



ONTARIO COLLEGE OF TRADES

ORDRE DES MÉTIERS DE L'ONTARIO

Apprenticeship
Training Standard
Log Book

Industrial Mechanic
(Millwright)

433A

2010



ONTARIO COLLEGE OF TRADES
ORDRE DES MÉTIERS DE L'ONTARIO

Apprentice Name: _____

Address: _____

Phone Number: _____

Email Address: _____

Trade: _____

Ministry of Training, Colleges and Universities Registered Training Agreement #:

OCOT Membership #:

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

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: collegeoftrades.ca

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Any updates to this publication are available on-line; to download this document in PDF format, please follow the link: collegeoftrades.ca.

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TERMS AND CONDITIONS AS PER REGISTERED TRAINING AGREEMENT

The Apprentice agrees:

- to inform the Ministry of Training, Colleges and Universities of any change to their contact information or change in sponsor within 7 days;
- to follow the Sponsor’s and Trainer’s lawful instructions and make every effort to acquire the skills identified in the Apprentice Training Standard Log Book (Log Book) for the Trade which is part of the apprenticeship program established by the Ontario College of Trades for the trade;
- to obtain written verification from the Sponsor and the Trainer(s) that the requirements in the Log Book for the trade have been met.

The Sponsor agrees:

- to ensure that the Apprentice is provided with the training required as part of the apprenticeship program established by the College of Trades for this trade;
- to ensure that the Trainer(s) verifies, in writing, when each skill identified in the Log Book for the trade has been successfully completed by the Apprentice;
- to review the progress of training with the Apprentice, and with the Trainer(s) where the Sponsor and the Trainer are not the same party.

RESOURCE	LINK
Red Seal Program	red-seal.ca
Ministry of Training, Colleges and Universities	tcu.gov.on.ca
Employment Ontario	tcu.gov.on.ca/eng/employmentontario.ca
Service Canada	servicecanada.gc.ca
Ontario College of Trades and Apprenticeship Act, 2009	<i>Ontario College of Trades and Apprenticeship Act, 2009</i>
Ontario Ministry of Labour – Health and Safety Partners	labour.gov.on.ca
College of Trades Appointments Council	cot-appointments.ca
Essential Skills Ontario	essentialskillsontario.ca
Exam Preparation Guide	collegeoftrades.ca

INTRODUCTION TO THE LOG BOOK

On April 8th, 2013, the Ontario College of Trades (College) became responsible for the development and maintenance of Log Books in the Province of Ontario.

Please refer to the College of Trades website for the most accurate and up-to-date information: collegeoftrades.ca

This Log Book 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.

The Log Book 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 each skill after the Apprentice has proven competence in these skills. However, if a skill is shaded, it is optional and does not need to be signed off.

This on-the-job Log Book is a document issued to Apprentices who sign a Registered Training Agreement in the Province of Ontario. It is designed to record an Apprentice's acquired skills and time worked for the trade to which they are registered. This Log Book is developed by the Ontario College of Trades and used by the Ministry of Training, Colleges and Universities.

This Apprenticeship Training Standard for Industrial Mechanic (Millwright) 433A was developed in consultation with representatives from industry and may include members from a related Trade Board/Working Committees.

The information presented in this standard is, to the best of our knowledge, current at time of printing and is intended for general application.

ROLES AND RESPONSIBILITIES

Ontario College of Trades

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

- Establishing and maintaining qualifications for membership;
- Issuing Certificates of Qualification 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;
- Determining Journeyman-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 of Trades directly at: (647) 847-3000 or toll free at: 1(855) 299-0028.

Ministry of Training, Colleges and Universities

Is responsible for:

- Registering Training Agreements;
- Approving which persons may provide apprenticeship training;
- Approving Training Delivery Agents;
- Issuing Certificates of Apprenticeship;
- Administering Certificate of Qualification examinations;
- Promoting skilled trades and apprenticeship;
- Conducting policy development, evaluation and research; and,
- Passing regulations.

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

Roles and Responsibilities of the Apprentice

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

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

Roles and Responsibilities of Sponsors and Trainers

Log Books identify the on-the-job skills required for a trade and its related training program.

This Log Book 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.

By using this Log Book, Trainers will be able to ensure that the Apprentice is developing skills detailed for the trade.

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

The detailed content listed for each skill is not intended to represent an inclusive list; rather, it is included to illustrate the intended direction for the skill acquisition.

The Trainer must provide their signature based on their assessment and professional judgment that the apprentice is competent in the skills described above. The Trainer's signature is not a general warranty or guarantee of the apprentice's future conduct.

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.

SAFETY

Safe working procedures and conditions, accident prevention and the preservation of health are of primary importance for apprenticeship programs in Ontario. These responsibilities are shared and require the joint efforts of government, sponsors, employers, employees and the public.

Therefore, it is imperative that all parties become aware of circumstances that may lead to injury or harm. Safe learning experiences and environments can be created by controlling the variables and behaviours that may contribute to or cause an accident or injury.

It is generally recognized that a safe attitude contributes to an accident free environment. Everyone will benefit as a result of a healthy attitude towards prevention of accidents.

A tradesperson is possibly exposed to more hazards than any other person in the work force and, therefore, should be familiar with and apply Occupational Health and Safety Act and Regulations dealing with personal safety and the personal safety rules applying to each task.

Legal and Administrative Aspects of Safety:

Accident prevention and the provisions of safe working conditions are the responsibilities of an employer and employee.

Employer's Responsibilities - The employer is responsible for:

- Providing and maintaining safety equipment and protective devices;
- Ensuring proper safe work clothing is worn;
- Enforcing safe working procedures;
- Providing safeguards for machinery, equipment and tools;
- Observing all accident prevention regulations; and,
- Training employees in the safe use and operation of equipment.

Employee's Responsibilities - The employee is responsible for:

- Working in accordance with the safety regulations pertaining to the job environment;
- Working in such a way as not to endanger themselves or fellow employees and the public.

Workplace Health and Safety's Responsibilities:

- Workplace Health and Safety (Ontario's Ministry of Labour) will conduct periodic inspections of the workplace to ensure that safety regulations for industry are being observed.

APPRENTICESHIP PROGRAM SUMMARY/GUIDELINES

Scope of Practice

The Scope of Practice for the trade of Industrial Mechanic (Millwright) is set out in section 21 of Ontario Regulation 276/11 under OCTAA and reads as follows:

The scope of practice for the trade of industrial mechanic millwright includes installing, troubleshooting, maintaining and repairing industrial mechanical machinery and equipment. O. Reg. 276/11, s. 21.

While the Training Standard draws on the scope of practice regulation (Section 21 of Ontario Regulation 276/11 under OCTAA). The Training Standard does not purport to add to or modify the scope of practice as provided in regulation.

Program Guidelines

On-the-Job Training Duration

Industry has identified 7280 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.

Classroom 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.

Journeyman to Apprentice Ratio

While some of the trades regulated under OCTAA are subject to Journeyman to Apprentice ratios (ratios) set out in regulation, this trade is not one of them. Instead, industry has recommended a Journeyman to Apprentice ratio guideline of 1Journeyman (or individuals who are deemed equivalent to a journeyman status) to 1Apprentices as the ratio necessary for an apprentice to be properly trained on the job in this program.

Compulsory and Voluntary Classification

Regulations under OCTAA set out the regulated trades in Ontario and the classification of each trade as either “compulsory” or “voluntary.” The trade of Industrial Mechanic (Millwright) is voluntary.

Eligibility for Apprenticeship Program Completion

The Apprentice must:

- Achieve competency in all mandatory (unshaded) skills as identified in the Log Book
- Complete the in-school training as outlined in the industry and Ministry of Training, Colleges and Universities 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 Log Book. The Sponsor and Trainer are required to sign-off when competencies in the trade are achieved.

ESSENTIAL SKILLS SUMMARY

Essential skills are needed for work, learning and life. They provide the foundation for learning all other skills and enable people to evolve with their jobs and adapt to workplace change. Through extensive research, the Government of Canada and other national and international agencies have identified and validated nine essential skills. These skills are used in nearly every occupation and throughout daily life in different ways.

A series of tools endorsed by the Canadian Council of Directors of Apprenticeship (CCDA) have been developed to support apprentices in their training and to be better prepared for a career in the trades. The tools can be used independently or with the assistance of a tradesperson, trainer, employer, teacher or mentor to:

- Understand how essential skills are used in the trades;
- Learn about individual essential skills strengths and areas for improvement, and,
- Improve essential skills and increase success in an apprenticeship program.

A link to the complete essential skills profile for Red Seal trades can be found at red-seal.ca.

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 Log Book as a journal to keep track of the skills you have achieved;
- Listen to the suggestions of your Trainer;
- Discuss your training needs with your Sponsor;
- Review your training plan with your Training Consultant, Trainer, or Sponsor;
- Ask your Trainer questions if you are 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; and,
- Upon demonstration of competency, ensure that you and your Trainer sign-off the individual skills. Once a 'set of skills' have been signed off, ensure your Sponsor signs off this area as well.

Sponsor

Sponsors are responsible for ensuring all terms are met as per the Registered Training Agreement. They are named on the Registered Training Agreement as the entity 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 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 to demonstrate skills to the apprentice;
- Provide opportunities and time for the Apprentice to learn the trade;
- Ensure that the Apprentice receives the varied on-the-job trade training experience outlined in this document;
- Set out clear expectations, and recognize good performance;
- Involve both the Apprentice and Trainer in developing the training plan and observe frequently;
- Provide constructive feedback and conduct regular performance reviews involving the Apprentice and Trainer;
- Use the Log Book as a monitoring tool and a part of regular performance evaluations; and,
- 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 and be a member of the College of Trades Journeypersons Class.

