

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

8 JUL 1949

Received at London Office

Date of writing Report... 16th June 1949 When handed in at Local Office... 16th June 1949 Port of... Rio de Janeiro

No. in Survey held at... Rio de Janeiro Date, First Survey... 28/8/17 Last Survey... 16/6/1949  
Reg. Book. (Number of Visits... 8)

on the... Twin Screw steamer "RIO MINHO", ex Transport Ferry 3018 Tons {Gross...  
Net...}

Built at... Newcastle By whom built... Hawthorn Leslie & Co. Yard No. 680 When built... 1945

Owners... E.G. Fontes & Co. Port belonging to... Rio de Janeiro

Electrical Installation fitted by... Partly fitted on arrival completed by... Contract No. ... When fitted... 1949  
E.G. Fontes & Co.

Is vessel fitted for carrying Petroleum in bulk... no Is vessel equipped with D.F. yes E.S.D. no Gy.C. no Sub.Sig. no

Have plans been submitted and approved... System of Distribution... two - wire Voltage of supply for Lighting... 220

Heating... Power... 220 Direct or Alternating Current, Lighting... D.C. Power... D.C. If Alternating Current state periodicity... Prime Movers,

has the governing been tested and found as per Rule when full load is suddenly thrown on and off... yes Are turbine emergency governors fitted with a

rip switch as per Rule... Generators, are they compound wound... yes, are they level compounded under working conditions... yes

if not compound wound state distance between generators... and from switchboard... Where more than one generator is fitted are they

arranged to run in parallel... no, are shunt field regulators provided... yes Is the compound winding connected to the negative or positive pole

positive... Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing... Have certificates of

test for machines under 100 kw. been supplied... no and the results found as per rule... Are the lubricating arrangements and the construction

of the generators as per rule... yes Position of Generators... 2-steam in E.R. at Lower deck level. One Emergency

Diesel on Main Deck, is the ventilation in way of generators satisfactory... yes are they clear of inflammable material... yes, if situated

near unprotected combustible material state distance from same horizontally... and vertically... are the generators protected from mechanical

injury and damage from water, steam and oil... are the bedplates and frames earthed... yes and the prime movers and generators in metallic

contact... yes Switchboards, where are main switchboards placed... On main deck level inside E.R. at Centre Line

Bulkhead

are they in accessible positions, free from inflammable gases and acid fumes... yes, are they protected from mechanical injury and damage from water, steam

and oil... yes, if situated near unprotected combustible material state distance from same horizontally... and vertically... what insulation

material is used for the panels... Bakelite, if of synthetic insulating material is it an Approved Type... no, if of

non-insulating material (slate or marble) are all conducting parts insulated therefrom as per Rule... yes Is the frame effectually earthed... yes

the construction as per Rule... yes, including accessibility of parts... yes, absence of fuses on the back of the board... yes, individual fuses

pilot and earth lamps, voltmeters, etc... yes, locking of screws and nuts... yes, labelling of apparatus and fuses... yes, fuses on the "dead"

ends of switches... yes Description of Main Switchgear for each generator and arrangement of equaliser switches... Each equipped with 2 -

pole circuit breaker with overtension, over current and no-volt cut out. Knife switches

with fuses.

provided for each outgoing circuit... 2 - pole knife switch with fuses.

Are compartments containing switchboards composed of fire-resisting material... yes Instruments on main switchboard... 4

voltmeters... 3 voltmeters... synchronising devices. For compound machines in parallel is the ammeter connected on the pole opposite to the

equaliser connection... Earth Testing, state means provided... Indicator lamps on each board.

