

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

11 MAR 1929

Received at London Office.....

Date of writing Report 26<sup>th</sup> Feb. 1929 When handed in at Local Office 1<sup>st</sup> Mar. 1929 Port of Bilbao

No. in Survey held at Bilbao Date, First Survey Nov. 25<sup>th</sup> 1928 Last Survey Feb. 19<sup>th</sup> 1929  
Reg. Book. (Number of Visits..... 12)

on the steel or M.V. "AYALA-MENDI" Tons { Gross 2954.69  
Net 1527.06

Built at Bilbao By whom built Bia Euskalduna Yard No. 79 When built 1929

Owners Bia Nav. Sola y Aznar Port belonging to Bilbao

Electric Light Installation fitted by Bia Euskalduna Contract No.  When fitted 1929

System of Distribution Constant pressure, parallel, two wire insulated system

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

Direct or Alternating Current, Lighting Direct Power Direct

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 rating 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

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 Port side of Engine 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 Yes, 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 On platform across forward 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 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, is all insulation of high dielectric strength and of

permanently high insulation resistance Slate panels, if semi-insulating material is used, are all conducting parts insulated from the slab

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

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, proportion of omnibus

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

Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches Each generator fitted

with double pole automatic switch, with reverse and overload trips, and with interlocked equalizer

switch. Each outgoing circuit fitted with double pole switch, with fuses on each pole.

Instruments on main switchboard 3 ammeters 3 voltmeters and 1 synchronising device for paralleling purposes.

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

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

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

**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 3 volts

**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 Cables run in conduit, except in accommodation

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 Yes

**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 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 Fibre

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

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 None

**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 stokeholds and engine rooms and where 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 None, are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected Yes, how are the cables led Yes, where are the controlling switches situated Yes

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

**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 when possible 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 Yes, if not of this type, state distance of the combustible material horizontally or vertically above the motors Yes and 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 mesh

**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

If portable lamps for use in dangerous spaces are supplied, are they of a type approved by the Home Office 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	80	220	364	375	Diesel Engine	Diesel Oil	Above 150° F
AUXILIARY	1	25	220	114	400	"	"	"
EMERGENCY	<u>A Sulzer Diesel driving a Brown Boveri 40 Kw Dynamo, at MONTE ALTORE refinery about 25 Kw SW, fitted B.B. 1/4"</u>							
ROTARY TRANSFORMER	1	15	220/110	72	900			

LIGHTING AND HEATING CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Conductors.	Effective Area of each Conductor Sq. Ins. Sq. Ft.	COMPOSITION OF STRAND.		Total Maximum Current Ampères.	Approximate Length (Lead and Return) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	MAIN GENERATOR	2	350	61	2.70	364	62	Rubber	Leaky casing
	EQUALISER CONNECTIONS	1	195	37	2.60	75	62	"	"
	AUXILIARY GENERATOR	2	65	19	2.10	114	20	"	"
	EMERGENCY GENERATOR	1							
	ROTARY TRANSFORMER	2	35	19	1.55	72	12	"	"
	AUXILIARY SWITCHBOARDS	4	350	61	2.70	700	74	"	"
	ENGINE ROOM	2	4.5	7	0.90	6	24	"	Lead covered
	BOILER ROOM	2	1	1	1.10	5	10	"	"
	ACCOMMODATION	2	10	7	1.30	15	35	"	"
	WIRELESS	2	10	7	1.30	4	30	Rubber	Lead covered
	SEARCHLIGHT	1							
	MASTHEAD LIGHT	2	1	1	1.10	0.5	120	"	" " & heavy
	SIDE LIGHTS	2	1	1	1.10	0.5	10	"	"
	COMPASS LIGHTS	2	1	1	1.10	0.1	6	"	"
	POOP LIGHTS	2	1	1	1.10	0.5	140	"	" " & heavy
	CARGO LIGHTS	2	6.7	7	1.10	10	70	"	"
	ARC LAMPS	1							
	HEATERS	2	16	7	1.45	18	120	"	"

