



# Powered Mobile Equipment

## **NORTHWEST TERRITORIES**

wsc.nt.ca

Yellowknife

Box 8888, 5022 49th Street  
Centre Square Mall, 5th Floor  
Yellowknife, NT X1A 2R3

Telephone: 867-920-3888

Toll Free: 1-800-661-0792

Fax: 867-873-4596

Toll Free Fax: 1-866-277-3677

Inuvik

Box 1188, 87 Kingmingya Road  
Blackstone Building  
Inuvik, NT X0E 0T0

Telephone: 867-678-2301

Fax: 867-678-2302

## **NUNAVUT**

wsc.nu.ca

Iqaluit

Box 669, 630 Queen Elizabeth II Way  
Qamutiq Building, 2nd Floor  
Iqaluit, NU X0A 0H0

Telephone: 867-979-8500

Toll Free: 1-877-404-4407

Fax: 867-979-8501

Toll Free Fax: 1-866-979-8501

## FOREWORD

The Workers' Safety and Compensation Commission (WSCC) produced this industry Code of Practice in accordance with subsections 18(3) and 18(4) of the Northwest Territories and Nunavut Safety Acts.

The Code of Practice applies to all workplaces covered by the Northwest Territories and Nunavut Safety Acts and Occupational Health and Safety Regulations.

The Powered Mobile Equipment Code of Practice relates to Sections 4 and 5 of the Northwest Territories and Nunavut Safety Acts, and Sections 14(1)(f), 119, and 147(1), as well as Part 11, of the Occupational Health and Safety Regulations.

This code is in effect as published in the Northwest Territories Gazette and Nunavut Gazette, in accordance with the Safety Acts and Occupational Health and Safety (OHS) Regulations.

### IN EFFECT DATES:

**Northwest Territories:** 31 July 2017

**Nunavut:** 31 July 2017



Chief Safety Officer, WSCC

### Disclaimer

This publication refers to obligations under the workers' compensation and occupational health and safety legislation as administered by the Workers' Safety and Compensation Commission.

To ensure compliance with legal obligations, always refer to the most recent legislation. This publication may refer to amended or repealed legislation.

Check for information on the latest legislation at [wsc.nt.ca](http://wsc.nt.ca) or [wsc.nu.ca](http://wsc.nu.ca), or contact WSCC at 1-800-661-0792.

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# 1 WHAT IS A CODE OF PRACTICE?

The Workers' Safety and Compensation Commission (WSCC) Codes of Practice provide practical guidance to achieve the safety requirements of the Northwest Territories and Nunavut *Safety Acts* and related *Regulations*.

As per subsection 18(3) of the Northwest Territories and Nunavut *Safety Acts*: "For the purpose of providing practical guidance with respect to the requirements of any provision of this Act or the regulations, the Chief Safety Officer may approve and issue such codes of practice as he or she considers are suitable for that purpose."

The WSCC Codes of Practice apply to workplaces in the Northwest Territories and Nunavut. The Chief Safety Officer approves Codes of Practice for use by all occupational health and safety (OHS) stakeholders. Codes of Practice come into effect in each territory on the day they are published in the *Northwest Territories Gazette* and *Nunavut Gazette*.

Codes of Practice do not have the same legal force as the *Safety Acts* and related *Regulations*. A person or employer cannot face prosecution for failing to comply with a Code of Practice. However, in legal proceedings under the *Safety Acts* and related *Regulations*, failure to observe a Code of Practice may be a consideration when determining whether a worker or employer complies with the *Safety Acts* and related *Regulations*.

Employers and workers should follow the WSCC Codes of Practice unless there is an alternative course of action that achieves the same or better OHS outcomes.

## **A Code of Practice**

- Provides practical guidelines.
- Adapts to individual work sites.
- May serve as evidence.
- Should be followed unless there's a better way.

## 2 DEFINITIONS

**Competent** – possessing the knowledge, experience and training to perform the function, task or duty.

**Direct Supervision** – a competent supervisor that personally visually supervises a worker who is not competent. They communicate readily and clearly with the worker under their supervision and are required as a supervisor to take an approved supervisor familiarization training course.

**Employer** – every partnership, group of persons, corporation, owner, agent, principal contractor, subcontractor, manager, or other authorized person having charge of an establishment in which one or more workers perform work.

**Hazard** – any situation, thing, or condition that may expose a person to risk of injury or occupational disease.

**Hazard Control** – all steps necessary to protect workers from exposure to a substance or system, and the procedures required to monitor worker exposure and their health to hazards such as chemicals, materials, substances, or other types, such as noise and vibration. A written workplace hazard control program must outline which methods are in use to control the exposure and the means for monitoring the effectiveness of the controls.

**Hazard Identification** – formal identification and documentation of hazards.

**Incident** – an occurrence arising in the course of work that could result in an injury or illness.

**Operator** – a worker that meets the competency requirements to operate powered mobile equipment in a safe and efficient manner.

**Organization** – a company, operation, undertaking, establishment, enterprise, institution, association, or a combination thereof that has its own management. An organization may be incorporated or unincorporated, public or private.

**Personal Protective Equipment (PPE)** – any clothing, device, or other article intended for use by a worker to prevent injury or to facilitate rescue.

**Powered Mobile Equipment (PME)** – any self-propelled machine that assists in the movement or transport of an employer's materials and equipment or provides a work platform for workers.

**Principal Contractor** – a person who signs an agreement to undertake a project for an owner. May include an owner who undertakes all or part of a project themselves or by one or more employers.

**Procedure** – a documented method to carry out an activity.

**Record** – a document that states results achieved or provides evidence of activities performed.

**Risk** – the chance or probability of a person getting harmed, or experiencing an adverse health effect if exposed to a hazard.

**Supervisor** – a worker who is authorized by an employer to oversee or direct workers; are required to take an approved supervisor familiarization training course.

**Trainer** – a competent individual authorized by the employer to give information to a worker on a particular subject matter; may require a worker to complete a practical demonstration of their acquired knowledge.