Knives, Circuit Breakers and Fuses, are they as per Rule... yes, are the fuses an approved type... yes, are all fuses labelled as

per Rule... yes If circuit breakers are provided for the generators, at what overload current did they open when tested... 260amps, are the reversed current

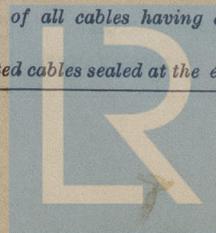
protection devices connected on the pole opposite to the equaliser connection... have they been tested under working conditions, and at what current

they operate... Joint Boxes, Section Boards and Distribution Boards, is the construction and position as per Rule... yes

are they insulated and protected as per the appropriate Tables of the Rules... yes, if otherwise than as per Rule are they of an approved type... no

the maximum fall of pressure between bus bars and any point under maximum load... 0.05V, are the ends of all cables having a sectional area of 0.04

square inch and above provided with soldering sockets... yes Are paper insulated and varnished cambric insulated cables sealed at the ends... yes



with insulating compound yes or waterproof insulating tape -. Are all the cable runs in accessible positions, not exposed to drip or accumulation of water or oil, high temperatures or risk of mechanical damage yes, are cables laid under machines or floorplates no, if so, are they adequately protected -. Are cables in machinery spaces, galleys, laundries, etc., lead covered yes or run in conduit -. State how the cables are supported and protected supported and attached to a perforated plate.

Are all lead sheaths, armouring and conduits effectually bonded and earthed yes. Refrigerated chambers, are the cables and fittings as per Rule yes. Are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands yes, where unarmoured cables pass through beams, etc., are the holes effectively bushed yes and with what material Brass and Lead. Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule yes. Emergency Supply, state position front of boilers and method of control automatic

Navigation Lamps, are they separately wired yes controlled by separate double pole switches yes and fuses yes. Are the switches and fuses in a position accessible only to the officers on watch yes, is an automatic indicator fitted yes. Secondary Batteries, are they constructed and fitted as per Rule yes, are they adequately ventilated yes what is the battery capacity in ampere hours 60 ampere hours - 12 volts

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, weatherproof yes. Are fittings installed where readily combustible materials or inflammable or explosive dust or gases are likely to be present no, if so, how are they protected -

and where are the controlling switches fitted -, are all fittings suitably ventilated yes, are all fittings and accessories constructed and installed as per Rule yes. Searchlight Lamps, No. of -, whether fixed or portable -, are their fittings as per Rule -. Heating and Cooking, is the general construction as per Rule -

are the frames effectually earthed -, are heaters in the accommodation of the convection type -. Motors, are all motors Admiralty supply installed as per Rule yes and placed in well-ventilated compartments in which inflammable gases cannot accumulate and free from damage from water, steam and oil yes, if situated near unprotected combustible material state minimum distance from same horizontally - and vertically -. Are motors coupled to oil fuel transfer and unit pressure pumps capable of being stopped from a position accessible in the event of fire in the pump compartment -. Have motors of 100 BHP and over been inspected by the Surveyors during manufacture and testing none. Have certificates of test for motors under 100 BHP intended for essential services been supplied and the results found as per Rule -. Control Gear and Resistances, are they constructed and fitted as per Rule -. Lightning Conductors, where required are they fitted as per Rule -. Ships carrying Oil having a Flash Point less than 150° F. Have all the special requirements of the Rules for such ships been complied with -, are all fuses of the cartridge type - are they of an approved type -. Are the fittings for pump rooms, 'tween deck spaces, etc., in accordance with the special requirements for such ships -. Are the cables lead covered as per Rule -. Spare Gear, if the vessel is for open sea service have spares been provided as per Rule yes, are they suitably stored in dry situations yes. Insulation Tests, has the insulation resistance of all circuits and apparatus been tested and found satisfactory yes.

**PARTICULARS OF GENERATING PLANT.**

DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Ampères.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	2	60	220	270	Vert. Steam Engine			
EMERGENCY	1	60	220	270	Diesel	Diesel		
ROTARY TRANSFORMER								

**GENERATOR CABLES.**

DESCRIPTION.	KILOWATTS.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.
		No. in Parallel Per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
MAIN GENERATOR								
" " EQUALISE								
Main & Diesel Generators to Switchboards & Shore Conn.			500,000cm	270	454		VRI	Lead Sheathed
EMERGENCY GENERATOR								
ROTARY TRANSFORMER MOTOR								
" " GENERATOR								

