

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

26 SEP 1931

Date of writing Report 15th Sept. 1931 When handed in at Local Office 21st Sept. 1931 Port of BILBAO Received at London Office.....

No. in Survey held at BILBAO Date, First Survey 25th June Last Survey 10th Sept. 1931
Reg. Book. (Number of Visits.....)

16593 on the TWIN SCREW M.V. "CABO SAN AGUSTIN" Tons { Gross 12588
Net 7521

Built at BILBAO By whom built MESSRS SOC. ESPAÑOLA DE C. NAVAL Yard No. 38 When built 1931

Owners MESSRS YBARRA & Co. Port belonging to SEVILLE

Electric Light Installation fitted by MESSRS SOC. ESPAÑOLA DE CONST. NAVAL Contract No. When fitted 1931

Is the Vessel fitted for carrying Petroleum in bulk No

System of Distribution PARALLEL TWO WIRE CONSTANT PRESSURE

Pressure of supply for Lighting 110 volts, Heating 220 volts, Power 220 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 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 TWO PORT SIDE & TWO STAR SIDE OF 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 AT FORW BULKHEAD 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 ✓

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, 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 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 DOUBLE POLE AUTOMATIC SWITCH WITH REVERSE CURRENT & OVERLOAD TRIPS, & EQUALIZER SWITCH INTERLOCKED.

EACH OUTGOING CIRCUIT FITTED WITH DOUBLE POLE SWITCH & FUSE ON EACH POLE.

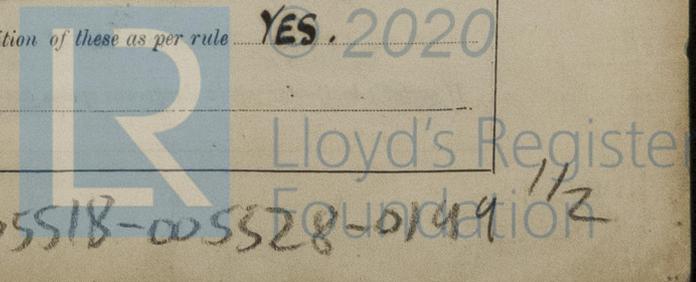
Instruments on main switchboard 4 ammeters 4 voltmeters ✓ synchronising device for paralleling purposes.

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system LAMPS COUPLED TO

EARTH THROUGH SWITCHES & FUSES.

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** 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 **BY LIGHTING, 13V HEATING & POWER**

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 **IN MACHINERY SPACES & ON WEATHER DECKS, LEAD COVERED SUPPORTED BY CLIPS, IN ACCOMMODATION ETC. IN CONDUIT.**

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 **NONE FITTED.**

Joints in Cables, state if any, and how made, insulated, and protected **NO JOINTS.**

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 **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 **EMERGENCY ENGINE, DYNAMO & SWITCHBOARD HOUSED ON BOAT DK. SEMI DIESEL 20 K.W. 220 VOLTS.**

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 **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 **YES**, where are the controlling switches situated **YES**.

Searchlight Lamps, No. of **YES**, whether fixed or portable **YES**, 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 **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 **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 **YES**.

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**.

| 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 | 4. | 150 | 220 | 650 | 350. | DIESEL ENGINE. | HEAVY OIL | ABOVE 150°. |
| AUXILIARY | ✓ | | | | | | | |
| EMERGENCY | 1. | 20 | 220 | 100 | 365 | SEMI DIESEL ENGINE. | HEAVY OIL | ABOVE 150°. |
| ROTARY TRANSFORMER | 2. | 20 | 110 | 180 | 1400. | 32 H.P. ELECTRIC MOTOR. | | |