**Worker** – a person engaged in work for an employer, regardless of remuneration.

### 3 INTRODUCTION

The *Powered Mobile Equipment Code of Practice* provides information to employers and workers on what is required to operate powered mobile equipment. These requirements ensure procedures are in place to safeguard the health and safety of workers and the public.

The Code corresponds to *Occupational Health and Safety (OHS) Regulations*:

- Part 11, Powered Mobile Equipment, Sections 161 to 176;
- Young Persons, Section 14 (1)(f)
- Protection Against Falling, Section 119; and
- Locking Out, Section 147(1).

#### POWERED MOBILE EQUIPMENT

PME includes a variety of equipment, including but not limited to: forklifts, pallet jacks, dozers, loaders, packers, industrial tractors and skid steers.

A vehicle for transporting people such as a truck or car is not PME.

Workplace practices are assessed against best practices in the Code to determine if they meet the requirements of the NT and NU safety legislation. Practices are acceptable if they provide workers with a level of safety equal to or greater than those practices presented in this Code.

This Code outlines operation, inspection, and maintenance of PME. Additional Codes of Practice and resources useful in developing PME procedures and policies include:

- Hazard Assessment
- Traffic Control Person
- Personal Protective Equipment
- Elevated Work Platforms Bulletin
- Fall Protection Bulletin

The CSA references below may also be useful:

- **CSA B335-15** Safety Standard for Lift Trucks
- **CSA B352.0-95 (R2006)** Rollover Protective Structures

Between 2012 and 2017 the WSCC has received 413 claims for PME related injuries; 104 were time loss claims. **Two incidents have resulted in fatalities.**



Contributing factors of many PME claims are:

- Improper/failure to complete a circle check
- Improper/failure to complete a hazard assessment
- Fall from heights
- Poor line of sight/no signaller
- Mounting/dismounting equipment in an unsafe manner
- Lack of proper training
- Inadequate supervision

## 4 LEGISLATION

### *Safety Act*

#### *Northwest Territories and Nunavut*

##### **HEALTH AND SAFETY**

4. (1) Every employer shall
  - (a) maintain his or her establishment in such a manner that the health and safety of persons in the establishment are not likely to be endangered;
  - (b) take all reasonable precautions and adopt and carry out all reasonable techniques and procedures to ensure the health and safety of every person in his or her establishment; and
  - (c) provide the first aid service requirements set out in the regulations pertaining to his or her class of establishment.
- (2) If two or more employers have charge of an establishment, the principal contractor or, if there is no principal contractor, the owner of the establishment, shall coordinate the activities of the employers in the establishment to ensure the health and safety of persons in the establishment.
5. Every worker employed on or in connection with an establishment shall, in the course of his or her employment,
  - (a) take all reasonable precautions to ensure his or her own safety and the safety of other persons in the establishment; and
  - (b) as the circumstances require, use devices and articles of clothing or equipment that are intended for his or her protection and provided to the worker by his or her employer, or required pursuant to the regulations to be used or worn by the worker.

### *Occupational Health and Safety Regulations*

#### *Northwest Territories and Nunavut*

##### **PART 3 GENERAL DUTIES**

###### **Young Persons**

14. (1) An employer shall ensure that an individual under 16 years of age is not required or permitted to work
  - (f) as an operator of powered mobile equipment, a crane or a hoist;

###### **Protection Against Falling**

119. (1) An employer shall ensure that workers use a fall protection system at a work site if
  - (a) a worker could fall 3 m or more; or
  - (b) there is a risk of injury if a worker falls less than 3 m.
- (2) An employer shall ensure that workers at a permanent work site are protected from falling by a guardrail or similar barrier if a worker could fall vertical distance of between 1.2 m and 3 m.
- (3) Notwithstanding subsection (2), if the use of a guardrail or similar barrier is not reasonably possible, an employer shall ensure that the worker uses a travel restraint system.
- (4) Notwithstanding subsection (3), if the use of a travel restraint system by a worker is not reasonably possible, an employer shall ensure that the worker is

protected from falling by the use of a safety net, control zone or other equally effective safeguards.

- (5) Subsection (1) does not apply to competent workers who are engaged in
- (a) installing or attaching a fall protection system to the anchor point;
  - (b) removing or disassembling the associated parts of a fall protection system when it is no longer required; or
  - (c) activities within the normal course of business on a permanent loading dock that does not exceed 1.2 m in height.

#### **Locking Out**

147. (1) Subject to section 148, an employer shall, before a worker undertakes the maintenance, testing, repair or adjustment of a machine other than a power tool, ensure that the machine is locked out and remains locked out during that activity unless doing so puts a worker at risk.

### **PART 11 POWERED MOBILE EQUIPMENT**

#### **Interpretation**

161. In this Part, "hours of darkness" means any time when, because of insufficient light or unfavourable atmospheric conditions, individuals or vehicles are not clearly discernable at a distance of 150 m or more.

#### **Operation by Competent Workers**

162. An employer shall ensure that only competent workers operate powered mobile equipment or are required or permitted to operate that equipment.

#### **Visual Inspection**

163. (1) An employer shall ensure that, before a worker starts powered mobile equipment, the worker makes a complete visual inspection of the equipment and the surrounding area to ensure a worker is not endangered by the start up of the equipment.
- (2) A worker shall not start powered mobile equipment until the inspection required under subsection (1) is completed.

#### **Inspection and Maintenance**

164. (1) An employer or supplier shall ensure that powered mobile equipment at a work site is inspected
- (a) by a competent worker for defects and unsafe conditions; and
  - (b) as often as is necessary to ensure that the equipment is capable of safe operation.
- (2) If a defect or unsafe condition is identified in powered mobile equipment, an employer or supplier shall
- (a) take immediate steps to protect the health and safety of each worker who is at risk until the defect is repaired or the condition is corrected; and
  - (b) repair the defect or correct the unsafe condition as soon as is reasonably possible.
- (3) An employer or supplier shall, at a work site,
- (a) keep a record of inspections and maintenance carried out under this section; and
  - (b) make the records readily available to each operator of the powered mobile equipment.