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

- A valid Certificate of Qualification and is a member of the College of Trades Journeypersons Class; or,
- Holds a Statement of Membership in the College of Trades Tradespersons Class; or,
- Holds a Certificate of Qualification previously issued by Ministry of Training, Colleges and Universities; 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 Log Book.

A classroom instructor is not permitted to sign-off the skills contained within this Log Book.

Tips for Trainers

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

- Demonstrate model safe work habits;
- Provide opportunities and time for the Apprentice to learn the trade;
- Treat Apprentices fairly and with respect;
- Review the Log Book with the Apprentice and develop a training plan;
- Set out clear expectations and recognize good performance;
- Ensure that the Apprentice receives 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, and,
- Use the Log Book as a guide to evaluate competence in each skill area. By using the Log Book, 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 Log Book to the Ministry of Training, Colleges and Universities. You will be required to submit the signed Apprenticeship Completion form to the Ministry of Training, Colleges and Universities in order to complete your program. The Ministry of Training, Colleges and Universities 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 Ministry of Training, Colleges and Universities 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 of Trades 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.

**COMPETENCY ANALYSIS PROFILE
Industrial Mechanic (Millwright) – 433A**

(All unshaded skill sets must be demonstrated/completed.)

SKILL SETS

SKILLS

PROTECT SELF AND OTHERS U4600.0	Practise safe work habits 4600.01	Apply machinery and equipment lockout and de-energizing procedures 4600.02	Wear, adjust, and maintain personal protective equipment and clothing 4600.03	Comply with established confined space safety procedures 4600.04	Follow company procedures for applying first aid 4600.05
	Apply fire-prevention techniques 4600.06	Perform all work in compliance with company safety and housekeeping standards 4600.07			

COMMUNICATE U4601.0	Communicate with fellow workers, company representatives, and other trades 4601.01	Write maintenance and job-specific technical reports 4601.02			
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USE DRAWINGS AND SCHEMATICS U4602.0	Use engineering, machine, and component drawings and symbols 4602.01	Draw or sketch assembly and component parts 4602.02	Use reports and technical and manufacturers' manuals 4602.03	Use schematics and diagrams 4602.04	
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INDUSTRIAL MECHANIC (MILLWRIGHT)

USE HAND AND POWER TOOLS U4603.0	Use fastening tools	Use hand tools	Use metal cutting tools	Use measurement tools	Use portable power tools
	4603.01	4603.02	4603.03	4603.04	4603.05
	Use impact tools and/or powder-actuated tools				
	4603.06				

USE MACHINE TOOLS U4604.0	Use feed, speed, thread cutting, drill, and tap chart information and specifications	Apply specific trade calculations and formulas	Operate pedestal or radial drilling machines	Operate cut-off and band saws	Perform lathe operations
	4604.01	4604.02	4604.03	4604.04	4604.05
	Perform milling operations	Use machine tool accessories	Operate fabrication equipment		
	4604.06	4604.07	4604.08		

USE PRECISION MEASURING EQUIPMENT U4605.0	Use internal and external micrometers	Use verniers	Use precision alignment instruments	Use precision measuring devices	Use measuring and testing instruments and equipment
	4605.01	4605.02	4605.03	4605.04	4605.05
	Use bench marks and turning points				
	4605.06				

INDUSTRIAL MECHANIC (MILLWRIGHT)

USE MATERIALS AND FASTENERS	Use ferrous, non-ferrous, and specialty alloy materials	Use non-metallic materials	Apply the screw thread system	Install fastening devices	
U4606.0	4606.01	4606.02	4606.03	4606.04	

APPLY LUBRICANTS	Identify the characteristics and composition of lubricants	Apply oils and greases	Apply special-purpose lubricants	Install, maintain, and repair machinery and plant lubrication systems	Handle and store all lubricants and greases
U4607.0	4607.01	4607.02	4607.03	4607.04	4607.05

RIG AND HOIST	Plan lifts	Use rigging and hoisting equipment	Inspect rigging and hoisting equipment	Use standard hand signals and/or radio signal procedures	Use manual or power hoisting equipment
U4608.0	4608.01	4608.02	4608.03	4608.04	4608.05

INSTALL AND MAINTAIN MATERIAL-HANDLING SYSTEMS	Install, align, and maintain conveyor systems	Install and maintain conveyor components	Splice conveyor belts	Inspect tracking at idlers and pulleys	Inspect and maintain overhead cranes and hoists and monorail systems
U4609.0	4609.01	4609.02	4609.03	4609.04	4609.05
	Install and maintain material-handling valves	Install and maintain material-handling piping and duct work			
	4609.06	4609.07			

INDUSTRIAL MECHANIC (MILLWRIGHT)

INSTALL AND MAINTAIN POWER TRANSMISSION SYSTEMS U4610.0	Calculate gear ratios, horsepower requirements, and final speeds	Install, align, and maintain power transmission belts	Install, align and maintain power transmission components	Install, align, and maintain couplings	Install and maintain keys, splines, bushes, and tapered bushings
	4610.01	4610.02	4610.03	4610.04	4610.05

INSTALL AND MAINTAIN COMPRESSORS U4611.0	Install and maintain rotary and reciprocating compressors	Install and maintain primary filters and coolers	Install and maintain separators and receivers	Install, maintain, and repair unloading, distribution, and lube systems	Install, maintain, and inspect dryers and coolers
	4611.01	4611.02	4611.03	4611.04	4611.05

INSTALL AND MAINTAIN PUMPS U4612.0	Install and maintain hydrodynamic pumps	Install, maintain, and replace hydrodynamic pump components	Install, maintain, and repair hydrostatic pumps	Inspect, maintain, and replace hydrostatic pump components	
	4612.01	4612.02	4612.03	4612.04	

INSTALL, COMMISSION, AND MAINTAIN PRIME MOVERS AND MACHINERY U4613.0	Lay out and prepare base or foundation	Install prime movers	Level and align machinery	Secure machinery	Conduct final checks on prime movers and machinery
	4613.01	4613.02	4613.03	4613.04	4613.05
	Start up and run-in prime mover and ancillary equipment	Record footprint/signature of machinery	Maintain and repair prime movers		
	4613.06	4613.07	4613.08		

INDUSTRIAL MECHANIC (MILLWRIGHT)

WELD, BRAZE, AND SOLDER U4614.0	Prepare for welding 4614.01	Set up and operate electric arc welding equipment 4614.02	Set up and operate gas welding, coating and cutting equipment 4614.03	Apply welding symbols and instructions 4614.04	Fabricate materials 4614.05
	Heat-treat and stress-relieve metal and alloys 4614.06				

INSTALL AND MAINTAIN BEARINGS, SEALS, AND PACKING U4615.0	Install and maintain plain and journal bearings 4615.01	Install and maintain bearing housings 4615.02	Install and maintain bearings 4615.03	Inspect bearings 4615.04	Install static, dynamic, and rotary seals 4615.05
	Apply chemical sealants 4615.06	Install and remove packing 4615.07			

INSTALL AND MAINTAIN FANS AND BLOWERS U4616.0	Install and maintain single- and multi-stage fan and blower systems 4616.01	Maintain and troubleshoot single- and multi-stage fan and blower components 4616.02	Troubleshoot and balance airflow in the system 4616.03	Troubleshoot, inspect and replace worn or defective controls 4616.04	

INDUSTRIAL MECHANIC (MILLWRIGHT)

INSTALL AND MAINTAIN FLUID POWER SYSTEMS U4617.0	Apply fluid power formulas and principles 4617.01	Install and maintain control valves 4617.02	Install and maintain regulators 4617.03	Select and replace fluids 4617.04	Install, start up, maintain, and repair power units and associated fluid power circuitry 4617.05
	Install and maintain filters, strainers, and related contamination-control equipment 4617.06	Lay out, install, and maintain fluid conductors 4617.07	Install and maintain linear and rotary actuators 4617.08	Set up and adjust variable proportional control valves 4617.09	Set up, maintain, and adjust logic servo-proportional control systems 4617.10
	Troubleshoot fluid power systems 4617.11				

PERFORM PREVENTIVE AND PREDICTIVE MAINTENANCE U4618.0	Use and maintain fixed and portable vibration and balancing equipment 4618.01	Select and use various types of non-destructive test equipment 4618.02	Use computer and maintenance software packages 4618.03	Use and maintain noise-monitoring instruments 4618.04	Use and maintain temperature, pressure, and fibre optic monitoring instruments 4618.05
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U4600.0 PROTECT SELF AND OTHERS

GENERAL PERFORMANCE OBJECTIVE

Protect self and others by practicing safe work habits; applying machinery and equipment lockout and de-energizing procedures; wearing, adjusting, and maintaining personal protective equipment and clothing; complying with established confined space safety procedures; following company procedures for applying first aid; demonstrating awareness of fire-prevention techniques; and performing all work in compliance with company safety and housekeeping standards.

