

Counterbalanced Forklifts

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, 85 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 Counterbalanced Forklifts Code of Practice relates to Sections 4 and 5 of the Northwest Territories and Nunavut *Safety Acts*, and Part 11, Section 14, Section 147(1) and Section 200 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 August 2017

Nunavut: 31 August 2017



Chief OHS Inspector, 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 This publication may refer to legislation that has been amended or repealed.

Check for information on the latest legislation at wscn.nt.ca or wscn.nu.ca, or contact WSCC at 1-800-661-0792.

TABLE OF CONTENTS

FOREWORD	3
TABLE OF CONTENTS.....	4
1 WHAT IS A CODE OF PRACTICE?	5
2 DEFINITIONS.....	6
3 INTRODUCTION	8
4 LEGISLATION	10
5 KEY RESPONSIBILITIES.....	12
5.1 EMPLOYER RESPONSIBILITIES	12
5.2 OPERATOR RESPONSIBILITIES	12
5.3 SUPERVISOR RESPONSIBILITIES.....	13
5.4 SIGNALLER RESPONSIBILITIES	13
6 OPERATOR COMPETENCY	17
6.1 TRAINEE INSTRUCTION LIST AND PRACTICAL SKILLS	18
6.2 ENERGY SOURCE SPECIFIC INSTRUCTION.....	19
6.3 REFRESHER TRAINING.....	19
7 INSPECTION.....	20
7.1 VISUAL INSPECTION.....	20
7.2 EQUIPMENT SAFETY	20
8 MAINTENANCE	21
9 EQUIPMENT OPERATION	22
9.1 GENERAL SAFETY	22
9.2 FORKLIFT SEAT BELT SAFETY	23
9.3 FORKLIFT STABILITY	23
9.4 LOAD HANDLING	24
9.5 LOAD RATING	24
APPENDIX A: COMPETENCY FORM	25
APPENDIX B: PRE-OPERATION DAILY CHECKLIST	27
APPENDIX C: FORKLIFT HAND SIGNALS.....	28

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."

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 occupational health and safety 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 – in respect of a function, task or duty, possessing the knowledge, experience and training to perform the function, task or duty.

Contractor – a person or company contracted to supply products or services.

Counterbalanced Forklift – a type of lift truck, which is self-propelled and has a power operated upright, angled or telescopic lifting device that can raise and lower a load for the purpose of transporting or stacking. Can have electric motors or internal combustion engines and either cushion/solid or pneumatic tires (classes 1, 4, 5 and 7).

Direct Supervision – a competent supervisor personally and visually supervising the worker who is not competent. They are also able to communicate readily and clearly with the worker under their supervision.

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

Fork Extension – a forklift attachment added to the truck fork to increase the fork's effective length for handling oversized, and uniformly distributed loads.

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. 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 – identification and documentation of hazards.

Height – the vertical distance from the floor to the horizontal load-carrying surface of the forks, measured adjacent to the heel of the forks, and in case of reach trucks, with the forks extended.

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 forklifts 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.

Rated Capacity – the weight established by the manufacturer at the required load centre that a given truck (equipped with load carriage and forks or attachments) can transport and stack to a height established by the manufacturer.

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

Risk – the likelihood 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.

Trainee – the person undergoing training to operate a forklift.

Worker – a person engaged in work for an employer, whether working with or without remuneration.

3 INTRODUCTION

The *Counterbalanced Forklift Code of Practice* provides information to employers and workers on what is required to operate a counterbalanced forklift safely, under Part 11, Powered Mobile Equipment of the *Occupational Health and Safety (OHS) Regulations*. These requirements ensure procedures are in place to safeguard the health and safety of the workers and the public.

OPERATOR TRAINING

Regulations on Powered Mobile Equipment require that the employer ensure a forklift operator is competent to operate the assigned forklift.

The code corresponds to Sections 176, and 200 as well as all of Part 11, Powered Mobile Equipment of the *Occupational Health and Safety (OHS) Regulations*. Refer to the WSCC Code of Practice on [Powered Mobile Equipment](#) for more information.

