

Rpt. 13.

No. 4896

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL) 23 MAR 1931

Received at London Office.....

Date of writing Report 11th March 1931 when handed in at Local Office 14th March 1931 Port of Bilbao

No. in Survey held at Bilbao Date, First Survey 5th Dec. 1930 Last Survey 27th Feb. 1931
Reg. Book. (Number of Visits... 16.....)

89950 on the Stee Guin & Co. M.V. "CAMPOAMOR" Tons { Gross 7872.64
Net 4444.63

Built at Bilbao By whom built Cia. Lushelduna Yard No. 92 When built 1931

Owners Cia. Arrendatario del Monopolio de Petroleos S.A. Port belonging to Bilbao

Electric Light Installation fitted by Cia. Lushelduna Contract No. When fitted 1931

Is the Vessel fitted for carrying Petroleum in bulk Yes.

System of Distribution Constant pressure, parallel, two wire insulated system

Pressure of supply for Lighting 110 volts, Heating Gallery 220 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 One port, one starboard side of engine room. Auxiliary generator in Turbine Deck port side Engine Room

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 on platform across forward end of Engine Room.

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 Yes

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

Slab panels, 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

connections of switches Yes

individual fuses to voltmeter, pilot or earth lamp Yes

Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches Each generator fitted with double pole automatic switch, with reverse overload trips, and with interlocked equalizer switch

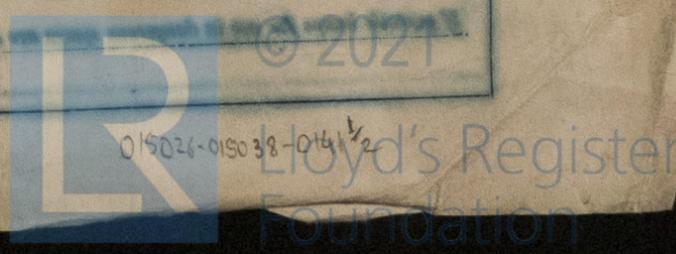
Each outgoing circuit fitted with double pole quick break switch, with fuse on each pole.

Instruments on main switchboard 3 ammeters 2 voltmeters and 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 Earth lamps

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



Cables: *Single.* Single, twin, concentric, or multicore *Single Pair* 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 *5 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 *clipped to rigid metal supporting runs*
Cables lead covered, armoured & braided.

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, 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 *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 *Yes*

Earthing Connections, state what earthing connections are fitted and their respective sectional areas *Yes*
 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 *None*

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 *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 *None*

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *Pump room*
Single pair fitted with lights enclosed in air tight stone glass bowls how are the cables led *outside space casing*

where are the controlling switches situated *in Bridge House*

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

Are Lamps, other than searchlight lamps, No. of *Yes* 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 *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 *When possible*
 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 *Yes*
 if not of this type, state distance of the combustible material horizontally or vertically above the motors *Yes* and *Yes*

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 *Steel rods*

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, test 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	80	220	365	450	Ans. direct engines	Diesel oil	above 150° F.	
AUXILIARY	1	30	220	136	476	Steam engine			
EMERGENCY									
ROTARY TRANSFORMER	2	18	110	163	1900	Electric motor	N.B. Normal estimated load 15 K.W.		

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate Length. (Lead and Return) <small>State Material</small>	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Effective Area per Pole <small>Sq. inch</small>	No.	Diameter. <small>in</small>	In Circuit.	Rule.			
MAIN GENERATOR	1	400	61	2.90	365	393	24	Rubber	Lead, armoured & braided
EQUALISER CONNECTIONS	1	275	61	2.40	✓	302	12	"	"
AUXILIARY GENERATOR	1	100	19	2.60	136	160	44	"	"
EMERGENCY GENERATOR	1	50	19	1.85	✓	97	22	"	"
ROTARY TRANSFORMER MOTOR	1	40	19	1.65	82	86	7	"	"
ROTARY TRANSFORMER GENERATOR	1	95	37	1.85	163	152	7	"	"
ENGINE ROOM	1	3	7	0.75	10	18	20	"	"
BOILER ROOM	1	25	19	1.30	40	64	20	"	"
AUXILIARY SWITCHBOARDS									
ACCOMMODATION	1	75	19	2.24	58	130	150	Rubber	Lead, armoured & braided
"	1	40	19	1.65	36	86	60	"	"
NAVIGATION LIGHTS	1	7	7	1.15	4	32	190	"	"
WIRELESS	1	7	7	1.15	15	32	180	Rubber	Lead, armoured & braided
SEARCHLIGHT	1	2	7	0.65	9	12	24	"	"
MASTHEAD LIGHT	1	1.5	7	0.55	1	10	82	"	"
SIDE LIGHTS	1	1.5	7	0.55	1	10	26	"	"
COMPASS LIGHTS	1	1.5	7	0.55	0.5	10	12	"	"
POOP LIGHTS	1	1.5	7	0.55	1	10	25	"	"
CARGO LIGHTS (7)	1	1.5	7	0.55	2	10	20	"	"
ARE LAMPS	1	50	19	1.85	85	97	30	"	"
HEATERS	1	275	61	2.40	265	302	90	"	"

