



ONTARIO COLLEGE OF TRADES

ORDRE DES MÉTIERS DE L'ONTARIO

Apprenticeship
Training Standard

Agricultural
Equipment Technician

425A

2014

AGRICULTURAL EQUIPMENT TECHNICIAN

This on-the-job Apprenticeship Training Standard (ATS) is a document issued to Apprentices who sign a Registered Training Agreement (RTA) in the Province of Ontario. It is designed to record an Apprentice's acquired skills and time worked for the trade or occupation to which they are registered.

This Apprenticeship Training Standard for Agricultural Equipment Technician 425 A was developed in consultation with representatives from industry and may include members from a related Trade Board/Working Committees.

This document is the property of the Apprentice named herein and represents the official record of their training.

Name of Apprentice (PRINT):

MTCU Registered Training Agreement #:

OCOT Membership #:

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INTRODUCTION TO THE APPRENTICESHIP TRAINING STANDARD (ATS)

As of April 8th, 2013, the Ontario College of Trades (College) is responsible for the development and maintenance of Apprenticeship Training Standards in the Province of Ontario.

Please refer to the College's website for the most accurate and up-to-date information about the College: www.collegeoftrades.ca

This Apprenticeship Training Standard (ATS) is intended to be used by the Apprentice and Sponsor as an official record of training. The completion of this document is necessary to complete your apprenticeship and receive your Certification of Apprenticeship (CofA).

The Training Standard identifies skills required for this trade and its related training program. It has been written in statements which describe how you, the Apprentice, must perform each skill in order to become competent in your trade.

The Trainer and Apprentice are required to sign off and date the skills after the Apprentice has proven competence in those skills. However, if a skill is shaded, it is optional and does not need to be signed-off.

Roles and Responsibilities

Roles and Responsibilities of the Ontario College of Trades and Ministry of Training, Colleges and Universities

Ontario College of Trades

Under the [Ontario College of Trades and Apprenticeship Act, 2009 \(OCTAA\)](#), the College is responsible for:

- Establishing and maintaining qualifications for membership
- Issuing Certificates of Qualification (C of Q's) and Statements of Membership
- Maintaining a [Public Register](#) of members
- Receiving and investigating complaints, and determining disciplinary action
- Establishing Apprenticeship Programs, Training Standards and Scopes of Practice for each trade
- Conducting Trade Equivalency Assessments (TEA)
- Determining Journeyperson-to-Apprentice ratios
- Addressing compliance with legislation (OCTAA) and regulations; and,
- Promoting the skilled trades and conducting research

For any matters related to your membership in the Apprentices class, you must contact the College directly at: 647 847-3000 or toll free at: 1(855) 299-0028.

Ministry of Training, Colleges and Universities

MTCU is responsible for:

- Registered Training Agreements (RTAs)
- Approving which persons may provide apprenticeship training
- Approving Training Delivery Agents (TDAs)
- Administering Certificate of Qualification examinations
- Issuing Certificates of Apprenticeship
- Promoting Skilled Trades and apprenticeship
- Conducting policy development, evaluation and research
- Passing regulations

For any matter related to your Registered Training Agreement (RTA) or completing your apprenticeship, you must contact your Local Apprenticeship Office at the Ministry of Training, Colleges and Universities (MTCU).

Roles and Responsibilities

Roles and Responsibilities of the Apprentice

An Apprentice is an individual who has entered into a Registered Training Agreement (RTA) with an Employer/Sponsor to receive training in a trade as part of an apprenticeship program established by the College.

As an Apprentice, you have certain roles and responsibilities to follow throughout your apprenticeship training:

Steps:

1. You must become a member of the College's Apprentices Class and maintain your membership in good standing while you complete your training. For more information on membership, please visit the College's website at: www.collegeoftrades.ca
2. As an Apprentice, you are responsible for completing skills or skill sets and ensuring that they are dated and signed by both you and your Supervisor/Trainer.
3. You must also ensure your Skill Set Completion Form is completed and signed by your current Employer/Sponsor once all terms of your Training Standard have been fulfilled. Once this is done, we recommend you submit the Training Standard to your local MTCU office.
4. You are responsible for informing the staff at your local MTCU office regarding changes to the following:
 - Your Employer/Sponsor's address;
 - Your name and address; and/or,
 - Your Employer/Sponsor, including starting employment with a new Employers/Sponsors.
5. You must present the Apprentice Completion Form, once all unshaded skills and skill sets have been completed within this document, along with your authorized Training Standard to your local Ministry office.

Roles and Responsibilities

Roles and Responsibilities of Employer/Sponsors and Trainers

Training Standards identify the on-the-job skills required for an occupation or trade and its related training program.

This Training Standard has been written in concise statements which describe how well an Apprentice must perform each skill in order to become competent. Competence means being able to perform to the required standard on request.

By using this Training Standard, Trainers will be able to ensure that the Apprentice is developing skills detailed for the occupation.

Trainers and Apprentices are required to sign off and date the skills following each successful acquisition.

Employers/Sponsors participating in this training program will be designated as the Signing Authority and are required to attest to successful achievement by signing the appropriate box included at the end of each skill set.

APPRENTICESHIP PROGRAM SUMMARY/GUIDELINES

The Scope of Practice for the trade for Agricultural equipment technician (425A):

3. The scope of practice for the trade of agricultural equipment technician includes inspecting, diagnosing, repairing and verifying the repair of the following for agricultural equipment:

1. Electrical systems.
2. Hydraulic systems.
3. Engine systems.
4. Intake, exhaust and emission control systems.
5. Fuel delivery systems.
6. Engine management systems.
7. Clutches and transmissions.
8. Drive axle and final drive assemblies.
9. Steering systems.
10. Braking systems.
11. Air supply and auxiliary systems.
12. Suspension systems.
13. Tires, wheels, ballasting and undercarriages.
14. Air conditioning, heating and ventilation systems.
15. Body and trim.
16. Tillage and planting equipment.
17. Harvesting equipment.
18. Spraying, irrigation and distribution equipment.
19. Materials handling equipment.
20. Precision farming systems equipment. O. Reg. 277/11, s. 3.

Section 2 of OCTAA reference

Program Guidelines

On-the-Job Training Duration

Industry has identified the benchmark of 6280 hours as the duration necessary for any Apprentice to become competent in the skills required. There may be circumstances in which the duration varies from this guideline.

In-School Training Duration

Industry has identified 720 hours of in-school training as the duration necessary for an Apprentice to complete the in-school curriculum for this program.

Program Requirements

Voluntary Classification

This program does not contain any compulsory skill sets.

Academic Entry Requirements & Pre-requisites

The minimum academic entry requirement for this program is grade 12.

Eligibility for Apprenticeship Program Completion

The Apprentice must:

- Achieve competency in all mandatory (unshaded) skills as identified in the Training Standard
- Complete the in-school training as outlined in the industry and Ministry-approved Curriculum Standard

It is the responsibility of an Apprentice to maintain a training record in the form of an Ontario College of Trades Apprenticeship Training Standard (ATS) or Schedule of Training. The Sponsor and Trainer are required to sign-off when competencies in the trade are achieved.

TRAINING THE APPRENTICE

Tips for Apprentices

Remember, it takes time to learn. The following is a list of additional tips and tools to help make the most of your apprenticeship training:

- Practice safe work habits
- Use your Apprenticeship Training Standard (ATS) as a journal to keep track of the skills you have achieved
- Listen to the suggestions of your Supervisor/Trainer
- Discuss your training needs with your Employer
- Review your training plan with your Training Consultant, Trainer, Employer, or Sponsor
- Ask your Supervisor/Trainer questions if you are in any way unsure of any skill you need to perform or any tools or equipment you need to use to perform your duties
- Show enthusiasm and develop good work habits
- Upon demonstration of competency, ensure that you and your Supervisor/Trainer sign off the individual skills. Once a 'set of skills' has been signed off, ensure your Employer/Sponsor sign off this area as well

Employer/Sponsor

Employer/Sponsors are responsible for ensuring all terms are met as per the Registered Training Agreement (RTA). They are named on the RTA as the individual responsible for ensuring Apprentices receive the training required as part of an apprenticeship program. As a signatory to this agreement, they are designated as the 'Signing Authority' for the Apprentice's Skill Set Completion Form, and are required to attest to successful achievement by signing the appropriate box at the completion of each skill set.

Tips for Employer/Sponsors:

- Select Trainers with good communication skills and who work well with others.
- Ensure that the Apprentice always works under the direction of or has access to a qualified Trainer
- Encourage Trainers to take upgrading courses (e.g. Train the Trainer, Mentor Coach, etc.).
- Encourage safe work habits
- Provide time for the Trainer/ Mentor to demonstrate skills
- Provide opportunities and time for the Apprentice to learn the trade
- Ensure that the Apprentice receives varied on-the-job trade training experience outlined in this document
- Set out clear expectations, and recognize good performance
- Involve both the Apprentice and Supervisor/Trainer in developing the training plan and observe frequently
- Provide constructive feedback and conduct regular performance reviews involving the Apprentice and Supervisor/Trainer
- Use the Apprenticeship Training Standard as a monitoring tool and a part of regular performance evaluations
- Complete the Skill Set Completion Form once the Apprentice has demonstrated competency in the skills

Trainer

A Trainer is an individual who oversees the performance of a task and sets the workplace expectations and practices for the Apprentice. In compulsory trades, a trainer must hold a valid Certificate of Qualification (C of Q) and is a member of the College's Journeypersons Class.

In voluntary trades, a Trainer is an individual who holds one of the following:

- A valid C of Q (or Provisional C of Q) and is a member of the College's Journeypersons Class; or,
- Holds a Statement of Membership in the College's Tradespersons Class; or,
- Holds a C of Q previously issued by the MTCU; or,
- Holds a Certificate of Apprenticeship in the trade; or,
- Has completed both the workplace-based training (competencies and/or hours as applicable) and classroom training components of the trade's apprenticeship program; or,
- Has workplace experience equivalent to the apprenticeship program (eligible to apply to College membership in the Journeypersons or Tradespersons Classes); or, has the skills outlined in the Training Standard

Tips for Trainers

Trainers are responsible for ensuring the Apprentice is developing the skills outlined for the Agricultural Equipment Technician in this document. Here is a list of tips and tools to help Trainers in their supervision of Apprentices:

- Show and model safe work habits
- Provide opportunities and time for the Apprentice to learn the trade
- Treat Apprentices fairly and with respect
- Review the Training Standard with the Apprentice and develop a training plan.
- Set out clear expectations, and recognize good performance
- Ensure that the Apprentice receives varied on-the-job trade training experience as outlined in this document
- Encourage and respond to all questions.
- Be patient
- Explain, show and demonstrate the skill
- Provide continuous feedback
- Sign-off skills when your Apprentice demonstrates competency
- Use the Training Standard as a guide to evaluate competence in each skill area. By using the Training Standard, Trainers will be able to ensure that the Apprentice is developing skills outlined in this document

NOTICE OF COLLECTION OF PERSONAL INFORMATION

1. At any time during your apprenticeship training, you may be required to show this Training Standard to the Ministry of Training, Colleges and Universities (MTCU). You will be required to disclose the signed Apprenticeship Completion form to the MTCU in order to complete your program. The MTCU will use your personal information to administer and finance Ontario's apprenticeship training system, including confirming your completion and issuing your Certificate of Apprenticeship.
2. The MTCU will disclose information about your program completion and your Certificate of Apprenticeship to the Ontario College of Trades, as it is necessary for the College to carry out its responsibilities.
3. Your personal information is collected, used and disclosed by the Ministry under the authority of the Ontario College of Trades and Apprenticeship Act, 2009.
4. Questions about the collection use and disclosure of your personal information by the Ministry may be addressed to the:

Manager, Employment Ontario Contact Centre
Ministry of Training, Colleges and Universities
33 Bloor St. E, 2nd floor, Toronto, Ontario M7A 2S3
Toll-free: 1-800-387-5656; Toronto: 416-326-5656
TTY: 1-866-533-6339 or 416-325-4084.

6970.0 OCCUPATIONAL HEALTH AND SAFETY PROCEDURES

GENERAL PERFORMANCE OBJECTIVE

Comply with occupational health and safety procedures by: identifying and taking corrective action against potential workplace health and safety hazards; handling, storing and disposing of hazardous workplace materials; wearing and maintaining personal protective equipment; complying with workplace-related legislation, relating to highway traffic safety, parts, warranties, occupational health/safety, environmental protection and, business and trade practices; interpreting and applying service-related information; practicing good housekeeping in the workplace; complying with Workplace Hazardous Materials Information System (WHMIS) guidelines; according to Occupational Health and Safety Act, government regulations, company policy and manufacturer’s recommendations.

PERFORMANCE OBJECTIVES

SKILLS

6970.01 Identify and take corrective action against potential workplace health and safety hazards, including: excessive exhaust and/or explosive fumes, dust, sound levels, electrical and mechanical hazards (i.e., damaged or faulty air lines and hoses and/or inadequate ventilation); so that the potential for personal injury, damage to equipment, vehicles and the environment are minimized; according to government regulations, manufacturer’s specifications and company policy.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6970.02 Handle, store and dispose of hazardous workplace materials, including: cleaning solvents, new and used lubricants and fluids, brake dust, battery acid and gases; using personal protective equipment and specified handling and storage equipment; so that individuals are protected from injury, the environment from contamination and safety procedures followed; according to government regulations, manufacturer’s recommendations, specifications and company policy.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6970.0 OCCUPATIONAL HEALTH AND SAFETY PROCEDURES - Cont'd

6970.03 **Wear and maintain personal protective equipment**, including: eye, ear, hand, respiratory, body and foot protection; ensuring that correct fit and optimum protection is provided to the wearer for the specific task performed; according to government regulations, Workplace Joint Health and Safety Committee, manufacturer's recommendations, specifications and company policy.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6970.04 **Comply with workplace-related legislation, relating to highway traffic safety, parts, warranties, occupational health/safety, environmental protection and business and trade practices**, including: *Occupational Health and Safety Act, Motive Vehicle Repair Act, Highway Traffic Act* and the *Environmental Protection Act*; by identifying the personal and legal liabilities of technicians and vehicle owners, when performing and/or conducting vehicle safety inspections, emissions tests, work estimates, repairing and/or replacing defective parts; according to government regulations.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6970.05 **Interpret and apply service-related information**, including: service bulletins, manuals and parts catalogues; by locating and identifying Vehicle Identification Number (VIN) and computerized service information systems, so that service/repair is performed; according to company policy and/or manufacturer's recommendations and specifications.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6970.0 OCCUPATIONAL HEALTH AND SAFETY PROCEDURES - Cont'd

6970.06 **Practice good housekeeping in the workplace**, by: applying fire hazard prevention methods, including maintaining a clean and orderly work area, identifying, removing and disposing of potential fire hazards, cleaning up grease, oil spills and/or fluids, ensuring work area is free of obstructions and safely storing tools and shop equipment, to minimize accident or injury to self and others; according to government regulations and company policy.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6970.07 **Comply with Workplace Hazardous Materials Information System (WHMIS) guidelines**, including: reading and interpreting labels and Material Safety Data Sheets (MSDS) and ensuring receipt of training in WHMIS regulations and practices; according to the *Occupational Health and Safety Act*.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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Employer/Sponsor (Print) Name

Employer/Sponsor Signature

6971.0 ELECTRICAL SYSTEMS

GENERAL PERFORMANCE OBJECTIVE

Diagnose and repair electrical systems, by: performing a visual inspection, diagnosing and troubleshooting batteries; servicing and boosting/charging batteries; diagnosing and troubleshooting, repairing and verifying the repair of starting system and components; charging system and components; electrical, electronic and computer-controlled systems and components; electrical/electronic ignition systems and components hybrid drives and components; according to government regulations, manufacturer’s recommendations, specifications and safety requirements.