Assess workplace practices 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 focuses on responsibility, competency, safe operating procedures, and inspection and maintenance of forklifts. Additional Codes of Practice and resources with more information include:

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

The CSA Group has standards that may be helpful when developing procedures for forklift operators:

- **CSA B335-15** Safety Standard for Lift Trucks

There are multiple classifications of forklifts to serve various worksite requirements. Some examples of forklifts are below:

- Class 1: Electric motor rider trucks are mainly for loading/unloading and handling pallets. Have three and four wheeled versions (cushion/solid or pneumatic tires) as well as stand up or sit down rider configurations. With an electric motor there are no emissions making it suitable for operating them indoors.
- Class 2: Electric motor narrow aisle trucks carry items and pallets in smaller spaces such as warehouses etc. There are sit down and stand up configurations as well as front and side loader models.

- Class 3: Electric motor hand/rider driven trucks carry items and pallets in smaller spaces. Come in rider and walk behind models.
- Class 4: Internal combustion engine trucks with cushion/solid tires require the rider to sit down and can operate indoors as long as there is proper ventilation. They are commonly found doing work around loading docks. Different models can run on diesel, compressed natural gas, propane gas or gasoline.
- Class 5: Internal combustion engine trucks with pneumatic tires require the rider to sit down and are very similar to the class 4 forklift. The pneumatic tires allow the forklift to operate in outdoor areas on hard packed surfaces such as gravel and dirt.
- Class 6: Electric and internal combustion engine tractors are normally used for hauling and pulling versus lifting loads. A common name is 'tugger' as they are frequently seen towing luggage carts at airports from the terminal to the airplane.
- Class 7: Rough terrain forklift trucks have large tires that can operate in lumberyards, construction sites and other places with variable surfaces. This forklift can come with a traditional vertical mast or a telescoping one that extends the horizontal reach of the forklift.

Three-wheeled forklifts have a smaller turning circle and a different counterbalance feature which improves its maneuverability compared to the four-wheeled forklift.

Four-wheeled forklifts provide more stability when turning with heavy loads, and have better gradeability than the three-wheeled forklifts.

Select the appropriate equipment based on the needs of the workplace.

This code of practice focuses on seated rider, electric or internal combustion engine counterbalanced forklifts. From here on the word forklift refers to counterbalanced forklifts with non-telescopic masts in Classes 1, 4, 5 and 7.

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

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;

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.

Powered Mobile Equipment

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).

Scaffolds, aerial devices, elevating work platforms and temporary supporting structures

200. (1) An employer shall ensure that a work platform mounted on a forklift on which a worker could be raised or lowered or required or permitted to work is
- (a) designed and constructed to an approved standard or designed and constructed and certified by a professional engineer;
 - (b) securely attached to the forks of the forklift to prevent accidental lateral or vertical movement of the platform;
 - (c) equipped with guardrails and toeboards that meet the requirements of sections 128 and 129; and
 - (d) equipped with a screen or similar barrier along the edge of the platform adjacent to the mast of the forklift to prevent a worker from contacting the mast drive mechanism.

5 KEY RESPONSIBILITIES

Forklifts are powered mobile equipment (PME) used to move and handle materials in many workplaces and outdoor worksites. Forklifts can create significant hazards to workers who operate them or work around them. The widespread use of forklifts makes it vital for workers to receive training that ensures competency in the operation of a forklift, and to ensure awareness of the hazards associated with forklift operations.

5.1 EMPLOYER RESPONSIBILITIES

Employers must assess their work sites to identify existing and potential hazards before work begins. They must eliminate or control the identified hazards based on the hierarchy of controls. Refer to the [Hazard Assessments](#) Code of Practice for more information. Employers must ensure workers receive training and supervision until they are competent to operate equipment.

Employers are often responsible for setting and approving budgets. Part of their responsibility is the assignment of adequate funds for safety related expenses. Training, PPE, and equipment must be included in the budget to ensure safety does not get cut due to budget constraints.

5.2 OPERATOR RESPONSIBILITIES

The forklift operator is responsible for the safety of other workers and pedestrians near the operating forklift. An operator must never move equipment, or its load, when anyone is in range of the equipment. Operators must maintain full control of the forklift to prevent near misses and incidents.

