

# Report on Electrical Equipment.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

24 APR 1950

Received at London Office

Date of writing Report 4th April 1950. When handed in at Local Office 21st April 1950. Port of Gothenburg.

Survey held at Kalmar. Date, First Survey 10th February Last Survey 29th March 1950. (Number of Visits 5)

on the Motorship "LUCIANO CASTRO" Approximate Tons {Gross 600 Net 330

Built at Kalmar By whom built Kalmar Varv Yard No. 364 When built 1950

Owners Luciano Castro Cia. Ltda. Port belonging to Santos

Electrical Installation fitted by A-B. Ernst Aldén & Co. Generator Nos. 11619-20 When fitted 1950

Is vessel fitted for carrying Petroleum in bulk No. Is vessel equipped with D. F. Yes E. S. D. No Gy. C. No Sub. Sig. No

Have plans been submitted and approved Yes System of Distribution 2 wire Voltage of supply for Lighting 220

Heating Power 220 Direct or Alternating Current, Lighting D.C. Power D.C. If Alternating Current state frequency Prime Movers,

has the governing been tested and found efficient when the whole load is suddenly thrown on and off Yes Are turbine emergency governors fitted with a

trip switch as per Rule Generators, are they compound wound Yes are they level compounded under working conditions Yes

if not compound wound state distance between generators and from switchboard Where more than one generator is fitted are they

arranged to run in parallel Yes, are shunt field regulators provided Yes Is the compound winding connected to the negative or positive pole

Negative Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing Have certificates of

test for machines under 100 kw. been supplied Yes and the results found as per rule Are the lubricating arrangements and the construction

of the generators as per rule Yes Position of Generators 1 on port, and 1 on starboard side of the engine room

floor, is the ventilation in way of generators satisfactory Yes are they clear of inflammable material Yes if situated

near unprotected combustible material state distance from same horizontally and vertically are the generators protected from mechanical

injury and damage from water, steam and oil Yes are the bedplates and frames earthed Yes and the prime movers and generators in metallic

contact Yes Switchboards, where are main switchboards placed Aft on the engine room floor

are they in accessible positions, free from inflammable gases and acid fumes Yes are they protected from mechanical injury and damage from water, steam

and oil Yes, if situated near unprotected combustible material state distance from same horizontally and vertically, what insulation

material is used for the panels Mica, if of synthetic insulating material is it an Approved Type, if of

semi-insulating material (slate or marble) are all conducting parts insulated therefrom as per Rule Is the frame effectually earthed Yes

Is the construction as per Rule Yes, including accessibility of parts Yes, absence of fuses on the back of the board Yes, individual fuses

to pilot and earth lamps, voltmeters, etc., Yes, locking of screws and nuts Yes, labelling of apparatus and fuses Yes, fuses on the dead

side of switches Yes Description of Main Switchgear for each generator and arrangement of equaliser switches A double pole circuit breaker

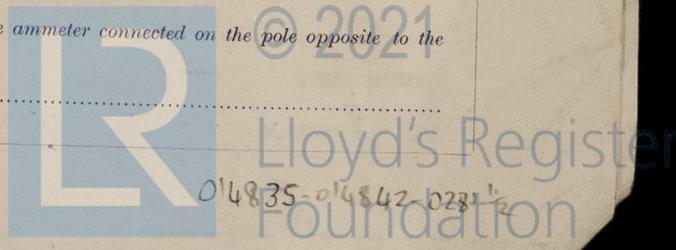
with overload and reversed current trips and a single pole equaliser switch.

and for each outgoing circuit

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule Yes Instruments on main switchboard 4

ammeters 3 voltmeters synchronising devices. For compound machines in parallel is the ammeter connected on the pole opposite to the

equaliser connection Yes Earth Testing, state means provided Ohm - meter



**Switches, Circuit Breakers and Fuses**, are they as per Rule Yes are the fuses an approved type Yes are all fuses labelled as per Rule Yes are the reversed current protection devices connected on the pole opposite to the equaliser connection Yes have they been tested under working conditions Yes **Joint Boxes, Section Boards and Distribution Boards**, is the construction and position as per Rule Yes

