### National Apprenticeship - Occupational Profile

<table>
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<tr>
<th>Craft Occupation</th>
<th>Agricultural Mechanics</th>
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<tr>
<td>Industry Served</td>
<td>The Tractor and Farm Machinery Industry</td>
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<tr>
<td>Profile of Craft</td>
<td>The servicing, maintenance, repair and installation of the mechanical and electrical equipment of tractor and farm machinery. At the end of the apprenticeship, the craftsperson will be able to demonstrate competence in the following skills:</td>
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| Core Skills            | Farm Machinery  
Carry out manufacturer’s service schedules and diagnose and rectify general faults on ploughs, cultivators, balers, wrappers, harvesters (forage, combine and beet), seed drills, mowers, hedge cutters, vacuum tankers, diet feeders, fertiliser spreaders and sprayers.  
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/Fuel  
Transmission  
Remove and fit transmission components. Diagnose faults and overhaul 4-wheel drive steering axles, rear axles, manual and power shift transmissions. Diagnose faults and remove and fit clutches, driveshaft joints, bearings, chains, sprockets, pulleys, belts, bushes, and seals.  
Hydraulic  
Carry out manufacturer’s service schedule. Diagnose faults and carry out basic repairs on hydraulic systems and components. Remove and fit components. Carry out pressure and flow tests on the hydraulic system. Make up and fit hydraulic pipes and hoses.  
Electrical/Electronics  
Diagnose and rectify faults in electrical circuits using wiring diagrams and multimeter. Diagnose faults in starting and charging systems. Remove and fit components.  
Brakes  
Diagnose and rectify faults in mechanical, hydraulic and air braking systems of agricultural tractors and farm machines. Remove and fit basic electrical/electronic components. |
Core Skills
Cont’d

**Steering/Suspension**

**Wheels/Tyres**
Remove and fit wheels and tyres. Inflate tyres.

**Cab and Air Conditioning**
Diagnose faults in cab and seat suspension systems and fit replacement parts. Disconnect and reconnect air conditioning system when removing engine and/or cab. Remove and fit air conditioning components.

**Metal Work**
Make up simple components, and carry out repairs using bench fitting, gas cutting, glazing, soldering, gas welding and MMA and MIG electric welding techniques.

Specialist Skills

**Farm Machinery**
Diagnose and rectify complex faults on farm machines. Calibrate fertiliser distributors, grain drills and sprayers

**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 an automotive vehicle to include: leak detection, recovery, vacuum and refill.

**Engine/Fuel**

**Transmission**
Diagnose faults and overhaul CVT and hydrostatic transmissions.

**Hydraulics**
Diagnose faults in and overhaul hydraulic components (pumps, motors, valves, cylinders etc.)

**Electrical/Electronics**
Diagnose faults in the electronic systems of tractors and farm machines using electronic test equipment.

**Air Conditioning**
Diagnose faults in an air conditioning system. Evacuate and recharge air conditioning systems.

**Steering**
Diagnose and rectify faults in a hydrostatic steering motor.
Common Skills

**Engine/Fuel**
Remove and refit engines. Remove and replace basic components. Bleed fuel systems.

**Transmission**
Remove and refit transmissions and associated external components.

**Hydraulics**
Remove and refit hydraulic components (pumps, cylinders, motors, hoses etc.)

**Electrical/Electronics**
Remove and fit complete electronic components

**Brakes**
Remove and refit brake components. Check brake system for correct operation.

**Steering and Suspension**
Diagnose faulty steering system components. Remove and fit components. Carry out steering system adjustments. Diagnose and rectify faults in basic suspension systems.

**Wheels/Tyres**
Remove and fit wheels and tyres. Inflate tyres.

**Cab and Air Conditioning**
Remove and refit air conditioning components.

**Metal Work**
Make up simple components, and carry out repairs using bench fitting, brazing, soldering, gas welding and MIG electric welding techniques.

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Personal Skills

- Communications
- Customer relations
- Adaptability
- Ability to work as a team member
- Ability to work independently
- Initiative
- Problem solving
- Planning and organisation
- Information gathering
- Safety awareness

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**NOTE:** Integrated curriculum includes maths, science and theory