PERFORMANCE OBJECTIVES

SKILLS

6971.01 **Perform visual inspection, identifying system types and applications**, by checking for: worn, damaged, corroded, loose or defective components; including starting motors and drive mechanisms, alternating/direct current generators, voltage regulators, distributor components, batteries, fluids, lighting/illumination, boards/blocks, cables, connectors, coils, resistors, ignition modules, high tension wires, spark plugs, circuit protection devices, warning devices, theft-deterrent and electrical accessory devices, switches, solenoids, relays, modules, sensors, wiring harnesses, fasteners and mounting devices; according to government regulations, manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6971.0 ELECTRICAL SYSTEMS - Cont'd

6971.02 **Diagnose and troubleshoot batteries**, by: inspecting, testing and analysing performance and function; checking for wear, damaged, worn, loose and missing components, state of charge, voltage, fluid level, leaks, cracks, opens/shorts/grounds, connections, corrosion, odour, fractures distortion and cleanliness; using specialized, precision and electronic service tools, amperage voltage resistance meter (AVR), load testers, chargers and hydrometers; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6971.03 **Service and boost/charge batteries**, including: single and multi-battery group; by neutralizing leakage, removing, charging and/or replacing; using hand tools, booster cables, , chargers, electrolyte, approved battery water, pullers, cleaning tools, hydrometers and refractometer according to government regulations, manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6971.04 **Diagnose and troubleshoot starting systems and components**, including: starting motors and drive mechanisms, batteries, cables, connectors, circuit protection devices, switches, solenoids, relays, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance and function; checking for wear, opens/shorts/grounds, routing of wires, noise/vibration, odour, distortion, corrosion, fractures and temperature; using load testers, specialized, precision and electronic service tools; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6971.0 ELECTRICAL SYSTEMS - Cont'd

6971.05 **Repair starting systems and components**, including: starting motors and drive mechanisms, batteries, neutral safety devices, cables, connectors, circuit protection devices, switches, solenoids, relays, wiring harnesses, fasteners and mounting devices; by exchanging, reconditioning or servicing; using hand, power, specialized and electronic service tools; lifting and rigging and blocking devices according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6971.06 **Verify repair of starting systems and components**, including: starting motors and drive mechanisms, batteries, cables, connectors, circuit protection devices, switches, solenoids, relays, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance and function; using hand, power, specialized and electronic service tools; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6971.07 **Diagnose and troubleshoot charging systems and components**, including: alternating/direct current generators, drive mechanisms, batteries, cables, connectors, circuit protection devices, voltage regulators, switches, relays, modules, sensors, wiring harnesses and fasteners and mounting devices; by visually inspecting, testing and analysing performance and function; checking for wear, opens/shorts/grounds, routing of wires, system voltage and amperage, vibration/noise, odour, corrosion, distortion, contamination and temperature; using amperage voltage resistance (AVR) testers, specialized, precision and electronic service tools and stethoscopes; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6971.0 ELECTRICAL SYSTEMS - Cont'd

6971.08 **Repair charging systems and components**, including: alternating/direct current generators, drive mechanisms, batteries, cables, connectors, circuit protection devices, voltage regulators, warning devices, circuit protection devices, switches, relays, modules, sensors, wiring harnesses and fasteners and mounting devices; by exchanging, reconditioning, or servicing; using hand, power, specialized, precision and electronic service tools; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6971.09 **Verify repair of charging systems and components**, including: alternating/direct current generators, drive mechanisms, batteries, cables, connectors, circuit protection devices, voltage regulators, switches, relays, modules, sensors, wiring harnesses and fasteners and mounting devices; by visually inspecting, testing and analysing performance and function; using hand, power, specialized, precision and electronic service tools; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6971.10 **Diagnose and troubleshoot electrical, electronic and computer-controlled systems and components**, including: batteries, connectors, boards/blocks, cables, display panels, switches, solenoids, relays, sensors, modules/electronic control modules, (ECM), warning devices, lighting/illumination, circuit protection, theft-deterrent and electrical accessory devices, wiring harnesses and fasteners and mounting devices; by visually inspecting, testing and analysing performance, function and programming; checking for wear, opens/shorts/grounds, parasitic draw, diagnostic codes, routing of wires, temperature, corrosion, distortion, vibration/noise, colour and odour; using hand, power, specialized, precision and electronic service tools; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6971.0 ELECTRICAL SYSTEMS - Cont'd

6971.11 **Repair electrical, electronic and computer-controlled systems and components**, including: batteries, connectors, boards/blocks, cables, display panels, switches, solenoids, relays, sensors, modules, warning devices, lighting/illumination, circuit protection, theft-deterrent and electrical accessory devices, wiring harnesses and fasteners and mounting devices; by reprogramming, exchanging, reconditioning, or servicing; using hand, power, specialized, precision and electronic service tools; according to manufacturer's recommendations, specifications and safety requirements.

6971.12 **Verify repair of electrical, electronic and computer-controlled systems and components**, including: batteries, connectors, boards/blocks, cables, display panels, switches, solenoids, relays, sensors, modules, warning devices, lighting/illumination, circuit protection, theft-deterrent and electrical accessory devices, wiring harnesses and fasteners and mounting devices; by visually inspecting, testing and analysing performance, function and programming; using hand, power, specialized, precision and electronic service tools; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6971.13 **Diagnose and troubleshoot electrical/electronic ignition systems and components**, including: distributor components, coils, resistors, ignition modules, high tension wires, spark plugs, switches, sensors, modules, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance, function and programming; checking for wear, opens/shorts/grounds, diagnostic codes, routing of wires, temperature, colour, system voltage, ignition timing, spark advance, leakage, corrosion and vibration/noise; using hand, power, specialized, precision and electronic service tools; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6971.0 ELECTRICAL SYSTEMS- Cont'd

6971.14 **Repair electrical/electronic ignition systems and components**, including: distributor components, coils, resistors, ignition modules, high tension wires, spark plugs, switches, sensors, modules, wiring harnesses, fasteners and mounting devices; by reprogramming, exchanging, reconditioning, or servicing; using hand, power, specialized, precision and electronic service tools; according to manufacturer's recommendations, specification and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6971.15 **Verify repair of electrical/electronic ignition systems and components**, including: distributor components, coils, resistors, ignition modules, high tension wires, spark plugs, switches, sensors, modules, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance, function and programming; using hand, power, specialized, precision and electronic service tools; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6971.16 **Diagnose and troubleshoot hybrid drives and components**, including: electric generators and motors, batteries, connectors, boards/blocks, cables, display panels, switches, solenoids, relays, sensors, modules, warning devices, circuit protection and electrical accessory devices, wiring harnesses and fasteners and mounting devices; by visually inspecting, testing and analysing performance, function and programming, calibrating; checking for wear, opens/shorts/grounds, parasitic draw, diagnostic codes, routing of wires, temperature, corrosion, distortion, vibration/noise, colour and odour; using hand, power, specialized, precision and electronic service tools; according to manufacturer's recommendations, specifications and safety requirements

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6971.0 ELECTRICAL SYSTEMS - Cont'd

6971.17 Repair hybrid drives and components, including: electric generators and motors, batteries, connectors, boards/blocks, cables, display panels, switches, solenoids, relays, sensors, modules, warning devices, circuit protection and electrical accessory devices, wiring harnesses and fasteners and mounting devices; by reprogramming, calibrating, exchanging, reconditioning, or servicing; using hand, power, specialized, precision and electronic service tools; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6971.18 Verify repair of hybrid drives and components, including: electric generators and motors, batteries, connectors, boards/blocks, cables, display panels, switches, solenoids, relays, sensors, modules, warning devices, circuit protection and electrical accessory devices, wiring harnesses and fasteners and mounting devices; by reprogramming, calibrating, exchanging, reconditioning, or servicing; using hand, power, specialized, precision and electronic service tools; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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Employer/Sponsor (Print) Name

Employer/Sponsor Signature

6972.0 HYDRAULIC SYSTEMS

GENERAL PERFORMANCE OBJECTIVE

Diagnose and repair hydraulic systems by: performing a visual inspection, diagnosing and troubleshooting, repairing and verifying the repair of mechanical-controlled hydraulic systems and components; electrical and electronic-controlled hydraulic systems and components; according to manufacturer’s recommendation, specifications and safety requirements.

PERFORMANCE OBJECTIVES

SKILLS

6972.01 **Perform visual inspection, identifying system types and applications**, by checking for: worn, loose, damaged, missing, or defective components, fluid level and condition; including pumps and motors, valves, actuators, cylinders, accumulators, reservoirs, controls, display panels, screens, filters, coolers, drive mechanisms, , lines and hoses, fittings, vents, fluids, seals, gaskets, mechanical controls, warning lights, switches, solenoids, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; according to manufacturer’s recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6972.0 HYDRAULIC SYSTEM – Cont’d

6972.02 **Diagnose and troubleshoot mechanical controlled hydraulic systems and components**, including: pumps and motors, valves, actuators, cylinders, accumulators, reservoirs, controls, display panels, screens, filters, coolers, drive mechanisms, lines and hoses, fittings, vents, fluids, seals, gaskets, gauges, mechanical controls, fasteners and mounting devices; by visually inspecting, testing and analysing performance and function; checking for wear, routing of lines and hoses, fluid level, leaks, odour, colour, distortion, corrosion, cavitation, aeration, contamination, pressure, flow, temperature and vibration/noise; using hand, power, specialized and precision tools, gauges, flow meters, sight glasses, thermometers and stethoscopes and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6972.03 **Repair mechanical controlled hydraulic systems and components**, including: pumps and motors, valves, actuators, cylinders, accumulators, reservoirs, controls, display panels, screens, filters, coolers, drive mechanisms, lines and hoses, fittings, vents, fluids, seals, gaskets, gauges, mechanical controls, fasteners and mounting devices; by exchanging, reconditioning or servicing; using hand, power, specialized and precision tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6972.0 HYDRAULIC SYSTEM – Cont’d

6972.04 **Verify repair of mechanical controlled hydraulic systems and components**, including: pumps and motors, valves, actuators, cylinders, accumulators, reservoirs, controls, display panels, screens, filters, coolers, drive mechanisms, lines and hoses, fittings, vents, fluids, seals, gaskets, gauges, mechanical controls, fasteners and mounting devices; by visually inspecting, testing and analysing performance and function; using hand, power, specialized, precision and electronic service tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6972.05 **Diagnose and troubleshoot electrical and electronic controlled hydraulic systems and components**, including: pumps and motors, actuators, cylinders, accumulators, reservoirs, controls, display panels, screens, , coolers, drive mechanisms, gauges, lines and hoses, fittings, venting devices, fluids, seals, valves, gaskets, switches, solenoids, relays, sensors, modules/electronic control modules (EMC), wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance, function, programming and calibrating; checking for wear, opens/shorts/grounds, routing of wires, lines and hoses, fluid level, leaks, odour, colour, distortion, fractures, corrosion, cavitation, aeration, contamination, pressure, flow, temperature and vibration/noise; using hand, power, specialized, precision and electronic service tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6972.0 HYDRAULIC SYSTEM – Cont'd

6972.06 **Repair electrical and electronic controlled hydraulic systems and components**, including: pumps, actuators, motors, cylinders, accumulators, reservoirs, controls, display panels, screens, filters, coolers, drive mechanisms, gauges, lines and hoses, fittings, vents, fluids, seals, valves, gaskets, warning lights, switches, solenoids, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; by reprogramming, exchanging, reconditioning or servicing; using hand, power, specialized, precision and electronic service tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6972.07 **Verify repair of electrical and electronic controlled hydraulic systems and components**, including: pumps and motors, actuators, cylinders, accumulators, reservoirs, controls, screens, filters, coolers, drive mechanisms, gauges, lines and hoses, fittings, vents, fluids, seals, valves, gaskets, switches, solenoids, relays, sensors, modules/ electronic control modules (EMC), wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance, function and programming and calibrating; using hand, power, specialized, precision and electronic service tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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Employer/Sponsor (Print) Name

Employer/Sponsor Signature

6973.0 ENGINE SYSTEMS

GENERAL PERFORMANCE OBJECTIVE

Diagnose and repair engines by: performing a visual inspection, diagnosing and troubleshooting, repairing and verifying the repair of cooling systems and components; engine lubricating systems and components; cylinder heads and components; engine blocks and components; according to manufacturer’s recommendations, specifications and safety requirements.