SKILLS

4600.01 Practise safe work habits by installing, troubleshooting, and maintaining industrial equipment; ensuring compliance with all applicable safety legislation; and applying correct body mechanics when bending, lifting, or moving heavy loads, in accordance with government regulations and company policy.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

◇ A Trainer may be a Supervisor or the competent employee designated by the Apprentice's Sponsor

4600.02 Apply machinery and equipment lockout and de-energizing procedures to mechanical, electrical, hydraulic, and pneumatic systems before commencing maintenance and overhaul procedures, in accordance with government regulations and company policy.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

4600.03 **Wear, adjust, and maintain personal protective equipment and clothing**, including eye, ear, hand, and foot protection to ensure correct fit and optimum protection, in accordance with government regulations and company policy.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

4600.04 **Comply with established confined space safety procedures**, such as the use of breathing apparatus, before commencing and during work, in accordance with government regulations and company policy.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

4600.05 **Follow company procedures for applying first aid** to self and others, and seek immediate assistance in emergency situations, in accordance with government regulations and company policy.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

4600.06 **Apply fire-prevention techniques** by assessing the potential for fire posed by the work performed and obtaining the required fire-prevention and firefighting equipment, in accordance with government regulations and company policy.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

4600.07 Perform all work in compliance with company safety and housekeeping standards including the use of protective barriers and guards, and report all accidents and hazards to ensure the safety of self and others.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

SPONSOR SIGN-OFF FOR U4600: PROTECT SELF AND OTHERS		
Date Completed (mm/dd/yy)	Sponsor Name (Print)	Sponsor Signature

U4601.0 COMMUNICATE

GENERAL PERFORMANCE OBJECTIVE

Communicate in the workplace by liaising and communicating with fellow workers, company representatives, and other trades; and writing overall maintenance and job-specific technical reports.

SKILLS

4601.01 Communicate with fellow workers, company representatives, and other trades to convey information and promote trade competency.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

◇ A Trainer may be a Supervisor or the competent employee designated by the Apprentice's Sponsor

4601.02 Write maintenance and job-specific technical reports, in accordance with company policies and job requirements.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

SPONSOR SIGN-OFF FOR U4601: COMMUNICATE		
Date Completed (mm/dd/yy)	Sponsor Name (Print)	Sponsor Signature

U4602.0 USE DRAWINGS AND SCHEMATICS

GENERAL PERFORMANCE OBJECTIVE

Use drawings and schematics by reading and interpreting engineering, machine, and component drawings and symbols; drawing or sketching assembly and component parts; reading and interpreting reports and technical and manufacturers' manuals; and reading and interpreting schematics and diagrams.

SKILLS

4602.01 Use engineering, machine, and component drawings and symbols when overhauling and assembling machinery and equipment, ensuring compliance with industry standards and specifications.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

◇ A Trainer may be a Supervisor or the competent employee designated by the Apprentice's Sponsor

4602.02 Draw or sketch assembly and component parts using orthographic, isometric and sectional views; using equipment or techniques, such as free hand, drafting tables, or computer-aided drafting; and adhering to relevant dimensions and notes, so that sketches or drawings can be used for production of parts by competent tradespersons.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

4602.03 Use reports and technical and manufacturers' manuals when overhauling machinery and updating equipment, in accordance with industry standards and company policy.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

4602.04 Use schematics and diagrams when assembling, maintaining, repairing, and troubleshooting fluid power systems to specifications.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

SPONSOR SIGN-OFF FOR U4602: USE DRAWINGS AND SCHEMATICS

Date Completed (mm/dd/yy)	Sponsor Name (Print)	Sponsor Signature

U4603.0 USE HAND AND POWER TOOLS

GENERAL PERFORMANCE OBJECTIVE

Use hand and power tools including selecting, maintaining, and using fastening tools, hand tools, metal cutting tools, measurement tools, portable power tools, and impact tools and/or powder-actuated tools.

SKILLS

4603.01 Use fastening tools such as sockets, spanners, wrenches, torque multipliers, and manual and/or hydraulic torque wrenches, in installing, maintaining, and repairing machinery; by adhering to established bolt-tightening sequences, and maintain them at a functional condition in accordance with manufacturers’ specifications, torque and tensioning charts, and company policy.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice’s College of Trades ID

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4603.02 Use hand tools such as screwdrivers, chisels, hammers, punches, pliers, levers, scrapers, and pry bars, in a safe and efficient manner when installing, maintaining, and repairing machinery, and maintain them at a functional condition in accordance with manufacturers’ specifications and company policy.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice’s College of Trades ID

4603.03 Use metal cutting tools such as files, hand saws, drills, power sanders and chippers, reamers, taps, tapping chucks, dies, and snips, to manufacture and shape components, and maintain them at a functional condition in accordance with manufacturers’ specifications and company policy.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice’s College of Trades ID

4603.04 Use measurement tools such as tapes, rules, plumb bobs, and squares when measuring and aligning components, and maintain them at a functional condition in accordance with manufacturers’ specifications and company policy.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice’s College of Trades ID

4603.05 Use portable power tools such as shears, magnetic base drills, grinders, and hand millers, and maintain them at a functional condition in accordance with manufacturers’ specifications and company policy.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice’s College of Trades ID

4603.06 Use impact tools and/or powder-actuated tools safely and efficiently, and maintain them at a functional condition in accordance with manufacturers’ specifications, company policy and government legislation.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice’s College of Trades ID

SPONSOR SIGN-OFF FOR U4603: USE HAND AND POWER TOOLS

Date Completed (mm/dd/yy)	Sponsor Name (Print)	Sponsor Signature

U4604.0 USE MACHINE TOOLS

GENERAL PERFORMANCE OBJECTIVE

Use machine tools by setting them up; reading and applying feed, speed, thread cutting, drill, and tap chart information and specifications; applying specific trade calculations and formulas; setting up and operating pedestal or radial drilling machines; setting up and operating cut-off and band saws; setting up and performing lathe operations; setting up and performing milling operations; setting up and operating machine tool accessories; and setting up and operating fabrication equipment.

SKILLS

4604.01 Use feed, speed, thread cutting, and drill and tap chart information and specifications to set machine tool controls for a variety of machine tool operations, and calculate and apply imperial/metric conversions as required.

(mm/dd/yy)	Trainer Print Name	Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

♦ A Trainer may be a Supervisor or the competent employee designated by the Apprentice's Sponsor

4604.02 Apply specific trade calculations and formulas when machining, fitting, setting up, laying out, aligning, and establishing gear ratios, ensuring compliance with engineering drawings and manufacturers' specifications.

(mm/dd/yy)	Trainer Print Name	Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

4604.03 Operate pedestal or radial drilling machines using such equipment as clamps, vices, jigs, and angle plates to drill, ream, tap, countersink, and bore by setting up machines and using high-speed steel (H.S.S.) and carbide drills and reamers to job specifications.

(mm/dd/yy)	Trainer Print Name	Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

4604.04 Operate cut-off and band saws using material-specific blades, feeds, speeds, and coolants, by setting up and using band saws in accordance with drawing specifications and company policy.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

4604.05 Perform lathe operations, such as turning, boring, facing, threading, cutting tapers, knurling, grinding, and forming, by setting up lathe and cutting using high-speed steel (H.S.S.) and carbide tool bits, and by machining to within plus or minus 0.002" or within prescribed tolerances and specifications.

(mm/dd/yy)	Trainer (Print Name)	◇Trainer (Signature)
(mm/dd/yy)	Apprentice (Signature)	Apprentice's College of Trades ID

4604.06 Perform milling operations, such as slotting, facing, boring, and cutting keyways, by setting up machine and using high-speed steel (H.S.S.) and carbide tool bits, and by machining to within plus or minus 0.002" or within prescribed tolerances and specifications.

(mm/dd/yy)	Trainer (Print Name)	◇Trainer (Signature)
(mm/dd/yy)	Apprentice (Signature)	Apprentice's College of Trades ID

4604.07 Use machine tool accessories, such as dividing heads, taper turning attachments, three- and four-jaw chucks, magnetic chucks, faceplates, surface grinders, wheel dressing attachments, and drill and tool sharpening attachments, by setting them up and operating them in accordance with drawing specifications and company policy.

(mm/dd/yy)	Trainer (Print Name)	◇Trainer (Signature)
(mm/dd/yy)	Apprentice (Signature)	Apprentice's College of Trades ID

4604.08 Operate fabrication equipment, such as presses (e.g., brakes, benders, ironworkers, shears, power rolls, and punches) by setting them up and using them in accordance with drawings specifications and company policy.

(mm/dd/yy)	Trainer (Print Name)	◇Trainer (Signature)
(mm/dd/yy)	Apprentice (Signature)	Apprentice's College of Trades ID

SPONSOR SIGN-OFF FOR U4604: USE MACHINE TOOLS

Date Completed (mm/dd/yy)	Sponsor Name (Print)	Sponsor Signature
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U4605.0 USE PRECISION MEASURING EQUIPMENT

GENERAL PERFORMANCE OBJECTIVE

Use precision measuring equipment by using and maintaining internal and external micrometers; using and maintaining verniers; using and maintaining precision alignment instruments; using and maintaining other precision measuring devices; using measuring and testing instruments and equipment; and defining bench marks and turning points.

SKILLS

4605.01 Use internal and external micrometers by making minor adjustments and calibrations, taking linear measurements and reading measurements in imperial and metric accurately to within plus or minus 0.0005" or the metric equivalent.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

◇ A Trainer may be a Supervisor or the competent employee designated by the Apprentice's Sponsor

4605.02 Use verniers by making minor adjustments, taking inside and outside measurements to an accuracy of plus or minus 0.001", transferring linear measurements using vernier caliper and vernier height gauges to an accuracy of plus or minus 0.001", and reading calipers to an accuracy of plus or minus 0.001".

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

4605.03 Use precision alignment instruments, such as laser, dial indicators, and precision and optical levels, to align machinery and component couplings to prescribed tolerances.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

4605.04 Use precision measuring devices, such as V-blocks, gauge blocks, and surface and angle plates, for laying out, solving angles, verifying accuracy, and comparing and transferring measurements according to industry standards.