**Cables**, are they insulated and protected as per the appropriate Tables of the Rules Yes if otherwise than as per Rule are they of an approved type Yes state maximum fall of pressure between bus bars and any point under maximum load permitted are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets Yes Are paper insulated and varnished cambric insulated cables sealed at the exposed ends Yes with insulating compound --- or waterproof insulating tape Yes Are all the cable runs in accessible positions, not exposed to drip or accumulation of water or oil, high temperatures or risk of mechanical damage Yes are cables laid under machines or floorplates No if so, are they adequately protected --- Are cables in machinery spaces, galleys, laundries, etc., lead covered Yes or run in conduit ---

State how the cables are supported and protected Supported by metal clips. Power cables lead covered and armoured. Lighting cables lead covered and in accommodations run in conduits.

Are all lead sheaths, armouring and conduits effectually bonded and earthed Yes Refrigerated chambers, are the cables and fittings as per Rule --- Are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands Yes where unarmoured cables pass through beams, etc., are the holes effectively bushed Yes and with what material Lead **Alternative Lighting**, are the groups of lights in the engine and boiler rooms arranged as per Rule --- **Emergency Supply**, state position --- and method of control ---

**Navigation Lamps**, are they separately wired Yes controlled by separate double pole switches Yes and fuses Yes Are the switches and fuses in a position accessible only to the officers on watch Yes is an automatic indicator fitted Yes **Secondary Batteries** are they constructed and fitted as per Rule Yes are they adequately ventilated Yes

**Fittings**, are all fittings on weather decks, ~~accessories and~~ engine rooms and wherever exposed to drip or condensed moisture, weatherproof Yes Are fittings installed where readily combustible materials or inflammable or explosive dust or gases are likely to be present No if so, how are they protected --- and where are the controlling switches fitted --- are all fittings suitably ventilated ---

are all fittings and accessories constructed and installed as per Rule Yes **Searchlight Lamps**, No. of --- whether fixed or portable --- are their fittings as per Rule --- **Heating and Cooking**, is the general construction as per Rule --- are the frames effectually earthed --- are heaters in the accommodation of the convection type --- **Motors**, are all motors constructed and installed as per Rule Yes and placed in well-ventilated compartments in which inflammable gases cannot accumulate and free from damage from water, steam and oil Yes if situated near unprotected combustible material state minimum distance from same horizontally --- and vertically ---

Have motors of 100 BHP and over been inspected by the Surveyors during manufacture and testing --- Have certificates of test for motors under 100 BHP intended for essential services been supplied and the results found as per Rule Yes **Control Gear and Resistances**, are they constructed and fitted as per Rule Yes **Lightning Conductors**, where required are they fitted as per Rule --- **Ships carrying Oil having a Flash Point less than 150° F.** Have all the special requirements of the Rules for such ships been complied with --- are all fuses of the cartridge type --- are they of an approved type --- If portable lamps for use in dangerous spaces are supplied, are they of a self-contained battery-fed flameproof type --- **Spare Gear**, if the vessel is for open sea service have spares been provided as per Rule Yes are they suitably stored in dry situations Yes **Insulation Tests**, has the insulation resistance of all circuits and apparatus been megger tested and found satisfactory 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	25	220	114	1000	Diesel engine	Diesel oil Above 150°F.	
EMERGENCY	---							
ROTARY TRANSFORMER	---							

**GENERATOR CABLES.**

DESCRIPTION	KILOWATTS	CONDUCTORS		MAXIMUM CURRENT IN AMPERES		APPROX. LENGTH (lead plus return feet)	INSULATED WITH	HOW PROTECTED.
		No. in Parallel Per Pole	Sectional Area Sq. mm.	In the Circuit	Rule			
MAIN GENERATOR	25	1	35	114 ✓	126	10	Paper	Lead covered & armoured
" " EQUALISER	25	1	35	---	126	12	"	" "
EMERGENCY GENERATOR								
ROTARY TRANSFORMER: MOTOR								
" " GENERATOR								