#### **Requirements for Powered Mobile Equipment**

165. (1) An employer or supplier shall ensure that each unit of powered mobile

equipment is equipped with

- (a) a device within easy reach of an operator that will permit the operator to stop as quickly as possible any ancillary equipment driven from the powered mobile equipment, including any power take-off, crane and auger and any digging, lifting and cutting equipment;
  - (b) an audible or visual warning device that is adequate to warn other workers of the operation of the powered mobile equipment;
  - (c) seats that are designed and installed to ensure the safety of each worker in or on the powered mobile equipment unless the equipment is designed to be operated from a standing position; and
  - (d) an effective braking system and an effective parking device.
- (2) If a unit of powered mobile equipment is operated during hours of darkness in an area that is not sufficiently illuminated, an employer or supplier shall ensure that the unit is equipped with suitable headlights and backup lights that clearly illuminate the path of travel.
- (3) If a unit of powered mobile equipment has a windshield, an employer or supplier shall ensure that the windshield is equipped with suitable windshield washers and wipers.
- (4) If a unit of powered mobile equipment is fitted with rollover protective structures, an employer or supplier shall ensure that the unit is equipped with
- (a) seat belts for the operator and any other worker in or on the unit; or
  - (b) shoulder belts, bars, gates, screens or other restraining devices designed to prevent the operator and any other worker from being thrown outside the rollover protective structures if the work process renders the wearing of a seat belt impracticable.
- (5) If there is a danger to the operator of a unit of powered mobile equipment or to any other worker in or on a unit of powered mobile equipment from a falling object or projectile, an employer or supplier shall ensure that the unit is equipped with a suitable and adequate cab, screen or guard.

#### **Maintenance of Powered Mobile Equipment**

166. An employer or supplier shall ensure that each unit of powered mobile equipment is constructed, repaired, inspected, tested, maintained and operated in accordance with the manufacturer's specifications or an approved standard.

#### **Use of Seat Belt of Restraint by Operator**

167. An employer shall ensure that an operator of a unit of powered mobile equipment uses a seat belt or other restraining device under subsection 165 (4).

#### **Protection Against Shifting of Load**

168. An employer shall install a bulkhead or other effective restraining device to protect the operator and any other worker in or on powered mobile equipment that is used to transport equipment or materials, if that equipment could shift under emergency stopping conditions and endanger the operator or other worker.

#### **Warning of Reverse Motion**

169. If a vehicle could be used in such a way that a worker could be endangered by an unexpected reverse movement, the employer or supplier shall ensure that the vehicle is equipped with a suitable warning device that operates automatically when the vehicle or equipment starts to move in reverse.

### **Rollover Protective Structures**

170. (1) An employer or supplier shall ensure that a unit of powered mobile equipment that is equipped with an engine rated at 15 kW or more and is in any of the following categories, is not used, unless it is fitted with a rollover protective structure that meets the requirements of subsection (2):
- (a) motor grader;
  - (b) crawler tractor, other than one that operates with side booms;
  - (c) wheeled or tracked dozer and loader, other than one that operates with side booms;
  - (d) self-propelled wheeled scraper;
  - (e) self-propelled roller;
  - (f) compactor;
  - (g) rubber-tired tractor;
  - (h) skidder.
- (2) An employer or supplier shall ensure that a rollover protective structure required by subsection (1)
- (a) is designed, manufactured and installed to meet the requirements of an approved standard; and
  - (b) has the following information permanently and legibly marked on the structure:
    - (i) the manufacturer's name and address,
    - (ii) the model and serial number,
    - (iii) the make and model or series number of the machines that the structure is designed to fit,
    - (iv) an identification of the standard to which the structure was designed, manufactured and installed.
- (3) If a rollover protective structure required by subsection (1) is not available, an employer or supplier shall ensure that a unit of powered mobile equipment is equipped with a rollover protective structure that is
- (a) designed by a professional engineer;
  - (b) designed and fabricated so that the structure and supporting attachments will support not less than twice the weight of the equipment to which the structure is to be fitted, based on the ultimate strength of the metal and integrated loading of structural members, with the resultant load applied at the point of impact; and
  - (c) installed to have a vertical clearance of 1.2 m between the decks and the structures at the point of operator entrance or exit.
- (4) A rollover protective structure is deemed to meet the requirements of this section if the structure
- (a) was installed on the powered mobile equipment on or before the day that these regulations come into force; and
  - (b) was designed and manufactured in accordance with the General Safety Regulations, R.R.N.W.T. 1990, c.S-1, as they existed immediately before these regulations come into force.
- (5) An employer or supplier shall ensure that modifications or repairs to existing rollover protective structures are certified by a professional engineer.

**Transparent Materials Used in Cabs**

171. (1) An employer or supplier shall ensure that transparent material used as part of the enclosure for a cab, canopy or rollover protective structure on powered mobile equipment is made of safety glass or another material that gives not less than equivalent protection against shattering.
- (2) An employer or supplier shall ensure that any defective glass or other transparent material in a cab, canopy or rollover protective structure that creates or could create a hazard is removed and replaced.

**Fuel Tanks in Enclosed Cabs**

172. If a unit of powered mobile equipment is equipped with an enclosed cab, an employer or supplier shall ensure that a fuel tank located in the enclosed cab has a filler spout and vents that extend to the outside of the cab.

**Dangerous Movements**

173. (1) If a worker could be endangered by the swinging movement of a load or a part of a unit of powered mobile equipment, an employer shall not require or permit the worker to remain within range of the swinging load or part.
- (2) If a worker could be required or permitted to perform maintenance, testing, repairs, adjustments or other work on or under an elevated part of a unit of powered mobile equipment, an employer shall ensure that the elevated part is securely blocked to prevent accidental movement.
- (3) An operator of a unit of powered mobile equipment shall not move or cause to be moved any load or part of the equipment if a worker could be endangered by that movement.

**Transporting Workers**

174. (1) An employer shall ensure that a worker is not transported on a vehicle unless the worker is seated and secured by a seat belt or other restraining device that is designed to prevent the worker from being thrown from the vehicle while the vehicle is in motion.
- (2) An employer shall ensure that a worker is not transported on the top of a load that is being moved by a vehicle.
- (3) An employer shall ensure that a worker does not place equipment or material in a compartment of a vehicle in which the operator or another worker is being transported unless the equipment or material is positioned or secured so as to prevent injury to the operator or the other worker.
- (4) If an open vehicle is used to transport a worker, an employer shall ensure that
- (a) the worker is restrained from falling from the vehicle; and
  - (b) the worker's body does not protrude beyond the side of the vehicle.

