

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report May 16 1934 When handed in at Local Office 19<sup>th</sup> May 1934 Port of Sevilla Received at London Office 23 MAY 1934

No. in Survey held at San Severiano Cadiz Date, First Survey July 11-1933 Last Survey May 2<sup>nd</sup> 1934  
Reg. Book. 22904 on the Twin Screw Vessel "Campero" (Number of Visits.....)

Tons { Gross 6300  
Net

Built at Cadiz By whom built Echegarria y Larrinaga No. 24 When built 1933/4

Owners C. A. M. P. S. A. Port belonging to Malaga

Electric Light Installation fitted by Echegarria y Larrinaga Contract No.  When fitted 1933-4

Is the Vessel fitted for carrying Petroleum in bulk Yes

### System of Distribution

Two wire

Pressure of supply for Lighting 110 Volts volts, Heating  volts, Power 220 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 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 Yes, is an adjustable regulating resistance fitted in series with each shunt field Yes

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 Situated at fore end of engine room, one on each side & near centre. 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 Clear of woodwork 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 Forward end of engine room on platform

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 micanite 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 3 pole automatic

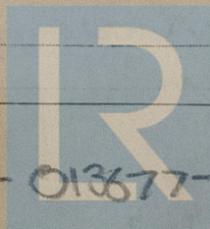
time circuit breakers on each generator, two pole knife switches on all outgoing power circuits, 2 pole automatic time circuit breakers on lighting circuits, 2 pole knife & 2 pole rotary for lighting

Instruments on main switchboard 4 ammeters 4 voltmeters Same Voltmeter 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 1 Voltmeter in Volts & Ohms with position for each one of the principal bars.

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



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Cables: Single, twin, concentric, or multicore *Single + double* 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 *Light 5 volts Power 4 volts*

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 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 *Clips as per table VIII and protected by steel covering plate in way of mechanical gear*

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 *yes*

Joints in Cables, state if any, and how made, insulated, and protected *Power system rotary, Lighting system by means of watertight boxes as per rules*

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 *✓*

Alternative Lighting, are the groups of lights in the propelling machinery space arranged as per Rule *✓*

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 *no*

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 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 *✓*

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 *yes*

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

PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Ampères.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN ...	2	40	220	318	375	Diesel Engine	Gas oil	
AUXILIARY ...	1	50	220	224		Steam	"	
EMERGENCY ...								
ROTARY TRANSFORMER	2	15	110	136		Electric motor		

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT, AMPERES.		Approximate Length (Lead and Return) Feet.	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Effective Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
MAIN GENERATOR ...	2	0.49850	61	0.103	318	✓	90	Lead	Armoured
EQUALISER CONNECTIONS ...	1	0.49850	61	0.103	✓	✓	45	"	"
AUXILIARY GENERATOR ...	2	0.3024	34	0.103	224	✓	44	"	"
EMERGENCY GENERATOR ...	✓								
ROTARY TRANSFORMER MOTOR GENERATOR ...	2	0.14480	34	0.042	136	✓	59	"	"
ENGINE ROOM DISTRIBUTION ...	2	0.02840	19	0.044	22	✓	200	"	"
BOILER ROOM ...	✓								
AUXILIARY SWITCHBOARDS ...									
Upper deck Box N	2	0.01046	4	0.044	12	✓	66	"	"
Forecastle Box Q	2	0.00455	4	0.029	12	✓	315	"	"
ONE DISTRIBUTION BOX ...	2	0.00455	4	0.029	15	✓	48	"	"
ACCOMMODATION UPPER DECK ...									
ONE DISTRIBUTION BOX V	2	0.02840	19	0.044	50	✓	140	"	"
ONE DISTRIBUTION BOX D	2	0.00455	4	0.029	12	✓	20	"	"
" " " E	2	0.00455	4	0.029	12	✓	46	"	"
" " " B	2	0.00455	4	0.029	12	✓	52	"	"
" " " C	2	0.00455	4	0.029	12	✓	46	"	"
WIRELESS " " " "	2	0.02840	19	0.044	25	✓	104	"	"
SEARCHLIGHT ...	2	0.00279	3	0.036	4.55	✓	426	"	"
MASTHEAD LIGHT ...	2	0.00194	3	0.029	1	✓	145	"	"
SIDE LIGHTS ...	2	0.00194	3	0.029	0.91	✓	48	"	"
COMPASS LIGHTS ...	2	0.00194	3	0.029	0.54	✓	30	"	"
POOF LIGHTS ...	2	0.00194	3	0.029	0.91	✓	330	"	"
CARGO LIGHTS ...	2	0.00194	3	0.029	4.55	✓	40	"	"
ONE DISTRIBUTION BOX ...	2	0.00455	4	0.029	18	✓	33	"	"
ONE DISTRIBUTION BOX ...	2	0.07592	19	0.042	95	✓	430	"	"