MOTOR CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor Sq. Ins. Sq. Ft.	COMPOSITION OF STRAND.		Total Maximum Current Ampères.	Approximate Length (Lead and Return) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	BALLAST PUMP	1	55	19	2.0	104	45	Rubber	Lead covered & casing
	MAIN BILGE LINE PUMPS	1	10	7	1.30	35	30	"	"
	GENERAL SERVICE PUMP	1	4.5	7	0.90	10	35	"	"
	EMERGENCY BILGE PUMP	1							
	SANITARY PUMP	1	4.5	7	0.90	10	72	"	"
	CIRC. SEA WATER PUMPS	2	10	7	0.90	35	35	"	"
	CIRC. FRESH WATER PUMPS	1							
	AIR COMPRESSOR	1							
	FRESH WATER PUMP	1	4.5	7	0.90	10	72	"	"
	ENGINE TURNING GEAR	1	6.75	7	1.10	17	40	"	"
	ENGINE REVERSING GEAR	1							
	LUBRICATING OIL PUMPS	1	3	7	0.75	3	7	"	"
	OIL FUEL TRANSFER PUMP	1	25.6	19	1.30	55	5	"	"
	WINDLASS	1	75	37	1.60	125	80	"	" " & heavy
	WINCHES, FORWARD	4	65	19	2.10	118	80	"	"
	WINCHES, AFT	4	65	19	2.10	118	80	"	"
	STEERING GEAR								
	(a) MOTOR GENERATOR	1							
	(b) MAIN MOTOR	1	10	7	0.90	30	115	"	Lead covered & heavy
	WORKSHOP MOTOR	1	6.75	7	1.10	17	50	"	"
	VENTILATING FANS	2							
	Fuel Oil Separator	2	4.5	7	0.90	6.5	8	"	"
	Submarine Oil "	1	3	7	0.75	4.5	15	"	"

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.

FOR LA COMPANIA EUSKAL DUNA  
 DE CONSTRUCCION Y REPARACION DE BUQUES  
 El Director Técnico,

*J. de Antequin* Electrical Engineers. Date \_\_\_\_\_

COMPASSES.

Distance between electric generators or motors and standard compass 16 metres  
 Distance between electric generators or motors and steering compass 13 "  
 The nearest cables to the compasses are as follows:—  
 A cable carrying 10 Amperes feet from standard compass 2 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 1/2 degrees on course in the case of the standard compass, and degrees on course in the case of the steering compass.

FOR LA COMPANIA EUSKAL DUNA  
 DE CONSTRUCCION Y REPARACION DE BUQUES  
 El Director Técnico,

*J. de Antequin* Builder's Signature. Date \_\_\_\_\_

Is this installation a duplicate of a previous case Yes If so, state name of vessel "ANBOTO-MENDI"

General Remarks (State quality of workmanship, opinions as to class, etc.) The electrical installation has been satisfactorily fitted on board this vessel, in accordance with the Rules as approved, and is eligible in my opinion to be classed, with the notation of "Electric Light" and "Wireless D.F." in the Register Book.

Note:— In consequence of an accident the auxiliary oil engine for No. 3 dynamo was considerably damaged and returned to the maker (Messrs Selva Bros) There was insufficient time for a new engine to be made, and as a temporary measure a completed engine of a somewhat smaller power was forwarded and connected to No. 3 dynamo. The installation was tested and found meanwhile efficient, however it is recommended that the class of the vessel be subject to an auxiliary oil engine of proper power being fitted to No. 3 dynamo. It is stated that a new auxiliary oil engine is under construction and will be forwarded on completion to be fitted on board the vessel.

It is submitted that this vessel is eligible for THE RECORD. — ELEC. LIGHT.

Total Capacity of Generators 1.85 Kilowatts.

The amount of Fee ... £ 1728 = { When applied for, 6/3 1929  
 Travelling Expenses (if any) £ : : { When received, 6/3 1929

*J. A. Kendal*  
 Surveyor to Lloyd's Register of Shipping.

FRI. 21 JUN 1929  
 FRI. 19 JUL 1929  
 TUE. 24 SEP 1929  
 TUE. 19 NOV 1929  
 TUE. 10 DEC 1929  
 TUE. 14 JAN 1930

Committee's Minute TUE 12 MAR 1929

Assigned *Elec Light*

Im. 126.—Transfer. (The Surveys are requested not to be on or below the space for Committee's Minute.)

