

# EUROPASS CERTIFICATE SUPPLEMENT

## TITLE OF THE DIPLOMA (ES)

*Técnico en Electromecánica de Vehículos Automóviles*

## TRANSLATED TITLE OF THE DIPLOMA (EN)<sup>(1)</sup>

*Technician in Motor Vehicles Electro mechanics*

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(1) This translation has no legal status.

## DIPLOMA DESCRIPTION

**The holder of this diploma will have acquired the General Competence with regard to:**

Performing maintenance, accessory fitting and transformation operations in the areas of mechanics, hydraulics, pneumatics and motor vehicles electricity, adhering to established procedures and times and complying with quality, safety and environmental protection specifications.

**Within this framework, the PROFESSIONAL MODULES and their respective LEARNING OUTCOMES acquired by the holder are listed below:**

### “Engines”

The holder:

- Characterises the performance of two-stroke and four-stroke engines interpreting the variations of their characteristic parameters and the functionality of their elements.
- Characterises the lubrication and cooling systems of thermal engines, identifying their elements and describing their function within the system.
- Finds breakdowns in thermal engines and their lubrication and cooling systems relating symptoms and effects with the causes that produce them
- Maintains thermal engines interpreting established repair procedures.
- Maintains lubrication and cooling systems of engines interpreting established repair procedures.
- Applies the rules on labour risk prevention and environmental protection, identifying associated risks and measures and equipment to prevent them.

### “Engine Auxiliary Systems”

The holder:

- Characterises performance characteristics of Otto engines interpreting the variations of their parameters and the functionality of their elements.
- Characterises performance characteristics of Diesel engines interpreting the variations of their parameters and the functionality of their elements.
- Finds breakdowns in the auxiliary systems of both Otto and Diesel engines relating symptoms and effects with the causes that produce them.
- Maintains the auxiliary systems of Otto engines interpreting and applying established procedures in accordance with technical specifications.
- Maintains the auxiliary systems of Diesel engines interpreting and applying established procedures in accordance with technical specifications.
- Maintains the force induction and anti-pollution systems of Otto and Diesel engines, interpreting the obtained values in the engine running test.

### “Fluids Circuits. Suspension and Steering”

The holder:

- Determines the workload transmitted by the active elements of hydraulic and pneumatic systems analysing the physical laws that govern the same.
- Fits fluids circuits relating the function of their elements with the operational status of the circuit.
- Characterises the performance of suspension and steering systems, describing the location and functionality of their elements.
- Finds breakdowns in the suspension and steering systems relating symptoms and effects with the causes that produce them.
- Maintains conventional and steered suspension systems interpreting and applying established work procedures.
- Maintains conventional and assisted suspension systems interpreting and applying established work procedures.
- Complies with the rules on labour risk prevention and environmental protection, identifying associated risks and measures and equipment to prevent them.

### **“Transmission and Braking Systems”**

The holder:

- Characterises the performance of transmission systems describing the location and functionality of their elements.
- Characterises the performance of the braking system describing the location and functionality of their elements.
- Finds breakdowns in the transmission and braking systems relating symptoms and effects with the causes that produce them.
- Maintains force transmission systems interpreting and applying established work procedures.
- Maintains braking systems interpreting and applying established work procedures.

### **“Charging and Starting Systems”**

The holder:

- Characterises the functionality of elements and elementary electronic and electric systems of vehicles, applying the laws of electricity and magnetism.
- Fits elementary electric and electronic circuits relating the function of their elements with the operational status of the circuit.
- Characterises the performance of charging and starting systems, describing location and functionality of their elements.
- Finds breakdowns in the charging and starting systems relating symptoms and effects with the causes that produce them.
- Maintains the charging system interpreting and applying established work procedures.
- Maintains the starting system of the vehicle, interpreting work procedures established by the manufacturers, and applying technical specifications.

### **“Auxiliary Electric Circuits of the Vehicle”**

The holder:

- Recognises the functionality and constitution of elements and systems that make up the auxiliary electric circuits of a vehicle, describing their performance.
- Finds breakdowns in the auxiliary electric systems, relating symptoms and effects with the causes that produce them.
- Maintains auxiliary electric systems, interpreting and applying established work procedures.
- Fits new installations and modifies existing ones selecting necessary procedures, materials, components and elements.
- Finds breakdowns in data communication networks, relating symptoms and effects with the causes that produce them.

### **“Safety and Comfort Systems”**

The holder:

- Characterises the functionality and constitution of elements and systems that make up safety and comfort systems, describing their performance in the system as a whole.
- Finds breakdowns in the safety and comfort systems relating symptoms and effects with the causes that produce them.
- Maintains inside temperature control systems, analysing and applying established work procedures.
- Maintains installations and fits audiovisual, communication and comfort equipment describing installation and fitting techniques.
- Maintains the passenger and vehicle safety systems, interpreting and applying established work procedures.
- Replaces windows and auxiliary bodywork elements describing replacement and fitting procedures.
- Applies the rules on labour risk prevention and environmental protection, identifying associated risks and measures and equipment to prevent them.

