

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

24 DEC 1936

Date of writing Report 13.12.36 19

When handed in at Local Office

19

Port of Hamburg

No. in Survey held at Kiel

Date, First Survey 8-9-36

Last Survey 27-11-36 19

Reg. Book.

(Number of Visits 4.3)

on the Steel Twin Ser. "Don Esteban"

Tons { Gross 1616
Net 900

Built at Nice

By whom built Fried. Krupp Germaniaw. Yard No. 560 When built 1936

Owners Hijos de J. de la Rama y Cia. Port belonging to Iloilo

Electric Light Installation fitted by Fried. Krupp Germaniawerft A.G. Contract No.

When fitted 1936

Is the Vessel fitted for carrying Petroleum in bulk no.

System of Distribution Two wire system ✓

Pressure of supply for Lighting 220 volts, Heating - volts, Power 220 volts.

Direct or Alternating Current, Lighting D.C. ✓ Power D.C. ✓

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 yes ✓, is an adjustable regulating resistance fitted in series with each shunt field yes ✓ Have certificates of test results for machines under 100 kw. been submitted and approved attached hereto ✓ 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 ✓

Position of Generators Main: Engine room forward. Emergency: Special compartment forward of eng. 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, correctly. emergency.

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 Engine room starboard side. ✓

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 emergency only ✓

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, Ebony-Asbestos ✓, 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 of omnibus 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 of switches no ✓

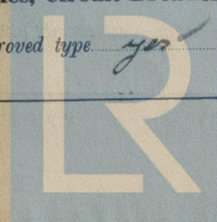
Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches For generators: Double pole overload wire breaker in red current trip. Outg. circuits: Fuse on each pole, double p. sw. ✓

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 yes ✓ Instruments on main switchboard 2 + 3 ✓ ammeters 2 ✓

voltmeters 2 ✓ synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection yes ✓

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system Voltmeter with Ohm scale. ✓

Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules yes ✓ are the fusible cutouts of an approved type yes ✓ have the reversed



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W161-0042

current protection devices been tested under working conditions *yes* Joint Boxes, Section and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule *yes* *As per German Standards*

Cables: *Single, twin, concentric, or multicore, single below* are the cables insulated and protected as per Tables IV, V, X or XI of the Rules

If the cables are insulated otherwise than as per Rule, are they of an approved type *yes* Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load *1.5 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 *yes*, or waterproof insulating tape *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* Are cables in machinery spaces, galleys, laundries, bathrooms and lavatories lead covered or run in conduit *Lead covered*

Support and Protection of Cables, state how the cables are supported and protected *armoured cables supported by clips* *Where exposed to risk of damage covered with sheet iron*

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, are the cables and fittings in accordance with the special requirements *yes*

Joints in Cables, state if any, and how made, insulated, and protected *water tight joint boxes*

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 *rubber*

Earthing Connections, state what earthing connections are fitted and their respective sectional areas *double pole*

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 *Special compartment in engine room above water line. Driven by heavy oil engine. Can be started by hand without using compressed air*

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 storerooms 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*

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 *yes*, are air heaters constructed and fitted as per Rule *yes*

Searchlight Lamps, No. of *1*, whether fixed or portable *fixed*, are their fittings as per Rule *lamps*

Arc Lamps, other than searchlight lamps, No. of *1*, 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, as far as practicable*, 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 *and*

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing *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 masts* 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* are all fuses of the filled cartridge type *yes* are they of an approved type *yes*