PERFORMANCE OBJECTIVES

SKILLS

6973.01 **Perform visual inspection, identifying system types and applications**, by checking for: worn, loose, damaged, missing, or defective components and leakage, including: radiators and reservoirs, pressure caps, controls, surge tanks, coolant, fans and hubs, coolant pumps, controls and actuators, belts, lines and hoses, fittings, filters, heat exchangers, gaskets, seals, valves, relays, sensors, temperature control devices, drive mechanisms, circuit protection devices, wiring harnesses, fasteners and mounting devices, pumps, housings, fluids, lubrication jets, bypass valves and auxiliary devices, fuel system actuators, pressure monitoring devices, cylinder heads, seats, guides, springs, retainers, rotators, actuating mechanisms, camshafts, injector tubes, gaskets, expansion plugs, engine blocks, piston assemblies, connecting rods, bearings, oil pans, liners, balancers, crankshafts, flywheels, gear trains, camshaft assemblies, pulleys, auxiliary drives; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6973.0 ENGINE SYSTEMS - Cont'd

6973.02 **Diagnose and troubleshoot cooling systems and components**, including: radiators and reservoirs, pressure caps and controls, surge tanks, coolant, fans and hubs, coolant pumps, controls and actuators, belts, lines and hoses, fittings, filters, heat exchangers, gaskets, seals, valves, relays, sensors, temperature control devices, drive mechanisms, circuit protection devices, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance and function; checking for wear, routing of lines and hoses, leaks, odour, temperature, corrosion, distortion, fractures, contamination, colour, vibration/noise and coolant type; using hand, power, specialized, precision and electronic service tools, coolant analysis kit according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6973.03 **Repair cooling systems and components**, including: radiators and reservoirs, pressure caps and controls, surge tanks, coolant, fans and hubs, coolant pumps, controls and actuators, belts, lines and hoses, fittings, filters, heat exchangers, gaskets, seals, valves, relays, sensors, temperature control devices, drive mechanisms, circuit protection devices, wiring harnesses, fasteners and mounting and lifting, rigging and blocking devices; by exchanging, reconditioning, or servicing; using hand, power, electronic service and specialized tools according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6973.0 ENGINE SYSTEMS - Cont'd

6973.04 **Verify repair of cooling systems and components**, including: radiators and reservoirs, pressure caps and controls, surge tanks, coolant, fans and hubs, coolant pumps, controls and actuators, belts, lines and hoses, fittings, filters, heat (exchangers, gaskets, seals, valves, relays, sensors, temperature control devices, drive mechanisms, circuit protection devices, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance and function; using hand, power, specialized, precision and electronic service tools and lifting, rigging and blocking devices according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6973.05 **Diagnose and troubleshoot engine lubricating systems and components**, including: pumps, filters and housings, lines and hoses, fittings, seals, fluids, lubrication jets, gaskets, heat exchangers, bypass valves and auxiliary devices, fuel system actuators, sensors, pressure monitoring devices, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance and function; checking for wear, routing of lines and hoses, pressure, fluid level and condition, leaks, temperature, corrosion, distortion, contamination, fractures and vibration/noise; using hand, power, specialized, precision and electronic service tools, oil analysis kit and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6973.0 ENGINE SYSTEMS - Cont'd

6973.06 **Repair engine lubricating systems and components**, including: pumps, filters and housings, lines and hoses, fittings, seals, fluids, lubrication jets, gaskets, heat exchangers, bypass valves and auxiliary devices, fuel system actuators, sensors, pressure monitoring devices, wiring harnesses, fasteners and mounting devices; by exchanging, reconditioning, or servicing; using hand, power, specialized, precision and electronic service tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6973.07 **Verify repair of engine lubricating systems and components**, including: pumps, filters and housings, lines and hoses, fittings, seals, fluids, lubrication jets, gaskets, heat exchangers, bypass valves and auxiliary devices, fuel system actuators, sensors, pressure monitoring devices, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance and function; using hand, power, specialized, precision and electronic service tools, oil analysis kit and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6973.08 **Diagnose and troubleshoot cylinder heads and components**, including: cylinder heads, seats, guides, seals, springs, retainers, rotators, valves, actuating mechanisms, camshafts, drive mechanisms, injector tubes, gaskets, expansion plugs, fasteners and mounting devices; by visually inspecting, testing and analysing performance and function; checking for wear, temperature, colour, corrosion, distortion, contamination, erosion, cracks, vibration/noise, leaks and pressure; using hand, power, specialized and precision service tools, crack tests and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6973.0 ENGINE SYSTEMS - Cont'd

6973.09 **Repair cylinder heads and components**, including: cylinder heads, seats, guides, seals, springs, retainers, rotators, valves, actuating mechanisms, camshafts, drive mechanisms, injector tubes, gaskets, expansion plugs, fasteners and mounting devices; by exchanging, reconditioning, or servicing; using hand, power, specialized and precision service tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6973.10 **Verify repair of cylinder heads and components**, including: cylinder heads, seats, guides, seals, springs, retainers, rotators, valves, actuating mechanisms, camshafts, drive mechanisms, injector tubes, gaskets, expansion plugs, fasteners and mounting devices; by visually inspecting, testing and analysing performance and function; using hand, power, specialized and precision service tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6973.11 **Diagnose and troubleshoot engine blocks and components**, including: cylinder blocks, piston assemblies, connecting rods, bearings, fluids, seals, oil pans, expansion plugs, liners, balancers, crankshafts, flywheels, gear trains, camshaft assemblies, pulleys, auxiliary drives, fasteners and mounting devices; by visually inspecting, testing and analysing performance and function; checking for wear, temperature, colour, pressure, corrosion, distortion, contamination, cavitation, erosion, fractures, vibration/noise, cracks and leaks; using hand, power, specialized and precision service tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6973.0 ENGINE SYSTEMS - Cont'd

6973.12 **Repair engine blocks and components**, including: engine blocks, piston assemblies, connecting rods, bearings, fluids, seals, oil pans, expansion plugs, liners, balancers, crankshafts, flywheels, gear trains, camshaft assemblies, pulleys, auxiliary drives, fasteners and mounting devices; by exchanging, reconditioning, or servicing; using hand, power, specialized and precision service tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6973.13 **Verify repair of engine blocks and components**, including: engine blocks, piston assemblies, connecting rods, bearings, fluids, seals, oil pans, expansion plugs, liners, balancers, crankshafts, flywheels, gear trains, camshaft assemblies, pulleys, auxiliary drives, fasteners and mounting devices; by visually inspecting, testing and analysing performance and function; using hand, power, specialized and precision service tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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Employer/Sponsor (Print) Name

Employer/Sponsor Signature

6974.0 INTAKE, EXHAUST, EMISSION CONTROL AND ENGINE BRAKE SYSTEMS

GENERAL PERFORMANCE OBJECTIVE

Diagnose and repair intake, exhaust, emission control and engine brake systems, by: performing a visual inspection, diagnosing and troubleshooting, repairing and verifying the repair of intake, exhaust and engine brake systems and components; turbocharger/supercharger systems and components; emission control systems and components; according to manufacturer's recommendations, specifications and safety requirements.

PERFORMANCE OBJECTIVES

SKILLS

6974.01 **Perform visual inspection, identifying system types and applications**, by checking for: leaking, worn, loose, missing, damaged, or defective components, including; heat shields, manifolds, piping, mufflers, air filters and coolers, indicators, turbochargers, superchargers, drive mechanisms, manifold boost control devices, emission control devices, engine brake systems, waste gates, piping, lines and hoses, fittings, actuators, gaskets, seals, lubricants, sensors, wiring harnesses, fasteners and mounting devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6974.02 **Diagnose and troubleshoot intake, exhaust, engine brake systems and components**, including: heat shields, manifolds, piping, mufflers, air filters and coolers, indicators, actuators, gaskets, sensors, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance and function; checking for wear, opens/shorts/grounds, odour, contamination, distortion, noise, fractures, pressure, restriction, exhaust colour, temperature, oil level and leaks; using hand, power, specialized and electronic service tools, pyrometers, gauges, manometers/vacuum gauges, infrared heat guns and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6974.0 INTAKE, EXHAUST, EMISSION CONTROL AND ENGINE BRAKE SYSTEMS – Cont'd

6974.03 **Repair intake, exhaust and engine brake systems**, including: heat shields, manifolds, piping, mufflers, air filters and intake and engine brake systems, coolers, indicators, actuators, gaskets, sensors, wiring harnesses, fasteners and mounting devices; by exchanging, reconditioning or servicing; using hand, power, specialized and electronic service tools, heating, cutting and welding equipment lifting and rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6974.04 **Verify intake, exhaust and engine brake systems**, including: heat shields, manifolds, piping, mufflers, air filters and coolers, indicators, actuators, gaskets, sensors, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance and function; using hand, power, specialized and electronic service tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6974.05 **Diagnose and troubleshoot turbocharger/supercharger systems and components**, including: turbochargers, supercharger drive mechanisms, waste gates, piping, lines and hoses, fittings, gaskets, seals, manifold boost control devices, lubricants, sensors, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance and function; by checking for wear, opens/shorts/grounds, routing of piping and lines and hoses, pressure, restrictions, temperature, distortion, contamination, corrosion, leaks, lubrication and noise/vibration; using hand, power, specialized, precision and electronic service tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6974.0 INTAKE, EXHAUST, EMISSION CONTROL AND ENGINE BRAKE SYSTEMS – Cont'd

6974.06 **Repair turbocharger/ supercharger systems and components**, including: turbochargers, supercharger drive mechanisms, waste gates, piping, lines and hoses, fittings, gaskets, seals, manifold boost control devices, lubricants, sensors, wiring harnesses, fasteners and mounting devices; by exchanging, reconditioning or servicing; using hand, power, specialized, precision and electronic service tools and gauges and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6974.07 **Verify repair of turbocharger/supercharger systems and components**, including: turbochargers, supercharger drive mechanisms, waste gates, piping, lines and hoses, fittings, gaskets, seals, manifold boost control devices, lubricants, sensors, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance and function; using hand, power, specialized, precision and electronic service tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6974.08 **Diagnose and troubleshoot emission control systems and components**, including: exhaust gas recirculation (EGR), diesel particulate filter (DPF), diesel oxidation catalyst (DOC), selective catalytic reduction (SCR), diesel exhaust fluid system (DEF), piping, pumps, valves, lines and hoses, fittings, gaskets, seals, manifold boost control devices, electronic control systems, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance and function; by checking for wear, opens/shorts/grounds, routing of piping and lines and hoses, pressure, restrictions, temperature, distortion, contamination, corrosion, leaks and noise/vibration; using hand, power, specialized, precision and electronic service tools and; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6974.0 INTAKE, EXHAUST, EMISSION CONTROL AND ENGINE BRAKE SYSTEMS – Cont'd

6974.09 **Repair emission control systems and components**, including: exhaust gas recirculation (EGR), diesel particulate filter (DPF), diesel oxidation catalyst (DOC), selective catalytic reduction (SCR), diesel exhaust fluid system (DEF), piping, pumps, valves, lines and hoses, fittings, gaskets, seals, manifold boost control devices, electronic control systems, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance and function; by checking for wear, opens/shorts/grounds, routing of piping and lines and hoses, pressure, restrictions, temperature, distortion, contamination, corrosion, leaks and noise/vibration; using hand, power, specialized, precision and electronic service tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6974.10 **Verify repair of emission control systems and components**, including: exhaust gas recirculation (EGR), diesel particulate filter (DPF), diesel oxidation catalyst (DOC), selective catalytic reduction (SCR), diesel exhaust fluid system (DEF), piping, pumps, valves, lines and hoses, fittings, gaskets, seals, manifold boost control devices, electronic control systems, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance and function; by checking for wear, opens/shorts/grounds, routing of piping and lines and hoses, pressure, restrictions, temperature, distortion, contamination, corrosion, leaks and noise/vibration; using hand, power, specialized, precision and electronic service tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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Employer/Sponsor (Print) Name

Employer/Sponsor Signature

6975.0 MECHANICAL CONTROLLED FUEL SYSTEMS

GENERAL PERFORMANCE OBJECTIVE

Diagnose and repair fuel delivery systems by: performing a visual inspection, diagnosing and troubleshooting, repairing and verifying the repair of gasoline mechanical controlled fuel systems and components; mechanical controlled diesel fuel systems and components; perform diesel fuel systems tune up; according to manufacturer’s recommendations, specifications and safety requirements.

PERFORMANCE OBJECTIVES

SKILLS

6975.01 **Perform visual inspection, identifying system types and applications**, by checking for: fuel condition, worn, loose, damaged, missing, or defective components, including gasoline, fuel delivery controls, pressure control mechanisms, carburetors, regulators, mechanical linkages, governors, tanks, pumps, lines and hoses, fittings, vents, filters, separators, heaters, coolers, valves, injectors, aneroids, cables, throttle bodies, switches, solenoids, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6975.02 **Diagnose and troubleshoot gasoline mechanical controlled fuel systems and components**, including: gasoline, fuel delivery controls, pressure control mechanisms, carburetors, regulators, mechanical linkages, governors, tanks, pumps, lines and hoses, fittings, vents, filters, valves, injectors, throttle bodies, switches, solenoids, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance, function and programming; checking for wear, opens/shorts/grounds, diagnostic codes, noise, routing of wires, lines and hoses, exhaust colour and odour, temperature, distortion, corrosion, contamination, fractures, vibration pressure, flow, fuel level and condition; using hand, power, specialized and electronic service tools, vacuum and pressure gauges and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6975.0 MECHANICAL CONTROLLED FUEL SYSTEMS - Cont'd

6975.03 **Repair gasoline mechanical controlled fuel systems and components**, including: gasoline, fuel delivery controls, pressure control mechanisms, carburetors, regulators, mechanical linkages, governors, tanks, pumps, lines and hoses, hoses, fittings, vents, filters, valves, injectors, throttle bodies, switches, solenoids, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; by reprogramming, exchanging, reconditioning, or servicing; using hand, power, specialized and electronic service tools, vacuum and pressure gauges and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6975.04 **Verify repair of gasoline mechanical controlled fuel systems and components**, including: gasoline, fuel delivery controls, pressure control mechanisms, carburetors, regulators, mechanical linkages, governors, tanks, pumps, lines and hoses, hoses, fittings, vents, filters, valves, injectors, throttle bodies, switches, solenoids, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance, function and programming; using hand, power, specialized and electronic service tools, vacuum and pressure gauges and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6975.05 **Diagnose and troubleshoot mechanical controlled diesel fuel systems and components**, including: fuel, tanks, lines and hoses, fittings, vents, filters, separators, heaters, coolers, valves, pumps, mechanical linkages, governors, aneroids, cables, air throttles, injectors, switches, solenoids, relays, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance and function; checking for wear, open/shorts/grounds, routing of wires, lines and hoses, odour, contamination, distortion, corrosion, temperature, exhaust colour, fractures, vibration/noise and fuel condition; using hand, power, specialized, precision and electronic service tools, pressure and vacuum gauges and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6975.0 MECHANICAL CONTROLLED FUEL SYSTEMS - Cont'd

6975.06 **Repair mechanical controlled diesel fuel systems and components**, including: fuel, tanks, lines and hoses, fittings, vents, filters, separators, heaters, coolers, valves, pumps, mechanical linkages, governors, aneroids, cables, air throttles, injectors, switches, solenoids, relays, wiring harnesses, fasteners and mounting devices; by exchanging, reconditioning, or servicing; using hand, power, specialized, precision and electronic service tools, pressure and vacuum gauges and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6975.07 **Verify repair of mechanical-controlled diesel fuel systems and components**, including: fuel, tanks, lines and hoses, fittings, vents, filters, separators, heaters, coolers, valves, pumps, mechanical linkages, governors, aneroids, cables, air throttles, injectors, switches, solenoids, relays, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analyzing performance and function; using hand, power, specialized, precision and electronic service tools, pressure and vacuum gauges and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6975.08 **Perform mechanical diesel engine tune-ups**, by: testing fuel, compression and crankcase pressure, checking and/or replacing fuel and air filters, intake system, exhaust systems, manifold boost pressure and controls, valve adjustment, injection pump timing, set-up governors, shut down systems, testing and reconditioning injectors, injection pumps, aneroids, primary fuel supply systems, starting aids; using hand, power, specialized, precision and electronic service tools, dynamometers and manometers; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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Employer/Sponsor (Print) Name

Employer/Sponsor Signature

6976.0 ELECTRONIC CONTROLLED FUEL SYSTEMS

GENERAL PERFORMANCE OBJECTIVE

Diagnose and repair electronic controlled fuel systems by: performing a visual inspection, diagnosing and troubleshooting, repairing and verifying the repair of electronic-controlled gasoline engine systems and components; electronic-controlled diesel engine systems and components; perform gasoline engine tune-ups, electronic diesel engine tune-ups; according to manufacturer’s recommendations, specifications and safety requirements.

