

Rpt. 13.

No. II-034 C.

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

3 APR 1951

Received at London Office

Date of writing Report **22.3.51** 19 When handed in at Local Office **22.3.51** 19 Port of **M A R S E I L L E S.**

No. in Survey held at **Marseilles** Date, First Survey **16.II.50(MaI)** Last Survey **23.I.51** 19
Reg. Book. (Number of Visits **4**)

66610 on the **Steel Screw Motor Tanker "A S T R O", ex "Artist"** Tons { Gross **3522**
Net **2000**
Built at **Hamburg** By whom built **Deutsche Werft A.G.** Yard No. --- When built **1921**

Owners **Protektor Cia Naviera S.A.** Port belonging to **Panama**

Electric Light Installation fitted by --- Contract No. --- When fitted ---

Is the Vessel fitted for carrying Petroleum in bulk **Yes**

System of Distribution **Two insulated poles**

Pressure of supply for Lighting **110** volts, Heating --- volts, Power **110** 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 ---, are they compound wound **Yes**

are they over compounded 5 per cent. ---, if not compound wound state distance between each generator ---

Where more than one generator is fitted are they arranged to run in parallel **No**, 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 --- 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 **in Engine Room on Pl. & stbd. side at floor level**, 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 **in E.R. on port side at floor level**

--- 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 **marble**, is all insulation of high dielectric strength and of permanently high insulation resistance ---

is it of an approved type ---, 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**, 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

mainbus bars ---, 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

no circuit breakers, no equaliser switches, double pole switch & fuses for each gen. & each out Circ.

Are turbine driven generators fitted with emergency trip switch as per rule --- Are cupboards or compartments containing switchboards composed of

non-resisting material or lined with approved material --- Instruments on main switchboard **Three** ammeters **Three**

--- synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection

paralleling **Earth Testing**, state what means are provided at the main switchboard for indicating the state of the insulation of the system

Earth lamps fitted **Switches, Circuit Breakers and Fusible Cut-outs,**

these comply with the requirements of the Rules --- are the fusible cutouts of an approved type **Yes** have the reversed

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current protection devices been tested under working conditions ---

Joint Boxes, Section and Distribution Boards, are the construction, protection, insulation, material, and position of these as per rule **see note (a) here under** ---

Cables: Single, twin, concentric, or multicore --- 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 **see note(a)** Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load **4.5** ---

area of 0.04 square inch and above provided with soldering sockets **Yes** ---

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 ---, or waterproof insulating tape ---

Cable Rms, are the cables fixed as far as possible in accessible position 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 --- Are cables in machinery spaces, galleys, lavatories, bathrooms and lavatories lead covered or run in conduit **see note (a)** ---

Support and Protection of Cables, state how the cables are supported and protected **cables run in steel pipes on decks on trays and plating in Engine Room, in wood casings and on beams in accommodation.** ---

If cables are run in wood casings, are the casings and caps secured by screws **Yes** ---, are the cap screws of brass ---, 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 ---

Joints in Cables, state if any, and how made, insulated, and protected **junction boxes fitted.** ---

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 **all earthing connections efficient.** ---

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 **Lister Diesel generator on poop deck, p.s.** ---

air cooler, hand steering gear. ---

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** ---

where are the controlling switches situated **in the bridge, and all fittings placed wholly outside the space** ---

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 ---, are air heaters constructed and fitted as per Rule ---

Searchlight Lamps, No. of **2 (nav. bridge)**, whether fixed or portable **portable** ---, 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 ---

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing --- Control Gear and Resistances, are the general field and motor speed regulators, starters and controllers constructed and fitted as per Rule **Yes** ---

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 fittings. **see note(a)** ---

are all fuses of the filled cartridge type **see note(a)** ---

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

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

Note (a) Please refer to Msl.Rpt.N°.II.034A, forwarded herewith.

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 | I | 55 | 110 | 400 | 300 | Oil Engine | Diesel oil | --- |
| AUXILIARY | I | 30 | 110 | 260 | 500 | Oil Engine | " | --- |
| EMERGENCY | I | 22 | 110 | 190 | 1100 | Oil Engine | " | --- |
| ROTARY TRANSFORMER | | | | | | | | |

