

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report *11.2.26* When handed in at Local Office *27.3.26* Port of *Glasgow*

No. in Survey held at *Port Glasgow* Date, First Survey *12th Jan.* Last Survey *9th Feb.* 1926  
Reg. Book. *34988* on the *S.S. AZANIA.*

Built at *Port Glasgow* By whom built *Jerguson Bros Ltd* Yard No. *277* When built *1926*

Owners *The Crown Agents for the Colonies* Port belonging to

Electric Light Installation fitted by *M. J. Charters.* Contract No. *277* When fitted *1926*

System of Distribution *Double wire looping-in system without jointing.*

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

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

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.*, 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 *Steam Slt. Engine Rm Starboard Side. Auxiliary. Starboard Deck Aft.*

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 *more than 12" and 48"*

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 *Aftend of Engine Room Starboard Side on Bulkhead of Engineers' Store.*

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 *Auxiliary - No.*

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 *+ 12" and + 48"*

are they constructed wholly of durable, incombustible non-absorbent materials *Embossed Slate / Polished Marble.* 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 *Yes both poles insulated*

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 *One D.P. linked*

*switch + 2 S.P. fuses for main & auxiliary Generators. Outgoing circuits*

*S.P. switch + 2 S.P. fuses each, + of the circuit switch are Change over Type.*

Instruments on main switchboard *2* ammeters *2* 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 *One Red earth lamps with switches & fuses*

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.*



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**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 3 volts.

**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 ✓

**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 Cables on perforated steel cable trays or clipped direct to the steel work and wood work.

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 VI Yes.

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

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

**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 Lead.

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

are their connections made as per Rule ✓

**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 None fitted but an Auxiliary Oil set is fitted for use when steam is not available.

**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, are separate screens provided for the use of oil and electric side lights Yes

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 Yes in Stores - guarded fittings

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected No

how are the cables led

✓

where are the controlling switches situated ✓

**Searchlight Lamps**, No. of one, 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 axis of rotation fore and aft No

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 Protected, if not of this type, state distance of the combustible material horizontally or vertically above the motors None in compartment

**Control Gear and Resistances**, are the generator field and motor speed regulators, starters and controllers constructed as per Rule Yes

**Lightning Conductors**, where lightning conductors are required, are these fitted as per Rule ✓

**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 ✓

If portable lamps for use in dangerous spaces are supplied, are they of a type approved by the Home Office ✓

**PARTICULARS OF GENERATING PLANT.**

DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY.	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Amps.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	1	8	110	73	600	Single cyl. Steam Engine		
AUXILIARY	1	5	110	45	1000	Twin Paraffin Engine	Paraffin Oil	
EMERGENCY							Petrol start	
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	1	.1	19	14 SWG	73	20	P.V.I.R	Lead covered.
	AUXILIARY GENERATOR	1	.06	19	16 "	45	50	"	"
	EMERGENCY GENERATOR								
	ROTARY TRANSFORMER								
	AUXILIARY SWITCHBOARDS								
	ENGINE ROOM	1	.00532	5	18 SWG	9.	10.	"	"
	BOILER ROOM								
	FORWARD.	1	.0125	7	18 "	13.1	150	"	"
	NAVIGATION.	1	.00532	3	18 "	5.27	170	"	"
	REFRIGERATING MACH	1	.019	19	20 "	35.	110	"	"
	AFT	1	.0125	7	18 "	19	85	"	"
	WIRELESS								
	SEARCHLIGHT	1	.0125	7	18 "	25.	220	"	"
	MASTHEAD LIGHT	1	.00246	1	17 "	.91.	170	"	"
	SIDE LIGHTS	1	.00246	1	17 "	.91	32	"	"
	COMPASS LIGHTS								
	POOP LIGHTS								
	CARGO LIGHTS								
	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								

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.

*J. Charteris.*

Electrical Engineers.

Date *20th March '23.*

COMPASSES.

Distance between electric generators or motors and standard compass *Main Dynamo 48 feet Auxiliary Dynamo 32'*

Distance between electric generators or motors and steering compass *Main Dynamo 54 feet Auxiliary Dynamo 40'*

The nearest cables to the compasses are as follows:—

A cable carrying *25* Ampères *12* feet from standard compass *3* feet from steering compass.

A cable carrying *13.1* Ampères *16* feet from standard compass *18* feet from steering compass.

A cable carrying *.18* Ampères *in* feet from standard compass *in* 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 *any* course in the case of the standard compass, and *Nil* degrees on *any* course in the case of the steering compass.

FERGUSON BROTHERS (PORT-GLASGOW) LTD.,

*Robert Ferguson*

DIRECTOR.

Builder's Signature.

Date *26/3/1926.*

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. *This installation has*)

*been fitted on board under special survey.  
 Tested under full working conditions  
 and found satisfactory  
 The workmanship was found to be good  
 and sound.*

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

*R.H. 1/24/26*

*A.L.  
 27/3/26*

Total Capacity of Generators *13* Kilowatts

The amount of Fee ... £ *13.0.0* : *@ 1/19*

Travelling Expenses (if any) £ *10.6* : *31.3.19.26*

*J. Rankin.*  
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute *GLASGOW 8 MAR 1926*

Assigned *Elec. Light.*

Im. 821.—T. anster.  
 (The Surveys are requested not to write on or below the space for Committee's Minute.)



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