

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report \_\_\_\_\_ When handed in at Local Office \_\_\_\_\_ Received at London Office **AUG 15 1937**

No. in Surrey held at *Haverton Hill-on-Sus* Date, First Survey *19th May* Last Survey *16th July 1937*  
 Reg. Book. *Suppl*  
*39156* on the *S.S. "MISOA"* (Number of Visits *Six*)

Port of *Middlestrough*

Built at *Haverton Hill-on-Sus* By whom built *Furniss S. B. Co. Ltd.* Yard No. *267* When built *1937*  
 Owners *Lago Shipping Co. Ltd.* Port belonging to *London*

Electric Light Installation fitted by *Furniss S. B. Co. Ltd.* Contract No. *267* When fitted *1937*

Is the Vessel fitted for carrying Petroleum in bulk *Yes*

System of Distribution *Double wire*

Pressure of supply for Lighting *110* volts, Heating *110 (Cooking)* volts, Power *110* volts.

Direct or Alternating Current, Lighting *Direct* Power *Direct*

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 temperature rise *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*, is an adjustable regulating resistance fitted in series with each shunt field *Yes*

Have certificates of test results for machines under 100 kw. been submitted and approved *Yes (2 cert. enc. herewith)* machines over 100 kw. been inspected by the Surveyors during manufacture and testing —

Are all terminals accessible, clearly marked, and furnished with sockets *Yes*, are they so spaced or shielded that they cannot be accidentally earthed, short circuited, or touched *Yes*

Are the lubricating arrangements of the generators as per Rule *Yes*

Position of Generators *Engine room aft on centreline*, 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 axes 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 *Engine room aft on centreline*

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, non-ignitable non-absorbent materials *Yes*

is all insulation of high dielectric strength and of permanently high insulation resistance *Yes*

is it of an approved type *Yes*, if semi-insulating material is used, are all conducting parts insulated from the slab with mica or micaite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework —, is the non-hygroscopic insulating material of an approved type —, and is the frame effectively earthed *Yes*

Are the fittings as per Rule regarding: — spacing or shielding of live parts *Yes*

accessibility of all parts *Yes*, absence of fuses on back of board *Yes*, temperature rise of omnibus bars *Yes*

individual fuses to voltmeter, pilot or earth lamp *Yes*, are moving parts of switches alive in the "off" position *No*

are all screws and nuts securing connections effectively locked *Yes* are any fuses fitted on the live side of switches *No*

Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches

*D.P.C.O. sws. & D.P. fuses on dynamo mains; D.P.C.O. sws. & D.P. fuses on outgoing circuits*

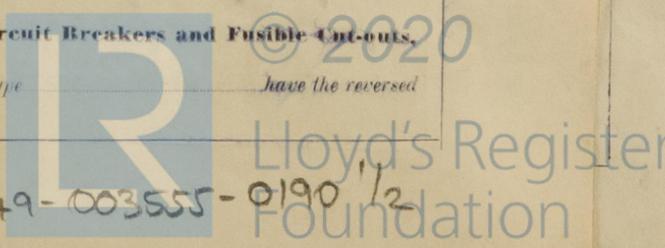
Are turbine driven generators fitted with emergency trip switch as per rule — Are cupboards or compartments containing switchboards composed of fire-resisting material or lined with approved material —

Instruments on main switchboard *2* ammeters *2*

voltmeters — synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection —

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system

*E lamps coupled to E through switches & fuses* Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules *Yes* are the fusible cutouts of an approved type Have the reversed



current protection devices been tested under working conditions

Joint Boxes, Section and Distribution Boards, is the

construction, protection, insulation, material, and position of these as per rule *Yes*

Cables: Single, twin, concentric, or multicore *single & twin* are the cables insulated and protected as per Tables IV, V, X or XI of the Rules *Yes*

If the cables are insulated otherwise than as per Rule, are they of an approved type —

Fall of Pressure, state maximum between bus bars and

any point of the installation under maximum load

3-5 volts.

Cable Sockets, are the ends of all cables having a sectional

area of 0.04 square inch and above provided with soldering sockets *Yes*

Paper Insulated and Varnished Cambric Insulated Cables,

If conductors are paper or varnished cambric insulated, is the dielectric at the exposed ends of the conductor protected from moisture by being suitably sealed with

insulating compound —, or waterproof insulating tape *Yes*

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*

Are cables in machinery spaces, galleys, laundries, bathrooms and lavatories lead covered or run in conduit *Yes*

Support and Protection of Cables, state how the cables are supported and protected *train cables L.C.A.M.B. run in pipe with*

*expansion joints along deck; cables in machy. spaces L.C.A.M.B. clipped up; L.C.M.B. cables*

*clipped up in accom.* If cables are run in wood casings, are the casings and caps secured by screws —, are the cap screws of brass —, are the cables run in

separate grooves —. If armoured and lead covered cables are secured by metal clips, are the clips spaced as per Table VIII *Yes*

Refrigerated Chambers, are the cables and fittings in accordance with the special requirements *Yes: L.C. CABLES WITH HARDWOOD CLEATS.*

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 Partitions, 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 *Lead*

Earthing Connections, state what earthing connections are fitted and their respective sectional areas *COPPER STRIP 50% OF SECTIONAL*

AREA OF MAIN CABLES.