(mm/dd/yy)	Trainer (Print Name)	◇Trainer (Signature)
(mm/dd/yy)	Apprentice (Signature)	Apprentice's College of Trades ID

4605.05 Use measuring and testing instruments and equipment, such as voltmeters, ammeters, and megameters, according to standards of diagnostic inspection of control systems.

(mm/dd/yy)	Trainer (Print Name)	◇Trainer (Signature)
(mm/dd/yy)	Apprentice (Signature)	Apprentice's College of Trades ID

4605.06 Use bench marks and turning points when using rods, tapes, and precision scales, applying transits for transferring lines and turning angles, such as horizontal and vertical, to industry specifications in degrees, minutes, and seconds.

(mm/dd/yy)	Trainer (Print Name)	◇Trainer (Signature)
(mm/dd/yy)	Apprentice (Signature)	Apprentice's College of Trades ID

SPONSOR SIGN-OFF FOR U4605: USE PRECISION MEASURING EQUIPMENT

Date Completed (mm/dd/yy)	Sponsor Name (Print)	Sponsor Signature
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U4606.0 USE MATERIALS AND FASTENERS

GENERAL PERFORMANCE OBJECTIVE

Use materials and fasteners by using ferrous, non-ferrous, and specialty alloy materials; non-metallic materials; applying the screw thread system; and installing fastening devices in accordance with manufacturers' specifications and industry standards.

SKILLS

4606.01 Use ferrous, non-ferrous, and specialty alloy materials, including stainless steel, in the manufacture of engineering components from drawings and sketches.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

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4606.02 Use non-metallic materials, such as nylon, rubber and plastic to manufacture components from drawings and sketches by using specialized tools to lay out, cut, or machine non-metallic materials to manufacturers’ specifications.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice’s College of Trades ID

4606.03 Apply the screw thread system by selecting from Unified, American, National, Acme, Metric, and Pipe thread systems; single or multi start; and left or right hand, in accordance with manufacturers’ specifications.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice’s College of Trades ID

4606.04 Install fastening devices, such as bolts, nuts, screws, dowels, rivets, circlips, and chemical fasteners, in accordance with manufacturers’ specifications, drawings, and company policy.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice’s College of Trades ID

SPONSOR SIGN-OFF FOR U4606: USE MATERIALS AND FASTENERS

Date Completed (mm/dd/yy)	Sponsor Name (Print)	Sponsor Signature

U4607.0 APPLY LUBRICANTS

GENERAL PERFORMANCE OBJECTIVE

Apply lubricants and greases for specific applications by identifying the characteristics and composition of various lubricants; selecting and using specific oils and greases; identifying, selecting, and using special-purpose lubricants; installing, maintaining, and repairing machinery and plant lubrication systems; and handling and storing all lubricants and greases in accordance with manufacturers’ specifications and industry standards.

SKILLS

4607.01 Identify the characteristics and composition of lubricants from charts and standards, and apply to specific applications and conditions, in compliance with manufacturers’ recommendations.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice’s College of Trades ID

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4607.02 Apply oils and greases to reduce friction and wear, cool moving parts, prevent corrosion, and seal out dirt and other contaminants, in accordance with manufacturers’ specifications.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice’s College of Trades ID

4607.03 Apply special-purpose lubricants for extremely high or low temperature applications, extreme pressure (E.P.) applications, and high-load applications, in accordance with manufacturers’ specifications.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice’s College of Trades ID

4607.04 **Install, maintain, and repair machinery and plant lubrication systems**, such as pumps, flow indicators, spray valves, and metering and dispensing equipment, and lay out all piping and fittings, in accordance with drawings and manufacturers’ specifications.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice’s College of Trades ID

4607.05 **Handle and store all lubricants and greases** in compliance with safety and environmental legislation and according to company policy.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice’s College of Trades ID

SPONSOR SIGN-OFF FOR U4607: APPLY LUBRICANTS

Date Completed (mm/dd/yy)	Sponsor Name (Print)	Sponsor Signature

U4608.0 RIG AND HOIST

GENERAL PERFORMANCE OBJECTIVE

Rig and hoist by planning lifts; selecting and using rigging and hoisting equipment; inspecting and maintaining all rigging and hoisting equipment; demonstrating standard hand signals and radio signal procedures; and using manual or power hoisting equipment.

SKILLS

4608.01 **Plan lifts** by assessing load characteristics, such as size and shape, determining load weight and centre of gravity, and removing obstacles and dangers when using load charts in accordance with government regulations, rigging manuals, manufacturers’ specifications, and company policy.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

◇ A Trainer may be a Supervisor or the competent employee designated by the Apprentice's Sponsor

4608.02 Use rigging and hoisting equipment, such as ropes (fibre and wire), slings, thimbles, shackles, spreader bars, chains, hooks, hoists, rope blocks, winches, and jacks, by selecting appropriate equipment and applying it in accordance with government regulations, rigging manuals, manufacturers' specifications, and company policy.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

4608.03 Inspect rigging and hoisting equipment by identifying and applying removal from service criteria in accordance with government regulations, rigging manuals, manufacturers' specifications, and company policy.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

4608.04 Use standard hand signals and/or radio signal procedures to convey directions and instructions to co-workers and equipment operators, ensuring that rigging and hoisting operations are performed safely in accordance with safety regulations.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

4608.05 Use manual or power hoisting equipment, such as jibs, A-frames, overhead crane winches, jacks, lift trucks, attachments, and power elevating work platforms, in accordance with safety regulations, manufacturers’ recommendations, and company policy.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice’s College of Trades ID

SPONSOR SIGN-OFF FOR U4608: RIG AND HOIST

Date Completed (mm/dd/yy)	Sponsor Name (Print)	Sponsor Signature
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U4609.0 INSTALL AND MAINTAIN MATERIAL-HANDLING SYSTEMS

GENERAL PERFORMANCE OBJECTIVE

Install and maintain material-handling systems, including installing, aligning, and maintaining conveyor systems; installing and maintaining conveyor components; splicing conveyor belts; checking tracking at idlers and pulleys; inspecting and maintaining overhead cranes and hoists and monorail systems; installing and maintaining material-handling valves; and installing and maintaining material-handling piping and duct work in accordance with manufacturers’ specifications and company policy.

SKILLS

4609.01 Install, align, and maintain conveyor systems, such as belt, roller, bucket, chain, chutes, screens, screw, and air conveyors, to ensure installation and maintenance are in accordance with manufacturers’ specifications and company policy.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice’s College of Trades ID

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4609.02 **Install and maintain conveyor components**, such as belts, chains, sprockets, idlers, take-up units, scrapers, vibrators, skirting, and unloading systems, by adjusting and tracking conveyor systems, in accordance with manufacturers’ specifications and company policy.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice’s College of Trades ID

4609.03 **Splice conveyor belts** using such methods as metal fasteners, plate and button fasteners, two plate fasteners, and vulcanisation, in accordance with manufacturers’ specifications and company policy.

(mm/dd/yy)	Trainer (Print Name)	◇Trainer (Signature)
(mm/dd/yy)	Apprentice (Signature)	Apprentice’s College of Trades ID

4609.04 **Inspect tracking at idlers and pulleys** after splicing or installation, and adjust in accordance with manufacturers’ specifications.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice’s College of Trades ID

4609.05 **Inspect and maintain overhead cranes and hoists and monorail systems** by checking wheels, trolley system, alignment, and tracking; by inspecting hooks, sheaves, wire rope, chains, and brakes; and by load testing and recording data, in accordance with safety legislation and company policy.

(mm/dd/yy)	Trainer (Print Name)	◇Trainer (Signature)
(mm/dd/yy)	Apprentice (Signature)	Apprentice’s College of Trades ID

4609.06 **Install and maintain material-handling valves**, such as ball, butterfly, check, cone, gate, globe, plug, and needle, in accordance with manufacturers’ specifications and company policy.

(mm/dd/yy)	Trainer (Print Name)	◊Trainer (Signature)
(mm/dd/yy)	Apprentice (Signature)	Apprentice’s College of Trades ID

4609.07 **Install and maintain material-handling piping and duct work**, such as flanges, couplings, clamps, and hangers, in accordance with manufacturers’ specifications and company policy.

(mm/dd/yy)	Trainer (Print Name)	◊Trainer (Signature)
(mm/dd/yy)	Apprentice (Signature)	Apprentice’s College of Trades ID

SPONSOR SIGN-OFF FOR U4609: INSTALL AND MAINTAIN MATERIAL-HANDLING SYSTEMS		
Date Completed (mm/dd/yy)	Sponsor Name (Print)	Sponsor Signature

U4610.0 INSTALL AND MAINTAIN POWER TRANSMISSION SYSTEMS

GENERAL PERFORMANCE OBJECTIVE

Install and maintain power transmission systems by determining gear ratios, horsepower requirements, and final speeds; installing, aligning, and maintaining power transmission components; installing, aligning, and maintaining couplings; and installing and maintaining keys, splines, bushes, and tapered bushings, in accordance with manufacturers’ specifications.

SKILLS

4610.01 **Calculate gear ratios, horsepower requirements, and final speeds** of power transmission systems by using calculations, charts and specification data to ensure correct installation and alignment, in accordance with manufacturers’ specifications.