**Ladders Attached to Extending Boom**

175. (1) An employer shall ensure that
- (a) subject to subsection (2), a worker is not on a ladder that is attached as a permanent part of an extending boom on powered mobile equipment during any movement of the equipment, including extension or retraction of the boom;
  - (b) if outriggers are incorporated into powered mobile equipment, a worker does not climb a ladder attached to an extending boom unless the outriggers are deployed; and

(c) a worker does not operate powered mobile equipment equipped with an extending boom unless the powered mobile equipment is stable under all operating conditions.

(2) Paragraph (1)(a) does not apply to firefighting equipment.

**Forklifts**

176. (1) An employer or supplier shall ensure that a forklift is

(a) provided with a durable and clearly legible load rating chart that is readily available to the operator; and

(b) equipped with a seat belt for the operator if the forklift is equipped with a seat.

(2) An employer shall ensure that the operator of a forklift uses the seat belt required by paragraph (1)(b).

## 5 KEY RESPONSIBILITIES

Operators are responsible for manipulating Powered Mobile Equipment (PME) safely. An operator must maintain full control of the equipment to prevent incidents. The operator is the worker most familiar with the performance of the PME and is responsible for reporting to the employer any condition that may affect the safe operation of the equipment. Everyone is responsible for the safety of the workplace through the internal responsibility system (IRS). The IRS is the underlying philosophy of occupational health and safety legislation in the Northwest Territories and Nunavut. The foundation of an IRS is that everyone in the workplace: workers, employers, and safety personnel all share the responsibility to ensure a safe and disease-free workplace.

Due to the nature, complexity, and diversity of different types of work and worksites, the Acts and Regulations cannot always prescribe specific steps an individual must take to ensure compliance. Instead, the WSCC holds employers responsible to determine the necessary steps to ensure the health and safety of their workplaces.

The IRS:

- Establishes responsibility sharing systems;
- Promotes a safety culture;
- Promotes best practices;
- Helps develop self-reliance; and
- Ensures compliance.

All incidents, including ones that do not result in injury or damage, **must be reported.**

Workers must immediately report serious problems. They can record and report problems that do not present an immediate danger by following the employer's reporting procedures.

Use a PME logbook, maintenance work order, or central dispatching system to record incidents or problems requiring future attention. Address these reports within the reasonable timeframe set out in the company policy. All workers must follow the appropriate procedures, legislation, manufacturers' specifications, as well as use suitable PPE when using any type of PME.

### Employers

- Ensure all supervisors have attended an approved supervisor familiarization course.
- Ensure policies and procedures define competency levels for supervisors and PME operators.
- Keep the occupational health and safety program updated, commit to the standards set out in the program. Review the WSCC Code of Practice on [Occupational Health and Safety Programs](#) for more information.
- Ensure policies and procedures include maintenance schedules as per the manufacturer's instructions.



- Prioritize purchasing/budgets which improve the safety of operators and workers on site when PME is operating:
  - Training; PPE; PME with built in safety features: seatbelts, fire suppression systems, and rollover protection.

### Supervisors

- Attend an approved supervisor familiarization course.
- Ensure operators are competent.
- Ensure a competent worker inspects all PME prior to use. If problems or hazardous conditions are found:
  - Ensure the hazard is assessed and risks controlled before any operator uses the equipment (refer to the WSCC [Hazard Assessment Code of Practice](#) for more information); and
  - If the equipment is safe to use, ensure the operator is aware of any problems and the controls in place.
- If the operator is not competent, they are only permitted to operate equipment under the direct (present, visually observing and physically able to provide feedback or assistance) supervision of a competent individual.
- If an operator is competent, the supervisor monitors performance and competency as per the company’s policy and legislative requirements.
- Keep all records of maintenance and inspection onsite and make available to all equipment operators and at the request of WSCC Safety Officers.
- Ensure traffic control plans are in place when required, and train all personnel in the traffic control plan.

### Operators

- Ensure the work area is safe when working on or around PME.
- Operate PME only if trained, competent, and authorized.
- Report all mechanical problems to the supervisor immediately.
- Operate equipment in a safe manner at all times.
- If view is limited when backing up, designate a signaller having an unobstructed view to give guidance.
- Turn off the machine before refuelling. Do not allow smoking, matches, or an open flame in the refuelling area.
- Always use the right type and grade of fuel. Avoid spilling fuel on hot surfaces. Clean up and report all spills.
- Wear all PPE required as determined by the hazard assessment, with special attention to the risk of dislodged objects falling or otherwise shifting and striking.
- Know and be able to apply PME emergency shut-down procedures.
- Always use a designated signaller when operating in tight areas.

#### Seatbelts at All Times

An employer must ensure that an operator of powered mobile equipment uses a seat belt or other restraining device.

### **Pedestrian Traffic/Workers**

At some worksites, pedestrians may be in close proximity to operating PME. Implement a traffic control plan and train all workers in the plan.

A blade, bucket, or cab may obscure an operator's view. While the responsibility for safe operation of the equipment rests with the operator, it is best to take preventative action to avoid incidents. If reasonably practicable:

- Designate walkways that separate pedestrians from areas in which PME is operating.
- Use fencing, signage and/or traffic control.

## 6 OPERATOR COMPETENCY

This section describes the operator's requirements before operating PME. The worker must be trained and competent to operate the equipment safely. They can demonstrate competency by operating the equipment to a satisfactory level. This level is written into policies and training procedures, an example of a competency form can be found in Appendix A. Final sign off is done by an individual already deemed competent in the operation of the same or similar equipment and designated by the employer to assess competency.

### 6.1 LICENSING AND TRAINING

The employer must ensure the worker meets the skill requirements and has an appropriate class license according to the territorial legislation to operate PME.

