

# REPORT ON ELECTRICAL EQUIPMENT.

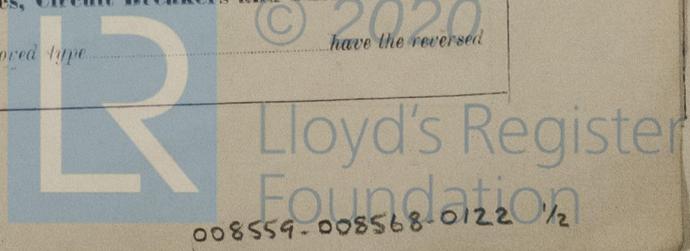
(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

JUN 26 1937

Received at London Office

Date of writing Report 12<sup>th</sup> June 1937 When handed in at Local Office 18-6-1937 Port of Middlesbrough  
 No. in Survey held at Haverton Hill-on-Sea Date, First Survey 9<sup>th</sup> April Last Survey 14<sup>th</sup> June 1937  
 Reg. Book. Suppt and Wallsend. (Number of Visits...10)  
87528 on the S.S. "BACHAQUERO" Tons { Gross 4890  
 Net 2460  
 Built at Haverton Hill-on-Sea By whom built Furness S. B. Co. Ltd. Yard No. 266 When built 1937  
 Owners Anglo American Oil Co. Ltd. Port belonging to London  
 Electric Light Installation fitted by Furness S. B. Co. Ltd. Contract No. 266 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 Have 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 centrelines, 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 centrelines  
 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 micanite 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 alic 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 Yes 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 — *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, lavatories, bathrooms and latrines lead covered or run in conduit *Yes*

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

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

*in accom.* 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 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% 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 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 *Yes* **Secondary Batteries, are they constructed and fitted as per Rule** —

**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 —

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 gastight 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 companion & pumproom duckhouse*

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** *1*, 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 *Like fitted* **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 *Yes*

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.

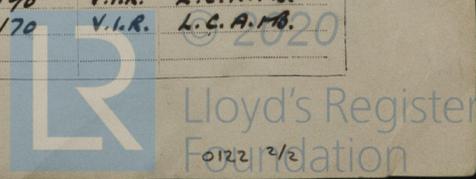
Table with columns: DESCRIPTION OF GENERATOR, No. of, Kilowatts, Volts, Amperes, Revs. per Min., DRIVEN BY, WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE (Fuel Used, Flash Point of Fuel).

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 (Amperes, In Circuit, Rule), 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 (Amperes, In Circuit, Rule), 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.

FURNESS SHIPBUILDING CO. LIMITED

*P. S. Glover*

Electrical Engineer.

Date <sup>10</sup> 23 JUNE 1934

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* ~~feet from~~ standard compass *10* feet from steering compass.

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

FURNESS SHIPBUILDING CO. LIMITED,

*Geo. M. Robertson*

Builder's Signature.

Date

Secretary.

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, etc. *The above installation has been*)

*fitted out under special survey. The materials used and the workmanship are good. On completion the dynamos, governors, main switchboard, fuses, switches, cables, motors and fittings were examined and tested under working conditions and found satisfactory and suitable for a classed vessel.*

*Noted*

*JRM*

*26.6.37*

Total Capacity of Generators *20* Kilowatts.

The amount of Fee ... £ *17 : 10* : *14.6 1937*

Travelling Expenses (if any) £ : : *1.7 1937*

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

Committee's Minute *FRI 2 JUL 1937*

Assigned *See Mdb 26. 16030*

750436. - Transfer. The Surveys are requested and to write on or below the space for Committee's Minute.)



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