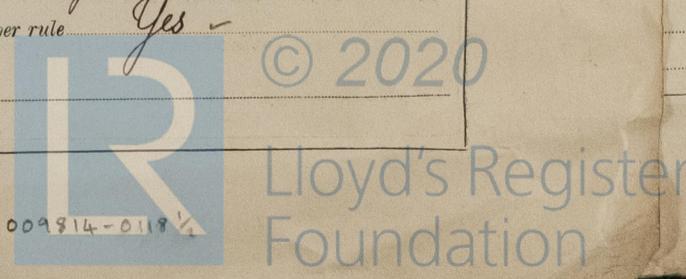
Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches. Dynamos connected to D.P. Change Over Switch with fuses on each pole. (To permit only one dynamo being run at time) Circuit switches Double pole type with fuse on each pole. No equalizer switch required ✓

Instruments on main switchboard 1 ✓ ammeters, 1 ✓ voltmeters, _____ synchronising device for paralleling purposes.

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system. Earth lamps. ✓
switches fitted ✓

Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules. Yes ✓

Section and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule Yes ✓



Insulation of Cables, state type of cables, single or twin *Single* are the cables insulated and protected as per Tables III or IV of the Rules *Yes* -

Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load *2 Volts maximum*

Cable Sockets and other connections, are the ends of all cables having a sectional area of 0.007 square inch and above provided with soldering sockets *Yes*

Paper Insulated Cables, if cables are paper covered, is the dielectric at the exposed ends of the conductor protected from moisture by being suitably sealed with insulating compound *not fitted*

Cable Runs, are the cables fixed as far as possible in accessible positions not exposed to drip or accumulation of water or oil, or to high temperature from boilers, steam pipes, uptakes or other hot objects, or to avoidable risk of mechanical damage *Yes*

Support and Protection of Cables, state how the cables are supported and protected *Generally clipped to Ships*

Structure or to plating carried therefrom
If cables are run in wood casings, are the casings and caps secured by screws *Yes*, are the cap screws of brass *Yes*, are the cables run in separate grooves *Yes*. If armoured and lead covered cables are secured by metal clips, are the clips spaced as per Table VI *Yes*

Refrigerated Chambers, if lights are fitted, are the cables and fittings in accordance with the special requirements *Yes*

Joints in Cables, state if any, and how made, insulated, and protected *None made*

Watertight Glands and Deck Tubes, are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands *Yes*

Bushes in Beams and Non-watertight Positions, where unarmoured cables pass through beams and non-watertight partitions, are the holes efficiently bushed *Yes* state the material of which the bushes are made *Yes*

Earthing Connections, state what earthing connections are fitted and their respective sectional areas *Yes*

are their connections made as per Rule *Yes*

Alternative Lighting, are the groups of lights in the propelling machinery space arranged as per Rule *Yes*

Emergency Supply, state position and method of control of the emergency supply and how the generator is driven *Not fitted*

Navigation Lamps, are these separately wired *Yes*, controlled by separate switch and separate fuses *Yes*

are the fuses double pole *Yes*, are the switches and fuses grouped in a position accessible only to the officers on watch *Yes*

has each navigation lamp an automatic indicator as per Rule *no*, are separate screens provided for the use of oil and electric side lights *no*

are separate oil lanterns provided for the mast head lights and side lights *Yes*

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, watertight *Yes*

are any fittings placed in spaces in which goods are liable to be stacked in close proximity to them; if so, how are they protected *not so fitted*

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *None fitted*

are the cables led *Yes*

where are the controlling switches situated *Yes*

Searchlight Lamps, No. of *none*, whether fixed or portable *Yes*, are their fittings as per Rule *Yes*

Arc Lamps, other than searchlight lamps, No. of *None*, are their live parts insulated from the frame or case *Yes*, are their fittings as per Rule *Yes*

Motors, are their working parts readily accessible *Yes*, are the coils self-contained and readily removable for replacement *Yes*

are the brushes, brush holders, terminals and lubricating arrangements as per Rule *Yes*, are the motors placed in well-ventilated compartments in which inflammable gases cannot accumulate and clear of all inflammable material *Yes*

are they protected from mechanical injury and damage from water, steam or oil *Yes*, are their axis of rotation fore and aft *Yes*

if situated near unprotected woodwork or other combustible material, are the motors of the totally enclosed, pipe ventilated, forced draught, drip or flame proof type *Yes*

are they protected from mechanical injury and damage from water, steam or oil *Yes*, are their axis of rotation fore and aft *Yes*

PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR	No. of	RATED AT				Revs. per Min.	DRIVEN BY.	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Amperes.				Fuel Used.	Flash Point of Fuel.
MAIN No. 1	1	2	110	18	600	Single Cylinder enclosed type Engines (Steam)	✓	✓	
AUXILIARY	1	7	110	64	600				
EMERGENCY									
ROTARY TRANSFORMER									

LIGHTING AND HEATING CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Conductors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Amperes.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	MAIN GENERATOR... No. 1	1	.0045	7	.029	18 x 18	48	Pure Vulcanoid	Lead based.
	AUXILIARY GENERATOR No. 2	1	.06	19	.064	83 x 64	24	India Rubber	
	EMERGENCY GENERATOR								
	ROTARY TRANSFORMER...								
	AUXILIARY SWITCHBOARDS...								
	ENGINE ROOM	1	.003	3	.036	12 x 12	12	do.	do.
	BOILER ROOM								
	WIRELESS								
	SEARCHLIGHT								
	MASTHEAD LIGHT...								do.
	SIDE LIGHTS...	1	.0015	1	.044	6 x 1	160		do.
	COMPASS LIGHTS...	1	.0015	1	.044	6 x 2	20		do.
	POOP LIGHTS								do.
	CARGO LIGHTS	1	.0015	1	.044	6 x 1.5	40		do.
	ARC LAMPS								
	HEATERS								

MOTOR CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Amperes.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	BALLAST PUMP								
	MAIN BILGE LINE PUMPS								
	GENERAL SERVICE PUMP								
	EMERGENCY BILGE PUMP								
	SANITARY PUMP								
	CIRC. SEA WATER PUMPS								
	CIRC. FRESH WATER PUMPS								
	AIR COMPRESSOR								
	FRESH WATER PUMP								
	ENGINE TURNING GEAR								
	ENGINE REVERSING GEAR								
	LUBRICATING OIL PUMPS								
	OIL FUEL TRANSFER PUMP								
	WINDLASS								
	WINCHES, FORWARD								
	WINCHES, AFT								
	STEERING GEAR								
	WORKSHOP MOTOR								
	VENTILATING FANS								

Note. ✓ denotes maximum current allowed on cable
 ✗ do do do do carried by cable

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All Conductors are of annealed copper conforming to British Standard Specification No. 7.
 The Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.
 The foregoing is a correct description.



R. Macchi
 Electrical Engineers.

Date 10. 12. 26.

COMPASSES.

Distance between electric generators or motors and standard compass _____

Distance between electric generators ~~or motors~~ and steering compass _____

Approx. 120 ft.

The nearest cables to the compasses are as follows:—

A cable carrying *2* Ampères ~~feet from standard compass~~ *On.* ~~feet from steering compass.~~

A cable carrying _____ Ampères _____ feet from standard compass _____ feet from steering compass.

A cable carrying _____ Ampères _____ 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*

Has the effect of switching on and off circuits, motors and other electro-magnetic apparatus within the vicinity of the compasses been noted

The maximum deviation due to electric currents was found to be _____ degrees on _____ course in the case of the standard

compass, and _____ degrees on _____ course in the case of the steering compass.



R. Macchi
 Builder's Signature.

Date 10. 12. 26.

Is this installation a duplicate of a previous case *No* If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, &c.) *The electrical installation of this vessel has been fitted under special survey in accordance with the requirements of the Rules and afterwards tested under full working conditions with satisfactory results. The vessel is eligible in my opinion to have a record of ELECTRIC LIGHT.*

It is submitted that this vessel is eligible for THE RECORD. Elec. light.

J.W.D.
 13/12/26

Total Capacity of Generators $\left\{ \begin{array}{l} 1 \text{ in } h^o \quad 2 \\ 1 \text{ in } h^o \quad 4 \end{array} \right.$ Kilowatts

The amount of Fee ... £ *9-0-0* : : $\left\{ \begin{array}{l} \text{When applied for,} \\ 10 \text{ Dec } 1926 \end{array} \right.$

Travelling Expenses (if any) £ : : $\left\{ \begin{array}{l} \text{When received,} \\ 22 \text{ Dec } 1926 \end{array} \right.$

A. J. Garnett
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUES. 14 DEC 1926

Assigned

Elec Light

56,12,23.—Transfer. (The Surveyors are requested not to write on or below the space for Committee's Minute.)



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