

Trade Profile

Agricultural Equipment Technician



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Structure of the Trade Profile

This profile has two sections that provide a snapshot of the trade's description, and all trade activities as they are organized in the Red Seal Occupational Standard:

Description of the Agricultural Equipment Technician trade: an overview of the trade's duties, work environment, job requirements, similar occupations and career progression

Task Matrix: a chart which outlines graphically the major work activities, tasks and sub-tasks of this standard

Major Work Activity (MWA): the largest division within the standard that is comprised of a distinct set of trade activities

Task: distinct actions that describe the activities within a major work activity

Sub-task: distinct actions that describe the activities within a task

Description of the Agricultural Equipment Technician Trade

“Agricultural Equipment Technician” is this trade’s official Red Seal occupational title approved by the CCDA. This standard covers tasks performed by agricultural equipment technicians.

Agricultural equipment technicians set up, maintain, service, diagnose, repair and recondition agricultural equipment. This equipment includes tractors and combines, as well as a variety of implements for agricultural functions such as tillage, seeding, planting, harvesting, haying, spraying and application. Agricultural equipment technicians may also work on outdoor power equipment. While they are involved in preventative maintenance, agricultural equipment technicians spend most of their time diagnosing and repairing malfunctioning or out of service equipment, either in the shop or in the field.

Agricultural equipment technicians must be able to service and repair spark ignition and compression ignition engines, drive train systems and components, hydraulic, hydrostatic and pneumatic systems, electrical and electronic systems, steering and braking systems, structural components, operator stations and other related support systems. They also assemble and adjust new agricultural equipment, perform scheduled maintenance service such as oil changes, lubrication and tune-ups, take defective units apart, and repair or replace broken, worn out or faulty parts. Agricultural equipment technicians may specialize in certain types of equipment or in repairing one particular manufacturer’s product line.

Technology greatly influences the agricultural equipment technician trade. Precision farming equipment has a wide range of applications which include machine control, yield data gathering, application control, product documentation and traceability, auto steering/guidance (Global Navigation Satellite System [GNSS]), field mapping, sectional control, yield mapping, drainage (grade) systems, telematics, and autonomous vehicles. Agricultural equipment technicians must learn and apply how to install, diagnose and repair these precision farm technologies.

Agricultural equipment technicians must also have good communication and customer service skills, since they often interact with clients. They teach clients how to operate new equipment, discuss equipment operation, and consult with them to pinpoint problems and determine their specific needs.

Agricultural equipment technicians work in the agriculture sector for equipment manufacturers, dealerships and independent repair shops or on large farms. They can also be self-employed. The equipment they work on and the hours tend to change according to the season.

The work often requires considerable standing, climbing, crouching, balancing on equipment and heavy lifting. Technicians must be able to diagnose complex problems and interpret technical manuals and schematics.

Due to the size and complexity of the equipment, safety is of prime importance. Technicians must practice safe operating procedures and be conscious of the impact on people, equipment, work area and environment when performing their work. There is risk of serious injury when working with agricultural equipment.

This standard recognizes similarities or overlaps with the work of automotive service technicians, truck and transport mechanics, heavy duty equipment technicians, small engine mechanics and welders.

With experience, agricultural equipment technicians may act as mentors and trainers to apprentices in the trade. They may also advance to become shop supervisors, service managers, sales people, parts technicians or manufacturers' service representatives. Some may also open their own dealerships or businesses.

Agricultural Equipment Technician

Task Matrix

A – Performs common occupational skills

5%

Task A-1 Performs safety-related functions 21%	A-1.01 Maintains safe work environment	A-1.02 Uses personal protective equipment (PPE) and safety equipment	
Task A-2 Performs routine work practices 28%	A-2.01 Conducts operational tests	A-2.02 Maintains fluids, lubricants and coolants	A-2.03 Services filters
	A-2.04 Maintains hoses, tubing and fittings	A-2.05 Services bearings, bushings and seals	A-2.06 Uses fasteners, sealants, adhesives and gaskets
	A-2.07 Cleans components	A-2.08 Verifies equipment and component repairs	A-2.09 Performs failure analysis
Task A-3 Organizes work 15%	A-3.01 Uses documentation	A-3.02 Plans daily tasks	
Task A-4 Uses and maintains tools and equipment 25%	A-4.01 Uses tools and equipment	A-4.02 Uses hoisting, lifting and securing equipment	A-4.03 Uses electronic devices and systems for diagnostics and programming
Task A-5 Uses communication and mentoring techniques 11%	A-5.01 Uses communication techniques	A-5.02 Uses mentoring techniques	

B – Diagnoses and repairs engines and engine support systems

15%

Task B-6 Diagnoses engine and engine support systems

58%

B-6.01 Diagnoses base engines

B-6.02 Diagnoses lubrication systems

B-6.03 Diagnoses cooling systems

B-6.04 Diagnoses intake and exhaust systems

B-6.05 Diagnoses fuel delivery systems

B-6.06 Diagnoses engine management systems

B-6.07 Diagnoses emissions control systems

Task B-7 Repairs engine and engine support systems

42%

B-7.01 Repairs base engines

B-7.02 Repairs lubrication systems

B-7.03 Repairs cooling systems

B-7.04 Repairs intake and exhaust systems

B-7.05 Repairs fuel delivery systems

B-7.06 Repairs engine management systems

B-7.07 Repairs emissions control systems

C – Diagnoses and repairs drive trains

13%

Task C-8 Diagnoses drive trains 56%	C-8.01 Diagnoses dry clutches	C-8.02 Diagnoses driveline systems and components	C-8.03 Diagnoses wet clutches, transmissions and gear cases
	C-8.04 Diagnoses differentials and final drives		
Task C-9 Repairs drive trains 44%	C-9.01 Repairs dry clutches	C-9.02 Repairs driveline systems and components	C-9.03 Repairs wet clutches, transmissions and gear cases
	C-9.04 Repairs differentials and final drives		