PERFORMANCE OBJECTIVES

SKILLS

6976.01 **Perform visual inspection, identifying system types and applications**, by checking for: fuel condition, exhaust colour, worn, loose, damaged, missing or defective components, including air filters, exhaust systems, emission control systems, electronic unit injectors (EUI), high pressure common rail (HPCR), injection pumps, primary fuel supply systems, air/fuel mixture, starting aids, circuit protection devices, drivers, sensors, modules, wiring harnesses, fasteners and mounting devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6976.02 **Diagnose and troubleshoot electronic controlled gasoline engine systems and components**, including: circuit protection devices, drivers, sensors, modules, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance, function and programming; checking for wear, opens/shorts/grounds, routing of wires, system voltage, diagnostic codes, temperature, colour, corrosion and vibration/noise; using hand, power, specialized, precision and electronic service tools; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6976.0 ELECTRONIC CONTROLLED FUEL SYSTEMS - Cont'd

6976.03 **Repair electronic controlled gasoline engine systems and components**, including: circuit protection devices, drivers, sensors, modules, wiring harnesses, fasteners and mounting devices; by reprogramming, exchanging, reconditioning, or servicing; using hand, power, specialized, precision and electronic service tools; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6976.04 **Verify repair of electronic controlled gasoline engine systems and components**, including: circuit protection devices, drivers, sensors, modules, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance, function and programming; using specialized, precision and electronic service tools; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6976.05 **Diagnose and troubleshoot electronic controlled diesel engine systems and components**, including: pumps, injectors, circuit protection devices, drivers, sensors, modules, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance, function and programming; checking for wear, opens/shorts/grounds, system voltage, diagnostic codes, routing of wires, temperature, colour, corrosion, fractures and vibration/noise; using hand, power, specialized, precision and electronic service tools; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6976.0 ELECTRONIC CONTROLLED FUEL SYSTEMS - Cont'd

6976.06 **Repair electronic controlled diesel engine systems and components**, including: pump, injectors, circuit protection devices, drivers, sensors, modules, wiring harnesses, fasteners and mounting devices; by reprogramming, calibrating, exchanging, reconditioning, or servicing; using hand, power, specialized, precision and electronic service tools; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6976.07 **Verify repair of electronic-controlled diesel engine systems and components**, including: pumps, injectors, circuit protection devices, drivers, sensors, modules, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance, function, programming and calibrating; using specialized, precision and electronic service tools; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6976.08 **Perform gasoline engine tune-ups**, by: testing fuel, compression/vacuum and crankcase pressure; checking and/or replacing spark plugs, air filters and intake systems, exhaust systems, high-tension wires, distributor components, fuel filters, checking and/or adjusting ignition timing, governors, valves, idle speed, air/fuel mixture and emission control devices; using hand, power, specialized, precision and electronic service tools, dynamometers and manometers; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6976.0 ELECTRONIC CONTROLLED FUEL SYSTEMS - Cont'd

6976.09 **Perform electronic diesel engine tune-ups**, by: testing fuel, compression and crankcase pressure, checking and/or replacing fuel filters, air filter and intake system, exhaust systems, manifold boost pressure, electrical system, valve adjustment, electronic unit injectors (EUI), high pressure common rail (HPCR), electronic controlled pumps, primary fuel supply systems, starting aids, checking and/or adjusting injection timing, idle speed, shut down systems and emission control devices; using hand, power, specialized, precision and electronic service tools, dynamometers and manometers; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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Employer/Sponsor (Print) Name

Employer/Sponsor Signature

6977.0 CLUTCHES AND TRANSMISSIONS

GENERAL PERFORMANCE OBJECTIVE

Diagnose and repair clutch and transmissions systems by: performing a visual inspection, diagnosing and troubleshooting, repairing and verifying the repair of clutch systems and components; manual transmissions/transfer cases and components; mechanical controlled power shift transmission and components; electrical and electronic-controlled power shift continuously variable transmissions (CVT) and components; hydrostatic transmissions and components; according to manufacturer’s recommendations, specifications and safety requirements.

PERFORMANCE OBJECTIVES

SKILLS

6977.01 Perform visual inspection, identifying system types and applications, by checking for: worn, loose, damaged, missing, or defective components, including housings, reservoirs, vents and drains, air/hydraulic cylinders, clutch discs and plates, flywheels, mechanical and electronic controlled mechanisms, gear sets, clutches, synchronisers, power take-off (PTO) units, actuators, coolers, servos, pumps, motors, bearings, springs, cables, gears, shafts, seals, gaskets, lubrication systems, vents, filters, linkages, gauges, valves assemblies, lines and hoses, fittings, fluids, switches, warning devices, control modules, solenoids, sensors, wiring harnesses, fasteners and mounting devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6977.0 CLUTCHES AND TRANSMISSIONS - Cont'd

6977.02 **Diagnose and troubleshoot clutch systems and components**, including: housings, reservoirs, vents and drains, air/hydraulic cylinders, clutch discs and plates, flywheels, release and drive mechanisms, shafts, cables, linkages, lines and hoses, fittings, fluids, switches, solenoids, sensors, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance and function; checking for wear, opens/shorts/grounds, routing of lines and hoses, odour, temperature, corrosion, fractures, contamination, vibration/noise, colour, lubrication, pressure, alignment, adjustments, slip, release and drag; using hand, power, electronic service and specialized tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6977.03 **Repair clutch systems and components**, including: housings, reservoirs, vents and drains, air/hydraulic cylinders, clutch discs and plates, flywheels, release and drive mechanisms, bearings, shafts, cables, linkages, lines and hoses, fittings, fluids, switches, solenoids, sensors, wiring harnesses, fasteners and mounting devices; by exchanging, reconditioning, or servicing; using hand, power, electronic service and specialized tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6977.04 **Verify repair of clutch systems and components**, including: housings, reservoirs, vents and drains, air/hydraulic cylinders, clutch discs and plates, flywheels, release and drive mechanisms, bearings, shafts, cables, linkages, lines and hoses, fittings, fluids, switches, solenoids, sensors, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance and function; using hand, power, electronic service and specialized tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6977.0 CLUTCHES AND TRANSMISSIONS - Cont'd

6977.05 **Diagnose and troubleshoot manual transmissions/transfer cases and components**, including: housings, gears, shafts, synchronizers, shift and park lock mechanisms, power take-off (PTO) units, bearings, seals, gaskets, fluids, lubrication systems, vents, filters, sensors, switches, modules, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance and function; checking for wear, opens/shorts/grounds, fluid level and condition, leaks, contamination, temperature, corrosion, distortion, fractures, vibration/noise, alignment, tolerances and gear backlash; using hand, power, specialized, precision and electronic service tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6977.06 **Repair manual transmissions/transfer cases and components**, including: housings, gears, shafts, synchronizers, shift and park lock mechanisms, power take-off (PTO) units, bearings, seals, gaskets, fluids, lubrication systems, vents, filters, sensors, switches, modules, wiring harnesses, fasteners and mounting devices; by serving , reconditioning, exchanging or replacing; using hand, power, specialized, precision and electronic service tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6977.07 **Verify repair of manual transmissions/transfer cases and components**, including: housings, gears, shafts, synchronizers, shift and park lock mechanisms, power take-off (PTO) units, bearings, seals, gaskets, fluids, lubrication systems, vents, filters, sensors, switches, modules, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance and function; using hand, power, precision and electronic service tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6977.0 CLUTCHES AND TRANSMISSIONS - Cont'd

6977.08 **Diagnose and troubleshoot mechanical controlled power shift transmissions and components.** including: housings, shafts, synchronisers, springs, gears, brake and clutch packs, valve assemblies, shift and park lock mechanisms, actuators, power take-off (PTO) units, bearings, filters, coolers, pumps, fluids, lubrication systems, seals, gaskets, lines and hoses, fittings, switches, solenoids, sensors, modules, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance and function; checking for wear, opens/shorts/grounds, routing of wires and lines and hoses, fluid level and condition, leaks, corrosion, distortion, fractures, temperature, alignment, tolerances and vibration/noise: using hand, power and precision tools, gauges, flow devices and; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6977.09 **Repair mechanical controlled power shift transmissions and components,** including: housings, shafts, springs, gears, brake and clutch packs, valve assemblies, shift and park lock mechanisms, actuators, power take-off (PTO) units, bearings, filters, coolers, pumps, fluids, lubrication systems, seals, gaskets, lines and hoses, fittings, switches, solenoids, sensors, modules, wiring harnesses, fasteners and mounting devices; by exchanging, reconditioning, or servicing; using hand, power and precision tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6977.0 CLUTCHES AND TRANSMISSIONS - Cont'd

6977.10 **Verify repair of mechanical controlled power shift transmissions and components**, including: housings, shafts, springs, gears, clutch and brake packs, valve assemblies, shift and park lock mechanisms, actuators, power take-off (PTO) units, bearings, filters, coolers, pumps and motors, fluids, lubrication systems, seals, gaskets, lines and hoses, fittings, switches, solenoids, sensors, modules, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance and function; using hand, power, and precision tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6977.11 **Diagnose and troubleshoot electrical and electronic controlled power shift continuously variable transmission (CVT) components**, including: warning devices, controls and actuators, control modules, systems monitoring devices, switches, solenoids, relays, sensors, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance, function and programming; checking for wear, opens/shorts/grounds, routing of wires, parameters, diagnostic codes, system voltage and amperage, temperature, colour, corrosion, fractures, distortion, alignment, tolerances and vibration/noise; using hand, power and precision tools; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6977.12 **Repair electrical and electronic controlled power shift/ continuously variable transmission (CVT) components**, including: warning devices, controls and actuators, control modules, systems monitoring devices, switches, solenoids, relays, sensors, wiring harnesses, fasteners and mounting devices; by reprogramming and calibrating, exchanging, reconditioning, or servicing; using hand, power, specialized, and precision tools; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6977.0 CLUTCHES AND TRANSMISSIONS - Cont'd

6977.13 **Verify repair of electrical and electronic controlled power shift/ continuously variable transmission (CVT) components**, including: warning devices, controls and actuators, control modules, systems monitoring devices, switches, solenoids, relays, sensors, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance, function, programming and calibrating using hand, power, specialized and precision tools; according to manufacturer’s recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6977.14 **Diagnose and troubleshoot hydrostatic transmissions and components**, including: housings, drive mechanisms, pumps and motors, gears, bearings, seals, gaskets, coolers, heaters, control valves, filters, lines and hoses, fittings, reservoirs, fluids, vents, linkages, servos, system monitoring devices, switches, solenoids, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance, function, programming and calibrating ; checking for wear, opens/shorts/grounds, diagnostic codes, routing of wires and lines and hoses, fluid levels and condition, leaks, temperature, vibration/noise, corrosion, contamination, distortion, fractures, alignment, tolerances and pressure; using hand, power, specialized, precision and electronic service tools and lifting,; according to manufacturer’s recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6977.15 **Repair hydrostatic transmissions and components**, including: housings, drive mechanisms, pumps and motors, gears, bearings, seals, gaskets, coolers, heaters, control valves, filters, lines and hoses, fittings, reservoirs, fluids, vents, linkages, servos, system monitoring devices, switches, solenoids, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; by exchanging, reconditioning, reprogramming and calibrating; using hand, power, specialized, precision and electronic service tools and lifting, rigging and blocking devices; according to manufacturer’s recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6977.0 CLUTCHES AND TRANSMISSIONS - Cont'd

6977.16 **Verify repair of hydrostatic transmissions and components**, including: housings, drive mechanisms, pumps and motors, gears, bearings, seals, gaskets, coolers, heaters, control valves, filters, lines and hoses, fittings, reservoirs, fluids, vents, linkages, servos, system monitoring devices, switches, solenoids, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance, function, programming and calibrating; using hand, power, specialized, precision and electronic service tools; according to manufacturer's recommendations, specifications and safety requirements.

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Employer/Sponsor (Print) Name

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6978.0 DRIVE AXLE AND FINAL DRIVE ASSEMBLIES

GENERAL PERFORMANCE OBJECTIVE

Diagnose and repair drive shafts, differentials, final drives, axles and components by: performing a visual inspection, diagnosing and troubleshooting, repairing and verifying the repair of drive shafts, axles, differentials, final drives, and components; according to manufacturer’s recommendations, specifications and safety requirements.

PERFORMANCE OBJECTIVES

SKILLS

6978.01 **Perform visual inspection, identifying system types and applications**, by checking for: worn, loose, damaged, missing, or defective components, including drive shafts, universal joints, flanges, yokes, housings, vents, lines and hoses, fittings, carriers, shafts, gear sets, clutch packs, bearings, seals, gaskets, lubricants, actuators, wheel end assemblies, switches, solenoids, sensors, modules, warning devices, wiring harnesses, fasteners and mounting devices; according to manufacturer’s recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6978.02 **Diagnose and troubleshoot drive shafts, axles, differentials, final drives and components**, including: drive shafts, universal joints, flanges, yokes, housings, vents, lines and hoses, fittings, carriers, axles, gear sets, clutch packs, bearings, seals, gaskets, lubricants, actuators, wheel end assemblies, switches, solenoids, sensors, modules, warning devices, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance, function, programming and calibrating; checking for wear, routing of wires, diagnostic codes, temperature, colour, leaks, alignment, tolerances, vibration/noise, corrosion, distortion, contamination, fractures, erosion and phasing; using hand, power, specialized, precision and electronic service tools and lifting, rigging and blocking devices; according to manufacturer’s recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6978.0 DRIVE AXLE AND FINAL DRIVE ASSEMBLIES – Cont’d

6978.03 **Repair drive shafts, axles, differentials, final drives and components**, including: drive shafts, universal joints, flanges, yokes, housings, vents, lines and hoses, fittings, carriers, axle shaft, gear sets, clutch packs, bearings, seals, gaskets, lubricants, actuators, wheel end assemblies, switches, solenoids, sensors, modules, wiring harnesses, fasteners and mounting devices; by serving, reconditioning, exchanging, reprogramming and calibrating; using hand, power, specialized, precision and electronic service tools and lifting, rigging and blocking devices; according to manufacturer’s recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6978.04 **Verify repair of drive shafts, axles, differentials, final drives and components**, including: drive shafts, universal joints, flanges, yokes, housings, vents, lines and hoses, fittings, carriers, axle shafts, gear sets, clutch packs, bearings, seals, gaskets, lubricants, actuators, wheel end assemblies, switches, solenoids, sensors, modules, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance, function, programming and calibrating; using hand, power, specialized, precision and electronic service tools and lifting, rigging and blocking devices; according to manufacturer’s recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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Employer/Sponsor (Print) Name

Employer/Sponsor Signature

6979.0 STEERING SYSTEMS

GENERAL PERFORMANCE OBJECTIVE

Diagnose and repair steering systems by: performing a visual inspection, diagnosing and troubleshooting; repairing and verifying the repair of steering systems and components; according to manufacturer’s recommendations, specifications and safety requirements.

