

## REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

OCT 28 1937

Received at London Office

Date of writing Report *18th Oct., 1937* When handed in at Local Office *24th Oct., 1937* Port of *West Hartlepool*  
 No. in Survey held at *West Hartlepool* Date, First Survey *30th August* Last Survey *18th October 1937*  
 Reg. Book. *Suppl* (Number of Visits, *Suppl.*)  
*38308* on the *S.S. "G.S. LIVANOS"*

Tons { Gross *4836*  
 Net *2867*

Built at *West Hartlepool* By whom built *Wm Gray & Co. Ltd.* Yard No. *1078* When built *1937*  
 Owners *G. S. Livanos & Livanos Maritime Ltd* Port belonging to *Chios*  
 Electric Light Installation fitted by *Campbell & Ashwood Ltd.* Contract No. *1078* When fitted *1937*  
 Is the Vessel fitted for carrying Petroleum in bulk *No.*

System of Distribution *Double wire*Pressure of supply for Lighting *110* volts, Heating — 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 *Only one fitted* is an adjustable regulating resistance fitted in series with each shunt field *No*Have certificates of test results for machines under 100 kw. been submitted and approved *Yes, Cert. Liverpool* 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*, is the ventilationPosition of Generators *Engine room starboard side* 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 generatorsin metallic contact *Yes* Main Switch Boards, where placed *Engine room starboard side on**stowerson casing* 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 mechanicalinjury 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

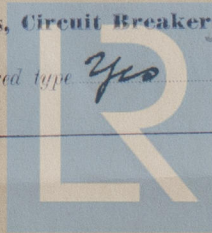
type —, and is the frame effectively earthed *Yes* Are the fittings as per Rule regarding: — spacing or shielding of live parts*Yes*, accessibility of all parts *Yes*, absence of fuses on back of board *Yes*, temperature rise ofomnibus bars *Yes*, individual fuses to voltmeter, pilot or earth lamp *Yes*, 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 ofswitches *No* Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches*D.P. sw. & D.P. fuses on dynamo main; S.P. sw. & 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 *1* ammeters *1*

voltage meters — 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 fuses* Switches, Circuit Breakers and Fusible Cut-outs. *Yes*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* 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 *3.6 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 —

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 *V.I.R. in heavy gauge conduit in 'tween-decks & mach. spaces; L.C. cables clipped up in accommodation.*

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

Refrigerated Chambers, are the cables and fittings in accordance with the special requirements *to cables & fittings installed*

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 brushed *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 *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 —

how are the cables led

where are the controlling switches situated —

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 —, are air heaters constructed and fitted as per Rule —

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

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 — 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 — are all fuses of the fitted cartridge type — 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 —

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

# PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Amperes.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	1	10	110	91	370	Single cylinder steam engine		
AUXILIARY								
EMERGENCY								
ROTARY TRANSFORMER								

## GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Nominal Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
MAIN GENERATOR	1	1	19	.083	91	118	15	V.I.R.	L.C. H.B.
EQUALISER CONNECTIONS									
AUXILIARY GENERATOR									
EMERGENCY GENERATOR									
ROTARY TRANSFORMER									
ENGINE ROOM	1	.0145	7	.052	30	37	15	V.I.R.	In heavy conduit
BOILER ROOM	1	.0225	7	.064	26	46	225	V.I.R.	In heavy conduit
AUXILIARY SWITCHBOARDS	1	.007	7	.036	159	24	10	V.I.R.	L.C.
Mach. S.B. fed by:-	1	.007	7	.036	49	24	60	V.I.R.	L.C.
Supply: Third Room.	1	.007	7	.036	5	24	250	V.I.R.	In heavy conduit
Accommodation	1	.0145	7	.052	25	37	60	V.I.R.	In heavy conduit
WIRELESS	1	.0145	7	.052	25	37	60	V.I.R.	In heavy conduit
SEARCHLIGHT	1	.002	3	.029	36	7.8	400	V.I.R.	L.C. & In pipe
MASTHEAD LIGHT	1	.002	3	.029	36	7.8	70	V.I.R.	L.C.
SIDE LIGHTS	1	.002	3	.029	14	7.8	12	V.I.R.	L.C.
COMPASS LIGHTS	1	.002	3	.029	36	7.8	450	V.I.R.	L.C. & In pipe
STEER LIGHTS	1	.003	70	.0076	2.0	8.5	120	V.I.R.	Cab Deck
CARGO LIGHTS									
ARC LAMPS									
HEATERS									

## MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
		No. Per Pole.	Total Nominal Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
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	1	1	.007	7	.036	18	24	40	V.I.R.	In heavy conduit
VENTILATING FANS										
Refrig. Motor	1	1	.01	7	.044	18	31	200	V.I.R.	In heavy conduit



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.

CAMPBELL & ISHERWOOD, LTD.

PER

Thos Meade,

Electrical Engineers.

Date 21st Oct 1937

#### COMPASSES.

Distance between electric generators or motors and standard compass 132 feet

Distance between electric generators or motors and steering compass 120 feet

The nearest cables to the compasses are as follows:—

A cable carrying 1/4 Ampères on the ~~foot from~~ standard compass 1/2 feet from steering compass.

A cable carrying 1/4 Ampères 1/2 feet from standard compass on the ~~foot 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.

FOR WILLIAM GRAY & CO. LIMITED.

Thos. S. Simpson

Builder's Signature.

Date

Is this installation a duplicate of a previous case Yes If so, state name of vessel S.S. "Eugenie Livanos"

General Remarks (State quality of workmanship, opinions as to class, &c. The above installation has

been fitted out under special survey. The materials used and the workmanship are good. On completion the dynamo, governor, main board, switches, fuses, cables, motors and fittings were examined and tested under working conditions and found satisfactory and suitable for a classed vessel. The insulation resistance was measured and found good. This vessel is fitted with direction finding equipment and an echo sounding device.

W. L.

29/10/37

Total Capacity of Generators 10 Kilowatts.

The amount of Fee ... £ 10 : -

When applied for,

19...

When received,

11.11.37 1937

Travelling Expenses (if any) £

Committee's Minute

TUE 2 NOV 1937

Assigned

See above J.B. report



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