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

Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule *yes, 1935-36*

| 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 ... | 2 | 80 each | 220 | 348 | 400 | oil engine | Diesel oil | above 150° F | |
| AUXILIARY | | | | | | | | | |
| EMERGENCY ... | 1 | 5 | 230 | 35 | 500 | oil engine | gas oil | " " | |
| ROTARY TRANSFORMER | | | | | | | | | |

| 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 Nominal Area per Pole Sq. Ins. % | No. | Diameter. | In Circuit. | Rule. | | | | |
| MAIN GENERATOR ... | 2 | 2 x 120 | 2 x 61 | 2.05 | 350 | 384 | 32 | 53 | Rubber | Lead covered & armoured |
| EQUALISER CONNECTIONS | 1 | 120 | 2 x 61 | 2.05 | 120 | 206 | 106 | | | |
| AUXILIARY GENERATOR ... | | | | | | | | | | |
| EMERGENCY GENERATOR | 1 | 10 | 2 x 19 | 1.32 | 35 | 381 | 22 | | | |
| ROTARY TRANSFORMER | | | | | | | | | | |
| ENGINE ROOM 2 circuits | 1 | 2.5 | 1 | 1.8 | 12 | 15.5 | 100 | 100 | | |
| BOILER ROOM ... | | | | | | | | | | |
| AUXILIARY SWITCHBOARDS | | | | | | | | | | |
| Upper Deck, starboard | 1 | 16 | 2 x 19 | 1.32 | 40 | 49 | 29 | | | |
| Main Deck | 1 | 6 | 2 x 19 | 1.32 | 25 | 28.2 | 106 | | | |
| Upper Deck, port | 1 | 16 | 2 x 19 | 1.32 | 40 | 49 | 29 | | | |
| Laundry & aft ship | 1 | 95 | 2 x 19 | 1.32 | 120 | 184 | 106 | | | |
| Galleys | 1 | 25 | 2 x 19 | 1.32 | 50 | 62.2 | 37 | | | |
| Accommodation | | | | | | | | | | |
| Navigation lamps | 1 | 2.5 | 1 | 1.75 | 8 | 15.5 | 72 | | | |
| WIRELESS | 1 | 16 | 2 x 19 | 1.32 | 30 | 49 | 29 | | | |
| SEARCHLIGHT | 1 | 6 | 2 x 19 | 1.32 | 25 | 28.2 | 60 | | | |
| MASTHEAD LIGHT | 1 | 2.5 | 1 | 1.75 | 1 | 15.5 | 100 | 80 | | |
| SIDE LIGHTS | 1 | 2.5 | 1 | 1.75 | 1 | 15.5 | 10 | 13 | | |
| COMPASS LIGHTS | 1 | 2.5 | 1 | 1.75 | 1 | 15.5 | 10 | 3 | | |
| POOP LIGHTS | 1 | 2.5 | 1 | 1.75 | 1 | 15.5 | 110 | 110 | | |
| CARGO LIGHTS 2 circuits | 1 | 2.5 | 1 | 1.75 | 10 | 15.5 | 100 | 96 | | |
| ARC LAMPS | | | | | | | | | | |
| HEATERS | | | | | | | | | | |