### **“Elementary Mechanisation”**

The holder:

- Draws sketches of pieces interpreting specific symbols and applying the corresponding conventionalisms of representation.
- Draws parts for their later machining, relating sketch and plans specifications with the precision of the made-to-measure equipment.
- Machines parts by hand relating measuring techniques with the tolerance margins provided in the sketches and plans.
- Screws on parts outwards or inwards making the necessary calculations and operations.
- Joins metallic parts by means of a soft welding describing the used techniques in each case.

### **“Professional Training and Guidance”**

The holder:

- Selects job opportunities, identifying the different possibilities of labour integration, and the alternatives of lifelong learning.

- Applies teamwork strategies, assessing their effectiveness and efficiency on the achievement of the company's goals.
- Exercises rights and complies with the duties derived from labour relationships, recognising them in the different job contracts.
- Determines the protection action of the Spanish Health Service in view of the different covered eventualities, identifying the different types of assistance.
- Assesses risks derived from his/her activity, analysing job conditions and risk factors present in his/her labour setting.
- Participates in the development of a risk prevention plan in a small enterprise, identifying the responsibilities of all agents involved.
- Applies protection and prevention measures, analysing risk situations in the labour setting of the Technician in Vehicles Electro mechanics.

### **“Business and Entrepreneurial Initiative”**

The holder:

- Recognises skills related to entrepreneurial initiative, analysing the requirements derived from job positions and business activities.
- Defines the opportunity of creating a small enterprise, assessing the impact on the performance setting and incorporating ethic values.
- Carries out the activities for the setting-up and implementation of a company, choosing the legal structure and identifying the associated legal obligations.
- Carries out basic administrative and financial management activities of an SME, identifying the main accounting and tax obligations and filling in documentation.

### **“On the Job training”**

The holder:

- Identifies the company's structure and organization relating the same to service provision.
- Applies labour and ethic habits in his/her professional activity according to the characteristics of the job position and the procedures established by the company.
- Maintains engines and their auxiliary systems, carrying out diagnoses that allow identifying the elements that must be adjusted, repaired or replaced.
- Maintains and fits safety and comfort systems, using the appropriate techniques and means in each case.
- Maintains the electric and electronic systems of the vehicle, carrying out diagnoses that allow identifying the elements that must be adjusted, repaired or replaced.
- Maintains force transmission systems and running gear of vehicles, carrying out diagnoses that allow identifying the elements that must be adjusted, repaired or replaced.

## **RANGE OF OCCUPATIONS ACCESSIBLE TO THE HOLDER OF THE DIPLOMA**

The Technician in Vehicles Electro mechanics works in the sector of vehicles manufacture and maintenance, in the motor vehicles, motorcycles and heavy vehicles sub-sectors.

Companies of car rental, public services, goods and passengers transport.

Companies manufacturing vehicles and their components.

Companies responsible for Vehicles Compulsory Technical Inspection (MOT inspection).

Companies in charge of manufacturing, selling and marketing checking and diagnostic equipment and vehicles spare parts.

Companies located in other production sectors where electro mechanics maintenance tasks are carried out (generators, conveyor belts moved through a reciprocating engine, among other ones).

The most relevant occupations or jobs are the following:

- Vehicles electronics technician
- Electronic electrician of motor vehicles maintenance and repair
- Motor vehicles mechanic
- Motor vehicles electrician
- Motor vehicles electro mechanic
- Mechanic of engines and their auxiliary systems in motor vehicles and motorcycles
- Pneumatic and hydraulic systems repairer
- Transmission and braking systems repairer
- Steering and suspension systems repairer
- Manager of Vehicles Compulsory Technical Inspection (MOT inspection)
- Vehicles accessories fitter
- Worker in a company responsible for the manufacture of vehicles spare parts
- Motorcycles electro mechanic
- Salesperson/distributor of vehicles spare parts and diagnostic equipment

## **AWARD, ACCREDITATION AND LEVEL OF THE DIPLOMA**

**Name of the body awarding the diploma on behalf of the King of Spain:** Spanish Ministry of Education or the different Autonomous Communities according to their areas of competence. The title has academic and professional validity throughout Spain.

**Official duration of the education/ training leading to the diploma:** 2000 hours.

**Level of the diploma (national or international)**

- NATIONAL: Post-Compulsory Secondary Education
- INTERNATIONAL:
  - Level 3 of the International Standard Classification of Education (ISCED3).
  - Level 4A of the European Qualifications Framework (EQF4).

**Entry requirements:** Holding the Certificate in Compulsory Secondary Education or holding the corresponding access test.

**Access to next level of education/training:** This diploma may provide access to Higher Technical Cycles provided that an entrance exam is passed.

**Legal basis.** Basic regulation according to which the diploma is established:

- Minimum teaching requirements established by the State: Royal Decree 453/2010, of 16 April, according to which the diploma of Technician in Vehicles Electro mechanics and its corresponding minimum teaching requirements are established.

**Explanatory note:** This document is designed to provide additional information about the specified diploma and does not have any legal status in itself. An Annex I may be added and will be filled in by the corresponding Autonomous Community

## INFORMATION ON THE EDUCATION SYSTEM