(mm/dd/yy)	Trainer (Print Name)	◇Trainer (Signature)
(mm/dd/yy)	Apprentice (Signature)	Apprentice's College of Trades ID

◇ A Trainer may be a Supervisor or the competent employee designated by the Apprentice's Sponsor

4610.02 Install, align, and maintain power transmission belts including flat and timing belts, V-belts, pulleys, and chains, by calculating belt and chain tension, and by checking and adjusting alignment after installation, in accordance with manufacturers' specifications.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

4610.03 Install, align, and maintain power transmission components such as shafts, speed reducers, gears, brakes, clutches, ball screws, harmonic drives, and cams and followers, using conventional and special tools and instruments to ensure installation and operation are in accordance with manufacturers' specifications.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

4610.04 Install, align, and maintain couplings, such as mechanical, magnetic, fluid, and centrifugal, using specialized tools to ensure installation and operation are in accordance with manufacturers' specifications.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

4610.05 **Install and maintain keys, splines, bushes, and tapered bushings** using conventional and specialized tools (i.e. broaches, pullers) in accordance with manufacturers' specifications.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

SPONSOR SIGN-OFF FOR U4610: INSTALL AND MAINTAIN POWER TRANSMISSION SYSTEMS

Date Completed (mm/dd/yy)	Sponsor Name (Print)	Sponsor Signature

U4611.0 INSTALL AND MAINTAIN COMPRESSORS

GENERAL PERFORMANCE OBJECTIVE

Install and maintain compressors, including installing and maintaining rotary and reciprocating compressors; installing and maintaining primary filters and coolers; installing and maintaining separators and receivers; installing, maintaining, and repairing unloading, distribution, and lube systems; and installing, maintaining, and inspecting dryers and coolers, in accordance with manufacturers' specifications, government regulations and company policy.

SKILLS

4611.01 **Install and maintain rotary and reciprocating compressors** by checking orientation and availability of services, air intakes, hydro, water, drainage, ventilation, and interfaces; and replacing worn or defective intake, discharge, check, unloading, blow down, bleed and safety valves, oil separator packs, control pressure regulators, pressure switches, thermostatic controls, fusible plugs, and inter-and after-coolers, in accordance with manufacturers' specifications, government regulations and company policy.

(mm/dd/yy)	Trainer (Print Name)	◇Trainer (Signature)
(mm/dd/yy)	Apprentice (Signature)	Apprentice's College of Trades ID

◇ A Trainer may be a Supervisor or the competent employee designated by the Apprentice's Sponsor

4611.02 Install and maintain primary filters and coolers by inspecting, replacing, or maintaining filter medium, tubes, gaskets, single and multi pass coolers, and heat exchangers, in accordance with manufacturers' specifications.

(mm/dd/yy)	Trainer (Print Name)	◇Trainer (Signature)
(mm/dd/yy)	Apprentice (Signature)	Apprentice's College of Trades ID

4611.03 Install and maintain separators and receivers by inspecting, replacing, or maintaining check, drain, isolating bypass, and moisture damp valves; pressure gauges; bypass set-ups; and pipe systems, in accordance with manufacturers' specifications.

(mm/dd/yy)	Trainer (Print Name)	◇Trainer (Signature)
(mm/dd/yy)	Apprentice (Signature)	Apprentice's College of Trades ID

4611.04 Install, maintain, and repair unloading, distribution, and lube systems by inspecting, replacing, or maintaining unloaders, including diaphragms, springs, valves, seals, control linkages, and lubrication systems, in accordance with manufacturers' specifications.

(mm/dd/yy)	Trainer (Print Name)	◇Trainer (Signature)
(mm/dd/yy)	Apprentice (Signature)	Apprentice's College of Trades ID

4611.05 Install, maintain, and inspect dryers and coolers by conducting leak tests, purging and recharging systems, setting up pressure regulators, troubleshooting using gauges, and caring for and storing liquids and gases, in accordance with government regulations, manufacturers' specifications, and company policy.

(mm/dd/yy)	Trainer (Print Name)	◇Trainer (Signature)
(mm/dd/yy)	Apprentice (Signature)	Apprentice's College of Trades ID

SPONSOR SIGN-OFF FOR U4611: INSTALL AND MAINTAIN COMPRESSORS

Date Completed (mm/dd/yy)	Sponsor Name (Print)	Sponsor Signature
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U4612.0 INSTALL AND MAINTAIN PUMPS

GENERAL PERFORMANCE OBJECTIVE

Install and maintain pumps, including installing and maintaining hydrodynamic (non-positive displacement) pumps; installing, maintaining, and repairing hydrodynamic pump components; installing, maintaining, and repairing hydrostatic (positive displacement) pumps; and installing, maintaining, or repairing hydrostatic pump components.

SKILLS

4612.01 Install and maintain hydrodynamic pumps, such as axial flow, centrifugal, and mixed-flow pumps, by inspecting, replacing, and repairing pumps, in accordance with manufacturers' specifications.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

◇ A Trainer may be a Supervisor or the competent employee designated by the Apprentice's Sponsor

4612.02 Install, maintain, and replace hydrodynamic pump components, such as impellers, casings, wear rings, shaft, shaft sleeves, packing, and seals, by inspecting and replacing components, in accordance with manufacturers' specifications.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

4612.03 Install, maintain, and repair hydrostatic pumps, such as gear, vane, piston, diaphragm, and screw, by inspecting, maintaining, or replacing, in accordance with manufacturers' specifications.

(mm/dd/yy)	Trainer Print Name	Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

4612.04 Inspect, maintain, and replace hydrostatic pump components, such as vanes, rotors, pistons, cylinders, swash plates, diaphragms, and seals, by inspecting, maintaining, and replacing components, in accordance with manufacturers' specifications.

(mm/dd/yy)	Trainer Print Name	Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

SPONSOR SIGN-OFF FOR U4612: INSTALL AND MAINTAIN PUMPS

Date Completed (mm/dd/yy)	Sponsor Name (Print)	Sponsor Signature

U4613.0 INSTALL, COMMISSION, AND MAINTAIN PRIME MOVERS AND MACHINERY

GENERAL PERFORMANCE OBJECTIVE

Install, commission, and maintain prime movers and machinery by laying out and preparing base or foundation; installing prime movers; levelling and aligning machinery; securing machinery; conducting final checks on prime movers and machinery; starting up prime mover and ancillary equipment and run-in; recording footprint/signature of machinery; and, maintaining and repairing prime movers.

SKILLS

4613.01 Lay out and prepare base or foundation by locating centre and datum lines, reference points, and benchmarks; selecting and installing chemical and expanding anchors; and rechecking base or foundation dimensions and bolt locations, ensuring they are in accordance with drawings, plans, job specification, and company policy.

(mm/dd/yy)	Trainer Print Name	Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

♦ A Trainer may be a Supervisor or the competent employee designated by the Apprentice's Sponsor

4613.02 Install prime movers by using safe rigging and moving procedures to position on base; ensuring base and feet are free from dirt and burrs; maintaining coupling gap as per specifications; and checking component alignment, in accordance with manufacturers' specifications, engineered drawings and company policy.

(mm/dd/yy)	Trainer Print Name	Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

4613.03 Level and align machinery by checking for soft foot using such methods as computer, laser, optical, reverse dial, or piano wire alignment methods; checking and adjusting pipe strain by allowing for thermal growth; and levelling base or components using shims, jacks, bolts, wedges, pads, and hydraulic jacks, in accordance with manufacturers' specifications, engineered drawings and company policy.

(mm/dd/yy)	Trainer Print Name	Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

4613.04 Secure machinery using anchors, bolts, fasteners, grouting, and epoxy resins, in accordance with manufacturers’ specifications.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice’s College of Trades ID

4613.05 Conduct final checks on prime movers and machinery by checking that all service lines are clear; inspecting and adjusting auxiliary oil systems and cooling water to ensure proper operation; detecting and repairing leaks; ensuring that safety devices, relief valves, and lockouts are installed and operating properly; and blowing down and priming the system, in accordance with manufacturers’ specifications.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice’s College of Trades ID

4613.06 Start up and run-in prime mover and ancillary equipment, adhering to manufacturers’ specifications and company policy.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice’s College of Trades ID

4613.07 Record footprint/signature of machinery by using vibration instruments and record readings.

(mm/dd/yy)	Trainer (Print Name)	◇Trainer (Signature)
(mm/dd/yy)	Apprentice (Signature)	Apprentice’s College of Trades ID

4613.08 Maintain and repair prime movers, such as internal combustion, electrical, or turbines, by installing mechanical, hydraulic, and electronic governors; maintaining internal auxiliary oil systems; balancing critical rotating parts; repairing and/or replacing intake and exhaust valves and seats, steam, gas, and motor turbine inlet valves, and overspeed trip valves; inspecting and maintaining fuel systems, filters, pumps, injectors, remote start systems, including batteries and air receivers, starters and alternators; mating surfaces for warpage; steam cutting, burring, and bruising cylinder bores and liners; and adjusting intake and exhaust valves and timing assembly, in accordance with manufacturers’ specifications, schematics and company policy.

(mm/dd/yy)	Trainer (Print Name)	◇Trainer (Signature)
(mm/dd/yy)	Apprentice (Signature)	Apprentice’s College of Trades ID

SPONSOR SIGN-OFF FOR U4613: INSTALL, COMMISSION, AND MAINTAIN PRIME MOVERS AND MACHINERY

Date Completed (mm/dd/yy)	Sponsor Name (Print)	Sponsor Signature
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U4614.0 WELD, BRAZE, AND SOLDER

GENERAL PERFORMANCE OBJECTIVE

Weld, braze, and solder by setting up and operating electric welding equipment; setting up and operating gas welding and cutting equipment; reading, interpreting, and applying all applicable welding symbols and instructions; laying out, tacking, and fabricating materials; and using furnace, flame, or oven to heat-treat or stress-relieve metal and alloys in accordance with welding standards and procedure specifications.