**Workers may not operate PME unless:**

- 16 years of age or older;
- Trained to safely operate the equipment;
- Competent in operating the equipment;
- Familiar with the equipment's operating instructions; and
- Authorized to operate the equipment by the employer.

It is vital to have an understanding of the limitations of the equipment and the hazards specific to the operation of the equipment at a worksite.

### 6.2 ON-SITE ORIENTATION AND COMPETENCY CHECKLIST

- Inspect workplace for hazardous and/or potentially hazardous conditions
- Perform visual and operational checks of moving components and attachments
- Verify zero energy state
- Conduct circle check
- Identify equipment components and terminology
- Identify emergency equipment (fire suppression system)
- Understand the limitations of the equipment
- Demonstrate start-up and shut-down procedures
- Demonstrate PME emergency shut-down procedures
- Perform travel with equipment
- Observe danger zones and blind spots
- Refuel equipment
- Perform minor maintenance and adjustments
- Complete specific tasks expected of PME (travel with materials, or lifting personnel)
- Load or unload as the job requires
- Properly store or park equipment

## VERIFY ZERO ENERGY STATE

Operators must be able to identify that equipment is in a zero energy state by lowering hydraulic components to the ground or rest position, turning electrical switches off, turning off the engine, and knowing established lockout procedures. This is to confirm a zero energy state prior to initiating the circle check procedures and other maintenance functions.

While under direct supervision of the trainer, the operator must be able to complete a PME specific checklist similar to the one below.

- Start machine
- Raise and lower attachments while in neutral
- Lower hydraulic components
- Disengage controls
- Turn engine off
- Turn master key off
- Verify lockout

Machines of different models or manufacturers may have different steps or requirements.

## IDENTIFY HYDRAULIC COMPONENTS AND TERMINOLOGY

An operator has to understand the terminology used to describe major components in order to comply with the manufacturer's manual. Understand and correctly follow safety information, maintenance schedules, machine capacities, and operating directions.

Component Checklist:

- Boom and hydraulic cylinders
- Carriage and components (tires, tracks)
- Cab, Rollover Protective Structure (ROPS), and Falling Object Protection Systems (FOPS)
- Operator controls
- Seat belt
- Bucket
- Engine
- Access hatches
- Fluid check components (engine, transmission, hydraulic, anti-freeze)
- Attachments (varies depending on equipment type)
- Fire suppression system
- Fire extinguisher location

## PERFORM VISUAL AND OPERATIONAL CHECKS OF ATTACHMENTS AND MOVING COMPONENTS

Under the direct supervision of the trainer, the operator conducts a check of attachments and moving components for proper operation.

The operator must be able to demonstrate safe and efficient operation of the equipment. With the machine running, activate parking brake and/or hydraulic lock or transmission interlocks.

Ensure:

- The transmission is locked or in neutral;
- All controls are in the rest position;
- Engine is running and lights are turned on;
- Mount and dismount from the cab is done using 3-point contact; and
- One more complete walk around the machine occurs, checking for fluid leaks or other obvious damage.

### **TRAVEL WITH MOBILE EQUIPMENT**

The operator must competently:

- Discuss site-specific hazards with the supervisor;
- Prepare PME for travel by placing attachments in travel position;
- Place boom or bucket in a position that does not impede visibility;
- Adjust speed to be appropriate for ground conditions, operator safety, pedestrian safety and to prevent damage to equipment;
- Demonstrate safe procedures while travelling with the equipment and maintaining control;
- Observe machine limitations, danger zones, and blind spots;
- Observe PME limitations in accordance with the manufacturer's specifications by:
  - Identifying the equipment load chart; and
  - Recognizing conditions that affect machine capacities, such as steep terrain, attachments, boom over-extension, and ground conditions.
- Identify danger zones by keeping a safe distance between PME and other equipment and pedestrians;
- Check blind spots and areas of reduced visibility;
- Shut down and immobilize PME;
- Park PME on a level surface and lower attachments to ground or rest position;
- Engage parking brake/hydraulic interlocks and demonstrate proper shut down procedures;
- Leave the cab while maintaining 3-point contact.

### **REFUEL MOBILE EQUIPMENT**

Park the machine on level ground in an open area; immobilize and shut off machine, and exit the PME. Ensure that refuelling location is at least 100 metres from any stream or other watercourse. Check fuel cap and remove, follow local fuelling procedures to prevent spills or damage. Do not allow smoking during the refuelling process. Never leave the nozzle unattended. Properly remove hose and replace fuel cap.

Understand the hazards and emergency procedures associated with:

1. Propane cylinder exchange (properties, cylinder components, storage requirements, cylinder replacement)
2. Refueling other hydrocarbons (diesel, gasoline, natural gas)
3. Battery recharging/exchange

#### **OPERATOR RESPONSIBILITIES**

- Report any conditions affecting the safe operation of the equipment.
- Operate the equipment safely and maintain full control of the equipment at all times.
- Use the seat belts and other safety equipment in the PME.
- Make sure passengers in the PME use the seat belts and other safety equipment (including PPE).
- Keep the cab, floor, and deck of the PME free of materials, tools or other objects that could interfere with the operation of the equipment.
- Be competent and alert. If fatigued or under the influence, an operator must not attempt to operate the PME and must inform their supervisor of their condition.
- Perform a walk-around inspection on all PME and ensure that all safety equipment is in place and in good working condition. See Section 7.
- After breaks and after refuelling operations, perform another visual walk-around inspection.
- Set air pressure at a safe level prior to starting out. Check air tanks and bleed tanks regularly during freezing conditions.
- When approached by other personnel, stop equipment, engage the park lever, and lower all hydraulic equipment before starting a conversation.
- Ensure all personnel remain outside the whip area during winching or towing.
- Ensure that PME and their loads have sufficient clearance under electrical power lines.
- Ensure adequate communication with the designated signaller (radio).
- Take direction from one signal person.
- Know and be able to efficiently complete emergency shut-down procedures.

#### **Beware of the Whip Area**

A whip or strike may occur to workers positioned near the strap during winching or towing activities when there is a point of tension or an unexpected release.