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

| DESCRIPTION. | CONDUCTORS. | | COMPOSITION OF STRAND. | | TOTAL MAXIMUM CURRENT. | | Approximate Length. (Lead and Return.) Feet. | Insulated with | HOW PROTECTED. |
|--------------------------|---------------|-------------------------------------|------------------------|---------------|------------------------|-------|--|----------------|----------------|
| | No. per Pole. | Total Nominal Area per Pole Sq. mm. | No. | Diameter. mm. | Circuit. | Rule. | | | |
| MAIN GENERATOR | 3 | 395 | | | 396 | | 60 | V.R. | Lead sheathed |
| EQUALISER CONNECTIONS | | | | | | | | | |
| AUXILIARY GENERATOR | 3 | 250 | | | 295 | | 30 | V.R. | 2 armoured |
| EMERGENCY GENERATOR | I | 150 | | | 210 | | 80 | V.R. | -D- |
| ROTARY TRANSFORMER MOTOR | --- | | | | | | | | |
| ENGINE ROOM Port | I | 2.5 | 2 | 1.75 | 12 | | --- | V.R. | L.C.B. |
| BOILER ROOM startor | | 2.5 | 2 | 1.75 | 10 | | --- | R.R. | L.C.B. |
| AUXILIARY SWITCHBOARDS | | | | | | | | | |
| ACCOMMODATION | | | | | | | | | |
| Poop & passage | I | 10 | 7 | 1.35 | 25 | | | V.R. | L.C.B. |
| Bridge & Fwd. | I | 35 | 19 | 1.53 | 53 | | | V.R. | L.C.B. |
| WIRELESS | I | 16 | 7 | 1.7 | 8 | | 120 | V.R. | L.C.B. |
| SEARCHLIGHT | | | | | | | | | |
| MASTHEAD LIGHT (Navig) | I | 3.5 | | | 4 | | 120 | V.R. | L.C.B. |
| SIDE LIGHTS (Lights.) | 2 | 10.0 | | | 4 | | 20 | V.2 | L.C.B. |
| COMPASS LIGHTS | | | | | | | | | |
| POOP LIGHTS | | | | | | | | | |
| CARGO LIGHTS | | | | | | | | | |
| ARC LAMPS | | | | | | | | | |
| HEATERS | | | | | | | | | |

MOTOR CONDUCTORS.

| 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 Nominal Area per Pole Sq. mm. | No. | Diameter. mm. | In Circuit. | Rule. | | | |
| BALLAST PUMP | | | | | | | | | | |
| MAIN BILGE LINE PUMPS | 5.5/8 | I | 35 | 19 | 1.53 | 35/50 | | 30 | V.R. | L.C.B. |
| GENERAL SERVICE PUMP | 5.5/8 | I | 35 | 19 | 1.53 | 35/50 | | 40 | V.R. | L.C.B. |
| EMERGENCY BILGE PUMP | --- | | | | | | | | | |
| SANITARY PUMP | --- | | | | | | | | | |
| CIRC. SEA WATER PUMPS (2) | 3.5/6 | I | 16 | 7 | 1.7 | 22/39 | | 40 | V.R. | L.C.B. |
| CIRC. FRESH WATER PUMPS | --- | | | | | | | | | |
| AIR COMPRESSOR | --- | | | | | | | | | |
| FRESH WATER PUMP | --- | | | | | | | | | |
| ENGINE TURNING GEAR | --- | | | | | | | | | |
| ENGINE REVERSING GEAR | --- | | | | | | | | | |
| LUBRICATING OIL PUMPS (2) | 2.8/6 | I | 16 | 7 | 1.7 | 18/40 | | 40 | V.R. | L.C.B. |
| OIL FUEL TRANSFER PUMP | 1.5 | I | 10 | 7 | 1.35 | 6/8 | | 20 | V.R. | L.C.B. |
| WINDLASS | --- | | | | | | | | | |
| WINCHES, FORWARD | --- | | | | | | | | | |
| WINCHES, AFT | --- | | | | | | | | | |
| STEERING GEAR— | | | | | | | | | | |
| (a) MOTOR GENERATOR | 2/3 | I | 35 | 19 | 1.53 | 13/18 | | 70 | V.R. | L.C.B. |
| (b) MAIN MOTOR | 6.2 | I | 16 | 7 | 1.7 | 12/40 | | 30 | V.R. | L.C.B. |
| WORKSHOP MOTOR | 5 | I | 16 | 7 | 1.7 | 28 | | 30 | V.R. | L.C.B. |
| VENTILATING FANS | --- | | | | | | | | | |

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.

Electrical Engineers.

Date

COMPASSES.

Distance between electric generators or motors and standard compass 150 feet

Distance between electric generators or motors and steering compass 150 feet

The nearest cables to the compasses are as follows:—

A cable carrying 0.5 Ampères 9 feet from standard compass 3 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 No

The maximum deviation due to electric currents was found to be Nil degrees on --- course in the case of the standard compass, and --- degrees on --- course in the case of the steering compass.

The compasses tested under working conditions have been found satisfactory.

Builder's Signature.

Date

Is this installation a duplicate of a previous case --- If so, state name of vessel ---

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

The electrical installation of this vessel is stated to have been originally fitted under the supervision of the Germanischer Lloyd's and has been found or placed in accordance with the instructions contained in the Secy's letter in respect of the plans noted 3-10-50 and the applicable requirements of the Rules for Electrical Equipment. The Special Survey required for vessels not built under survey has been carried out. The materials and workmanship, as far as seen, are good. The equipment was operated under load with satisfactory results and the insulation resistance found satisfactory.

I am of the opinion that this installation is suitable for a vessel classed "100 AI, Carrying Petroleum in Bulk", see Msl.Rpt.9, N°.II.034A, dated 22.3.51.

Total Capacity of Generators 107 Kilowatts.

| | | | | |
|--------------------------------|---|---|---|-------------------|
| The amount of Fee ... | £ | : | : | When applied for, |
| | | | | 19 |
| Travelling Expenses (if any) £ | : | : | : | When received, |
| | | | | 19 |

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 22 JUN 1951

Assigned



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