PERFORMANCE OBJECTIVES

SKILLS

6979.01 **Perform visual inspection, identifying system types and applications**, checking for: worn, loose, damaged, or defective components, including pumps and motors, drive mechanisms, housings, electric and hydraulic actuators, reservoirs, valves, controls, lines and hoses, fittings, fluids, lubricants, steering boxes, linkages, columns, ball joints, kingpins, steering and articulating stops, universal and articulating joints, accumulators, switches, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6979.02 **Diagnose and troubleshoot steering systems and components**, including: pumps and motors, drive mechanisms, housings, electric and hydraulic actuators, reservoirs, valves, lines and hoses, fittings, fluids, lubricants, steering boxes, linkages, columns, ball joints, kingpins, steering and articulating stops, universal and articulating joints, accumulators, switches, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance, function, programming and calibrating; checking for wear, opens/shorts/grounds, routing of wires and lines and hoses, temperature, lubrication, fluid level, leaks, contamination, pressure, flow, colour, alignment, tolerances, vibration/noise, stability, corrosion, erosion, fractures and distortion; using hand, power, specialized, precision and electronic service tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6979.0 STEERING SYSTEMS – Cont’d

6979.03 **Repair steering systems and components**, including: pumps and motors, drive mechanisms, housings, electric and hydraulic actuators, reservoirs, valves, lines and hoses, fittings, fluids, lubricants, steering boxes, linkages, columns, ball joints, kingpins, steering and articulating stops, universal and articulating joints, accumulators, switches, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; by: exchanging, reconditioning, aligning, reprogramming and calibrating, or servicing; using hand, power, specialized, precision and electronic service tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6979.04 **Verify repair of steering systems and components**, including: pumps and motors, drive mechanisms, housings, electric and hydraulic actuators, reservoirs, valves, lines and hoses, fittings, fluids, lubricants, steering boxes, linkages, columns, ball joints, kingpins, steering and articulating stops, universal and articulating joints, accumulators, switches, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance, function, programming and calibrating; using hand, power, specialized, precision and electronic service tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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Employer/Sponsor (Print) Name

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6980.0 BRAKING SYSTEMS

GENERAL PERFORMANCE OBJECTIVE

Diagnose and repair braking systems by: performing a visual inspection, diagnosing and troubleshooting, repairing and verifying the repair of braking systems and components; according to manufacturer’s recommendations, specifications and safety requirements.

PERFORMANCE OBJECTIVES

SKILLS

6980.01 **Perform visual inspection, identifying system types and applications**, checking for: worn, loose, damaged, defective, or missing components; including drums, friction materials, calipers, discs, rotors, bands, backing plates, springs, adjusting mechanisms, linkages, shields, lines and hoses, fittings, accumulators, reservoirs, fluids, lubricants, actuators, screens, traction control, systems monitoring devices, switches, solenoids, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6980.02 **Diagnose and troubleshoot braking systems and components**, including: drums, friction materials, calipers, discs, rotors, bands, backing plates, springs, adjusting mechanisms, linkages, shields, lines and hoses, fittings, accumulators, reservoirs, fluids, actuators, screens, traction control, system monitoring devices, switches, solenoids, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance, function and programming, checking for wear, opens/shorts/grounds, routing of wires and lines and hoses, temperature, fluid level and condition, lubrication, leaks, contamination, pressure, flow, vibration/noise, alignment, tolerances, stability, corrosion, erosion, distortion and fractures; using hand, power, specialized, precision and electronic service tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6980.0 BRAKING SYSTEMS – Cont’d

6980.03 **Repair braking systems and components**, including: drums, friction materials, calipers, discs, rotors, bands, backing plates, springs, adjusting mechanisms, linkages, shields, lines and hoses, fittings, accumulators, fluids, reservoirs, actuators, screens, traction control, system monitoring devices, switches, solenoids, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; by exchanging, reconditioning, adjusting, reprogramming or servicing; using hand, power, specialized, precision and electronic service tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6980.04 **Verify repair of braking systems and components**, including: drums, friction materials, calipers, discs, rotors, bands, backing plates, springs, adjusting mechanisms, linkages, shields, lines and hoses, fittings, accumulators, fluids, reservoirs, actuators, screens, traction control, system monitoring devices, switches, solenoids, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance function and programming; using hand, power, specialized, precision and electronic service tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

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Employer/Sponsor (Print) Name

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6981.0 AIR SUPPLY AND AUXILIARY AIR SYSTEMS

PERFORMANCE OBJECTIVES

Diagnose and repair air supply and auxiliary air systems by: performing a visual inspection, diagnosing and troubleshooting, repairing and verifying the repair of air supply and auxiliary air systems and components; according to manufacturer’s recommendations, specifications and safety requirements.

PERFORMANCE OBJECTIVES

SKILLS

6981.01 Perform visual inspection, identifying system types and applications, checking for: worn, loose, damaged, missing, restricted, or defective components; including compressors, fans, drive mechanisms, governors, cooling and lubrication systems, filters, manifolds, reservoirs, lines and hoses, fittings, seals, gaskets, valves, actuators, gauges, system monitoring and warning devices, circuit protection devices, switches, solenoids, relays, sensors, modules, wiring harnesses and fasteners and mounting devices; according to manufacturer’s recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6981.02 Diagnose and troubleshoot air supply and auxiliary air systems and components, including: compressors, fans, drive mechanisms, governors, cooling and lubrication systems, filters, manifolds, reservoirs, lines and hoses, fittings, seals, gaskets, valves, actuators, gauges, systems monitoring and warning devices, circuit protection devices, switches, solenoids, relays, sensors, modules, wiring harnesses and fasteners and mounting devices; by visually inspecting, testing and analysing performance, function, programming and calibrating; checking for wear, opens/shorts/grounds, routing of wires and lines and hoses, temperature, colour, fluid level, lubrication, leaks, contamination, pressure, flow/velocity, tolerances, vibration/noise, corrosion, distortion, erosion and fractures; using hand, power, specialized, precision and electronic service tools; according to manufacturer’s recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6981.0 AIR SUPPLY AND AUXILIARY AIR SYSTEMS – Cont'd

6981.03 Repair air supply and auxiliary air systems and components, including: compressors, fans, drive mechanisms, governors, cooling and lubrication systems, filters, manifolds, reservoirs, lines and hoses, fittings, seals, gaskets, valves, actuators, gauges, system monitoring and warning devices, circuit protection devices, switches, solenoids, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; by exchanging, reconditioning, servicing, reprogramming and calibrating; using hand, power, specialized, precision and electronic service tools; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6981.04 Verify repair of air supply and auxiliary air systems and components, including: compressors, fans, drive mechanisms, governors, cooling and lubrication systems, filters, manifolds, reservoirs, lines and hoses, fittings, seals, gaskets, valves, actuators, gauges, system monitoring and warning devices, circuit protection devices, switches, solenoids, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance, function and programming and calibrating ; using hand, power, specialized, precision and electronic service tools; according to manufacturer's recommendations, specifications and safety requirements.

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Employer/Sponsor (Print) Name

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6982.0 SUSPENSION SYSTEMS

PERFORMANCE OBJECTIVES

Diagnose and repair suspension systems, by: performing a visual inspection, diagnosing and troubleshooting, repairing and verifying the repair of suspension systems and components; according to manufacturer’s recommendations, specifications and safety requirements.

PERFORMANCE OBJECTIVES

SKILLS

6982.01 **Perform visual inspection, identifying system types and applications**, checking for: leaks worn, loose, damaged, missing, or defective components; including: shock absorbers, cylinders, springs (rubber block, leaf and air), shackles, bushings, equalizing beams, struts, hangers, lines and hoses, fittings, lubricants, gauges, valves, controls, system monitoring and warning devices, circuit protection devices, switches, solenoids, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; according to manufacturer’s recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6982.02 **Diagnose and troubleshoot suspension systems and components**, including: shock absorbers, cylinders, springs (rubber block, leaf and air), shackles, bushings, equalizing beams , struts, hangers, lines and hoses, fittings, lubricants, gauges, valves, controls, fasteners and mounting devices; by visually inspecting, testing and analysing performance and function; checking for wear, routing of lines and hoses, temperature, lubrication, leaks, pressure, vibration/noise, alignment, stability, corrosion, erosion, distortion, fractures, system monitoring, warning devices and circuit protection devices, by visually inspecting testing and analysing performance, function, programming and calibrating; using hand, power, specialized, precision and electronic service tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6982.0 SUSPENSION SYSTEMS – Cont'd

6982.03 **Repair suspension system and components**, including: shock absorbers, cylinders, springs (rubber block, leaf and air), shackles, bushings, equalizing beams, struts, hangers, lines and hoses, fittings, lubricants, gauges, valves, controls, fasteners and mounting devices; by visually inspecting, testing and analysing performance and function; by exchanging, reconditioning, aligning, or servicing system monitoring, warning devices and circuit protection devices, programming and calibrating; using hand, power, specialized, precision and electronic service tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6982.04 **Verify repair of suspension system and components**, including: shock absorbers, cylinders, springs (rubber block, leaf and air), shackles, bushings, equalizing beams, struts, hangers, lines and hoses, fittings, lubricants, gauges, valves, controls, fasteners and mounting devices servicing system monitoring, warning devices and circuit protection devices, by visually inspecting, testing and analysing performance, function, programming and calibrating; using hand, power, specialized, precision and electronic service tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

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Employer/Sponsor (Print) Name

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6983.0 TIRES, WHEELS, BALLASTING, UNDERCARRIAGES AND TRACKS

GENERAL PERFORMANCE OBJECTIVE

Diagnose and replace tires, wheels and ballasting by: performing a visual inspection, diagnosing and troubleshooting, repairing and verifying the repair of tires, wheels, ballasting and components; undercarriages, tracks (rubber and steel) and components; according to manufacturer’s recommendations, specifications and safety requirements.

PERFORMANCE OBJECTIVES

SKILLS

6983.01 Perform inspection, identifying system types and applications, checking for: worn, loose, damaged, missing, overheated, or defective components and leaks, including rims, hubs, valves, caps, locking channels, spacers, tire ballast, sprockets, idlers, tracks, (rubber and steel) frames, adjusters, rollers, rock guards, hubs, bearings, seals, gaskets, lubricants, pads, links, pins, bushings, guides, springs, fasteners and mounting devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6983.02 Diagnose and troubleshoot tires, wheels, ballasting and components, including: rims, hubs, valves, caps, locking channels, spacers, tire ballast, fasteners and mounting devices; by visually inspecting, testing and analysing performance and function; checking for wear, tire matching and condition, mounting arrangement, alignment, corrosion, , wheel installation, gaps in split ring pressure, leaks, temperature, noise/vibration, distortion and lubrication; using ballast programs, hand, power, specialized and precision service tools, lubricants, lifting, rigging and blocking devices and safety cages; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6983.0 TIRES, WHEELS, BALLASTING AND UNDERCARRIAGES - Cont'd

6983.03 **Replace tires, wheels, ballasting and components**, including: rims, hubs, valves, caps, locking channels, spacers, tire ballast, fasteners and mounting devices; by exchanging, reconditioning, servicing, or calibrating; using ballast programs, hand, power, specialized and precision service tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6983.04 **Verify repair of tires, wheels, ballasting and components**, including: rims, hubs, valves, caps, locking channels, spacers, tire ballast, fasteners and mounting devices; by visually inspecting, testing and analysing performance and function; using ballast programs, hand, power, specialized and precision service tools, lifting, rigging and blocking devices and safety cages; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6983.05 **Diagnose and troubleshoot undercarriages and components**, including: sprockets, idlers, tracks (steel & rubber), frames, adjusters, rollers, rock guards, hubs, bearings, seals, gaskets, lubricants, pads, links, pins, bushings, guides, springs, fasteners and mounting devices; by visually inspecting, testing and analysing performance and function; checking for wear, corrosion, distortion, odour, colour, lubrication, contamination, pressure, temperature, noise/vibration, alignment and tolerances; using ballast programs, hand, power, specialized and precision service tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6983.0 TIRES, WHEELS, BALLASTING AND UNDERCARRIAGES – Cont'd

6983.06 **Repair undercarriages and components**, including: sprockets, idlers, tracks, frames, adjusters, rollers, rock guards, hubs, bearings, seals, gaskets, lubricants, pads, links, pins, bushings, guides, springs, fasteners and mounting devices; by tracks (steel & rubber), visually inspecting, testing and analysing performance and function; by exchanging, reconditioning, servicing, or adjusting; using ballast programs, hand, power, specialized and precision service tools, lifting, rigging and blocking devices and safety cages; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6983.07 **Verify repair of undercarriages and components**, including: sprockets, idlers, tracks (steel & rubber), frames, adjusters, rollers, rock guards, hubs, bearings, seals, gaskets, lubricants, pads, links, pins, bushings, guides, springs, fasteners and mounting devices; by visually inspecting, testing and analysing performance and function; using ballast programs, hand, power, specialized and precision service tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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Employer/Sponsor (Print) Name

Employer/Sponsor Signature

6984.0 CLIMATE CONTROL SYSTEMS

GENERAL PERFORMANCE OBJECTIVE

Diagnose and repair climate control systems by: performing a visual inspection, diagnosing and troubleshooting, repairing and verifying the repair of heating and ventilation systems and components, air-conditioning systems and components; according to government regulations, manufacturer’s recommendations, specifications and safety requirements.

