

No. 8054

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Writing Report 12th Jan 1932 when handed in at Local Office 13th Jan 1932 Port of Bilbao Received at London Office 18 JAN 1932

Survey held at Bilbao Date, First Survey 15th Sept. Last Survey 23rd Dec 1931.

Book. No. on the Twin Sc. M.V. "CABO SANTO TOME" (Number of Visits)

No. of rivets at Bilbao By whom built Messrs. Soc. Española de Constr. Naval. Yard No. 39. Tons { Gross 11868. Net 7521. When built 1931.

Light Installation fitted by Messrs Soc. Esp. de Con. Naval. Contract No. ✓ When fitted 1931.

Vessel fitted for carrying Petroleum in bulk No.

of Distribution Parallel Two wire Constant pressure.

re of supply for Lighting 110 volts, Heating 220 volts, Power 220 volts.

or Alternating Current, Lighting Direct. Power Direct.

nating current system, state frequency of periods per second ✓

Automatic Governor been tested and found efficient when the whole load is suddenly thrown on or off Yes.

stors, do they comply with the requirements regarding rating Yes. are they compound wound Yes.

over compounded 5 per cent. Yes. if not compound wound state distance between each generator ✓

more than one generator is fitted are they arranged to run in parallel Yes. is an adjustable regulating resistance fitted in

ch each shunt field Yes.

terminals accessible, clearly marked, and furnished with sockets Yes. are they so spaced or shielded that they cannot be accidentally earthed,

reited, or touched Yes. Are the lubricating arrangements of the generators as per Rule Yes.

n of Generators Two either side of engine room.

entilation in way of the generators satisfactory Yes. are they clear of all inflammable material Yes.

ted near unprotected woodwork or other combustible material, state distance of same horizontally from or vertically above the generators

made ✓ and ✓ are the generators protected from mechanical injury and damage from water, steam or oil Yes.

axes of rotation fore and aft Yes.

ag, are the bedplates and frames of the generating plant efficiently earthed Yes. are the prime movers and

ective generators in metallic contact Yes.

witch Boards, where placed On platform at fore bulkhead of engine room.

If the generators and main switchboard are not placed in the same compartment, is each generator provided with

each insulated pole as near as possible to the terminals of the generator, additional to that provided on the main switchboard ✓

boards, are they placed in accessible positions, free from inflammable gases and acid fumes Yes.

protected from mechanical injury and damage from water, steam or oil Yes. if situated near unprotected

or other combustible material, state distance of same horizontally from or vertically above the switchboards ✓ and ✓

constructed wholly of durable, non-ignitable non-absorbent materials Yes, marble is all insulation of high dielectric strength and of

ally high insulation resistance Yes. if semi-insulating material is used, are all conducting parts insulated from the slab

or mica or other non-hygroscopic insulating material, and the slab similarly insulated from its framework Yes.

frame effectively earthed Yes.

Are the fittings as per Rule regarding:— spacing or shielding of live parts

accessibility of all parts Yes. absence of fuses on back of board Yes. proportion of omnibus

Yes. individual fuses to voltmeter, pilot or earth lamp Yes. connections of switches Yes.

switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches Double pole automatic

h, with reverse current and overload trips, and equalizer switch interlocked.

outgoing circuit fitted with double pole switch & fuse on each pole.

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

esting, state what means are provided at the main switchboard for indicating the state of the insulation of the system Lamps

pled to earth thro' switches and fuses.

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

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



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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 5V. Lighting 13V. Heating 20V.
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 wood casing.

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 ✓

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 25 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 ✓

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 ✓, 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 ✓

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 ✓

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 | 4 | 150 | 220 | 650 | 350 | Diesel engine | Heavy oil | Above 150° F. |
| AUXILIARY | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| EMERGENCY | 1 | 20 | 220 | 100 | 365 | Diesel engine | Heavy oil | Above 150° F. |
| ROTARY TRANSFORMER | 2 | 20 | 110 | 180 | 1200 | 32 HP. Electric motor. | ✓ | ✓ |