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 —

Navigation Lamps, are they arranged as per Rule *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 *Yes* Secondary Batteries, are they constructed and fitted as per Rule —

Fittings, are all fittings on weather decks, in aloft-holds 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 —

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *Fittings mounted*

*on pumproom casings & separated from pumprooms by gaslight bowls, how are the cables led*

*Cables led external to pumprooms; no cables in pumprooms.*

where are the controlling switches situated *On outside of pumproom companions & pumproom deckhead*

are all fittings suitably ventilated *Yes* are all switches and lampholders constructed wholly of non-ignitable, non-absorbent materials *Yes*

Heating and Cooking Appliances, are they constructed and fitted as per Rule *Yes* are air heaters constructed and fitted as per Rule —

Searchlight Lamps, No. of /, whether fixed or portable *fixed* are their fittings as per Rule *Yes*

Arc Lamps, other than searchlight lamps, No. of —, are their live parts insulated from the frame or case —, are their fittings as per Rule —

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 axes 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 —

if not of this type, state distance of the combustible material horizontally or vertically above the motors — and —

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing — Control Gear and Resistances, are the generator

field and motor speed regulators, starters and controllers constructed and fitted as per Rule *Yes* Lightning Conductors, where lightning conductors

are required, are these fitted as per Rule *Spikes fitted to steel masts* Ships carrying Oil having a Flash Point less than 150 F. Have the special requirements of

the Rules been complied with regarding switches, joint boxes, section and distribution boards, protection of cables, method of distribution, lead of cables, lights and

fittings *Yes* are all fuses of the fitted cartridge type *Yes* are they of an approved type

If portable lamps for use in dangerous spaces are supplied, are they of a self-contained, battery-fed type approved by the Home Office *None supplied*

Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule *Yes*

PARTICULARS OF GENERATING PLANT.

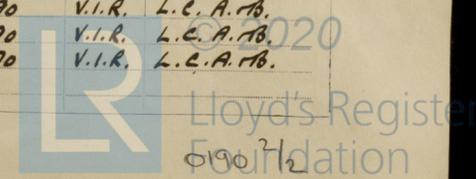
Table with columns: DESCRIPTION OF GENERATOR, No. of, RATED AT (Kilowatts, Volts, Ampères, Revs. per Min.), DRIVEN BY, WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE (Fuel Used, Flash Point of Fuel).

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

Table with columns: DESCRIPTION, CONDUCTORS (No. per Pole, Total Nominal Area per Pole Sq. Ins.), COMPOSITION OF STRAND (No., Diameter), TOTAL MAXIMUM CURRENT (Circuit, Rule, AMPERES), Approximate Length (Lead and Return) Feet, Insulated with, HOW PROTECTED.

MOTOR CONDUCTORS.

Table with columns: DESCRIPTION, No. of Motors, CONDUCTORS (No. per Pole, Total Nominal Area per Pole Sq. Ins.), COMPOSITION OF STRAND (No., Diameter), TOTAL MAXIMUM CURRENT (In Circuit, Rule, AMPERES), Approximate Length (Lead and Return) Feet, Insulated with, HOW PROTECTED.



All Conductors are of annealed copper conforming to British Standard Specification No. 7 (or International Electro-technical Commission Publication No. 28).

The Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.

The foregoing is a correct description

*P. S. Glover*

Electrical Engineers.

Date *29<sup>th</sup> July 1937*

COMPASSES.

Distance between electric generators or motors and standard compass *240 feet*

Distance between electric generators or motors and steering compass *230 feet*

The nearest cables to the compasses are as follows:—

A cable carrying *.14* Ampères *on the* ~~foot~~ *10* feet from standard compass *10* feet from steering compass.

A cable carrying *.14* Ampères *10* feet from standard compass *on the* ~~foot~~ *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 *yes*

The maximum deviation due to electric currents 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.

*J. M. Roberts*  
Director,  
FURNES SHIPBUILDING CO. LIMITED,

Builder's Signature.

Date *29/7/37*

Is this installation a duplicate of a previous case *yes* If so, state name of vessel *S.S. "Bachaguero"*

General Remarks (State quality of workmanship, opinions as to class, &c. *The above inst<sup>n</sup> has been fitted*)

*out under special survey. The insulation resistance is good. The dynamo, governors, main board, fuses, cables & fittings etc. tested under working conditions & found satisfactory.*

*NOTED*  
*Jm*  
*6.8.37*

Total Capacity of Generators *20* Kilowatts.

The amount of Fee ... £ *17 : 10* : *15-7-37* When applied for.

Travelling Expenses (if any) £ : : *30-8-37* When received.

*Santuson* *W. T. Badger*  
Surveyor to Lloyd's Register of Shipping.

FRI 6 AUG 1937

Committee's Minute

Assigned *See Ind. 16055*

750,330.—Transfer:  
The Surveyors are requested not to write on or below the space for Committee's Minutes.



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