

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

18 AUG 1954

Received at London Office.....

Date of writing Report... 10th Aug. 54 When handed in at Local Office... 10th Aug. 54 Port of... Rio de Janeiro

No. in Survey held at... Rio de Janeiro Date, First Survey... 9.1.51 Last Survey... 10.8.19 54
Reg. Book. (Number of Visits... 2)

21722 on the... Tw. Sc steamer "RIO GUADIANA" Tons { Gross... 11033
Net.....

Built at... Port Glasgow By whom built... Lithgows Ld. Yard No... 1011 When built... 1945

Owners... E.G. Fontes e Cia. Port belonging to... Rio de Janeiro

Electrical Installation fitted by... E.G. Fontes (Admiralty supply) Contract No..... When fitted... 1951

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... DC Power... DC 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

trip 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... 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 Boiler Fan Flat, 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... yes, are the bedplates and frames earthed... yes and the prime movers and generators in metallic

contact... yes Switchboards, where are main switchboards placed... Against CL bulkhead in E.R. at Main deck level.

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 (Admiralty supply) if of synthetic insulating material is it an Approved Type... if of

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

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

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

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

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

with fuses

and for each outgoing circuit... Two pole knife switches with fuses.

Are compartments containing switchboards composed of fire-resisting material... yes Instruments on main switchboard... 3

ammeters... 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.

Switches, 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... 262amps and 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

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

Cables, 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... -

state 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 perforated plates.

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.

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 -. Searchlight Lamps, No. of -, whether fixed or portable -.

Admiralty supply. 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 constructed and 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 -. Have certificates of test for motors under 100 BHP intended for essential services been supplied and the results found as per Rule -. Admiralty supply 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 yes, 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 engines | | | |
| EMERGENCY | 1 | 60 | 220 | 270 | Diesel | Diesel | above 150°F | |
| 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 | | | | | | | | |
| " " EQUALISER | | | | | | | | |
| Main and Diesel Generators to Switchboard & Shore Connections | | | 500,000 sq | | | | 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 | | | | | | | |
| JB1 Officers accommodation | 11-170 | | 31 | | 166 | VRI | Lead Sheathed |
| JB2 Upper Deck/Aft | 11,470 | | 25.2 | | 204 | " | " " |
| JB3 Upper Deck Ford. | 26,250 | | 27.0 | | 420 | " | " " |
| JB4 Lower Deck | 11,470 | | 26.3 | | 200 | " | " " |
| JB5 Machy. & Boiler Rooms - port | 26,250 | | 20.0 | | 59 | " | " " |
| JB6 " " " stard. | 26,250 | | 22.0 | | 38 | " | " " |
| Refrigerating machinery | 26,250 | | 21.7 | | 246 | " | " " |
| Standby F.W. pump | 16,510 | | 32 | | 120 | " | " " |

LIGHTING AND HEATING, ETC., CABLES.

| DESCRIPTION. | No. in Parallel Per Pole. | Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm. | MAXIMUM CURRENT IN AMPERES. | APPROX. LENGTH (lead plus return feet). | INSULATED WITH. | HOW PROTECTED. |
|----------------------|---------------------------|--|-----------------------------|---|-----------------|----------------|
| WIRELESS | | 10.380 | 10.0 | 408 | VRI | Lead Sheathed |
| NAVIGATION LIGHTS | | 101380 | 10.0 | 408 | " | " " |
| LIGHTING AND HEATING | | | | | | |

MOTOR CABLES.

| ALL IMPORTANT MOTORS TO BE ENUMERATED. | No. | B.H.P. | Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm. | MAXIMUM CURRENT IN AMPERES. | APPROX. LENGTH (lead plus return feet). | INSULATED WITH. | HOW PROTECTED. |
|--|-----|--------|--|-----------------------------|---|-----------------|----------------|
| Compass & Refrig | | | 10.380 | 17.5 | 12 | VRI | Lead Sheathed |
| Refrig. Circ. pump | | | 4.170 | 4.7 | 9 | " | " " |
| Port E.R. vent. | | | 4.107 | 6.2 | 66 | " | " " |
| Stard. E.R. Vent. | | | 4.107 | 6.2 | 60 | " | " " |
| Emergy. F.W. pump | | | 16.310 | 32.0 | 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.

Williams

Electrical Engineers. Date 10th August 1954

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.

Builder's Signature. Date

Is this installation a duplicate of a previous case yes If so, state name of vessel RIO DOURO

Plans. Are approved plans forwarded herewith Transport Ferry Type 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 materials and workmanship are good.

The following are in accordance with the Approval letter of the 21st June 1949.

The three 60 kw generators are stabilised shunt wound.

The shore connection is 500,00cm.

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

An alternative supply has been led direct from the main switchboard to the Navigation Lights with the switch on the bridge marked "EMERGENCY NAVIGATION".

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

Noted 13/9/54

Total Capacity of Generators 180 Kilowatts.

The amount of Fee ... £6,000,00: When applied for, 10.8.1954

Travelling Expenses (if any) £ 450,00: When received, 10

M Caldwell
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRIDAY - 5 NOV 1954

Assigned. See F.E. Rpt.

5m. 4.99.—Transfer. (MADE AND PRINTED IN ENGLAND.) (The Surveyors are requested not to write on or below the space for Committee's Minute.)

** AGC 24/8/54*



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