SKILLS

4614.01 Prepare for welding by cleaning, grinding and preparing ferrous and non-ferrous materials and selecting the appropriate welding process for the metal type, so that the material to be welded is prepared in accordance with appropriate welding standards and procedure specifications.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

◇ A Trainer may be a Supervisor or the competent employee designated by the Apprentice's Sponsor

4614.02 Set up and operate electric arc welding equipment, such as shielded metal arc welding (SMAW), Gas Metal Arc Welding (GMAW) [MIG], and Gas Tungsten Arc Welding (GTAW) [TIG] types, by assembling consumables, machines and associated equipment, ensuring it is in operating order setting up equipment and welding materials in position to produce welds that will pass visual inspection.

(mm/dd/yy)	Trainer (Print Name)	◇Trainer (Signature)
(mm/dd/yy)	Apprentice (Signature)	Apprentice's College of Trades ID

4614.03 Set up and operate gas welding, coating and cutting equipment, such as that for gas fusion welding, spray welding, and oxyacetylene and plasma cutting to produce clean cuts free from slag and heat distortion, and to complete welding, brazing, and soldering operations to pass visual inspection.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

4614.04 Apply welding symbols and instructions, for welding and fabricating using drawings and weld specifications so that welds are carried out in accordance with appropriate specifications.

(mm/dd/yy)	Trainer (Print Name)	◇Trainer (Signature)
(mm/dd/yy)	Apprentice (Signature)	Apprentice's College of Trades ID

4614.05 Fabricate materials by laying out and assembling components, and tacking them in place so that weld distortion is minimized during welding operation.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

4614.06 Heat-treat and stress-relieve metal and alloys using furnace, flame and oven, and observing colour changes, using colour charts, and using air, oil, and water-cooling medium for specific application, in accordance with manufacturers' specifications, drawings, and company policy.

(mm/dd/yy)	Trainer (Print Name)	◇Trainer (Signature)
(mm/dd/yy)	Apprentice (Signature)	Apprentice's College of Trades ID

SPONSOR SIGN-OFF FOR U4614: WELD, BRAZE, AND SOLDER

Date Completed (mm/dd/yy)	Sponsor Name (Print)	Sponsor Signature

U4615.0 INSTALL AND MAINTAIN BEARINGS, SEALS, AND PACKING

GENERAL PERFORMANCE OBJECTIVE

Install and maintain bearings, seals, and packing by installing and maintaining plain and journal bearings; installing and maintaining bearing housings, installing and maintaining bearings; inspecting bearings; installing static, dynamic, and rotary seals; applying chemical sealants; and installing and removing packing in accordance with manufacturers' specifications.

4615.01 Install and maintain plain and journal bearings, such as sleeve, radial, linear, and axial, by such methods as bluing, scraping, and machining to fit clearances and tolerances, in accordance with manufacturers' specifications.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

◇ A Trainer may be a Supervisor or the competent employee designated by the Apprentice's Sponsor

4615.02 Install and maintain bearing housings for specific application, including floating, pillow, flange, and split, and using shims, in accordance with manufacturers' specifications.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

4615.03 Install and maintain bearings, such as anti-friction, radial, axial, ball, roller, taper, spherical, self aligning, linear, needle, and split bearings, using such equipment as bearing ovens, induction heaters, demag units, hot oil baths, arbour presses, pullers, and hydraulic jack sets, in accordance with manufacturers' specifications.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

4615.04 Inspect bearings by checking for wear and clearances and other defects, such as spalling, brinnelling, scoring, and cracking, in accordance with manufacturers' specifications and company policy.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

4615.05 Install static, dynamic, and rotary seals, such as gaskets, O-rings, labyrinth seals, magnetic bearing housing seals, mechanical seals, and dry gas seals, in accordance with manufacturers’ specifications.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice’s College of Trades ID

4615.06 Apply chemical sealants, including liquid gasket materials, plastic, or liquid metal fillers, for static or dynamic conditions, in accordance with manufacturers’ specifications.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice’s College of Trades ID

4615.07 Install and remove packing for specific applications by measuring and cutting packing as required, and install safely without damage to other components, in accordance with manufacturers’ specifications.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice’s College of Trades ID

SPONSOR SIGN-OFF FOR U4615: INSTALL AND MAINTAIN BEARINGS, SEALS, AND PACKING

Date Completed (mm/dd/yy)	Sponsor Name (Print)	Sponsor Signature

U4616.0 INSTALL AND MAINTAIN FANS AND BLOWERS

GENERAL PERFORMANCE OBJECTIVE

Install and maintain fans and blowers by installing and maintaining single- and multi-stage fan and blower systems; inspecting, maintaining, and troubleshooting single- and multi-stage fan and blower components; troubleshooting and balancing airflow in the system; and troubleshooting, inspecting, and replacing worn or defective controls.

SKILLS

4616.01 Install and maintain single- and multi-stage fan and blower systems, such as axial, centrifugal, and propeller types, for ventilation, material handling, wet and dry dust collection, induced forced and balanced draft, and cooling tower applications, ensuring correct driver and alignment installation to prescribed standards and drawings.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

◇ A Trainer may be a Supervisor or the competent employee designated by the Apprentice's Sponsor

4616.02 Maintain and troubleshoot single- and multi-stage fan and blower components by checking wheel and impeller clearances and balance; maintaining oil, lubrication, and bearing cooling systems; inspecting and replacing worn bearings, filters, and shaker systems; and maintaining pedestals or mountings, in accordance with manufacturers' specifications and government regulations.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

4616.03 Troubleshoot and balance airflow in the system by using capacity and demand factors and such methods as visual inspection, airflow indicators, and vibration analysis, in accordance with manufacturers' specifications and government regulations.

(mm/dd/yy)	Trainer (Print Name)	◇Trainer (Signature)
(mm/dd/yy)	Apprentice (Signature)	Apprentice's College of Trades ID

4616.04 Troubleshoot, inspect, and replace worn or defective controls, such as electrical/electronic, pneumatic, and thermal louvered linkages; by inspecting and maintaining solenoid controls, airflow indicators, and vacuum and pressure gauges, in accordance with manufacturers' specifications.

(mm/dd/yy)	Trainer (Print Name)	Trainer (Signature)
(mm/dd/yy)	Apprentice (Signature)	Apprentice's College of Trades ID

SPONSOR SIGN-OFF FOR U4616: INSTALL AND MAINTAIN FANS AND BLOWERS		
Date Completed (mm/dd/yy)	Sponsor Name (Print)	Sponsor Signature

U4617.0 INSTALL AND MAINTAIN FLUID POWER SYSTEMS

GENERAL PERFORMANCE OBJECTIVE

NOTE: This skill set encompasses both hydraulic and pneumatic systems. An apprentice can complete this skill set with work experience in either one (or both) of these systems.

Install and maintain fluid power systems by applying fluid power formulas and principles; installing and maintaining control valves; installing and maintaining regulators; identifying, selecting, and using fluids; installing, starting up, maintaining, and repairing various types of power units and associated fluid power circuitry; installing and maintaining filters, strainers, and related contamination-control equipment; laying out, installing, and maintaining fluid conductors; installing and maintaining linear and rotary actuators; setting up and adjusting variable proportional control valves; setting up, maintaining, and adjusting logic servo-proportional control systems; and troubleshooting fluid power systems.

SKILLS

4617.01 Apply fluid power formulas and principles, such as force, weight, mass, friction, flow rate, pressure, and energy, using Boyle's, Charles's, and Pascal's laws, and Bernoulli's principle, during installation and maintenance procedures of fluid power systems in accordance with accepted scientific principles.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

◇ A Trainer may be a Supervisor or the competent employee designated by the Apprentice's Sponsor

4617.02 Install and maintain control valves, such as spool or poppet types for pressure control operations and sequence or unloading operations, and directional valves, including sliding spool, poppet, or rotary types, by using and applying proper port configurations and varied controls, which may include manual, mechanical, electrical, and pilot; installing flow control valves in the proper location; metering in and out; and compensating for pressure and temperature variations, in accordance with manufacturers' specifications.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

4617.03 Install and maintain regulators by adjusting pressure filters, allowing for drainage of moisture and lubricators, and using oils and adjusting oil feeds, in accordance with manufacturers' specifications.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

4617.04 Select and replace fluids, such as petroleum based, fire resistant, and synthetic, for specific applications, by inspecting and replacing fluid when required, in accordance with manufacturers' recommendations and company policy.

(mm/dd/yy)	Trainer (Print Name)	◇Trainer (Signature)
(mm/dd/yy)	Apprentice (Signature)	Apprentice's College of Trades ID

4617.05 Install, start up, maintain, and repair power units and associated fluid power circuitry, including accumulators, ensuring air/oil is bled from the system, in accordance with manufacturers’ specifications and company policy.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice’s College of Trades ID

4617.06 Install and maintain filters, strainers, and related contamination-control equipment to ensure a clean, contamination-free fluid-power system, in accordance with manufacturers’ specifications and company policy.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice’s College of Trades ID

4617.07 Lay out, install, and maintain fluid conductors, such as piping, tubing, hosing, fittings, brackets, expansion joints, and insulation, by inspecting and replacing worn or defective components to ensure an efficient, leak proof and clean fluid-power system, in accordance with manufacturers’ specifications and company policy.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice’s College of Trades ID

4617.08 Install and maintain linear and rotary actuators, such as single- and double-acting, single- and double-rod types, seals and packing, cup seals and O-rings, piston motors, vane motors, gear motors, lobe, and diaphragm, in accordance with manufacturers’ specifications and company policy.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice’s College of Trades ID

4617.09 Set up and adjust variable proportional control valves, such as directional, flow, pressure, potentiometers, and proximity switches, in accordance with manufacturers' specifications and company policy.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

4617.10 Set up, maintain, and adjust logic servo-proportional control systems in accordance with manufacturers' specifications.