PERFORMANCE OBJECTIVES

SKILLS

6984.01 **Perform visual inspection, identifying system types and applications**, checking for: worn, loose, damaged, missing, leaking, or defective components, fluid types, fluid levels and condition; including controls, actuators, drive mechanisms, fans, motors, pumps, compressors, accumulators, condensers, evaporators, heat exchangers, auxiliary heaters/coolers, receiver/dryers, ducting, lines and hoses, fittings, cables, gaskets, fluids, lubricants, seals, valves, filters, warning devices, circuit protection devices, switches, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; according to, manufacturer’s recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6984.0 CLIMATE CONTROL SYSTEMS – Cont’d

6984.02 **Diagnose and troubleshoot heating and ventilation systems and components**, including: controls, actuators, drive mechanisms, pumps and motors, fluids, filters, heat exchangers, heater core auxiliary heaters/coolers, ducting, lines and hoses, fittings, cables, valves, warning devices, switches, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance function, programming and calibrating; checking for wear, opens/shorts/grounds, diagnostic codes, routing of wires, lines and hoses, odour, colour, corrosion, distortion, fractures, temperature, vibration/noise, contamination, fluid levels, pressure and leaks; using hand, power, specialized, precision and electronic service tools and lifting, rigging and blocking devices; according to manufacturer’s recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6984.03 **Repair heating and ventilation systems and components**, including: controls, actuators, drive mechanisms, motors, pumps, fluids, filters, heat exchangers, auxiliary heaters/coolers, ducting, lines and hoses, fittings, cables, valves, warning devices, switches, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; by servicing, reconditioning, reprogramming, calibrating or exchanging ; using hand, power, specialized, precision and electronic service tools; according to manufacturer’s recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6984.0 CLIMATE CONTROL SYSTEMS Cont'd

6984.04 **Verify repair of heating and ventilation systems and components**, including: controls, actuators, drive mechanisms, motors, pumps, fluids, filters, heat exchangers, auxiliary heaters/coolers, ducting, lines and hoses, fittings, cables, valves, warning devices, switches, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance function, programming and calibrating; using hand, power, specialized, precision and electronic service tools and ; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6984.05 **Diagnose and troubleshoot air conditioning systems and components**, including: compressors, condensers, evaporators, receiver/dryers, accumulators, actuators, valves, drive mechanisms, fans, motors, ducting, filters, lines and hoses, fittings, gaskets, fluids, lubricants, gaskets, seals, controls, circuit protection devices, switches, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance, function and programming and calibrating by; checking for wear, opens/shorts/grounds, routing of wires and lines and hoses, odour, corrosion, distortion, fractures, temperature, contamination, vibration/noise, pressure and leaks; using hand, power, specialized, precision and electronic service tools and lifting, rigging and blocking devices; according to government regulations, manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6984.0 CLIMATE CONTROL SYSTEMS Cont'd

6984.06 **Repair air conditioning systems and components**, including: compressors, condensers, evaporators, receiver/dryers, accumulators, actuators, valves, drive mechanisms, fans, motors, ducting, filters, lines and hoses, fittings, gaskets, fluids, lubricants, gaskets, seals, controls, circuit protection devices, switches, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; by reprogramming and calibrating, exchanging, reconditioning, recharging or servicing; using hand, power, specialized, precision and electronic service tools and lifting, rigging and blocking devices; according to government regulations, manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6984.07 **Verify repair of air conditioning systems and components**, including: compressors, condensers, evaporators, receiver, dryers, accumulators, actuators, valves, drive mechanisms, fans, motors, ducting, filters, lines and hoses, fittings, gaskets, fluids, gaskets, seals, controls, circuit protection devices, switches, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance, function, programming and calibrating; using hand, power, specialized, precision and electronic service tools and lifting, rigging and blocking devices; according to government regulations, manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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Employer/Sponsor (Print) Name

Employer/Sponsor Signature

6985.0 STRUCTURAL COMPONENTS AND ACCESSORIES

GENERAL PERFORMANCE OBJECTIVE

Diagnose and repair structural components and accessories by: performing a visual inspection, diagnosing and troubleshooting, repairing and verifying the repair of structural components and accessories; according to manufacturer’s recommendations, specifications and safety requirements.

PERFORMANCE OBJECTIVES

SKILLS

6985.01 **Perform visual inspection, identifying system types and components**, by checking for: worn, loose, damaged, or missing components including roll-over protection structure (ROPS), exterior body panels and trim, doors, catwalks, ramps, rails, ladders, steps, reflective materials, weather-stripping, locks, hinges, latches, hood supports, hitches, anchoring devices, glass, lenses, housings, mirrors, antennae, roof hatches, adhesives, interior trim, flooring, panels, roof lining, doors, reinforced bars, seats, upholstery, occupant restraints, fastening and mounting devices; according to manufacturer’s recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6985.02 **Diagnose and troubleshoot structural components and accessories**, including: roll-over protective structure (ROPS), exterior body panels and trim, doors, catwalks, ramps, rails, ladders, steps, reflective materials, weather-stripping, locks, hinges, latches, hood supports, hitches, anchoring devices, glass, lenses, housings, mirrors, antennae, roof hatches, adhesives, interior trim, flooring, panels, roof lining, , reinforced bars, seats, upholstery, occupant restraints, fastening and mounting devices; by visually inspecting, testing and analysing performance and function; checking for wear, vibration/ noise, corrosion, distortion, alignment, fractures and leaks; using hand, power, specialized, precision and electronic service tools and lifting, rigging and blocking devices; according to manufacturer’s recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6985.0 STRUCTURAL COMPONENTS AND ACCESSORIES- Cont'd

6985.03 **Repair structural components and accessories**, including: roll over protective structure (ROPS), exterior body panels and trim, doors, catwalks, ramps, rails, ladders, steps, reflective materials, weather-stripping, locks, hinges, latches, hood supports, hitches, anchoring devices, glass, lenses, housings, mirrors, antennae, roof hatches, adhesives, interior trim, flooring, panels, roof lining, doors, reinforced bars, seats, upholstery, occupant restraints, fastening and mounting devices; by exchanging, replacing, or servicing; using hand, power, specialized, precision and electronic service tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6985.04 **Verify repair of structural components and accessories** including: roll over protective structure (ROPS), exterior body panels and trim, doors, catwalks, ramps, rails, ladders, steps, reflective materials, weather-stripping, locks, hinges, latches, hood supports, hitches, anchoring devices, glass, lenses, housings, mirrors, antennae, roof hatches, adhesives, interior trim, flooring, panels, roof lining, doors, reinforced bars, seats, upholstery, occupant restraints, fastening and mounting devices; by testing and analysing performance and function; using hand, power, specialized, precision and electronic service tools and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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Employer/Sponsor (Print) Name

Employer/Sponsor Signature

6986.0 AGRICULTURAL IMPLEMENTS – TILLAGE AND PLANTING

GENERAL PERFORMANCE OBJECTIVE

Diagnose and repair tillage and planting implements by: performing a visual inspection, diagnosing and troubleshooting, repairing and verifying the repair of tillage and planting equipment and components; according to manufacturer’s recommendations, specifications and safety requirements.

PERFORMANCE OBJECTIVES

SKILLS

6986.01 **Perform visual inspection, identifying system types and applications**, by checking for: worn, loose, damaged, defective, or missing components, including ground engaging components, frames, depth control systems, product delivery systems, product metering devices, hitching and coupling devices, lines and hoses, fittings, shanks, springs, lubricants, systems monitors, locking devices, circuit protection devices, switches, solenoids, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6986.0 AGRICULTURAL IMPLEMENTS – TILLAGE AND PLANTING – Cont’d

6986.02 **Diagnose and troubleshoot tillage, planting equipment and components**, including: ground engaging components, frames, depth control systems, product delivery systems, product metering devices, hitching and coupling devices, lines and hoses, fittings, shanks, springs, lubricants, system monitors, locking devices, circuit protection devices, switches, solenoids, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance, function, programming and calibrating; checking for wear, opens/shorts/grounds, routing of wires and lines and hoses, corrosion, erosion, distortion, alignment, fractures, contamination, odour, pressure, colour, temperature, leaks, noise/vibration, tolerances and lubrication; using hand, power, specialized, precision and electronic service tools, personal protective and environmental control equipment and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6986.03 **Repair tillage, planting equipment and components**, including: ground engaging components, frames, depth control systems, product delivery systems, product metering devices, hitching and coupling devices, lines and hoses, fittings, shanks, springs, lubricants, system monitors, locking devices, circuit protection devices, switches, solenoids, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; by reprogramming and calibrating, exchanging, reconditioning, servicing, or adjusting; using hand, power, specialized, precision and electronic service tools, personal protective and environmental control equipment and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6986.0 AGRICULTURAL IMPLEMENTS – TILLAGE AND PLANTING – Cont’d

6986.04 **Verify repair of tillage, planting equipment and components**, including: ground engaging components, frames, depth control systems, product delivery systems, product metering devices, hitching and coupling devices, lines and hoses, fittings, shanks, springs, lubricants, system monitors, locking devices, circuit protection devices, switches, solenoids, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance, function, programming and calibrating; using hand, power, specialized, precision and electronic service tools, personal protective and environmental control equipment and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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Employer/Sponsor (Print) Name

Employer/Sponsor Signature

6987.0 AGRICULTURAL IMPLEMENTS – HARVESTING

GENERAL PERFORMANCE OBJECTIVE

Diagnose and repair harvesting equipment by: performing a visual inspection, diagnosing and troubleshooting, repairing and verifying the repair of harvesting equipment and components; according to manufacturer’s recommendations, specifications and safety requirements.

PERFORMANCE OBJECTIVES

SKILLS

6987.01 **Perform visual inspection, identifying system types and applications**, by checking for: worn, loose, damaged, defective, or missing components, including cutting, feeding, separating, cleaning, compacting and delivery devices, depth control systems, hitching and coupling devices, locking devices, belts, pulleys, chains, sprockets, frames, springs, lines and hoses, fittings, lubricants, system monitors and circuit protection devices, switches, solenoids, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6987.0 AGRICULTURAL IMPLEMENTS – HARVESTING – Cont’d

6987.02 **Diagnose and troubleshoot harvesting equipment and components**, including: cutting, feeding, separating, cleaning, compacting and delivery devices, depth control systems, hitching and coupling devices, locking devices, belts, pulleys, chains, sprockets, frames, springs, lines and hoses, fittings, lubricants, systems monitors, interfaces and circuit protection devices, switches, solenoids, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance, function, programming and calibrating; checking for wear, opens/shorts/grounds, routing of wires and lines and hoses, corrosion, erosion, distortion, alignment, tolerances, lubrication, leaks, odour, contamination, pressure, colour, temperature, noise/vibration and fractures; using hand, power, specialized, precision and electronic service tools, personal protective and environmental control equipment and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6987.03 **Repair harvesting equipment and components**, including: cutting, feeding, separating, cleaning, compacting and delivery devices, depth control systems, hitching and coupling devices, locking devices, belts, pulleys, chains, sprockets, frames, springs, lines and hoses, fittings, lubricants, system monitors, circuit protection devices, switches, solenoids, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; by reprogramming and calibrating, exchanging, reconditioning, servicing, or adjusting; using hand, power, specialized, precision and electronic service tools, personal protective and environmental control equipment and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6987.0 AGRICULTURAL IMPLEMENTS – HARVESTING – Cont’d

6987.04 **Verify repair of harvesting equipment and components**, including: cutting, feeding, separating, cleaning, compacting and delivery devices, depth control systems, hitching and coupling devices, locking devices, belts, pulleys, chains, sprockets, frames, springs, lines and hoses, fittings, lubricants, system monitors, circuit protection devices, switches, solenoids, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance, function and programming and calibrating; using hand, power, specialized, precision and electronic service tools, personal protective and environmental control equipment and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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Employer/Sponsor (Print) Name

Employer/Sponsor Signature

6988.0 AGRICULTURAL IMPLEMENTS – SPRAYING, IRRIGATION AND DISTRIBUTION EQUIPMENT

GENERAL PERFORMANCE OBJECTIVE

Diagnose and repair spraying, irrigation and distribution equipment by: performing a visual inspection, diagnosing and troubleshooting, repairing and verifying the repair of spraying, irrigation and distribution equipment and components; according to manufacturer’s recommendations, specifications and safety requirements.

PERFORMANCE OBJECTIVES

SKILLS

6988.01 Perform visual inspection, identifying system types and applications, by checking for: worn, loose, damaged, defective, or missing components, including: product delivery devices, frames, application control systems, hitching and coupling devices, locking devices, springs, lines and hoses, fittings, seals, gauges, fluids, lubricants, system monitors, circuit protection devices, switches, solenoids, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6988.0 AGRICULTURAL IMPLEMENTS – SPRAYING, IRRIGATION AND DISTRIBUTION EQUIPMENT - Cont'd

6988.02 **Diagnose and troubleshoot spraying, irrigation, distribution equipment and components**, including: product delivery devices, frames, application control systems, hitching and coupling devices, locking devices, springs, lines and hoses, fittings, seals, gauges, fluids, lubricants, system monitors, circuit protection devices, switches, solenoids, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing, performance, function, programming and calibrating; checking for wear, opens/shorts/grounds, routing of wires and lines and hoses, corrosion, erosion, distortion, alignment, tolerances, contamination, fractures, flow pressure, colour, temperature, noise/vibration, lubrication and leaks; using hand, power, specialized, precision and electronic service tools, personal protective and environmental control equipment and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6988.03 **Repair spraying, irrigation, distribution equipment and components**, including: product delivery devices, frames, application control systems, hitching and coupling devices, locking devices, springs, lines and hoses, fittings, seals, gauges, fluids, lubricants, system monitors, circuit protection devices, switches, solenoids, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; by reprogramming and calibrating, exchanging, reconditioning, servicing, or adjusting; using hand, power, specialized, precision and electronic service tools, personal protective and environmental control equipment and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6988.0 AGRICULTURAL IMPLEMENTS – SPRAYING, IRRIGATION AND DISTRIBUTION EQUIPMENT - Cont'd

6988.04 **Verify repair of spraying, irrigation, distribution equipment and components,** including: product delivery devices, frames, application control systems, hitching and coupling devices, locking devices, springs, lines and hoses, fittings, seals, gauges, fluids, lubricants, system monitors, circuit protection devices, switches, solenoids, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance, function, programming and calibrating; using hand, power, specialized, precision and electronic service tools, personal protective and environmental control equipment and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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Employer/Sponsor (Print) Name

Employer/Sponsor Signature

6989.0 AGRICULTURAL IMPLEMENTS – MATERIAL HANDLING EQUIPMENT

GENERAL PERFORMANCE OBJECTIVE

Diagnose and repair material handling equipment by: performing a visual inspection, diagnosing and troubleshooting, repairing and verifying the repair of material handling equipment and components; according to manufacturer’s recommendations, specifications and safety requirements.