D – Diagnoses and repairs hydraulic, hydrostatic and pneumatic systems

17%

Task D-10 Diagnoses hydraulic, hydrostatic and pneumatic systems 60%	D-10.01 Diagnoses hydraulic and hydrostatic systems	D-10.02 Diagnoses pneumatic systems
	D-11.01 Repairs hydraulic and hydrostatic systems	D-11.02 Repairs pneumatic systems
Task D-11 Repairs hydraulic, hydrostatic and pneumatic systems 40%		

E – Diagnoses and repairs electrical and electronic systems

19%

<p>Task E-12 Diagnoses electrical/electronic power and control monitoring systems 63%</p>	<p>E-12.01 Diagnoses electrical power and control monitoring systems</p>	<p>E-12.02 Diagnoses electronic power and control monitoring systems</p>
<p>Task E-13 Repairs electrical/ electronic power and control monitoring systems 37%</p>	<p>E-13.01 Repairs electrical power and control monitoring systems</p>	<p>E-13.02 Repairs electronic power and control monitoring systems</p>

F – Diagnoses and repairs steering, brakes and suspensions

10%

<p>Task F-14 Diagnoses steering and brake systems 26%</p>	<p>F-14.01 Diagnoses steering systems</p>	<p>F-14.02 Diagnoses brake systems</p>	
<p>Task F-15 Repairs steering and brake systems 26%</p>	<p>F-15.01 Repairs steering systems</p>	<p>F-15.02 Repairs brake systems</p>	
<p>Task F-16 Diagnoses track, wheel and suspension systems 24%</p>	<p>F-16.01 Diagnoses track systems</p>	<p>F-16.02 Diagnoses wheel assemblies</p>	<p>F-16.03 Diagnoses suspension systems</p>
<p>Task F-17 Repairs track, wheel and suspension systems 24%</p>	<p>F-17.01 Repairs track systems</p>	<p>F-17.02 Repairs wheel assemblies</p>	<p>F-17.03 Repairs suspension systems</p>

G – Diagnoses and repairs structural components and operator stations

6%

<p>Task G-18 Diagnoses structural components 18%</p>	<p>G-18.01 Diagnoses frame components</p>	<p>G-18.02 Verifies condition of operator protective structures</p>	<p>G-18.03 Diagnoses equipment body</p>
<p>Task G-19 Repairs structural components 19%</p>	<p>G-19.01 Repairs frame components</p>	<p>G-19.02 Replaces operator protective structures</p>	<p>G-19.03 Repairs equipment body</p>
<p>Task G-20 Diagnoses climate control systems 33%</p>	<p>G-20.01 Diagnoses heating and ventilation systems</p>	<p>G-20.02 Diagnoses air conditioning systems</p>	
<p>Task G-21 Repairs climate control systems 30%</p>	<p>G-21.01 Repairs heating and ventilation systems</p>	<p>G-21.02 Repairs air conditioning systems</p>	

H – Diagnoses and repairs agricultural equipment

15%

<p>Task H-22 Prepares agricultural equipment 9%</p>	<p>H-22.01 Performs assembly and pre-delivery adjustments on agricultural equipment</p>	<p>H-22.02 Performs preparation and installation of agricultural equipment</p>	<p>H-22-03 Installs precision farming equipment</p>
<p>Task H-23 Diagnoses precision farming equipment 13%</p>	<p>H-23.01 Diagnoses precision farming equipment on site</p>	<p>H-23.02 Diagnoses precision farming equipment remotely</p>	
<p>Task H-24 Repairs precision farming equipment 10%</p>	<p>H-24.01 Repairs precision farming equipment on site</p>	<p>H-24.02 Repairs precision farming equipment remotely</p>	
<p>Task H-25 Diagnoses land preparation, tillage and seeding/ planting equipment 12%</p>	<p>H-25.01 Diagnoses land preparation and tillage equipment</p>	<p>H-25.02 Diagnoses seeding and planting equipment</p>	
<p>Task H-26 Repairs land preparation, tillage and seeding/ planting equipment 11%</p>	<p>H-26.01 Repairs land preparation and tillage equipment</p>	<p>H-26.02 Repairs seeding and planting equipment</p>	
<p>Task H-27 Diagnoses harvesting, hay and forage equipment 15%</p>	<p>H-27.01 Diagnoses cutting, conditioning, gathering and processing equipment</p>	<p>H-27.02 Diagnoses material handling equipment</p>	
<p>Task H-28 Repairs harvesting, hay and forage equipment 13%</p>	<p>H-28.01 Repairs cutting, conditioning, gathering and processing equipment</p>	<p>H-28.02 Repairs material handling equipment</p>	
<p>Task H-29 Diagnoses application and irrigation equipment 9%</p>	<p>H-29.01 Diagnoses application equipment</p>	<p>H-29.02 Diagnoses irrigation equipment</p>	
<p>Task H-30 Repairs application and irrigation equipment 8%</p>	<p>H-30.01 Repairs application equipment</p>	<p>H-30.02 Repairs irrigation equipment</p>	