# National Apprenticeship - Occupational Profile

**Craft Occupation**  
Motor Mechanics

**Industry Served**  
The Motor Industry

**Profile of Craft**  
The work of a Motor Mechanic involves the servicing, maintenance and fault diagnosis of automobile and light commercial vehicle mechanical and electrical systems, vehicle component removal, installation or repair according to original manufacturers’ specification.

At the end of the apprenticeship, the craftsperson will be able to demonstrate competence in the following skills:

## Core Skills

**Servicing**  
Read, interpret and carry out manufacturers’ instructions for all vehicle service, maintenance and repair procedures. Complete a vehicle report form.

**Fgas**  
Describe the overall aim of Regulation No. 842/2006 of the European Parliament and of the Council of 17 of May 2006 in relation to the air conditioning systems of automotive vehicles (MACs). List the dangers to personal health and related safety regulations related to the refrigerant gas contained in mobile air conditioning (MAC) systems. Describe the location of possible leaks of refrigerant gas from an automotive air con unit.

**Engine**  
Diagnose faults, dismantle and reassemble the engine and its ancillary components. Replace timing belts and chains. Use all recommended bolt tightening procedures.

**Electrical**  

**Fuel/Ignition**  
Diagnose and resolve faults in electronically controlled fuel, ignition and emissions control systems. Evaluate exhaust emission levels with reference to NCT/DoT VTM test requirements.

**Transmission**  

**Brakes**  
Diagnose mechanical and hydraulic faults in the braking system. Remove/replace brake components. Employ manufacturers’ recommended service and bleeding procedures.
**Core Skills**
(cont’d)

**Steering/Suspension**
Diagnose faults in steering and suspension systems.
Remove/replace steering and suspension components.
Align suspension and steering geometry.
Balance wheels. Repair punctures.

**Bodywork**
Remove/replace bodywork components
e.g. door locks, windows and regulators.

**Specialist Skills**

**Engine**
Carry out complete engine overhaul on automobile and light commercial vehicle petrol and diesel engines.

**Electrical**
Check operation of, diagnose any faults present, and return to original manufacturers’ specification: standard, multi-voltage and high voltage systems, inter-control module communication systems e.g. CAN, LIN, VAN and MOST networks, multiplex wiring, climate control, cruise control, theft deterrence systems, comfort systems e.g. electric windows and seat/steering adjustment, sunroof, and central locking.

**Fuel systems**
Check operation of, diagnose any faults present, and return to original manufacturers’ specification: high pressure petrol injection systems (e.g. GDI and MED-Motronic) and high pressure diesel injection systems (e.g. common-rail).

**Transmission**
Check operation of, diagnose any faults present, overhaul and return to original manufacturers’ specification: manual, automatic or hybrid transmission assemblies.

**Brakes**
Check operation of, diagnose any faults present, and return to original manufacturers’ specification: ABS and EHB (Electro-Hydraulic Braking) systems. This includes ESP (Electronic Stability Program), TCS (Traction Control System), and ACC (Adaptive Cruise Control) systems.

**Occupant safety**
Examine, diagnose any faults present, and return to original manufacturers’ specification: vehicle occupant passive safety systems. This includes airbag, belt tensioner and rollover protection systems.

**Communication and Information**
Check operation of, diagnose any faults present, and return to original manufacturers’ specification: In-Car Entertainment systems, telecommunication systems, vehicle information systems e.g. technical monitoring displays and GPS (Global Positioning System).

**Mobile Air Conditioning (MAC) systems.**
Discuss and demonstrate best practice for handling of Fgases storage cylinders, the safe recovery and disposal of Fgas. Perform full servicing of an air conditioning system of a motor vehicle to include: leak detection, recovery, vacuum and refill.
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<thead>
<tr>
<th><strong>Specialist Skills</strong> (cont’d)</th>
<th><strong>Bodywork</strong></th>
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<td>Examine bodywork/chassis/tow hitches in compliance with manufacturers’ and NCT/DoT VTM specifications.</td>
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<tr>
<th><strong>Common Skills</strong></th>
<th><strong>Servicing</strong></th>
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<tr>
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<td>Read, interpret and carry out manufacturers’ instructions for all vehicle service, maintenance and repair procedures. Complete a vehicle report form.</td>
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<td><strong>NCT/DoT VTM</strong></td>
<td>Determine the condition of automotive vehicles to NCT/DoT VTM requirements.</td>
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<td><strong>Engine</strong></td>
<td>Diagnose faults and return to original manufacturers’ specification: petrol and diesel engines and their ancillary components.</td>
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<td><strong>Transmission</strong></td>
<td>Diagnose faults and return to original manufacturers’ specification: clutch system components, driveshafts and bearings.</td>
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<td><strong>Brakes</strong></td>
<td>Diagnose faults and return to original manufacturers’ specification: brake friction linings.</td>
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<td><strong>Steering</strong></td>
<td>Diagnose faults and return to original manufacturers’ specification: steering linkage and geometry settings.</td>
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<td><strong>Bodywork</strong></td>
<td>Remove/replace bodywork components e.g. door locks, windows and regulators.</td>
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