The operator must:

- Ensure the work area is safe around them;
- Operate only if competent, and authorized;
- Report all mechanical problems immediately;
- Operate equipment in a safe manner at all times;
- If view is limited, designate a signaller for guidance. Follow signals from only the designated signaller, except for the 'Emergency Stop' signal.
If anyone at the worksite issues an 'Emergency Stop' signal, the operator must stop the equipment immediately;
- Maintain view of signaller; if signaller is out of view, the operator must stop the equipment immediately until communication with the signaller is re-established.
- Turn off the machine before refuelling;
- Always use the right type and grade of fuel;

The operator may not leave the cab of the forklift with a raised load.

Complete proper shut down prior to exiting the equipment.

- Report all spills; and
- Wear appropriate PPE.

5.3 SUPERVISOR RESPONSIBILITIES

Supervisors are responsible for ensuring the safety of their workers and must:

- Identify unsafe acts and conditions;
- with adequate experience to recognize the hazards associated with:
 - The type of forklift utilized;
 - The loads being handled; and
 - The environment the equipment is operating in.
- Ensure assigned operators are competent;
- Ensure inspection of the forklift by a competent worker prior to use; and
- Keep maintenance and inspection records onsite. Make them available to all equipment operators and WSCC Safety Officers upon request.

The movement of forklifts can present a danger to workers located within range of moving loads or moving parts; allow no worker to remain within this range. To avoid catching a worker between a stationary object/obstacle and a forklift, the supervisor must consider the following actions:

Educate workers on the high risk of dangerous movement.

- Prevent workers from entering a pinch point;
- Provide a minimum clearance distance of 600 mm between the obstacle and the forklift; and
- Provide guards or place barricades to prevent access to identified pinch points.

Provide barriers, warning signs, designated walkways, or other safeguards where there is pedestrian exposure to the risks associated with forklift operation.

The forklift can crush workers during maintenance and during operation if the forklift rolls or tips over. Additional crush related injuries can occur during loading/unloading operations, when materials are being lifted, manipulated, or dislodged by a forklift.

Carbon monoxide gas from fuel and propane-powered forklifts can overcome operators and by-standers when they are operating indoors without proper ventilation.

5.4 SIGNALLER RESPONSIBILITIES

When an operator does not have a clear line of sight for their task, they must use a signaller. Verbal communication between the signaller and operator is often limited; signallers are in charge of providing clear hand signals to the operator based on the environment and the movement of the forklift.

Appendix C is an example of signals commonly used for forklift operators; it can be printed and posted at the worksite, as well as included in the site orientation and training materials.

The company must have clear definitions of which hand signals worker's use on-site to prevent operator/signaller confusion. Ultimately, the company's policy will determine exactly which hand signals are used onsite.

It is important the signaller confirm with the operator the meanings of each hand signal prior to beginning work.

Emergency Stop: Both arms extend laterally from the elbow. The hands are open and palms facing downward. The arms move back and forth.



Stop: One arm (right or left) extends laterally from the elbow. The hand is open and palm facing downward. The arm moves back and forth.



Stop Engine: Using either hand, drag the thumb repeatedly across the throat.



Pause Everything: Clasp both hands in front of the body.



Raise Load: Extend either arm horizontally at shoulder height. Close fingers and point the thumb upward.



Lower Load: Extend either arm horizontally at shoulder height. Close fingers and point the thumb downward.



Raise Load Slowly: Extend either arm horizontally at shoulder height. Close fingers and point the thumb upward. Extend the opposite arm across the body with the palm facing down and positioned over top of the upward pointing thumb. (This signal is similar to the 'Raise Load' signal.)



Lower Load Slowly: Extend either arm horizontally at shoulder height. Keep fingers closed and point the thumb downward. Extend the opposite arm across the body with the palm facing up and positioned under the downward pointing thumb. (This signal is similar to the 'Lower Load' signal.)



This Far To Go: Start with the signaller's hands positioned with the palms facing inward to reflect the distance remaining for the operator. The hands move inwards and together as the distance shortens until the stop signal is given.



