

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

19 SEP 1928

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No. in Survey held at GREENOCK Date, First Survey 13.4.28 Last Survey 3.9.1928  
 Reg. Book. (Number of Visits... 11...)

89870 on the S.S. BELLORADO Tons {Gross  
Net

Built at PORT GLASGOW By whom built MESSRS LITAGOW'S LTD Yard No. 805 When built 1928

Owners MESSRS BELL BROS & CO. Port belonging to GLASGOW

Electric Light Installation fitted by MESSRS W. BENNETT & CO Contract No. 805 When fitted 1928

**System of Distribution** Energy taken from generator (Double wire)

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

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

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 rating 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 —, is an adjustable regulating resistance fitted in series with each shunt field —

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

**Position of Generators** Main Platform Engine Room Starboard side, 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 Main Engine Room Platform fixed to Engine Room Stove  
 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, 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 Yes, 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, 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 1 Main D.P. Knife Switch of 100 ampere capacity, with 6.25 ampere D.P. Knife Switches & d.p. fuses for controlling circuits

**Instruments on main switchboard** one ammeters one 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 2 Earth lamps are provided 1 for each pole complete with d.p. fuses & switches

**Switches, Circuit Breakers and Fusible Cut-outs**, do these comply with the requirements of the Rules Yes

**Joint Boxes Section and Distribution Boards**, is the construction, protection, insulation, material, and position of these as per rule Yes 2020

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

**Fall of Pressure,** state maximum between bus bars and any point of the installation under maximum load 2.70

**Cable Sockets and other connections,** are the ends of all cables having a sectional area of 0.04 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 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 pipes, 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 Armoured cables clipped to deck, in accommodation lead covered cables are used with brass saddles & screws  
 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,** 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 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 females

**Earthing Connections,** state what earthing connections are fitted and their respective sectional areas 7/064 used for cabling main switchboard frame & armoured 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 None  
 how are the cables led —  
 where are the controlling switches situated —

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

**Arc Lamps,** other than searchlight lamps, No. of 2 are their live parts insulated from the frame or case Yes, are their fittings as per Rule Yes

**Motors,** are their working parts readily accessible —, are the coils self-contained and readily removable for replacement —, are the brushes, brush holders, terminals and lubricating arrangements as per Rule —, are the motors placed in well-ventilated compartments in which inflammable gases cannot accumulate and clear of all inflammable material —, are they protected from mechanical injury and damage from water, steam or oil — are their axes of rotation fore and aft — 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 —

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

**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	42	350	7"x6" open type Vertical Steam Engine		
AUXILIARY								
EMERGENCY								
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. Amps.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	MAIN GENERATOR	2	0.045	19	0.42	4.5	25	Pure lead India Rubber	Lead Covered & wrapped
	EQUALISER CONNECTIONS								
	AUXILIARY GENERATOR								
	EMERGENCY GENERATOR								
	ROTARY TRANSFORMER								
	AUXILIARY SWITCHBOARDS								
	ENGINE ROOM	2	0.003	3	0.36	6.0		do	C/Cor' term'd
	BOILER ROOM	2	0.002	3	0.29	1.5		do	do
	ACCOMMODATION	2	0.007	7	0.36	7.1	120	do	Armoured
	4 forward	2	0.003	3	0.36	2.1	750	do	do
	are lamp clusters	2	0.100	7	0.44	25.0	50	do	do
	Wireless	2	0.003	3	0.36	8.0	140	do	do
	WIRELESS								
	SEARCHLIGHT								
	MASTHEAD LIGHT	2	0.003	3	0.36	1.2	80	do	Armoured
	SIDE LIGHTS	2	0.003	3	0.36	1.2	30	do	Lead Covered
	COMPASS LIGHTS	2	0.002	3	0.29	1.2	90	do	do
	POOP LIGHTS								
	CARGO LIGHTS	2	0.002	3	0.29	1.0	100	do	Armoured
	ARC LAMPS	2	0.003	3	0.36	8.0	100	do	do
	HEATERS								

MOTOR CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Amps.	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								
	(a) MOTOR GENERATOR								
	(b) MAIN MOTOR								
	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.

For WALTER BENNETT, LIMITED,  
*Walter Bennett* Electrical Engineers. Date 3<sup>rd</sup> September 1928.

**COMPASSES.**

Distance between electric generators or motors and standard compass 150 ft  
 Distance between electric generators or motors and steering compass 140 ft  
 The nearest cables to the compasses are as follows:—  
 A cable carrying .2 Ampères 1 feet from standard compass 1 feet from steering compass.  
 A cable carrying 1.0 Ampères 16 feet from standard compass 10 feet from steering compass.  
 A cable carrying 4.5 Ampères 18 feet from standard compass 10 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.

LITHGOY'S LIMITED.

*John Fuller* Secretary Builder's Signature. Date 14/9/28.

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.) This installation has been fitted on board under special survey. Tested under full working conditions and found satisfactory. The materials and workmanship were found to be good and sound.

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

*(Signature)*  
 23/9/28

Total Capacity of Generators 8 Kilowatts.

The amount of Fee ... £ 80.00 : { When applied for, 6.9.28  
 Travelling Expenses (if any) £ 10/6 : { When received, 6.9.28

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

Committee's Minute GLASGOW 18 SEP 1928

Assigned Elec Light

*a.l.*  
 17/9/28

1m. 127. - Transfer. (The Surveyors are requested not to write on or below the space for Committee's Minute.)