### **PERFORM MINOR MAINTENANCE AND ADJUSTMENTS**

Operators must demonstrate the ability to perform minor maintenance and adjustments to the equipment. With the equipment immobilized, de-energized, and all attachments lowered to ground or at rest, the operator must be able to:

- Lubricate the equipment and attachments;
- Check fluid levels;
- Inspect hoses and belts for wear or damage;
- Complete the equipment maintenance report; and
- Record and report any identified deficiencies.

### **PERFORM MOBILE EQUIPMENT SPECIFIC PROCEDURES**

Under the direct supervision of the trainer, the operator must demonstrate competency to safely and effectively operate equipment. These skills may include but not limited to:

- Excavating/trenching;
- Grading;
- Loading;
- Stockpiling;
- Backfilling; and
- Hoisting.

## 7 VISUAL INSPECTION

Before operating PME, the operator must complete a visual inspection of the equipment and the surrounding area. This is to ensure that the PME is in safe operating condition and endangers no workers, including the operator, when the equipment starts up.

### Equipment Safety

The operator must complete regular inspections as required by the manufacturer's specifications or the employer's operating procedures.

Items that can be included on the checklist include: tires, wheel lugs, suspension, engine/hydraulic system/fuel levels, fluid leaks, operating and marking lights, cleanliness of windshield and cab windows, condition of installed safety devices such as back-up alarms, flashers, turn signals, seat belts, parking brake, and any other item that can affect operating safety.

### Visual Inspection

Also known as a circle check, the walk around checks for obvious mechanical problems, equipment clearances, closeness to other equipment or structures, and other workers. Conduct the circle check at the beginning of each shift. It is best industry practice to ensure that pre-use inspections are documented and readily available for review by operators.

### Visual Inspection

**163. (1)** An employer shall ensure that, before a worker starts powered mobile equipment, the worker makes a complete visual inspection of the equipment and the surrounding area to ensure a worker is not endangered by the startup of the equipment.

**(2)** A worker shall not start powered mobile equipment until the inspection required under subsection (1) is completed.

*Section 163, OHS Regulations*

### 7.1 GUIDELINES FOR CIRCLE CHECK PROCEDURES

- **Cracks:** identify cracks; check common locations where cracks may form (stress points). Do repairs as soon as possible to prevent further damage and reduce the potential for injury.
- **Leaks:** check locations where leaks can occur (hydraulic fluid, brake fluid, anti-freeze, fuel lines, and tank). Operators must discuss leaks identified with supervisor to determine severity and requirements for repair.
- **Grease fittings:** identify locations and condition of grease fittings. Clean excessive grease build-up.



- Tracks, pads, and pad bolts: ensure adequate tension and proper adjustment of the tracks. Check for loose, worn, damaged or missing pads, bolts, idlers, grousers, and main pins.
- **Tires, wheels, and track chains:** check for correct tire pressure, missing wheel nuts, adequate tread, punctures, defects or deformities. Ensure the rims are in good condition, including the cap and valve stem. Properly install and tighten chains.
- **Engine/manifold area:** check engine compartment and exhaust for damage or debris. Remove any debris from the engine compartment to reduce fire potential.
- **Compartment latches:** check latches for damaged or missing components. Ensure all latches are secure.
- **Pins and bushing:** check for wear or damage on holding pins and bushings; ensure they are properly engaged and in place.
- **Check fluid levels:** identify location of dipstick/cap and other filler locations, and check for adequate fluid levels. Confirm type of fluid at each filling location. Keep areas free of debris, spilled fluids, and grease build-up. Do not allow smoking during these procedures.
- **Bucket:** examine bucket for cracks and defects; ensure all teeth are in place and in good condition. Look for excessive wear of the shanks.
- **Condition of guards, catwalks, handholds, and steps:** examine all operator access points, properly install guards, and check condition of access points for damage or slippery conditions.
- **Fire suppression system:** know the location of the system and how to test it. Know how to determine if a system has been activated and requires maintenance.
- **Fire extinguisher:** know the location of the fire extinguisher before beginning work. Check condition of extinguisher for charge, maintenance tag, pin correctly in place and adequately secured.
- **Seat belt:** examine seat belt for wear or damage and ensure it is in good working condition.
- **Lights:** turn on all lights to check that they are in good working condition. Check light guards, lenses, and wiring for damage or debris. Clean lights as required.
- **Windows/doors/instruments:** check doors, equipment instrumentation, and glass windows for damage; verify they in good working condition. Check window wipers are in working condition and that doors open and close properly. Ensure that glass is clean to allow good visibility.
- **Housekeeping:** check for debris or loose equipment in the operators cab. Secure loose materials.
- **Radio communications:** check the radio to ensure it is in good working condition and equipped for the channels used in the area.

- **First aid kit:** know the location, condition, and required contents of the first aid kit. It must be easily accessible.
- **Spill kit:** know the location, condition, contents of the spill kit, and procedures for its use.

## 8 INSPECTION AND MAINTENANCE

Inspect all PME in accordance with the manufacturer's specifications, which usually describe inspection intervals and areas of inspection. Only competent persons can perform inspection activities.

Inspect all equipment for defects prior to each use. If an inspection reveals a defect or unsafe condition that could create a hazard to the worker(s), immediately remove the PME from service.

**Never operate defective equipment.**

Tag and lockout damaged equipment as "Out of Service". *See the lockout procedure in Section 9.*

### **Put a Plan in Place**

Have systems to protect workers from certain defects in equipment. For example, if the back-up alarm of a dump truck stops working, the truck can continue to operate if another worker acts as a look-out during all backing-up activities.

If the PME is potentially hazardous but, with the controls in place, can still operate in a safe manner, the employer must make sure that the operator is aware of the potential hazard. The employer must also repair the defect or condition as soon as reasonably practicable. The defect or condition may worsen over time, posing an increased danger of injury to workers.

Keep records of the inspections and maintenance performed on PME at the work site. These records must be readily available to the equipment operator so that the operator is aware of the equipment's condition.