PERFORMANCE OBJECTIVES

SKILLS

6989.01 **Perform visual inspection, identifying system types and applications**, by checking for: worn, loose, damaged, defective, or missing components, including: augers, conveyors, hoppers, spreaders, tanks, platforms, loaders and attachments, blades, blowers, cutters, product delivery devices, frames, application control systems, hitching and coupling devices, locking devices, springs, cylinders, lines and hoses, fittings, seals, fluids, lubricants, system monitoring devices, shielding, circuit protection devices, switches, solenoids, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; according to manufacturer’s recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6989.0 AGRICULTURAL IMPLEMENTS – MATERIAL HANDLING EQUIPMENT – Cont’d

6989.02 **Diagnose and troubleshoot material handling equipment and components**, including: augers, conveyors, hoppers, spreaders, tanks, platforms, loaders and attachments, blades, superchargers, cutters, product delivery devices, frames, application control systems, hitching and coupling devices, locking devices, springs, cylinders, lines and hoses, fittings, seals, fluids, lubricants, system monitoring devices, shielding, circuit protection devices, switches, solenoids, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance, function, programming and calibrating; checking for wear, opens/shorts/grounds, routing of wires and lines and hoses, corrosion, erosion, distortion, fractures, contamination, pressure, flow, colour, temperature, noise/vibration, alignment, tolerances, leaks and lubrication; using hand, power, specialized, precision and electronic service tools, personal protective and environmental control equipment and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6989.03 **Repair material handling equipment and components**, including: augers, conveyors, hoppers, spreaders, tanks, platforms, loaders and attachments, blades, blowers, cutters, product delivery devices, frames, application control systems, hitching and coupling devices, locking devices, springs, cylinders, lines and hoses, fittings, seals, fluids, lubricants, system monitoring devices, shielding, circuit protection devices, switches, solenoids, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; by reprogramming and calibrating, exchanging, reconditioning, servicing, or adjusting; using hand, power, specialized, precision and electronic service tools, personal protective and environmental control equipment and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6989.0 AGRICULTURAL IMPLEMENTS – MATERIAL HANDLING EQUIPMENT – Cont’d

6989.04 **Verify repair of material handling equipment and components**, including: augers, hoppers, spreaders, tanks, platforms, loaders and attachments, blades, superchargers, cutters, product delivery devices, frames, application control systems, hitching and coupling devices, locking devices, springs, cylinders, lines and hoses, fittings, seals, fluids, lubricants, system monitoring devices, shielding, circuit protection devices, switches, solenoids, relays, sensors, modules, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance, function, programming and calibrating; using hand, power, specialized, precision and electronic service tools, personal protective and environmental control equipment and lifting, rigging and blocking devices; according to manufacturer's recommendations, specifications and safety requirement.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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Employer/Sponsor (Print) Name

Employer/Sponsor Signature

6990.0 PRECISION AGRICULTURAL SYSTEMS

GENERAL PERFORMANCE OBJECTIVE

Diagnose and repair precision agricultural systems by: performing a visual inspection, diagnosing and troubleshooting, repairing and verifying the repair of precision agricultural systems and components; according to manufacturer’s recommendations, specifications and safety requirements.

PERFORMANCE OBJECTIVES

SKILLS

6990.01 **Perform visual inspection, identifying system types and applications**, checking for: worn, loose, damaged, defective, or missing components, including system monitoring devices, circuit protection devices, position and differential receivers, data collection devices, sensors, modules, wiring harnesses, fasteners and mounting devices; according to manufacturer’s recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6990.02 **Diagnose and troubleshoot precision agricultural systems and components**, including: system monitoring devices, circuit protection devices, position and differential receivers, data collection devices, fasteners and mounting devices; by visually inspecting, testing and analysing performance, function, programming and calibrating; checking for wear, opens/shorts/grounds, routing of wires, distortion, fractures, temperature, noise/vibration alignment and tolerances; using hand, power, specialized, precision and electronic service tools, according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6990.0 PRECISION AGRICULTURAL SYSTEMS – Cont’d

6990.03 **Repair precision agricultural systems and components**, including: system monitoring devices, circuit protection devices, position and differential receivers, data collection devices, sensors, modules, wiring harnesses, fasteners and mounting devices; by reprogramming and calibrating, exchanging, reconditioning, servicing, or adjusting; using hand, power, specialized, precision and electronic service tools, according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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6990.04 **Verify repair of precision agricultural systems and components**, including: system monitoring devices, circuit protection devices, position and differential receivers, data collection devices, sensors, modules, wiring harnesses, fasteners and mounting devices; by visually inspecting, testing and analysing performance, function, programming and calibrating; using hand, power, specialized, precision and electronic service tools, according to manufacturer's recommendations, specifications and safety requirements.

Date Completed (mm/dd/yy)	Apprentice Signature	Supervisor/Trainer Signature
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Employer/Sponsor (Print) Name

Employer/Sponsor Signature

APPRENTICE RECORD #1

EMPLOYER/SPONSOR INFORMATION	
Registered Training Agreement #	
OCOT Membership #	
Name	
Address	
Telephone	
E-mail Address	

SUMMARY OF TRAINING	
Employment Start Date	
Employment End Date	
Total hours of training & instruction between dates of employment.	

SKILL I.D. #	EMPLOYER/SPONSOR NAME	EMPLOYER/SPONSOR SIGNATURE	DATE: (mm/dd/yy)

APPRENTICE RECORD #2

EMPLOYER/SPONSOR INFORMATION	
Registered Training Agreement #	
OCOT Membership #	
Name	
Address	
Telephone	
E-mail Address	

SUMMARY OF TRAINING	
Employment Start Date	
Employment End Date	
Total hours of training & instruction between dates of employment.	

SKILL I.D. #	EMPLOYER/SPONSOR NAME	EMPLOYER/SPONSOR SIGNATURE	DATE: (mm/dd/yy)

APPRENTICE RECORD #3

EMPLOYER/SPONSOR INFORMATION	
Registered Training Agreement #	
OCOT Membership #	
Name	
Address	
Telephone	
E-mail Address	

SUMMARY OF TRAINING	
Employment Start Date	
Employment End Date	
Total hours of training & instruction between dates of employment.	

SKILL I.D. #	EMPLOYER/SPONSOR NAME	EMPLOYER/SPONSOR SIGNATURE	DATE: (mm/dd/yy)

APPRENTICE RECORD #4

EMPLOYER/SPONSOR INFORMATION	
Registered Training Agreement #	
OCOT Membership #	
Name	
Address	
Telephone	
E-mail Address	

SUMMARY OF TRAINING	
Employment Start Date	
Employment End Date	
Total hours of training & instruction between dates of employment.	

SKILL I.D. #	EMPLOYER/SPONSOR NAME	EMPLOYER/SPONSOR SIGNATURE	DATE: (mm/dd/yy)

APPRENTICE RECORD #5

EMPLOYER/SPONSOR INFORMATION	
Registered Training Agreement #	
OCOT Membership #	
Name	
Address	
Telephone	
E-mail Address	

SUMMARY OF TRAINING	
Employment Start Date	
Employment End Date	
Total hours of training & instruction between dates of employment.	

SKILL I.D. #	EMPLOYER/SPONSOR NAME	EMPLOYER/SPONSOR SIGNATURE	DATE: (mm/dd/yy)

**If you need additional copies of the Apprentice Record Form, please photocopy as needed.*

DEFINITIONS

Apprentices Class

Individuals in this class:

- Hold one or more valid Registered Training Agreements (RTA'S) with the Ministry of Training, Colleges and Universities in either compulsory or voluntary trades;
- Are subject to any ratios or wage rates that have been set out in regulation for their trade(s);
- Can remain in this class until they receive their Certificate of Apprenticeship;
- Can hold themselves out as Apprentices.

Certificate of Apprenticeship (C of A)

A certificate issued by the Minister of Training, Colleges and Universities to an individual who has demonstrated that they have completed an apprenticeship program in Ontario.

Certificate of Qualification (C of Q)

A certificate issued by the Registrar on behalf of the College to a Journeyperson. A C of Q will serve as proof of having met any testing or program requirements and membership in the College's Journeypersons Class.

Competence

The ability of an individual to perform a skill repeatedly and without assistance in the workplace as set out in the Training Standard.

Competency Analysis Profile (CAP Chart)

A chart that identifies the training needs of an individual trade and details the skills/skill sets that must be demonstrated during an apprenticeship program.

Competent Person

A competent person is defined by the *Occupational Health and Safety Act* as being a person who:

- is qualified because of their knowledge, training and experience to organize the work and its performance;
- is familiar with the *Occupational Health and Safety Act* and its regulations that apply to the work; and,
- has knowledge of any potential or actual danger to health or safety in the workplace.

Competent Worker

A competent worker is defined by the *Occupational Health and Safety Act* as being a person who:

- is qualified because of knowledge, training and experience to perform the work,
- is familiar with the *Occupational Health and Safety Act* and with the provisions of the regulations that apply to the work, and
- has knowledge of all potential or actual danger to health or safety in the work;

Employer/Sponsor

Means a person that has entered into a Registered Training Agreement (RTA) under which the person is required to ensure that an individual is provided with workplace-based training in a trade, other occupation or skill set, as part of an apprenticeship program approved by the Director.

Employer/Sponsor of Record

Refers to the Employer or Sponsor documented as being signatory to the current training agreement or contract. In order for an Employer/Sponsor to be considered for the training of Apprentices, they must identify that the workplace has qualified Journeypersons or the equivalent on site, and can identify that the workplace has the tools, equipment, materials, and processes which have been identified by the Industry representatives for the trade.

Incompetence

According to the *Ontario College of Trades and Apprenticeship Act, 2009*, a member of the College may be found to be incompetent by the College's Discipline Committee if the Committee feels that the member has displayed a lack of knowledge, skill or disregard for another person's welfare while practicing their trade. If this happens, the individual may be found unfit to practice their trade, and their Statement of Membership (or Certificate of Qualification) may be revoked, suspended, or be subject to terms, conditions or limitations.

Journeyperson

Compulsory Trades Journeyperson:

- Someone who holds a valid Certificate of Qualification (C of Q) in the trade and who is a member in good standing of the College's Journeypersons Class for the same trade; or
 - Someone who holds a Provisional C of Q in the trade and who is a member in good standing of the College's Journeypersons Class for the same trade.
-

Voluntary Trades Journeyperson:

- Someone who holds a valid C of Q in the trade and who is a member in good standing of the College's Journeypersons Class for the same trade; or
 - Someone who holds a C of Q in the trade that was issued by the Ministry of Training, Colleges and Universities (MTCU) prior to April 8, 2013 (membership in the College is not required in this scenario)
-

Journeyperson Candidate Class (JPC)

An individual who has completed an Ontario apprenticeship program (Certificate of Apprenticeship) in a trade that has a Certificate of Qualification examination, but has not passed the Certificate of Qualification examination for their trade. There is a maximum time limit of 1 year to remain in the Journeyperson Candidate Class.

Individuals in this class:

Have completed an Ontario apprenticeship program (hold a Certificate of Apprenticeship) in a trade that has a Certificate of Qualification examination (voluntary or compulsory) and have not passed that Certificate of Qualification examination for their trade(s);

Are subject to any ratios and/or wage rates that have been set out for their trade(s), if they practice a compulsory trade.

Can continue to work legally in their trade if they are in a compulsory trade, as they prepare to write their examination (individuals in voluntary trades do not have to be members of the College to work legally); and can hold themselves out as Journeyperson Candidates (they are neither Apprentices nor Journeypersons).

Can remain in this class for a maximum of one year or until they pass the Certificate of Qualification exam and become members of the Journeypersons class. After one year you can move into the Tradespersons Class if you are in a voluntary trade. If you are in a compulsory trade and have been in the Journeyperson Candidates Class for one year, you can no longer work legally in that trade until you pass the Certificate of Qualification examination.

Mandatory Skill

Status assigned to unshaded individual skills, skill sets or general performance objectives which must be signed off for the Apprentice to complete their program.

OCTAA

Ontario College of Trades Apprenticeship Act, 2009

Optional Skill

Status assigned to shaded individual skills, skills sets or general performance objectives for which sign-off is not required for the Apprentice to complete the program.

Ratios

For up to date information regarding Journeyperson to Apprentice ratios, please visit:

www.collegeoftrades.ca/public/journeyperson-to-apprentice-ratios

Red Seal Program

The Interprovincial Standards Red Seal Program (also known as the Red Seal Program) was established more than 50 years ago to provide greater mobility across Canada for skilled workers and represents a standard of excellence for industry. Through the program, individuals are able to obtain a Red Seal endorsement on their provincial/territorial certificates by successfully completing an interprovincial Red Seal examination. The Interprovincial Standards Red Seal Program acknowledges their competence and ensures recognition of their certification throughout Canada without further examination. There are currently over 50 Red Seal designated trades. The Red Seal Program is recognized as the interprovincial *standard of excellence* in the

skilled trades. The Interprovincial Standards Red Seal Program is a partnership between the Government of Canada, the Provinces, the Territories and various stakeholders.

Sign-off

Signature of the Employer/Sponsor of record, or an individual to whom that Employer or Sponsor has delegated signing authority, ie. Trainer, indicating an Apprentice's achievement of competence.

Skill

Individual skill described in the Training Standard (note: does not mean the larger skill groups referred to in the Training Standard as Skill Sets, Training Units, or General Performance Objectives, but the individual skills that make up those groups).

Skill Sets

Group of individual skills found in the Training Standard (may also be called Training Unit or General Performance Objective).

Skill Set Completion Form (and Learning Outcome Completion Form)

Listing for all skill sets and includes space for sign-off by Trainer and/or Employer/Sponsor of record.

Supervisor

An individual, who oversees the performance of a task and oversees the actions or work of others.

Trade Board

Under the *Ontario College of Trades and Apprenticeship Act, 2009*, the [Appointments Council](#) may appoint a Trade Board for each designated trade, composed of Employee and Employer representatives from the industry. Trade Boards are responsible for advising and making recommendations to the College's Divisional Boards on issues relating to their trade.

Tradespersons Class

Is a Class of Membership for individuals who practice in a voluntary trade which may or may not have a Certificate of Qualification examination.

Individuals in this class:

- Practice voluntary trades where there is Certificate of Qualification exam to become certified as Journeyperson in the trade
- Have been members of the Journeyperson Candidates Class or are not eligible for Journeyperson Candidates Class and have been assessed to have experience and/or qualifications that are equivalent to a Certificate of Apprenticeship in that trade

- Are preparing to write/have no plans to write/have not passed the available Certificate of Qualification exam for their trade(s)
- Can remain in this class indefinitely or until they pass the available Certificate of Qualification exam for their trade(s); and can hold themselves out as tradespersons (they are neither apprentices nor journeypersons)

Note: Individuals in the Tradespersons Class are considered Journeypersons for the purpose of determining ratios for that trade.

Trainer

A qualified trainer in a compulsory trade is a Journeyperson with a Certificate of Qualification or in a voluntary trade is an individual who is considered equivalent to a Journeyperson with a Certificate of Qualification.

