

## Occupational Requirements – Automotive Electrician

Applicants seeking recognition of their qualifications<sup>1</sup> or experience in relation to the Automotive Electrical trade will need to demonstrate knowledge and understanding of the occupational requirements listed below.

Successful recognition of qualifications or experience will result in the applicant gaining the **Occupational Certificate as an Automotive Electrician**.

### Automotive workplace practices

- Following safe working practices
- Following environmental and sustainability best practice
- Prioritising and planning work effectively within an automotive timeframe
- Receiving, handling and managing stock, including pre-ordering for future use and/or planned work
- Understanding and complying with work healthy and safety and implementing safe work practices
- Safely using and maintaining tools and equipment
- Communicating effectively across teams, colleagues, contractors, suppliers, and customers
- Providing advice and guidance about specialist matters to managers, colleagues, and customers
- Reacting professionally and effectively in unexpected situations
- Responding to customer needs and enquires
- Working effectively with others in an automotive workplace

### Specific skills

- Applying knowledge of:
  - automotive electrical circuits and wiring systems
  - petrol and diesel engine operation
  - air conditioning systems and HVAC
- Calculating circuit current requirements
- Developing and carrying out diagnostic test strategies
- Diagnosis and repair of:
  - automotive electrical systems
  - charging systems
  - compression ignition engine management systems
  - electronic body management systems
  - ignition systems
  - instruments and warning systems
  - spark ignition engine management systems
  - starting systems

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<sup>1</sup> Where these qualifications have not been obtained under a training contract (apprenticeship or traineeship).

- Fault finding and diagnosis
- Inspecting and servicing engines
- Installation of:
  - ancillary electronic systems and components
  - vehicle lighting and wiring systems
- Operating electrical test equipment including:
  - amp clamps
  - oscilloscopes
  - schematic diagrams
  - soldering irons
- Repairing wiring harnesses and looms
- Soldering electrical wiring and circuits
- Testing and repairing basic electrical circuits
- Testing, charging and replacing batteries and jump-starting vehicles
- Understanding electrical principles:
  - amperage
  - resistance
  - voltage
  - voltage drop
- Using and maintaining electrical test equipment in an automotive workplace
- Working to deadlines

### **Additional skills to consider**

- Applying knowledge of ADAS systems to vehicle pre-repair scans
- Assisting with maintaining workplace safety
- Diagnosing and repairing:
  - air conditioning and HVAC components
  - (and replacing) electronic management, monitoring and tracking systems
  - cooling systems
  - complex system faults
  - dynamic control systems
  - electric braking systems
  - electronically controlled steering systems
  - electronically controlled suspension systems
  - engines
  - exhaust systems
  - emission control systems
  - hydraulic braking systems
  - integrated engine and transmission management systems
  - mechanical fuel injection systems
  - network electronic control systems

- Diagnosing, removing and replacing electric vehicle rechargeable energy storage systems
- Inspecting and servicing:
  - braking systems
  - petrol fuel systems
- Inspecting, testing and servicing:
  - batteries
  - charging systems
  - starting systems
- Inspecting damaged vehicle systems and recommend repairs
- Inspecting, servicing and repairing:
  - AC electric motor drive systems
  - DC electric motor drive systems
- Installing:
  - air conditioning systems
  - automotive security systems and components
  - basic ancillary electrical systems and components
  - marine electrical systems and components
- Overhauling:
  - air conditioning and HVAC system compressors
  - charging system alternators
  - starting system motors
- Promoting innovation in team environments
- Providing technical guidance
- Providing work skill instruction
- Reading and applying vehicle wiring schematics and drawings
- Recovering vehicle refrigerants
- Removing and installing light vehicle engine assemblies
- Removing and replacing:
  - electrical units and assemblies
  - vehicle supplementary restraint systems
- Removing, refitting and operating electrical components following body repair activities
- Removing, replacing and programming electrical and electronic units and assemblies
- Repairing wiring harnesses
- Retrofitting automotive air conditioning and HVAC systems
- Selecting and using bearings, seals, gaskets, sealants and adhesives
- Servicing air conditioning and HVAC systems
- Testing and servicing electric outdoor power equipment