Tilt Forks Up: With one arm held at the side, extend the other arm upward about 45 degrees, keeping the fingers extended.



Tilt Forks Down: With one arm held at the side, extend the other arm downward about 45 degrees, keeping the fingers extended.



6 OPERATOR COMPETENCY

Only experienced workers with the appropriate level of training can have authorization to operate forklifts. Employers must ensure operators are competent and receive additional training and direct supervision as needed for the operator to maintain competency.

Trainees need instruction on safe operating procedures in accordance with the manufacturer's manual, operation best practices, and company procedures. The forklift operator's training and evaluation must be completed by competent individuals with the appropriate knowledge, experience, and training.

A non-competent supervisor cannot deem a worker competent.

The **CSA B335-15 Standard for Lift Trucks** outlines the key elements of operator training along with qualifications for both trainers and maintenance technicians.

Main Competency and Training Criteria

1. Establish the worker's ability to operate a forklift. They must demonstrate operator competency with the required skills and knowledge to the satisfaction of a competent trainer and evaluator.
2. Inform the worker of hazards associated with operating a forklift in a specific workplace, with the type of materials, and any environmental conditions that may apply.
3. Document training and monitor the operator's performance while using the forklift on a continuing basis, with formal re-evaluation/certification a minimum of every three years.

Forklift operator training must be part of a larger occupational health and safety program (review the [Code of Practice](#)) that includes ongoing identification and correction of hazardous situations, ongoing monitoring, and supervision.

The training sessions need to be thorough to ensure the trainee understands the required information. This includes theory, hands-on training, knowledge verification, and a practical evaluation.

Theory: This refers to instruction through various delivery methods, such as a lecture, discussion, interactive computer learning, videotape, slides, and/or written material.

Hands On: Physical demonstration by the trainer and exercises by the trainee on the model of forklift the worker will use in a safe training area for practice. Trainees may operate forklifts only under direction of a competent trainer, in a learning environment where it will not endanger the trainee or other employees.

Knowledge Verification: Involves evaluating the comprehension level of the theoretical information, whether in oral, written, or visual testing format.

Practical Evaluation: Observing the trainee's proficiency in the operation of the forklift as conducted in the workplace and against predetermined criteria. Repeat this evaluation at least once every three years at the workplace.

6.1 TRAINEE INSTRUCTION LIST AND PRACTICAL SKILLS

- NT and NU *Safety Act* and related *Regulations*
- Company policies and procedures
- Operation manual and manufacturer's specifications
- Features and safety equipment
- Stability
- Capacity and location
- Pre-operational check
- Start up
- Travelling with and without a load and pedestrian safety
- Stopping, starting, turning, driving forward and in reverse, with and without a load
- Parking and operating around worksite personnel
- Load handling
- Load selection, security, integrity
- Load pickup and placement
- Stacking/unstacking
- Site-specific handling (docks, transport vehicles, structures or rail cars)
- Driving on ramps and grades
- Personnel lifting, lowering, and supporting
- Using elevators
- Workplace-specific hazards
- Procedures for shutdown
- Procedures for leaving the operator's position
- Refuelling/recharging

The **CSA B335-15** outlines the essential elements for lift truck design and construction, maintenance, inspection, safe operation, and operator training.

The standard also outlines the recommended training and qualifications for trainers and maintenance technicians. It may be helpful to employers developing a forklift training program.



To lift personnel, the forklift must meet the requirements of Section 200 of the OHS Regulations

6.2 ENERGY SOURCE SPECIFIC INSTRUCTION

Instruct the trainee on appropriate PPE, positioning and securing of the forklift, the manufacturer and supplier requirements, applicable legislation, and hazards and emergency procedures associated with any of the following energy sources:

1. Propane cylinder exchange
 - Properties of propane, such as toxicity and flammability
 - Cylinder components and storage requirements
 - Cylinder removal, exchange, and installation
2. Refuelling other hydrocarbons (diesel, gasoline, natural gas)
3. Battery recharging/exchange

Use, store, and handle controlled products, such as propane, in accordance with Workplace Hazardous Materials System (WHMIS). Train workers who refuel forklifts in WHMIS 2015.