| DESCRIPTION. | CONDUCTORS. | | COMPOSITION OF STRAND. | | TOTAL MAXIMUM CURRENT. | | Approximate Length (Lead and Return) METRES. | Insulated with | HOW PROTECTED. |
|-----------------------|---------------|--|------------------------|-----------|------------------------|-------|--|----------------|----------------|
| | No. per Pole. | Total Effective Area per Pole Sq. Ins. | No. | Diameter. | In Circuit. | Rule. | | | |
| MAIN GENERATORS | 2 | 4930 | 37 | .093 | 650 | 686. | 33 (MAX) | PAPER | LEAD COVERED. |
| EQUALISER CONNECTIONS | 2 | 4930 | 37 | .093 | 325 | 686. | 33 (MAX) | PAPER | LEAD COVERED. |
| AUXILIARY GENERATOR | ✓ | | | | | | | | |
| EMERGENCY GENERATOR | 1 | 11680 | 37 | .064 | 100 | 130 | 10. | RUBBER | BRAIDED |
| ROTARY MOTOR | 1 | 11680 | 37 | .064 | 110 | 130 | 10 | RUBBER | LEAD COVERED. |
| TRANSFORMER GENERATOR | 1 | 24650 | 37 | .093 | 180 | 214 | 10 | | |
| ENGINE ROOM | 1 | 03960 | 19 | .052 | 60 | 64 | 15 | | |
| BOILER ROOM | ✓ | | | | | | | | |
| EMERGENCY SWITCHBOARD | 1 | 11680 | 37 | .064 | 127 | 130 | 115 | RUBBER | BRAIDED. |
| GALLEY OVENS | 1 | 19640 | 37 | .083 | 290 | 296 | 60 | PAPER | LEAD. |
| STEAM FOOD OVENS | 1 | 19640 | 37 | .083 | 160 | 184 | 65 | RUBBER | BRAIDED. |
| GALLEY BOILERS | 1 | 19640 | 37 | .083 | 182 | 184 | 30 | | |
| 2 LAUNDRIES | 1 | 19640 | 37 | .083 | 160 | 184 | 200 | | |
| PANTRY HEATER | 1 | 10090 | 19 | .083 | 118 | 118 | 65 | | |
| ACCOMMODATION | | | | | | | | | |
| UPPER DK. | 1 | 03960 | 19 | .052 | 58 | 64 | 30 | RUBBER | BRAIDED. |
| PROM. BK. | 1 | 03960 | 19 | .052 | 54 | 64 | 30 | | |
| BOAT DK. | 1 | 02214 | 7 | .064 | 35 | 46 | 30 | | |
| DK. LIGHTS & CREW. | 1 | 03960 | 19 | .052 | 56 | 64 | 30 | | |
| WIRELESS | 1 | 03960 | 19 | .052 | 58 | 64 | 4 | | |
| NAVIGATION LIGHTS | 1 | 00299 | 3 | .036 | 3 | 12 | 135 | RUBBER | BRAIDED. |
| MASTHEAD LIGHT | 1 | 00152 | 1 | .044 | 5 | 6.1 | 500 | RUBBER | BRAIDED |
| SIDE LIGHTS | 1 | 00152 | 1 | .044 | 5 | 6.1 | 60 | | |
| COMPASS LIGHTS | 1 | 00152 | 1 | .044 | 2 | 6.1 | 30 | | |
| POOP LIGHTS | 1 | 00152 | 1 | .044 | 5 | 6.1 | 300 | | |
| CARGO LIGHTS | 1 | 10090 | 19 | .083 | 160 | 184 | 30 | | |
| HEATERS 1. | 1 | 19640 | 37 | .083 | 188 | 184 | 60 | | |
| HEATERS 2. | 1 | 10090 | 19 | .083 | 108 | 118 | 60 | | |