**MAIN DISTRIBUTION CABLES.**

DESCRIPTION.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.
	No. in Parallel Per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
AUX. SWITCHBOARDS AND SECTION BOARDS		(cm)					
JB1 Officers accommodation		41,710	32.3	95	160'	V.R.I	Lead sheathed
JB2 Upper Deck aft		41,710	25.2	95	204'	"	" "
JB3 Upper deck fwd.		26,250	27.0	68	120'	"	" "
JB4 Lower deck		41,710	26.2	95	200'	"	" "
JB5 Machy & Boiler Rooms - port		26,250	22.1	68	39'	"	" "
JB6 Machy. & Boiler Rooms- stard.		26,250	20	68	38'	"	" "
JB7 Refrigerating machinery Standby F.W. pump		26,250	21.7	68	246'	"	" "
		16,510	32.0	51	120'	"	" "

**LIGHTING AND HEATING, ETC., CABLES.**

WIRELESS								
NAVIGATION LIGHTS		10,380	10.0	37	108'	"	"	"
LIGHTING AND HEATING		10,380	10.0	37	108'	"	"	"

**MOTOR CABLES.**

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.						
Compass & Reftig.	1	4	10,380	17.5	37	12'	"	"
Cir. pump (refrig.)	1	1	4,107	4.7	12	9'	"	"
p. E.R vent	1	1.3	4,107	6.2	12	66'	"	"
s. E.R. vent	1	1.3	4,107	6.2	12	60'	"	"
Standby F.W. pump	1	8	16,510	32.0	51	120'	"	"

The Electrical Equipment is installed in accordance with the approved plans and the requirements of the Rules.

All Insulated Conductors are guaranteed to have been tested at the maker's works as specified in the Rules.

The foregoing is a correct description.

[Signature] Electrical Engineers. Date 1st June 1949

COMPASSES

Minimum distance between electric generators or motors and standard compass 25'

Minimum distance between electric generators or motors and steering compass 15'

The nearest cables to the compasses are as follows:—

A cable carrying 10 Ampères 12' feet from standard compass 10' feet from steering compass.

A cable carrying 10 Ampères 14' feet from standard compass 10' 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 no

The maximum deviation due to electric currents was found to be nil degrees on 0° course in the case of the standard compass, and nil degrees on 0° course in the case of the steering compass.

[Signature] Builder's Signature. Date 30/5/49

Is this installation a duplicate of a previous case Transport Ferry type. If so, state name of vessel \_\_\_\_\_

Plans. Are approved plans forwarded herewith \_\_\_\_\_ If not, state date of approval 27/5/49

Certificates. Are certificates of test for motors engaged on essential services and generators forwarded herewith Not available

General Remarks (State quality of workmanship, whether insulation tests, etc., have been made, opinions as to class, etc.) \_\_\_\_\_

The Electrical Installation has been installed in conformity with the Society's Rules and Regulations. Insulation resistance tests carried out on all circuits, satisfactorily.

The material and workmanship are good.

The original builders stated they could not furnish certificates for the generators or motors, which had been supplied from stock by the Admiralty.

The installation is eligible, in my opinion, to be classed with this Society.

The following are now in accordance with the Approval letter of 21st June 1949:—

The three 60kW generators are stabilised shunt wound.

The shore connection cable is 500,000 cm.

The Interconnector cable, between the main switchboards, is suitably protected by fuses at both ends.

An alternative supply to the Navigation lights has been led direct from the main switchboard, with the switch on the bridge marked "Emergency Navigation".

Total Capacity of Generators 180 Kilowatts.

The amount of Fee ... £6,000,00 When applied for, 27/6/1949

Travelling Expenses (if any) £ 330,00 When received, .....19.....

M. Caldwell  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI, 6 JAN 1950

Assigned Deferred

5th, 4th, 3rd, 2nd, 1st Transfer. (MADE AND PRINTED IN ENGLAND.) (The Surveyors are requested not to write on or below the space for Committee's Minute.)