(mm/dd/yy)	Trainer (Print Name)	◇Trainer (Signature)
(mm/dd/yy)	Apprentice (Signature)	Apprentice's College of Trades ID

4617.11 Troubleshoot fluid power systems, including system operation, pressures, valves, filters, and electrical/electronic controls, by following a logical sequence of elimination and using appropriate test instruments and equipment, in accordance with manufacturers' specifications.

(mm/dd/yy)	Trainer Print Name	◇Trainer Signature
(mm/dd/yy)	Apprentice Signature	Apprentice's College of Trades ID

SPONSOR SIGN-OFF FOR U4617: INSTALL AND MAINTAIN FLUID POWER SYSTEMS

Date Completed (mm/dd/yy)	Sponsor Name (Print)	Sponsor Signature
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U4618.0 PERFORM PREVENTIVE AND PREDICTIVE MAINTENANCE

GENERAL PERFORMANCE OBJECTIVE

Perform preventive and predictive maintenance by using and maintaining fixed and portable vibration and balancing equipment; selecting and using various types of non-destructive test equipment; using computer and maintenance software packages; using and maintaining noise-monitoring instruments; and using and maintaining temperature, pressure, and fibre optic monitoring instruments in accordance with manufacturers' specifications and government regulations.

SKILLS

4618.01 Use and maintain fixed and portable vibration and balancing equipment by reading and interpreting monitors for velocity, frequency, and amplitude, and establishing and recording footprint/signature of machinery.

(mm/dd/yy)	Trainer (Print Name)	◇Trainer (Signature)
(mm/dd/yy)	Apprentice (Signature)	Apprentice's College of Trades ID

◇ A Trainer may be a Supervisor or the competent employee designated by the Apprentice's Sponsor

4618.02 Select and use various types of non-destructive test equipment, such as dye penetrant, magnaflux, ultrasonic, fluoroscopic, and used oil analysis, in accordance with manufacturers' specifications and government regulations.

(mm/dd/yy)	Trainer (Print Name)	◇Trainer (Signature)
(mm/dd/yy)	Apprentice (Signature)	Apprentice's College of Trades ID

4618.03 Use computer and maintenance software packages to administer, record, schedule, and monitor preventive and predictive maintenance activities, in accordance with manufacturers' specifications and company standards.

(mm/dd/yy)	Trainer (Print Name)	◇Trainer (Signature)
(mm/dd/yy)	Apprentice (Signature)	Apprentice's College of Trades ID

4618.04 Use and maintain noise-monitoring instruments to determine and prevent potential mechanical, electrical, and fluid power failure.

(mm/dd/yy)	Trainer (Print Name)	◇Trainer (Signature)
(mm/dd/yy)	Apprentice (Signature)	Apprentice's College of Trades ID

4618.05 Use and maintain temperature, pressure, and fibre optic monitoring instruments, such as pressure gauges, bourdon tube gauges, electronic gauges, and bi-metal and mercury gauges, by using and maintaining fibre optic and infra-red instruments to inspect and replace worn or defective components; and by using and calibrating precision testing instruments and equipment to prescribed standards and manufacturers' specifications.

(mm/dd/yy)	Trainer (Print Name)	◇Trainer (Signature)
(mm/dd/yy)	Apprentice (Signature)	Apprentice's College of Trades ID

SPONSOR SIGN-OFF FOR U4618: PERFORM PREVENTIVE AND PREDICTIVE MAINTENANCE

Date Completed (mm/dd/yy)	Sponsor Name (Print)	Sponsor Signature

DEFINITIONS

Apprentices Class

Individuals in this class:

- Hold one or more valid Registered Training Agreements with the Ministry of Training, Colleges and Universities in either compulsory or voluntary trades;
- Hold a valid statement of membership with the Ontario College of Trades in the Apprenticeship class;
- 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 individuals who have 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 of Trades to a Journey person. A Certificate of Qualification will serve as proof of having met any testing/program requirements and membership in the College's Journey persons Class.

Competence

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

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.

Sponsor

Means a person that has entered into a Registered Training Agreement under which the person is required to ensure that an individual is provided with workplace-based training in a trade as part of an apprenticeship program established by the College of Trades.

Sponsor of Record

Refers to the Sponsor documented as being signatory to the current training agreement or contract. In order for a 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 of Trades may be found to be incompetent by the College Of Trades Discipline Committee if the Committee feels that the member has displayed a lack of knowledge, skill or disregard for another person's welfare while practising their trade. If this happens, the individual may be found unfit to practise their trade and their Statement of Membership/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 in the trade and who is a member in good standing of the College of Trades Journeypersons Class for the same trade; or
- Someone who holds a valid Provisional Certificate of Qualification in the trade and who is a member in good standing of the College of Trades Journeypersons Class for the same trade.

Voluntary Trades Journeyperson:

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

Journeyman Candidates Class

An individual who has completed an Ontario apprenticeship program (Certificate of Apprenticeship) in a voluntary or compulsory 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 one year to remain in the Journeyman Candidates Class.

Are subject to any ratios and/or wage rates that have been set out for their trade(s), if they practise 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 of Trades to work legally); and can hold themselves out as Journeyman Candidates (they are neither Apprentices nor Journeymen).

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 Journeymen class. However, they can only remain in this class for a maximum of one year. After one year they can move into the Tradespersons Class if they are in a voluntary trade. If they are in a compulsory trade and have been in the Journeyman Candidates Class for one year, they can no longer work legally in that trade until they 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 and Apprenticeship Act, 2009

Optional Skill

Status assigned to shaded individual skills, skill 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 Journeyman to Apprentice ratios, please visit: collegeoftrades.ca

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 Sponsor of record, or an individual to whom that Sponsor has delegated signing authority, (e.g. Trainer) indicating an Apprentice's demonstration of competence.

Skill

Individual skill described in the Log Book (note: does not mean the larger skill groups referred to in the Log Book 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 Log Book (may also be called Training Unit or General Performance Objective).

Skill Set Completion for Sponsors

Listing for all skill sets and includes space for sign-off by 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 [College of Trades Appointments Council](#) (COTAC) 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 of Trades Divisional Boards on issues relating to their trade. When there is no appointed trade board for a trade, the respective sector Divisional Board will act as the default Trade Board for the trade.

Tradespersons Class

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

Individuals in this class:

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. In a voluntary trade, a Trainer is an individual who is considered equivalent to a Journeyperson with a Certificate of Qualification.

A Trainer in this trade may be a Supervisor or the competent employee designated by the Apprentice's Sponsor

READY TO WRITE YOUR EXAM?

Many of the skilled trades in Ontario have a final certification examination that you must pass to become certified in your trade. Passing the examination gives you the right to join the Journeypersons class of members at the Ontario College of Trades and receive a Certificate of Qualification in your trade.

There are two types of trade certification examinations in Ontario:

1. Provincial (Ontario) examinations - which lead to a Certificate of Qualification.
2. Red Seal examinations – which lead to a Certificate of Qualification with an Interprovincial Red Seal endorsement.

If a trade is designated as Red Seal in Ontario, you will be writing the Red Seal examination. To access the Red Seal preparation guide please visit: red-seal.ca

You will write an Ontario-only examination when your trade is not designated as Red Seal trade in Ontario.

Ontario's Exam Preparation Guide

collegeoftrades.ca

Basic Examination Details for You to Know

You will have **up to four hours to write your examination**. If you need more time, you must ask for it when you schedule the examination, not on the day of your examination. You can leave the examination centre if you complete the examination in less than four hours.

You need a mark of 70% to pass.

Exam questions are multiple choice with four options from which you must choose the correct answer. Your examination may have between 90 and 150 multiple choice questions.

Scheduling Your Examination

The examination scheduling process is currently outlined in detail on the College of Trades website: collegeoftrades.ca

Remember these 3 basic steps:

1. Confirm your eligibility to write the examination with the College of Trades.
2. Contact Client Services at the College of Trades to pay your examination fee.
3. Contact the local Ministry apprenticeship office to schedule your examination in their examination centre: <http://services.findhelp.ca/eo/tcu/appoff>

INSTRUCTIONS FOR RECORDING A CHANGE IN SPONSOR

1. Record your first sponsor's information in Sponsor Record #1 – this would be the sponsor who has signed your initial apprenticeship Training Agreement for this trade.
2. If you do change sponsors prior to completing this apprenticeship, please contact your local Ministry of Training, Colleges and Universities Apprenticeship Office immediately to update your sponsor record.
3. Please make sure you do record all of the information regarding any additional sponsors of record towards your apprenticeship using the Sponsor Records on the following pages (if applicable).

You must fill out a CHANGE OF SPONSOR RECORD each time you change your sponsor.

SPONSOR RECORD #1

SPONSOR INFORMATION	
Apprentice Name	
Registered Training Agreement #	
Sponsor Name	
Address	
Telephone	
E-mail Address	

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

RECORD OF SKILL ATTAINMENT

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

The Sponsor is 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.

****If you need additional copies of the Sponsor Record, please photocopy as needed or visit collegeoftrades.ca and search Sponsor Record Form.***

CHANGE OF SPONSOR RECORD #2

SPONSOR INFORMATION	
Apprentice Name	
Registered Training Agreement #	
Sponsor Name	
Address	
Telephone	
E-mail Address	

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

RECORD OF SKILL ATTAINMENT

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

The Sponsor is 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.