| 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 Nominal Area per Pole Sq. Ins. % | No. | Diameter. | In Circuit. | Rule. | | | |
| BALLAST PUMP | 1 | 1 | 50 | 19 | 1.83 | 64 | 98.3 | 72 | Rubber | Lead covered & armoured |
| MAIN BILGE LINE PUMPS | 1 | 1 | 70 | 37 | 1.83 | 92 | 132.7 | 72 | | armoured |
| Heater Oil pump | 1 | 1 | 10 | 19 | .82 | 32 | 38.1 | 32 | | |
| GENERAL SERVICE PUMP | 1 | 1 | 10 | 19 | .82 | 32 | 38.1 | 32 | | |
| Heater Fuel Oil pump | 1 | 1 | 10 | 19 | .82 | 32 | 38.1 | 32 | | |
| EMERGENCY BILGE PUMP | 1 | 1 | 10 | 19 | .82 | 32 | 38.1 | 32 | | |
| Oil pump | 1 | 1 | 2.5 | 1 | 1.75 | 3.5 | 15.5 | 22 | | |
| SANITARY PUMP | 1 | 1 | 2.5 | 1 | 1.75 | 3.5 | 15.5 | 22 | | |
| CIRC. SEA WATER PUMPS | 1 | 1 | 6 | 19 | .64 | 17.5 | 28.2 | 30 | | |
| CIRC. FRESH WATER PUMPS | 1 | 1 | 1.5 | 1 | 1.38 | 3.5 | 9.4 | 64 | | |
| CO ₂ COMPRESSOR | 1 | 1 | 6 | 19 | .64 | 17.5 | 28.2 | 64 | | |
| FRESH WATER PUMP | 1 | 1 | 6 | 19 | .64 | 17.5 | 28.2 | 44 | | |
| ENGINE TURNING GEAR | 1 | 1 | 2.5 | 1 | 1.75 | 9.5 | 15.5 | 44 | 22 | |
| ENGINE REVERSING GEAR | 1 | 1 | 2.5 | 1 | 1.75 | 9.5 | 15.5 | 44 | 22 | |
| LUBRICATING OIL PUMPS | 1 | 1 | 95 | 37 | 1.83 | 110 | 184 | 82 | | |
| OIL FUEL TRANSFER PUMP | 1 | 1 | 10 | 19 | .82 | 36 | 38.1 | 64 | | |
| WINDLASS | 1 | 1 | 95 | 37 | 1.83 | 115 | 184 | 120 | | |
| WINCHES, FORWARD | 2 | 1 | 150 | 61 | 1.72 | 160 | 205.6 | 34 | | |
| Fire ext. pump | 1 | 1 | 70 | 37 | 1.83 | 92 | 132.7 | 72 | | |
| WINCHES, AFT | 1 | 1 | 16 | 19 | 1.04 | 32 | 49 | 61 | | |
| Boat's winch | 1 | 1 | 16 | 19 | 1.04 | 32 | 49 | 61 | | |
| STEERING GEAR | | | | | | | | | | |
| (a) MOTOR GENERATOR | 1 | 1 | 10 | 19 | .82 | 36 | 38.1 | 130 | | |
| (b) MAIN MOTOR | 1 | 1 | 10 | 19 | .82 | 36 | 38.1 | 130 | | |
| Drilling Machine | 1 | 1 | 2.5 | 1 | 1.75 | 3.5 | 15.5 | 30 | | |
| WORKSHOP MOTOR | 1 | 1 | 2.5 | 1 | 1.75 | 3.5 | 15.5 | 30 | | |
| VENTILATING FANS | 2 | 1 | 15 each | 1 | 1.38 | 3.2 each | 9.4 | 22 | 22 | |
| Laundry pump | 1 | 1 | 95 | 37 | 1.83 | 120 | 184 | 30 | | |
| Capstan | 1 | 1 | 16 | 19 | 1.04 | 32 | 49 | 104 | | |
| Patrol Boat | 1 | 1 | 4 | 19 | .82 | 9.5 | 28.1 | 64 | | |
| Grinding Machine | 1 | 1 | 2.5 | 1 | 1.75 | 3.5 | 15.5 | 30 | | |

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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.

FRIED. KRUPP
GERMANIAWERFT
Aktiengesellschaft.

Electrical Engineers.

Date

COMPASSES.

Distance between electric generators or motors and standard compass *9m*

Distance between electric generators or motors and steering compass *10m*

The nearest cables to the compasses are as follows:—

A cable carrying *.5* Amperes *close to* feet from standard compass *close to* feet from steering compass.

A cable carrying *✓* Amperes *✓* feet from standard compass *✓* 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.

FRIED. KRUPP
GERMANIAWERFT
Aktiengesellschaft.

Builder's Signature.

Date

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.)

This electric installation has been fitted in accordance with the approved plans, the Secretary's letters and in conformity with the Rules. Materials and workmanship are of good quality. It has given satisfaction under working conditions and was found in order.

Noted

Min

5.1.39

OK. G.O.W.

Total Capacity of Generators *168* Kilowatts.

The amount of Fee *2 Mks* £ *286* :

When applied for,

When received,

Travelling Expenses (if any) £ :

Committee's Minute *FRI. JAN 8 1939*

Assigned *See other F.E. rpt.*

J. A. Whitford
Surveyor to Lloyd's Register of Shipping.