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate Length. (Lead and Return) <small>State Material</small>	Insulated with	HOW PROTECTED.
		No. Per Pole.	Total Effective Area per Pole <small>Sq. inch</small>	No.	Diameter. <small>in</small>	In Circuit.	Rule.			
BALLAST PUMP	✓									
MAIN BILGE LINE PUMPS	1	1	7	7	1.15	30	32	52	Rubber	Lead, armoured & braided
GENERAL SERVICE PUMP										
EMERGENCY BILGE PUMP										
SANITARY PUMP	1	1	7	7	1.15	30	32	54	"	"
CIRC. SEA WATER PUMPS	1	1	25	19	1.30	60	64	22	"	"
CIRC. FRESH WATER PUMPS	✓									
AIR COMPRESSOR	✓									
FRESH WATER PUMP	1	1	1.9	7	0.6	6	12	70	"	"
ENGINE TURNING GEAR	2	1	17	7	1.80	40	50	50	"	"
ENGINE REVERSING GEAR	✓									
LUBRICATING OIL PUMPS	1	1	50	19	1.85	85	97	64	"	"
OIL FUEL TRANSFER PUMP	2	1	3	7	0.75	18	18.2	44	"	"
WINDLASS	✓									
WINCHES, FORWARD	✓									
WINCHES, AFT	✓									
STEERING GEAR—										
(a) MOTOR GENERATOR	✓									
(b) MAIN MOTOR	2	1	35	19	1.53	85	78	104	"	"
WORKSHOP MOTOR	1	1	3	7	0.75	18	18.2	40	"	"
VENTILATING FANS	✓									
FIRE PUMP	1	1	160	37	2.35	212	214	64	"	"
REFRIG. COMPRESSOR	1	1	10	7	1.35	35	38	74	"	"
ENG. ROOM CRANES	2	1	3	7	0.75	18	18.2	50	"	"
FUEL OIL SEPARATORS	2	1	3	7	0.75	18.6	18.2	63	"	"
LUB.	1	1	3	7	0.75	18.6	18.2	59	"	"

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 LA COMPAÑIA EUSKALDUNA DE
 CONSTRUCCIÓN Y REPARACIÓN DE BUBUES

El Director

[Signature]

Electrical Engineers. Date 13/3/31

COMPASSES.

Distance between electric generators or motors and standard compass 66 metres
 Distance between electric generators or motors and steering compass 65 "
 The nearest cables to the compasses are as follows :-
 A cable carrying 1.0 Ampères feet from standard compass 6 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 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 1/2 degrees on course in the case of the standard compass, and degrees on course in the case of the steering compass.

FOR LA COMPAÑIA EUSKALDUNA DE
 CONSTRUCCIÓN Y REPARACIÓN DE BUBUES

El Director

[Signature]

Builder's Signature. Date 13/3/31

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. The Electrical Installation has been satisfactorily fitted on board this vessel, insulation and running tests subsequently carried out, all as per Rules and Regulations, and found satisfactory. The Electrical Installation of this vessel is eligible in my opinion to be classed, with the notation in the Register Book of "Electric Light".

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

[Signature]
 11573

Total Capacity of Generators 190 Kilowatts.

The amount of Fee ... £. 2430.75
 Travelling Expenses (if any) £

When applied for, 14/3/31

When received, 28-4-31

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

Committee's Minute

Assigned

[Signature]

100,250.—Transfer. (The Signatories are requested not to write on or below the space for Committee's Minutes.)