**MAIN DISTRIBUTION CABLES.**

AUX. SWITCHBOARDS AND SECTION BOARDS								

**LIGHTING AND HEATING, ETC., CABLES.**

WIRELESS								
NAVIGATION LIGHTS	1	2.5	2.5 ✓	13	24	Rubber	Lead covered & armoured	
LIGHTING <del>ACCOMMODATION</del>								
In accommodation	1	2.5	10 ✓	13	16	"	" "	
In engine room	1	1.5	6 ✓	7	4	"	" "	
Bridge and accommodation	1	2.5	10 ✓	13	24	"	" "	
Deck lights (fore mast)	1	1.5	6 ✓	7	40	"	" "	
Deck lights (derrick)	1	1.5	6 ✓	7	12	"	" "	

**MOTOR CABLES.**

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B. H. P.						
Manoeuvring air compressor	1	7.5	1	10	31 ✓	38	12	Rubber Lead covered & armoured.
Ballast pump	1	7.5	1	6	31 ✓	29	11	" " "
Fire- and sanitary pump	1	4.5	1	4	19 ✓	21	10	" " "
Engine room fan	1	1.7	1	1.5	6 ✓	7	6	" " "
Cargo hold fans	2	2.7	1	1.5	6 ✓	7	12-35	" " "
Hydrofor pumps	2	0.5	1	1.5	6 ✓	7	3	" " "
Fuel oil transfer pump	1	0.5	1	2.5	3 ✓	13	10	" " "
Windlass	1	16	1	16	64 ✓	78	90	Paper " " "
Winches Nos. 1 and 2	2	16	1	50	84 ✓	159	60	" " "
Winch No. 3	1	16	1	16	64 ✓	78	40	" " "
Warping winch	1	5	1	6	21 ✓	29	8	Rubber " " "

The Electrical Equipment is installed in accordance with the approved plans and the requirements of the Rules.  
 All Insulated Conductors are guaranteed to have been tested at the maker's works as specified in the Rules.  
 The foregoing is a correct description.

Antieboaget  
**Ernst Aldén & Co**  
*Ernst Aldén*

Electrical Engineers. Date .....

**COMPASSES.**

Minimum distance between electric generators or motors and standard compass ..... 8 Metres.  
 Minimum distance between electric generators or motors and steering compass ..... 10 Metres.  
 The nearest cables to the compasses are as follows:—  
 A cable carrying ..... 0.3 ..... Ampères ..... 10 ..... 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 ..... Yes  
 The maximum deviation due to electric currents was found to be ..... 0 ..... degrees on ..... every ..... course in the case of the standard compass, and ..... 0 ..... degrees on ..... every ..... course in the case of the steering compass.

**KALMAR VARV**  
*William Nyberg* 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, whether insulation tests, etc., have been made, opinions as to class, etc.)

This electrical installation has been fitted on board under my inspection and to my satisfaction and has been tested under working conditions and found satisfactory.  
 An electrically driven oil fuel pump, not shown on the approved plans, has been fitted and the motor has been provided with remote control.  
 Test sheets of both generators have been forwarded as per Manchester Surveyors' reports Nos. 13621 and 13737.  
 Certificates for the motors are attached.

Nota nr. 10750

Total Capacity of Generators ..... 50 ..... Kilowatts.

The amount of Fee	Kr. 860:00	When applied for, 21/4 19.50
Travelling Expenses (if any)	Kr. —	

*O. S. ...*  
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute ..... **FRI, 12 MAY 1950** .....

Assigned ..... *See minute on* .....

*fe rhl*

The Surveyors are requested not to write on or below the space for Committee's Minute.