****If you need additional copies of the Sponsor Record, please photocopy as needed or visit collegeoftrades.ca and search Sponsor Record Form.***

INSTRUCTIONS FOR APPRENTICESHIP PROGRAM COMPLETION (Appendix A)

Once an Apprentice has completed all the classroom training and on-the-job hours specified for the trade, and has acquired all the mandatory skills included in this Log Book:

1. The Apprentice and the Sponsor complete the Apprentice Completion Form and the Skill Set Completion for Sponsors Form located on the following pages.
2. They sign the forms and submit them to their local Ministry of Training, Colleges and Universities apprenticeship office. To find the closest office, check the contact information at <http://services.findhelp.ca/eo/tcu/appoff> or call the Employment Ontario toll free number at (1-800-387-5656).
3. Since this trade is competency based, all mandatory skills in the training standard must be signed off. If the Sponsor is completing the Apprentice before the industry recommended training hours are done, Ministry staff may request further information regarding the Apprentice's on-the-job training. An example of a request would be a letter from the Sponsor confirming the Apprentice worked for some time in the trade before the initial Training Agreement was registered, thereby acquiring some skills beforehand.

If Apprentices are submitting the completion request form and supporting documentation to their local Ministry of Training, Colleges and Universities apprenticeship office by mail, fax, or email (as a scanned document), they should not include their Log Book; if they are presenting this form in person at the local apprenticeship office, they should bring their Log Book with them.

After Ministry staff verifies all the information in the completion request, they may contact either the Apprentice or the Sponsor for further information or documentation. Once the completion has been confirmed, the Ministry will issue a Certificate of Apprenticeship to the Apprentice.

The Ontario College of Trades will receive notification of this completion, and complete the individual's membership in the Apprentices class for the trade. If the Apprentice has completed a program in a compulsory trade, the College of Trades will automatically register the Apprentice as a member of the Journeyman Candidates class so the Apprentice can continue to work legally for one year while preparing for the certification examination. If an apprentice completes their apprenticeship in a voluntary trade **and** there is no Certificate of Qualification exam, they can apply for membership in the Journeymen's Class at the Ontario College of Trades. If there is a Certificate of Qualification exam, they must write and pass the exam in order to enter the Journeymen's Class at the Ontario College of Trades.

For permission to schedule an exam once completion is confirmed by the Ministry, the individual must first contact the College of Trades Client Services Department at 647-847-3000 or toll free at 1-855-299-0028 to pay the certification examination fee.

APPRENTICE COMPLETION FORM (Appendix B)

Please fill out both sides of this form, including the Skill Set Completion for Sponsors (see back of form). Once both sides are completed, submit the form to your local Ministry of Training, Colleges and Universities apprenticeship office (find contact information at <http://services.findhelp.ca/eo/tcu/appoff> or by calling Employment Ontario at (1-800-387-5656).

APPRENTICE INFORMATION	
Name (print)	
Client ID # Issued by Ministry	
Telephone Number(s)	

SPONSOR INFORMATION	
Legal Name	
Address	
Telephone Number(s)	
Sponsor's Signing Authority (<i>print name</i>)	
E-mail Address	

PROGRAM INFORMATION			
Trade Name			
Number of hours required as per Training Agreement (<i>for hours-based trades only</i>)			
Hours completed? (<i>documentation attached</i>)	Yes ()	No ()	Not applicable ()
Classroom training completed or exempt?	Yes ()	No ()	Not applicable ()

I hereby confirm that the information submitted on both sides of this form is true and accurate.

X _____
Apprentice's signature Date

X _____
Signature of Sponsor's Signing Authority Date

SKILL SET COMPLETION FOR SPONSORS (Appendix C)

You will find the skill set numbers and titles in the Log Book's Table of Contents. By signing off each skill set in the table below, you are providing final confirmation, as the Apprentice's Sponsor, that the Apprentice has demonstrated competency in all the mandatory skills included in the skill set.

SKILL SET #	SKILL SET TITLE	SIGNING AUTHORITY SIGNATURE
U4600	PROTECT SELF AND OTHERS	
U4601	COMMUNICATE	
U4602	USE DRAWINGS AND SCHEMATICS	
U4603	USE HAND AND POWER TOOLS	
U4604	USE MACHINE TOOLS	
U4605	USE PRECISION MEASURING EQUIPMENT	
U4606	USE MATERIALS AND FASTENERS	
U4607	APPLY LUBRICANTS	
U4608	RIG AND HOIST	
U4609	INSTALL AND MAINTAIN MATERIAL-HANDLING SYSTEMS	
U4610	INSTALL AND MAINTAIN POWER TRANSMISSION SYSTEMS	
U4611	INSTALL AND MAINTAIN COMPRESSORS	
U4612	INSTALL AND MAINTAIN PUMPS	
U4613	INSTALL, COMMISSION, AND MAINTAIN PRIME MOVERS AND MACHINERY	
U4614	WELD, BRAZE, AND SOLDER	
U4615	INSTALL AND MAINTAIN BEARINGS, SEALS, AND PACKING	
U4616	INSTALL AND MAINTAIN FANS AND BLOWERS	
U4617	INSTALL AND MAINTAIN FLUID POWER SYSTEMS	
U4618.0	PERFORM PREVENTIVE AND PREDICTIVE MAINTENANCE	

MINISTRY OF TRAINING, COLLEGES AND UNIVERSITIIES USE ONLY:

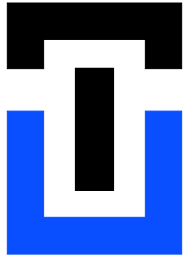
Sponsor verified as most recent sponsor of record: Yes () No ()
 Documentation to support completion of hours attached: Yes () No ()
 Completion of classroom training verified: Yes () No ()

Staff Name _____ Signature _____ Date _____

MINISTRY OF TRAINING, COLLEGES AND UNIVERSITIES
APPRENTICESHIP OFFICES IN ONTARIO (Appendix D)

Location	Contact	Location	Contact
Barrie 705-737-1431	55 Cedar Pointe Dr Unit 609, Barrie, ON L4N 5R7	North Bay 705-495-8515	200 First Ave West, North Bay, ON P1B 3B9
Belleville 613-968-5558	135 North Front St, Belleville, ON K8P 3B5	Ottawa 613-731-7100	Preston Square, 347 Preston St 3rd Flr, Ottawa, ON K1S 3H8
Brantford 519-756-5197	505 Park Rd North Suite 201, Brantford, ON N3R 7K8	Owen Sound 519-376-5790	1450 1st Ave West Suite 100, Owen Sound, ON N4K 6W2
Chatham 519-354-2766	870 Richmond St West 1st Floor, Chatham, ON N7M 5J5	Pembroke 613-735-3911	615 Pembroke St East, Pembroke, ON K8A 3L7
Cornwall 613-938-9702	132 Second St East Ste 202, Cornwall, ON K6H 1Y4	Peterborough 705-745-1918	901 Lansdowne St West, Peterborough, ON K9J 1Z5
Dryden 807-223-4632	Provincial Government Building, 479 Government St, Dryden, ON P8N 3K9	Pickering (City of) 905-837-7721	1420 Bayly St Unit 1, Pickering, ON L1W 3R4
Elliot Lake 705-848-4661	50 Hillside Dr North, Elliot Lake, ON P5A 1X4	Sarnia 519-542-7705	Bayside Mall, 150 Christina St North, Sarnia, ON N7T 7W5
Fort Frances 807-274-8634	922 Scott St 2nd Flr, Fort Frances, ON P9A 1J4	Sault Ste. Marie 705-945-6815	477 Queen St East 4th Flr, Sault Ste Marie, ON P6A 1Z5
Hamilton Central 905-521-7764	Ellen Fairclough Bldg, 119 King St West 8th Flr, Hamilton, ON L8P 4Y7	St Catharines 905-704-2991	Garden City Tower, 301 St Paul St 10th Flr, St Catharines, ON L2R 7R4
Kapuskasing 705-337-4381	Ontario Government Complex, 122 Government Rd West, Kapuskasing, ON P5N 2X8	Sudbury 705-564-3030	159 Cedar St Ste 506, Sudbury, ON P3E 6A5
Kenora 807-468-2879	227 1/2 Second St South, Kenora, ON P9N 1G4	Thunder Bay 807-346-1550	189 Red River Rd Suite 103, Thunder Bay, ON P7B 1A2
Kingston 613-548-1151	Cornell Corporate Centre, 299 Concession St Ste 201, Kingston, ON K7K 2B9	Timmins 705-235-1950	Ontario Government Complex, 5520 Highway 101 East Wing B, South Porcupine, ON P0N 1H0
Kitchener 519- 653-5758	4275 King St East Ste 200, Kitchener, ON N2P 2E9	Toronto Central 416-326-5800	625 Church St 1st Fl, Toronto, ON M7A 2B5
London 519-675-7788	1200 Commissioners Rd E Unit 72, London, ON N5Z 4R3	Windsor Central 519-973-1441	Roundhouse Centre, 3155 Howard Ave 2nd Fl, Ste 200, Windsor, ON N8X 4Y8
Mississauga (City of) 905-279-7333	The Emerald Centre, 10 Kingsbridge Garden Cir Ste 404, Mississauga, ON L5R 3K6		

For current office listings, please visit: <http://services.findhelp.ca/eo/tcu/appoff>



ONTARIO COLLEGE OF TRADES
ORDRE DES MÉTIERS DE L'ONTARIO

collegeoftrades.ca

earnwhileyoulearn.ca

PROGRAM  PROGRAMME
EXCELLENCE
RED SEAL · SCEAU ROUGE

Industrial Mechanic (Millwright)



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