

Rpt. 13.

No. 4253.

## REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report 30th Sept 1935 When handed in at Local Office 30th Sept 1935 Port of Barcelona Received at London Office 7 OCT 1935No. in Survey held at Barcelona Date, First Survey 2nd May Last Survey 26th Sept 1935  
Reg. Book. 22157 on the TWIN E. "CAMPALANS" (Number of Visits... 5...)Built at Vigo By whom built Hijos de J. Barrio S.A. Yard No. 1060 Tons { Gross 1060 Net 498 When built 1934.8Owners Com. Arrendatario del Monopolio de Petroleos S.A. Port belonging to BarcelonaElectric Light Installation fitted by Talleres Nuevo Vulcan, Barcelona Contract No. ✓ When fitted 1935Is the Vessel fitted for carrying Petroleum in bulk Carrying oil in bulk F.P. above 150°F.System of Distribution Parallel constant pressure, two wire insulated.Pressure of supply for Lighting 110 volts, Heating ✓ volts, Power ✓ 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 None, efficient flywheel.Generators, do they comply with the requirements regarding temperature rise Ans. No. Shunt.are they over compounded 5 per cent. ✓, if not compound wound state distance between each generator 2 metres.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 No.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 YesAre the lubricating arrangements of the generators as per Rule YesPosition of Generators After end of engine room., is the ventilation in way of the generators satisfactory Yesare they clear of all inflammable material Yes if situated near unprotectedwoodwork 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 YesEarthing, are the bedplates and frames of the generating plant efficiently earthed Yesare the prime movers and their respective generators in metallic contact Yes Main Switch Boards, where placed on bulkhead at after end 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 yesare they protected from mechanical injury and damage from water, steam or oil Yesif 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 Yesis all insulation of high dielectric strength and of permanently high insulation resistance Plate panelis it of an approved type ✓, if semi-insulating material is used, are all conducting parts insulated from the slab with mica or micanite or othernon-hygroscopic insulating material, and the slab similarly insulated from its framework Yes, is the non-hygroscopic insulating material of an approvedtype mica, and is the frame effectively earthed YesAre the fittings as per Rule regarding:— spacing or shielding of live parts Yesaccessibility of all parts Yes, absence of fuses on back of board Yes, temperature rise ofomnibus 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 No are any fuses fitted on the live side ofswitches No Main Switchgear, description of switchgear for each generator, and each outgoing circuit, and arrangement of equalizer switches

Ans. generator circuit fitted with double pole switch and fuse on each pole. Main generator switch on main switchboard replaced by change over switch to avoid paralleling of generators.

Are turbine driven generators fitted with emergency trip switch as per rule ✓ Are cupboards or compartments containing switchboards composed offire-resisting material or lined with approved material ✓ Instruments on main switchboard 1 ammeters 1voltmeters ✓ synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connectionEarth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system ✓Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules Yesare 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, is the construction, protection, insulation, material, and position of these as per rule

Cables: Single, twin, concentric, or otherwise *Single, twin, concentric, or otherwise*

If the cables are insulated otherwise than as per Rule, are they of an approved type ✓

Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load

Cable Sockets, are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets ✓

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 ✓, or waterproof insulating tape ✓

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

Support and Protection of Cables, state how the cables are supported and protected *Steel Conduit clipped to vessel*

If cables are run in wood casings, are the casings and caps secured by screws ✓, are the cap screws of brass ✓, are the cables run in separate grooves ✓

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 *None*

Watertight Glands and Deck Tubes, are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands

Bushes in Beams and Non-watertight Partitions, where unarmoured cables pass through beams and non-watertight partitions, are the holes efficiently bushed ✓, state the material of which the bushes are made

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

are their connections made as per Rule

Alternative Lighting, are the groups of lights in the propelling machinery space arranged as per Rule

Emergency Supply, state position and method of control of the emergency supply and how the generator is driven

Navigation Lamps, are these separately wired, controlled by separate switch and separate fuses, are the fuses double pole

are the switches and fuses grouped in a position accessible only to the officers on watch

has each navigation lamp an automatic indicator as per Rule

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

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

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected

where are the controlling switches situated

are all fittings suitably ventilated, are all switches and lampholders constructed wholly of non-ignitable, non-absorbent materials

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, whether fixed or portable, are their fittings as per Rule

Are 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, are the coils self-contained and readily removable for replacement

are the brushes, brush holders, terminals and lubricating arrangements as per Rule, are the motors placed in well-ventilated compartments in which inflammable gases cannot accumulate and clear of all inflammable material

are they protected from mechanical injury and damage from water, steam or oil, are their axes of rotation fore and aft, 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 generator field and motor speed regulators, starters and controllers constructed and fitted as per Rule

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

are all fuses of the filled 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 type approved by the Home Office

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

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	1	4.6	110	40	1000	Boiler house oil engine	2nd oil	150° F	
AUXILIARY									
EMERGENCY									
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. Ins.		Circuit.	Rule.				
MAIN GENERATOR									
EQUALISING CONNECTIONS									
AUXILIARY GENERATOR	1	25	1x2.3+6x2.1	40	63	2 1/2	Rubber	Electrically insulated.	
EMERGENCY GENERATOR									
ROTARY TRANSFORMER									
ENGINE ROOM									
BOILER ROOM									
AUXILIARY SWITCHBOARDS									
ACCOMMODATION									
WIRELESS									
SEARCHLIGHT									
MASTHEAD LIGHT									
SIDE LIGHTS									
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. Ins.		In Circuit.	Rule.			
BALLAST PUMP									
MAIN BILGE LINE PUMPS									
GENERAL SERVICE PUMP									
EMERGENCY BILGE PUMP									
SANITARY PUMP									
CIRC. SEA WATER PUMPS									
CIRC. FRESH WATER PUMPS									
AIR COMPRESSOR									
FRESH WATER PUMP									
ENGINE TURNING GEAR									
ENGINE REVERSING GEAR									
LUBRICATING OIL PUMPS									
OIL FUEL TRANSFER PUMP									
WINDLASS									
WINCHES, FORWARD									
WINCHES, AFT									
STEERING GEAR—									
(a) MOTOR GENERATOR									
(b) MAIN MOTOR									
WORKSHOP MOTOR									
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.

TALLERES NUEVO VULCANO

Electrical Engineers.

Date 30/9/35.

Ingeniero-Director

#### COMPASSES.

Distance between electric generators or motors and standard compass

Distance between electric generators or motors and steering compass

The nearest cables to the compasses are as follows:—

A cable carrying Ampères feet from standard compass 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

Has the effect of switching on and off circuits, motors and other electro-magnetic apparatus within the vicinity of the compasses been noted

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

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 particulars noted in this report refer to the fitting of an auxiliary generator for standby use in port only. The installation has been fitted in accordance with the Rules and the approved plan (Secretary's letter E 25/4/35) excepting for the recommendations below which still require to be carried out. The materials and workmanship are efficient and in my opinion the vessel is eligible to remain as classed without fresh record of Survey.

Recommendations outstanding to complete the installation:— Cables behind Auxiliary Switchboard to be adequately supported and lock nuts to be fitted to screws supporting fittings. Guard rail to fit around generator engine flywheel. It was stated that these recommendations will be dealt with when the vessel is dry docked for overhaul towards the end of next month.

Total Capacity of Generator <sup>Ans</sup> 4.6 Kilowatts.

The amount of Fee

Rs 250

When applied for,

30.9.1935

Travelling Expenses (if any)

Rs 8

When received.

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Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUE. 17 DEC 1935

Assigned

See Bel. Rpt-5290



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