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

| DESCRIPTION. | No. of | CONDUCTORS. | | COMPOSITION OF STRAND. | | TOTAL MAXIMUM CURRENT. | | Approximate Length (Lead and Return) in MTS. | Insulated with | HOW PROTECTED. |
|----------------------------|--------|---------------|--|------------------------|-----------|------------------------|-------|--|----------------|----------------|
| | | No. per Pole. | Total Effective Area per Pole Sq. Ins. | No. | Diameter. | In Circuit. | Rule. | | | |
| MAIN GENERATOR S. | 2 | ✓ | 4930 | 37 | 0.93 | 650 | 686 | 33 (MAX.) | Paper | Lead covered. |
| EQUALISER CONNECTIONS | 2 | ✓ | 4930 | 37 | 0.93 | 325 | 686 | 33 (MAX.) | " | " |
| AUXILIARY GENERATOR | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| EMERGENCY GENERATOR | 1 | ✓ | 11680 | 37 | 0.64 | 100 | 130 | 10 | Rubber | Braided. |
| ROTARY MOTOR | 1 | ✓ | 11680 | 37 | 0.64 | 110 | 130 | 10 | Rubber | Lead covered. |
| TRANSFORMER GENERATOR | 1 | ✓ | 24650 | 37 | 0.93 | 180 | 214 | 10 | " | " |
| ENGINE ROOM | 1 | ✓ | 03960 | 19 | 0.52 | 60 | 64 | 15 | " | " |
| BOILER ROOM | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| EMER. SWITCHBOARDS | 1 | ✓ | 11680 | 37 | 0.64 | 127 | 130 | 115 | Rubber | Braided. |
| GALLEY OVENS | 1 | ✓ | 19640 | 37 | 0.93 | 290 | 343 | 60 | Paper | Lead covered. |
| STEAM PROD. OVENS | 1 | ✓ | 19640 | 37 | 0.83 | 160 | 184 | 65 | Rubber | Braided. |
| GALLEY BOILERS | 1 | ✓ | 19640 | 37 | 0.83 | 182 | 184 | 30 | " | " |
| 2 LAUNDRIES | 1 | ✓ | 19640 | 37 | 0.83 | 160 | 184 | 200 | " | " |
| PANTRY HEATER | 1 | ✓ | 10090 | 19 | 0.83 | 118 | 118 | 65 | " | " |
| ACCOMMODATION | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| UPPER DECK | 1 | ✓ | 03960 | 19 | 0.52 | 58 | 64 | 30 | " | " |
| PROM. DECK | 1 | ✓ | 03960 | 19 | 0.52 | 54 | 64 | 30 | " | " |
| BOAT DECK | 1 | ✓ | 02214 | 7 | 0.64 | 35 | 46 | 30 | " | " |
| DK. LIGHTS & CREW | 1 | ✓ | 03960 | 19 | 0.52 | 56 | 64 | 30 | " | " |
| WIRELESS NAVIGATION LIGHTS | 1 | ✓ | 03960 | 19 | 0.52 | 58 | 64 | 4 | " | " |
| MASTHEAD LIGHT | 1 | ✓ | 00299 | 3 | 0.36 | 3 | 12 | 135 | " | " |
| SIDE LIGHTS | 1 | ✓ | 00152 | 1 | 0.44 | 5 | 61 | 500 | " | " |
| COMPASS LIGHTS | 1 | ✓ | 00152 | 1 | 0.44 | 2 | 61 | 30 | " | " |
| POOP LIGHTS | 1 | ✓ | 00152 | 1 | 0.44 | 5 | 61 | 300 | " | " |
| CARGO LIGHTS | 1 | ✓ | 10090 | 19 | 0.83 | 110 | 118 | 30 | " | " |
| HEATERS | 1 | ✓ | 19640 | 37 | 0.83 | 188 | 184 | 60 | " | " |
| HEATERS | 2 | ✓ | 10090 | 19 | 0.83 | 108 | 118 | 60 | " | " |

MOTOR CONDUCTORS.