### **Checklist guide for inspection**

- Fluid levels (oils, coolants, fuel, etc.)
- Battery electrolyte level
- Belts, radiator hoses
- Bolts/mountings around engine
- Air cleaner, connections, filter, dust cover
- Drain cocks
- Walkways, handrails, ladders
- Hydraulic hoses
- Water tank
- Signs of vandalism or tampering (report to supervisor immediately)

### Engine

- Oil pressure
- Oil level
- Temperature
- Air cleaner functioning properly (as indicated by gauge or light)

### Air and hydraulic systems

- Pressure is correct for operation (if equipped with gauge)
- Hoses (check for cuts, abrasions, bulges, all tight with no leaks)

### Hydraulic system

- Oil in hydraulic reservoir at normal level
- No visible leaks around seals
- Filters functioning properly as indicated by gauge or warning light

### Tires

- Cuts, abrasions, wear, adequate pressure

### Lights

- Bulbs and fuses intact and functional
- Crawler tracks (if applicable)

### Tracks

- In good condition
- Adequate for terrain and the work to be done

### Fastening devices

- No loose bolts/fasteners
- Boom pins and keepers in place

### Maintenance

Preventive maintenance can reduce costly repairs and ensure safe operation. A competent person inspects the PME for defects and unsafe conditions, as often as necessary, to ensure that it is capable of safe operation.

- Do not service or repair machines while in operation. Shut down machines and remove the keys. *See the lockout procedure in section 9.2.*
- Maintain all PME in a condition that will not compromise the health and safety of a worker transporting or using the equipment.
- Document all maintenance, service, repairs, and modifications to equipment and maintain records for the life cycle of the equipment.
- The operations manager must keep the maintenance log, and make it available to any operators, maintenance personnel, or regulatory authorities upon request.
- Securely block all raised equipment that must remain raised due to repair or service.

## 9 EQUIPMENT OPERATION

### 9.1 General Safety

- Operators need to understand and follow all warning labels and signs posted on the PME.
- Know the appropriate worksite hand signals and follow the direction of the designated signaller. Accept hand signals from one person only.
- Never start the machine when someone is standing on the outside of the cab.
- Do not wear loose clothing or jewelry that can snag on controls or on other parts of the equipment.
- Wear hearing protection when the PME is operating with an open operator station for extended periods or in a noisy environment.
- Attach a “Do Not Operate” or similar warning tag in compliance with the company’s lockout/tag out procedure to the start switch or to the controls before servicing or repairing the equipment.
- Know the width of the equipment and keep a proper clearance distance when operating near fences or boundary obstacles.
- Be aware of buried high voltage power lines and power cables. Both present hazards that can cause serious injury or death from electrocution.
- Secure all protective guards and all covers in place on the equipment.
- Keep the equipment free from foreign material. Remove debris, oil, tools, and other items from the deck, from walkways, and from steps. Secure all loose items such as lunch boxes, tools, and other items that are not a part of the equipment.

#### WORKING AT HEIGHTS

Implement a fall protection system, including a fall protection plan, if working on top of PME at a height of 3 metres or more.

Refer to the *Fall Protection Code of Practice* for more information on fall protection requirements.

Some PME specific options:

- Collapsible guardrails; and
- Wire rope lifeline

#### Protection against Falling

**119. (1)** An employer shall ensure that workers use a fall protection system at a work site if (a) a worker could fall 3 m or more; or (b) there is a risk of injury if a worker falls less than 3 m.

*Section 119, OHS Regulations*

## **HAZARDOUS LOADS**

Workers must not service PME while flammable, combustible or explosive materials are:

- Being loaded into or unloaded from the PME; or
- In the PME, other than in a fuel tank or a portable fuel tank that meets the ULC standard.

## **REFUELLING**

During refuelling, a worker must not:

- Smoke within 7.5 metres of PME;
- Refuel PME when there is a source of ignition within 7.5 metres; or
- Dispense flammable fuels into the fuel tank while its engine is running.

The employer must ensure that a worker dispensing flammable fuel:

- Ensure proper grounding;
- Takes precautions to prevent the fuel overflowing or spilling;
- Does not knowingly overfill the fuel system; and
- Does not use any object or device that is not an integral part of the hose/nozzle assembly to maintain the flow of fuel.

## **DANGEROUS MOVEMENT**

The movement of PME can present a danger to workers located within range of moving loads or moving parts.

- Do not permit an individual to remain within range of a moving load or part.
- The operator, who has control over the equipment, must not move the load or equipment when any individual is in range of the moving load or equipment part.

A frequent cause of worker crush injuries comes from being between a stationary object or obstacle and moving equipment.

- The employer must prevent workers from entering a pinch point or provide a minimum clearance distance between the obstacle and the PME.
- Guarding or the placement of barricades to prevent access to identified pinch points must be used.

## **ROLLOVER PROTECTION**

Any PME with an engine rated at 15 kW needs to be fitted with a rollover protective structure that is designed, manufactured, and installed to meet the requirements of an approved standard, such as *Canadian Standard CSA B352.0-95 (R2006) Rollover Protective Structures*, including:

- Motor grader;
- Crawler tractor, other than one that operates with side booms;
- Wheeled or tracked dozer and loader, other than one that operates with side boom;
- Self-propelled wheeled scraper;

- Self-propelled roller;
- Compactor;
- Rubber-tired tractor; and
- Skidder.

### **MOUNTING AND DISMOUNTING EQUIPMENT**

Climbing on and off equipment is a common task during the workday, and is a major cause of incidents.

Weather and ground conditions create hazards for the operator when getting on or off equipment. Wet or muddy tracks can create a slipping hazard.

Temperature variations can cause the surface to become extremely slippery.

- Inspect equipment daily
  - Ensure walking and working surfaces are non-slip
  - Clean boots before mounting machine
- Always face the machine when getting on and off
- Maintain 3-point contact when getting on and off
- Ensure a good handhold and sure footing to reduce the chance of slipping
- Once inside equipment, close doors and properly wear the seatbelt
- Never jump off equipment
- Step carefully to avoid mud or ice when climbing on and off equipment
- Never jump from equipment except in emergencies. If the equipment contacts a powerline and remaining on the equipment would be dangerous, jump well clear of the equipment with both feet together. Do not allow any part of the body to touch the ground while still in contact with the machine.
  - Use caution when: cleaning windows, refuelling equipment, checking fluid levels, and greasing equipment

### **STOPPING AND PARKING MOBILE EQUIPMENT**

Stopping

- Slow the engine down to an idle.
- Drop attachments to the ground.
- Place transmission gear into park or neutral.
- Engage main braking system, park, and apply emergency brakes.