| 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 Effective Area per Pole Sq. Ins. | No. | Diameter. | In Circuit. | Rule. | | | |
| BALLAST PUMP | 1 | 1 | 10090 | 19 | .083 | 117 | 118 | 80 | RUBBER | LEAD COVERED |
| MAIN BILGE LINE PUMPS | 1 | 1 | 10090 | 19 | .083 | 117 | 118 | 50 | | |
| FUEL OIL O.S. | 1 | 1 | 00485 | 7 | .039 | 15 | 18.2 | 60 | | |
| EMERGENCY BILGE PUMP | 1 | 1 | 10090 | 19 | .083 | 117 | 118 | 80 | RUBBER | BRAIDED. |
| SANITARY PUMP | 1 | 1 | 07592 | 19 | .072 | 89 | 97 | 70 | RUBBER | LEAD COVERED. |
| CIRC. SEA WATER PUMPS | 1 | | | | | | | | | |
| CIRC. FRESH WATER PUMPS | 1 | 1 | 2465 | 37 | .093 | 320 | 343 | 60 | PAPER | LEAD COVERED. |
| AIR COMPRESSOR | ✓ | | | | | | | | | |
| 2 FRESH WATER PUMPS | 1 EACH | 1 | 00299 | 3 | .036 | 11 | 12 | 80 MAX. | RUBBER | LEAD COVERED. |
| 2 ENGINE TURNING GEAR | 1 EACH | 1 | 03960 | 19 | .052 | 63 | 64 | 100 MAX | | |
| ENGINE REVERSING GEAR | ✓ | | | | | | | | | |
| 3 LUBRICATING OIL PUMPS | 1 EACH | 1 | 10090 | 19 | .083 | 101 | 118 | 115 MAX | | |
| OIL FUEL TRANSFER PUMP | 1 | 1 | 02214 | 7 | .064 | 41 | 46 | 60 | | |
| WINDLASS | 1 | 1 | 24650 | 37 | .093 | 295 | 295 | 195 | RUBBER | BRAIDED. |
| 16 WINCHES, To Box | 1 EACH | 1 | 24650 | 37 | .093 | 266 | 295 | 160 MAX | | |
| IN PAIRS FROM BOARD | 1 | 1 | 10090 | 19 | .083 | 133 | 142 | 40 MAX | | |
| 2 WINCHES, To Box | 1 | 1 | 14750 | 37 | .072 | 170 | 191 | 70 | | |
| 2 CAPSTANS | To Box | 1 | 204650 | 37 | .093 | 266 | 295 | 175 | | |
| STEERING GEAR | | | | | | | | | | |
| (a) Motor | WORKING 1 STAND BY. | | | | | | | | | |
| (b) MAIN MOTORS | 1 EACH | 1 | 06000 | 19 | .064 | 80 | 83 | 200 | RUBBER | BRAIDED. |
| WORKSHOP MOTOR | 1 | 1 | 00701 | 7 | .036 | 20 | 24 | 65 | RUBBER | LEAD. |
| 2 VENTILATING FANS E.R. | 1 EACH | 1 | 11680 | 37 | .064 | 128 | 130 | 70 | RUBBER | BRAIDED. |
| 6 " " ACCOM. | 1 EACH | 1 | 03960 | 19 | .052 | 52 | 64 | 60 | | |
| 2 REFRIG. MACHINES | 1 EACH | 1 | 02840 | 19 | .044 | 57 | 53 | 60 | | LEAD COVERED |
| 2 BRINE PUMPS | 1 EACH | 1 | 00152 | 1 | .044 | 5 | 6.1 | 10 | | |
| LIFT. | 1 | 1 | 00485 | 7 | .029 | 17 | 18.2 | 50 | | BRAIDED. |
| GALLEY ETC. | 6 | 1 | 02840 | 19 | .044 | 46 | 53 | 40 | | LEAD COVERED. |

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.

SOCIEDAD ESPAÑOLA DE CONSTRUCCIÓN NAVAL

Frank W Benson

Electrical Engineers.

Date 21 Sept 1931

Jefe del Departamento de Buques.

COMPASSES.

Distance between electric generators or motors and standard compass About 35 feet from Ventilating Fan motor.

Distance between electric generators or motors and steering compass About 40 feet from Ventilating Fan motor.

The nearest cables to the compasses are as follows:—

A cable carrying 2 Amperes on the 6 feet from standard compass, 6 feet from steering compass.

A cable carrying 2 Amperes 6 feet from standard compass, on the 6 feet from steering compass.

A cable carrying Amperes 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 any course in the case of the standard compass, and nil degrees on any course in the case of the steering compass.

SOCIEDAD ESPAÑOLA DE CONSTRUCCIÓN NAVAL

Frank W Benson

Builder's Signature.

Date 21 Sept 1931

Jefe del Departamento de Buques.

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, as stated above, has been satisfactorily fitted on board this vessel, and subsequently tested, in accordance with the approved plans, and the Rules and Regulations of the Society. The workmanship and material were found to be good.

The electrical installation of this vessel is in my opinion eligible to be classed, and to have notation of "Electric Light" in the Register Book.

THE RECORD

Electric Light

George R. Chappel

Surveyor to Lloyd's Register of Shipping.

Total Capacity of Generators 600 Kilowatts.

The amount of Fee ... £ 69 : 15 :

When applied for, 19

Travelling Expenses (if any) £ 75 : 16 :

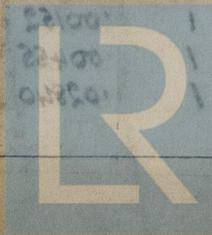
When received, 1.1.32

Committee's Minute TUE. 6 OCT 1931

Assigned

Electric Light

Im. 480.—Transfer. (The Surveyors are requested not to write on or below the space for Committee's Minute.)



Lloyd's Register Foundation