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT, AMPERES.		Approximate Length (Lead and Return) Feet.	Insulated with	HOW PROTECTED.
		No. Per Pole.	Total Effective Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
BALLAST PUMP ...									Lead	Armoured
MAIN BILGE LINE PUMPS ...	2		0.02840	19	0.044	34	✓	63	"	"
GENERAL SERVICE PUMP ...									"	"
EMERGENCY BILGE PUMP ...									"	"
SANITARY PUMP ...	1		0.02840	19	0.044	18.4	✓	138	"	"
CIRC. SEA WATER PUMPS ...	2		0.10090	19	0.083	101.5	✓	205	"	"
CIRC. FRESH WATER PUMPS ...	1		0.02840	19	0.044	10	✓	61	"	"
AIR COMPRESSOR ...									"	"
FRESH WATER PUMP ...	1		0.00299	3	0.036	6.8	✓	250	"	"
ENGINE TURNING GEAR ...	2		0.02840	19	0.044	14	✓	265	"	"
ENGINE REVERSING GEAR ...	✓								"	"
LUBRICATING OIL PUMPS ...	2		0.02840	19	0.044	24	✓	260	"	"
OIL FUEL TRANSFER PUMP ...	2		0.00299	3	0.036	6.8	✓	140	"	"
WINDLASS ...	✓								"	"
WINCHES, FORWARD ...	✓								"	"
WINCHES, AFT ...	✓								"	"
STEERING GEAR—										
(a) MOTOR GENERATOR ...										
(b) MAIN MOTOR ...										
WORKSHOP MOTOR ...	1		0.02840	19	0.044	14.8	✓	132	"	"
VENTILATING FANS ...	✓									
Oil fuel transfer pump	1		0.02840	19	0.044	14	✓	132	"	"
Refrigerator	1		0.02840	19	0.044	14	✓	61	"	"
Oil Purifiers	3		0.00701	4	0.036	20	✓	164	"	"
Fixe Bilge Pump	1		0.30240	34	0.103	123	✓	56	"	"
Lifting gear	2		0.02840	19	0.044	12.8	✓	164	"	"
Motor Rotary transformer	2		0.06000	19	0.064	4.4	✓	59	"	"

Refrigerator



All Conductors are of annealed copper conforming to British Standard Specification No. 7. yes

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

The foregoing is a correct description.

*Echevarrieta y Larrinaga* Electrical Engineers.

Date May 16<sup>th</sup> 34

COMPASSES.

Distance between electric generators or motors and standard compass

Distance between electric generators or motors and steering compass

The nearest cables to the compasses are as follows:—

A cable carrying Ampères feet from standard compass feet from steering compass.

A cable carrying Ampères feet from standard compass 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

Has the effect of switching on and off circuits, motors and other electro-magnetic apparatus within the vicinity of the compasses been noted

The maximum deviation due to electric currents was found to be no effect degrees on course in the case of the standard

compass, and degrees on course in the case of the steering compass.

**EHEVARRIETA Y LARRINAGA**  
ASTILLEROS DE CADIZ

*Juan Campuz*  
DIRECTOR

Builder's Signature.

Date May 17<sup>th</sup> 34

Is this installation a duplicate of a previous case yes If so, state name of vessel "Campeche"

General Remarks (State quality of workmanship, opinions as to class, &c. Workmanship very good)

Eligible in my opinion to be classed

Noted

May 11.6.34

*[Signature]*

Total Capacity of Generators 190 Kilowatts.

The amount of Fee ... £ 52 : — : 18<sup>th</sup> May 19<sup>th</sup> 34 When applied for,

Travelling Expenses (if any) £ : : 18<sup>th</sup> May 19<sup>th</sup> 34 When received,

*[Signature]*  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute **FRI. 15 JUN 1934**

Assigned elec. light

Im. 12.23.—Transfer.  
(The Surveyors are requested not to write on or below the space for Committee's Minute.)