Parking

- Follow traffic laws for parking.
- Ensure you are not blocking any access or right of ways.
- If obstruction of traffic is necessary, set up a traffic control route to detour around the mobile equipment.
- Ensure equipment is secured so it cannot be started or mobilized.
- A parked machine cannot be moved until the location of its operator can be verified.

- All raised equipment, such as dozers and rippers, must be lowered when the machine is stopped, with the transmission in neutral and the brakes set.
- Leave park lights on whenever PME is in the work area during night shift. Park PME out of the way as much as possible.

The operator must properly shutdown the equipment before leaving the machine.

**Do a post-operation check** to see if the PME suffered any damage that needs addressing before using it again. If the equipment is damaged or otherwise unusable, tag as “Out of Service”. If the equipment poses a potential hazard, set up a visual warning device (flashers, flares).

The operator must be aware of and have the competency to apply all site-specific requirements for PME prior to using the equipment on site. This includes site-specific stopping and parking procedures for PME.

## 9.2 OUT OF SERVICE EQUIPMENT

The mechanic must ensure there is an “Out of Service” tag on the PME in the location outlined in the company procedures. For example on the operator’s controls or on the PME’s door. The tag must read “Out of Service” or “Do Not Start”, unless otherwise authorized by the manager. Only the mechanical staff that worked on the PME or the manager (depending on the procedures in place) can remove Out of Service tags.

### Lockout

When a mechanic, operator, or other worker is servicing, oiling, greasing, or performing any other maintenance on PME:

- Shut off the equipment;
- Turn off or disconnect the electrical supply to the equipment;
- Attach a personal lockout lock onto the ignition switch;
- Keep the key to the lock on hand until the service on the equipment is complete
- If more than one person is working on the same piece of equipment, each person must apply their own lock;
- If two locks do not fit on the ignition shut off switch, a lockbox or scissor lock may be required;
- All keys must be turned in to the supervisor before leaving the site;
- **Never attach or remove another worker’s lock or tag;**
- If a worker leaves the site with their lock or tag attached after completion of service, they could be called back to remove it. In extreme cases (e.g. the worker cannot return because of sickness or vacation), the supervisor may remove the lock or tag after performing an inspection, as recorded in the company’s procedures; and
- Only after removing all locks or tags, may the equipment be operated.



### **Fuel Tank in Cab**

A fuel tank located in the enclosed cab of a unit of PME needs to have a filler spout and vents which extend outside the cab. The tank must be sealed to prevent vapours from entering the enclosed cab.

## **9.3 WORKER TRANSPORTATION**

No part of an operator or passenger's body can extend beyond the side of the PME while it is in operation. Position or secure all equipment or material in the PME to prevent injury to the operator and passengers.

Provide sufficient protection against hot or cold thermal conditions and other inclement weather for workers travelling in PME. Exhaust gases must not enter the enclosed body of equipment if transporting workers.

### **Riding on Loads**

No person may ride on top of a moving load. This prohibition also includes riding on the sides of a load. A person attempting to ride on a moving load is at considerable risk of injury, including the hazard resulting from the load shifting.

## APPENDIX A – COMPETENCY FORM

**Supervisor:** Please assess the employee in each area below using one of the three ratings, then write a brief comment to support the rating. At a minimum, the worker must meet expectations before being permitted to operate equipment independently.

RATINGS		
Exceeds Expectations = 3	Meets Expectations = 2	Needs Improvement = 1
CATEGORY	RATING	COMMENTS
<b>General:</b>		
Is certified (recertification required every three years) to operate equipment and proof of training is readily available.		
Follows instructions and asks appropriate questions for clarification.		
Demonstrates ability to keep the piece of equipment in a clean and orderly manner.		
Understands safety guidelines for equipment and demonstrates acceptable level of competency.		
Exhibits knowledge of safety operational techniques.		
Reviewed owners' operator & maintenance manual.		
<b>Personal Protective Equipment [PPE]:</b>		
Always wears PPE (hardhat, safety glasses, hearing protection, safety boots, and gloves) where required.		
<b>Equipment Inspections:</b>		
Performs methodical walk-around inspection (checks for leaks, cracks) including fire extinguisher.		
Performs safety equipment and warning device checks.		
Performs pre-maintenance checks/ground controls/safety sensors (tilt).		
Completes pre-operation checklist.		
<b>Ergonomics:</b>		
Demonstrates proper climbing technique (not climbing with tools and maintaining 3-point contact rule)		

<b>Equipment Operation:</b>		
Starts machine and listens for unusual sounds while machine is warming up.		
Demonstrates individual equipment functions and backup alarm check.		
Demonstrates start-up and shut-down functions.		
Demonstrates emergency equipment shut-down procedures (emergency stop button, etc.)		
Operates equipment to manufacturers' specifications.		
Checks clearances in all direction and assigns spotter in congested areas.		
Controls are operated accurately.		
Motion of machine is smooth and coordinated/travels at safe speed and checks path of travel for hazards.		
Demonstrates the competent use of equipment controls.		
<b>Review:</b>		
Month and year of next review:		
<b>[Employee Name – Please Print]</b>	<b>[Employee Signature]</b>	<b>[Sign-off Date]</b>
_____	_____	_____
<b>[Evaluator Name – Please Print]</b>	<b>[Evaluator Signature]</b>	<b>[Sign-off Date]</b>
_____	_____	_____
<b>[Supervisor Name – Please Print]</b>	<b>[Supervisor Signature]</b>	<b>[Sign-off Date]</b>
_____	_____	_____

# Powered Mobile Equipment

Workers' Safety & Compensation Commission  
Northwest Territories and Nunavut

WSCC Emergency Reporting  
24-hour Incident Reporting Line

**1 800 661-0792**

**WSCC**



If you would like this Code of Practice in another language, please contact us.