| DESCRIPTION. | No. of | CONDUCTORS. | | COMPOSITION OF STRAND. | | TOTAL MAXIMUM CURRENT. | | Approximate Length (Lead and Return) in MTS. | Insulated with | HOW PROTECTED. |
|-------------------------|--------------|---------------|--|------------------------|-----------|------------------------|-------|--|----------------|----------------|
| | | No. per Pole. | Total Effective Area per Pole Sq. Ins. | No. | Diameter. | In Circuit. | Rule. | | | |
| BALLAST PUMP | 1 | ✓ | 10090 | 19 | 0.83 | 117 | 118 | 80 | Rubber | Lead covered. |
| MAIN BILGE LINE PUMPS | 1 | ✓ | 10090 | 19 | 0.83 | 117 | 118 | 50 | " | " |
| FUEL OIL P.S. PUMP | 1 | ✓ | 00455 | 7 | 0.29 | 15 | 18.2 | 60 | " | " |
| EMERGENCY BILGE PUMP | 1 | ✓ | 10090 | 19 | 0.83 | 117 | 118 | 80 | " | Braided. |
| SANITARY PUMP | 1 | ✓ | 07592 | 19 | 0.72 | 89 | 97 | 70 | " | Lead covered. |
| CIRC. SEA WATER PUMPS | ONE | ✓ | 24650 | 37 | 0.83 | 244 | 296 | 60 | Paper | Lead covered. |
| CIRC. FRESH WATER PUMPS | EACH | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| AIR COMPRESSOR | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| FRESH WATER PUMPS | 1 EACH | ✓ | 00299 | 3 | 0.36 | 11 | 12 | 80 | Rubber | Lead covered. |
| ENGINE TURNING GEAR | 1 EACH | ✓ | 03960 | 19 | 0.52 | 63 | 64 | 100 | " | " |
| ENGINE REVERSING GEAR | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| LUBRICATING OIL PUMPS | 1 EACH | ✓ | 10090 | 19 | 0.83 | 101 | 118 | 115 | " | " |
| OIL FUEL TRANSFER PUMP | 1 | ✓ | 02214 | 7 | 0.64 | 41 | 46 | 60 | " | " |
| WINDLASS | 1 | ✓ | 24650 | 37 | 0.93 | 295 | 295 | 195 | " | Braided. |
| WINCHES, To Box | 1 EACH | ✓ | 24650 | 37 | 0.93 | 266 | 295 | 160 (MAX.) | " | " |
| 16 PAIRS. FROM BOX | 1 | ✓ | 10090 | 19 | 0.83 | 133 | 142 | 40 (MAX.) | " | " |
| WINCHES, (BOAT) To Box | 1 EACH | ✓ | 14780 | 37 | 0.72 | 170 | 191 | 70 | " | " |
| 2 CAPSTANS, To Box | 1 EACH | ✓ | 24650 | 37 | 0.93 | 266 | 295 | 175 | " | " |
| STEERING GEAR | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| (a) MAIN MOTORS | 1. STAND BY. | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| (b) MAIN MOTORS | 1 EACH | ✓ | 06000 | 19 | 0.64 | 80 | 83 | 200 | Rubber | Braided. |
| WORKSHOP MOTOR | 1 | ✓ | 00701 | 7 | 0.36 | 20 | 24 | 65 | " | Lead |
| 2 VENTILATING FANS E.R. | 1 EACH | ✓ | 11680 | 37 | 0.64 | 128 | 130 | 70 | " | Braided. |
| 6 " ACCOM. | " | ✓ | 03960 | 19 | 0.52 | 52 | 64 | 60 | " | " |
| 2 REFRIG. MACHINES | " | ✓ | 02840 | 19 | 0.44 | 57 | 53 | 60 | " | Lead covered. |
| 2 BRINE PUMPS | " | ✓ | 00152 | 1 | 0.44 | 5 | 61 | 10 | " | " |
| LIFT. | 1 | ✓ | 00455 | 7 | 0.29 | 17 | 18.2 | 50 | " | Braided. |
| GALLEY ETC. | 6 | ✓ | 02840 | 19 | 0.44 | 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

Jefe del Departamento de Reques.

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 Ampères on the ~~feet from~~ standard compass 6 feet from steering compass.

A cable carrying 2 Ampères 6 feet from standard compass on the ~~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 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

Jefe del Departamento de Reques.

Is this installation a duplicate of a previous case Yes. If so, state name of vessel "Cabo San Agustin".

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

stated above, has been constructed, and satisfactorily fitted on board this vessel, in accordance with the approved plans, and the Rules and Regulations of the Society. The workmanship and material employed 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.

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

Elec. light

19/1/32.

Total Capacity of Generators 600. Kilowatts.

The amount of Fee ... £ 69 : 15 : 30/12/31.

Travelling Expenses (if any) £ Changed on machy Rpt. 7. 4. 32/1/32.

George R. Chappel

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 22 JAN 1932

Assigned

Elec. light

Im. 9. 30. — Transfer.
(The Surveyors are requested not to write on or below the space for Committee's Minute.)



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