RESOURCES

RESOURCE	LINK
Red Seal website	www.red-seal.ca
Ontario College of Trades	www.collegeoftrades.ca
Ministry of Training, Colleges and Universities	www.tcu.gov.on.ca/eng
Employment Ontario	http://www.tcu.gov.on.ca/eng/employmentontario/
Service Canada	http://www.tcu.gov.on.ca/eng/employmentontario/
<i>Ontario College of Trades and Apprenticeship Act, 2009</i>	<i>Ontario College of Trades and Apprenticeship Act, 2009 (html)</i>
Ontario Ministry of Labour – Health and Safety Partners	www.labour.gov.on.ca/english/hs/websites.php
College of Trades Appointments Counsel	http://www.cot-appointments.ca/
Essential Skills Ontario	www.essentialskillsontario.ca
Exam Preparation Guide	http://www.collegeoftrades.ca/wp-content/uploads/ExamPreparationGuide-March2014_EN.pdf

**COMPETENCY ANALYSIS PROFILE
AGRICULTURAL EQUIPMENT TECHNICIAN
ON-THE-JOB TRAINING STANDARDS
(All unshaded skill sets must be demonstrated/completed)**

SKILL SETS

SKILLS

OCCUPATIONAL HEALTH AND SAFETY PROCEDURES 6970.0	Identify and take corrective action against potential workplace health and safety hazards 6970.01	Handle, store and dispose of hazardous workplace materials 6970.02	Wear and maintain personal protective equipment 6970.03	Comply with workplace-related legislation, relating to highway traffic safety, parts, warranties, occupational health/safety, environmental protection and business and trade practices 6970.04	Interpret and apply service-related information 6970.05
Practice good housekeeping in the workplace 6970.06	Comply with Workplace Hazardous Materials Information System (WHMIS) 6970.07				

ELECTRICAL SYSTEMS 6971.0	Perform visual inspection, identifying system types and applications 6971.01	Diagnose and troubleshoot batteries 6971.02	Service and boost/charge batteries 6971.03	Diagnose and troubleshoot starting system and components 6971.04	Repair starting systems and components 6971.05
Verify repair of starting systems and components 6971.06	Diagnose and troubleshoot charging systems and components 6971.07	Repair charging systems and components 6971.08	Verify repair of starting systems and components 6971.09	Diagnose and troubleshoot electrical, electronic and computer-controlled systems and components 6971.10	Repair electrical, electronic and computer-controlled systems and components 6971.11
Verify repair of electrical, electronic and computer-controlled systems and components 6971.12	Diagnose and troubleshoot electrical/electronic ignition systems and components 6971.13	Repair electrical/electronic ignition systems and components 6971.14	Verify repair of electrical/electronic ignition systems and components 6971.15	Diagnose and troubleshoot hybrid drives and components 6971.16	Repair hybrid Drives and components 6971.17
Verify repair of hybrid drives and components 6971.18					

**COMPETENCY ANALYSIS PROFILE
AGRICULTURAL EQUIPMENT TECHNICIAN
ON-THE-JOB TRAINING STANDARDS**

HYDRAULIC SYSTEMS 6972.0	Perform visual inspection, identifying system types and applications 6972.01	Diagnose and troubleshoot mechanical controlled hydraulic systems and components 6972.02	Repair mechanical controlled hydraulic systems and components 6972.03	Verify repair of mechanical controlled hydraulic systems and components 6972.04	Diagnose and troubleshoot electrical and electronic-controlled hydraulic systems and components 6972.05
Repair electrical and electronic-controlled hydraulic systems and components 6972.06	Verify repair of electrical and electronic-controlled hydraulic systems and components 6972.07				

ENGINE SYSTEMS 6973.0	Perform visual inspection, identifying system types and applications 6973.01	Diagnose and troubleshoot cooling systems and components 6973.02	Repair cooling systems and components 6973.03	Verify repair of cooling systems and components 6973.04	Diagnose and troubleshoot engine lubricating systems and components 6973.05
Repair engine lubricating systems and components 6973.06	Verify repair of engine lubricating systems and components 6973.07	Diagnose and troubleshoot cylinder heads and components 6973.08	Repair cylinder heads and components 6973.09	Verify repair of cylinder heads and components 6973.10	Diagnose and troubleshoot engine blocks and components 6973.11
Repair engine blocks and components 6973.12	Verify repair of engine blocks and components 6973.13				

**COMPETENCY ANALYSIS PROFILE
AGRICULTURAL EQUIPMENT TECHNICIAN
ON-THE-JOB TRAINING STANDARDS**

INTAKE, EXHAUST, EMISSION CONTROL AND ENGINE BRAKE SYSTEMS 6974.0	Perform visual inspection, identifying system types and applications 6974.01	Diagnose and troubleshoot intake, exhaust, engine brake systems and components 6974.02	Repair intake, exhaust and engine brake systems 6974.03	Verify intake, exhaust and engine brake systems 6974.04	Diagnose and troubleshoot turbocharger/supercharger systems and components 6974.05
Repair turbocharger/supercharger systems and components 6974.06	Verify repair of turbocharger/supercharger systems and components 6974.07	Diagnose and troubleshoot emission control systems and components 6974.08	Repair emission control systems and components 6974.09	Verify repair of emission control systems and components 6974.10	

MECHANICAL CONTROLLED FUEL SYSTEMS 6975.0	Perform visual inspection, identifying system types and applications 6975.01	Diagnose and troubleshoot gasoline mechanical controlled fuel systems and components 6975.02	Repair gasoline mechanical controlled fuel systems and components 6975.03	Verify repair of gasoline mechanical controlled fuel systems and components 6975.04	Diagnose and troubleshoot mechanical controlled diesel fuel systems and components 6975.05
Repair mechanical controlled diesel fuel systems and components 6975.06	Verify repair of mechanical controlled diesel fuel systems and components 6975.07	Perform mechanical diesel engine tune-ups 6975.08			

ELECTRONIC CONTROLLED FUEL SYSTEMS 6976.0	Perform visual inspection, identifying system types and applications 6976.01	Diagnose and troubleshoot electronic controlled gasoline engine systems and components 6976.02	Repair electronic controlled gasoline engine systems and components 6976.03	Verify repair of electronic controlled gasoline engine systems and components 6976.04	Diagnose and troubleshoot electronic controlled diesel engine systems and components 6976.05
Repair electronic controlled diesel engine systems and components 6976.06	Verify repair of electronic controlled diesel engine systems and components 6976.07	Perform gasoline engine tune-ups 6976.08	Perform electronic diesel engine tune-ups 6976.09		

**COMPETENCY ANALYSIS PROFILE
AGRICULTURAL EQUIPMENT TECHNICIAN
ON-THE-JOB TRAINING STANDARDS**

CLUTCHES AND TRANSMISSIONS 6977.0	Perform visual inspection, identifying system types and applications 6977.01	Diagnose and troubleshoot clutch systems and components 6977.02	Repair clutch systems and components 6977.03	Verify repair of clutch systems and components 6977.04	Diagnose and troubleshoot manual transmissions/ transfer cases and components 6977.05
Repair manual transmissions/ transfer cases and components 6977.06	Verify repair of manual transmissions/ transfer cases and components 6977.07	Diagnose and troubleshoot mechanical controlled power shift transmissions and components 6977.08	Repair mechanical controlled power shift transmissions and components 6977.09	Verify repair of mechanical controlled power shift transmissions and components 6977.10	Diagnose and troubleshoot electrical and electronic controlled power shift continuously variable (CVT) transmissions components 6977.11
Repair electrical and electronic-controlled power shift continuously variable (CVT) transmissions components 6977.12	Verify repair of electrical and electronic controlled power shift continuously variable (CVT) transmissions components 6977.13	Diagnose and troubleshoot hydrostatic transmissions and components 6977.14	Repair hydrostatic transmissions and components 6977.15	Verify repair of hydrostatic transmissions and components 6977.16	
DRIVE AXLE AND FINAL DRIVE ASSEMBLIES 6978.0	Perform visual inspection, identifying system types and applications 6978.01	Diagnose and troubleshoot drive shafts, axles, differentials, final drives and components 6978.02	Repair drive shafts, axles, differentials, final drives and components 6978.03	Verify repair of drive shafts, axles, differentials, final drives and components 6978.04	
STEERING SYSTEMS 6979.0	Perform visual inspection, identifying system types and applications 6979.01	Diagnose and troubleshoot steering systems and components 6979.02	Repair steering systems and components 6979.03	Verify repair of steering systems and components 6979.04	

**COMPETENCY ANALYSIS PROFILE
AGRICULTURAL EQUIPMENT TECHNICIAN
ON-THE-JOB TRAINING STANDARDS**

BRAKING SYSTEMS	Perform visual inspection, identifying system types and applications	Diagnose and troubleshoot braking systems and components	Repair braking systems and components	Verify repair of braking systems and components	
6980.0	6980.01	6980.02	6980.03	6980.04	
AIR SUPPLY AND AUXILIARY AIR SYSTEMS	Perform visual inspection, identifying system types and applications	Diagnose and troubleshoot air supply and auxiliary air systems and components	Repair air supply and auxiliary air systems and components	Verify repair of air supply and auxiliary air systems and components	
6981.0	6981.01	6981.02	6981.03	6981.04	
SUSPENSION SYSTEMS	Perform visual inspection, identifying system types and applications	Diagnose and troubleshoot suspension systems and components	Repair suspension system and components	Verify repair of suspension system and components	
6982.0	6982.01	6982.02	6982.03	6982.04	
TIRES, WHEELS, BALLASTING, UNDERCARRIAGES AND TRACKS	Perform visual inspection, identifying system types and applications	Diagnose and troubleshoot tires, wheels, ballasting and components	Replace tires, wheels, ballasting and components	Verify repair of tires, wheels, ballasting and components	Diagnose and troubleshoot undercarriages and components
6983.0	6983.01	6983.02	6983.03	6983.04	6983.05
Repair undercarriages and components	Verify repair of undercarriages and components				
6983.06	6983.07				

**COMPETENCY ANALYSIS PROFILE
AGRICULTURAL EQUIPMENT TECHNICIAN
ON-THE-JOB TRAINING STANDARDS**

CLIMATE CONTROL SYSTEMS 6984.0	Perform visual inspection, identifying system types and applications 6984.01	Diagnose and troubleshoot heating and ventilation systems and components 6984.02	Repair heating and ventilation systems and components 6984.03	Verify repair of heating and ventilation systems and components 6984.04	Diagnose and troubleshoot air conditioning systems and components 6984.05
Repair air conditioning systems and components 6984.06	Verify repair of air conditioning systems and components 6984.07				
STRUCTURAL COMPONENTS AND ACCESSORIES 6985.0	Perform visual inspection, identifying system types and components 6985.01	Diagnose and troubleshoot structural components and accessories 6985.02	Repair structural components and accessories 6985.03	Verify repair of structural components and accessories 6985.04	
AGRICULTURAL IMPLEMENTS – TILLAGE AND PLANTING 6986.0	Perform visual inspection, identifying system types and applications 6986.01	Diagnose and troubleshoot tillage, planting equipment and components 6986.02	Repair tillage, planting equipment and components 6986.03	Verify repair of tillage, planting equipment and components 6986.04	
AGRICULTURAL IMPLEMENTS – HARVESTING 6987.0	Perform visual inspection, identifying system types and applications 6987.01	Diagnose and troubleshoot harvesting equipment and components 6987.02	Repair harvesting equipment and components 6987.03	Verify repair of harvesting equipment and components 6987.04	

**COMPETENCY ANALYSIS PROFILE
AGRICULTURAL EQUIPMENT TECHNICIAN
ON-THE-JOB TRAINING STANDARDS**

AGRICULTURAL IMPLEMENTS – SPRAYING, IRRIGATION AND DISTRIBUTION EQUIPMENT 6988.0	Perform visual inspection, identifying system types and applications 6988.01	Diagnose and troubleshoot spraying, irrigation, distribution equipment and components 6988.02	Repair spraying, irrigation, distribution equipment and components 6988.03	Verify repair of spraying, irrigation, distribution equipment and components 6988.04	
AGRICULTURAL IMPLEMENTS – MATERIAL HANDLING EQUIPMENT 6989.0	Perform visual inspection, identifying system types and applications 6989.01	Diagnose and troubleshoot material handling equipment and components 6989.02	Repair material handling equipment and components 6989.03	Verify repair of material handling equipment and components 6989.04	
PRECISION AGRICULTURAL SYSTEMS 6990.0	Perform visual inspection, identifying system types and applications 6990.01	Diagnose and troubleshoot precision agricultural systems and components 6990.02	Repair precision agricultural systems and components 6990.03	Verify repair of precision agricultural systems and components 6990.04	

NOTE ON SHADED PERFORMANCE OBJECTIVES AND SKILLS

Shaded performance objectives and skills are optional, that is, they do not have to be completed or signed-off for the apprentice to complete his or her apprenticeship

You will be required to disclose this signed form to the Ministry of Training, Colleges and Universities in order to complete your program. The Ministry will use your personal information to administer and finance Ontario’s apprenticeship training system.

For further information please see the notice/declaration for collection of personal information that is referenced in the table of contents of this training standard.

FINAL SKILL SET COMPLETION FORM FOR EMPLOYER/SPONSOR

Please fill out the both sides of form and submit to your MTCU Local Apprenticeship Office.

SKILL SETS	TITLE	SIGNING AUTHORITY
U6970.0	Occupational Health and Safety Procedures	
U6971.0	Electrical Systems	
U6972.0	Hydraulic Systems	
U6973.0	Engine Systems	
U6974.0	Intake, Exhaust, Emission Control Systems and Engine Brake Systems	
U6975.0	Mechanical Controlled Fuel Systems	
U6976.0	Electronic Controlled Fuel Systems	
U6977.0	Clutches and Transmissions	
U6978.0	Drive Axle and Final Drive Assemblies	
U6979.0	Steering Systems	
U6980.0	Braking Systems	
U6981.0	Air Supply and Auxiliary Air Systems	
U6982.0	Suspension Systems	
U6983.0	Tires, Wheels, Ballasting, Undercarriages and Tracks	
U6984.0	Climate Control Systems	
U6985.0	Structural Components and Accessories	
U6986.0	Agricultural Implements – Tillage and Planting	
U6987.0	Agricultural Implements – Harvesting	
U6988.0	Agricultural Implements – Spraying, Irrigation and Distribution Equipment	
U6989.0	Agricultural Implements – Material Handling Equipment	
U6990.0	Precision Agricultural Systems	

The Trainer and Apprentice are required to sign off and date the skills after the Apprentice has proven competence in those skills. However, if a skill is shaded, it is optional and does not need to be signed-off.

APPRENTICE COMPLETION FORM

APPRENTICE NAME	
Print	
Signature	
Client ID	

Skill Sets and Learning Outcomes when completed should be signed by the Supervisor/Trainer and presented with this completion form to your Ministry Local Apprenticeship Office. Any supporting documentation should also be attached.

In-school Completed Yes () No () Not applicable ()
 (Proof to be provided)

Hours completed as
 Per Contract: Yes () No () Not applicable ()

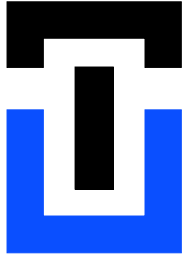
EMPLOYER/SPONSOR INFORMATION	
Name	
Address	
Telephone	
E-mail Address	
Signature of Signing Authority	

MTCU USE ONLY:

Recommended for Exam: Yes () No ()

Signature

Consultant/ Office Code



ONTARIO COLLEGE OF TRADES

ORDRE DES MÉTIERS DE L'ONTARIO

[www.collegeoftrades.ca/membership/
resources/training-standards](http://www.collegeoftrades.ca/membership/resources/training-standards)