Diesel, gasoline, compressed natural gas and propane-powered forklifts must not operate where explosive concentrations of combustible dusts, flammable gases, or flammable vapours may be present. They must not operate in areas where exhaust gases could accumulate to create a carbon monoxide poisoning hazard.

A worker must not:

- Smoke within 7.5 metres of a forklift while it is being refuelled; or
- Refuel a forklift when there is a source of ignition within 7.5 metres.

6.3 REFRESHER TRAINING

Operators can become complacent when operating forklifts for extended periods and responsibility resides with the employer to monitor the operator's performance on an ongoing basis.

Retraining is required a minimum of every three years, and when workplace-specific upgrading is necessary, such as under the following conditions:

- Introduction of new or different equipment to the worksite.
 - Assignment of the operator to a new or different type or class of forklift.
- When there is modification to the equipment used by the operator.
- When there are changes to the operating conditions and environment.
 - Introduction of additional forklifts, equipment, or a flammable component.
- When there are changes to legislation.
- The supervisor has identified skill or knowledge deficiencies.
 - Operator involved in an incident, near miss, or observed unsafe action.

7 INSPECTION

Inspection of a forklift must include a basic safety check to ensure equipment is safe for operation; this must be based on the safety manual and performed every shift before the equipment is used.

7.1 VISUAL INSPECTION

Before operating a forklift, the operator must complete a visual inspection of the equipment and the surrounding area to ensure it is safe to start up. Known as a circle check, a walk around the forklift allows the operator to check for:

- Obvious mechanical problems;
- Equipment clearances;
- Closeness to other equipment or structures; and
- Workers who may be at risk during equipment operation.

Section 163 of the *OHS Regulations*:

(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.

7.2 EQUIPMENT SAFETY

The operator needs to examine the chains and mast, check for damage or leaks, and inspect the condition of the lift mechanism. Develop a regular inspection checklist through review of the manufacturer's inspection requirements combined with industry best practices. Inspections must include:

- Fork condition and wear;
- Tire condition and pressure;
- Fluid and fuel levels;
- Battery condition and electrolyte levels;
- Steering, and limit switch operation;
- Dash lights and gauges are working;
- Parking brake holds;
- Foot break does not lose pressure;
- Lift and tilt mechanisms operate smoothly;
- Back up alarm activates in reverse;
- Headlights and warning lights operation; and
- Unusual sounds produced by the equipment.

8 MAINTENANCE

Forklifts must be maintained in a condition that will not compromise the health and safety of workers, and safely perform the functions for which they are intended.

- Allow inspection, testing or maintenance to be performed only by persons who are competent.
- Ensure a record is kept at the workplace of any inspection, testing, maintenance, repair, or modification to the forklift and the name and qualification of the person who did the work.

Prepare written instructions on the nature and frequency of inspections, testing, and maintenance, considering the work and the environmental conditions to which the forklift is exposed. These instructions should be at least equivalent to the minimum requirements established by the manufacturer. They should require verification of the lifting capabilities of the forklift before it is used for the first time and also contain a schedule for monitoring the forklift's mechanical status.

Forklift manufacturer's specifications, which include forklift operation and maintenance manuals, must be followed and available to workers. Workers must be familiar with these specifications. Allow only competent individuals, such as the manufacturer's representative or a maintenance technician, to perform any repair, modification, or replacement to any part of a forklift.

Ensure all modifications, repairs, and additions that affect the capacity or safe operation of the forklift are performed with the written approval of the manufacturer. Where such modifications or additions are performed, update the capacity, operation, and maintenance instruction plates, tags or decals.

Best practices for forklift maintenance:

1. Follow the forklift manufacturer's specifications to include additional maintenance at 500, 1000, 2000 and 4000 hours by a competent mechanic.
2. Where a supplier is responsible for maintenance of the forklift, ask the supplier for a copy of the written testing and maintenance schedule.
3. Conduct hydraulic system and mast inspections including an annual lifting capacity check.
4. Conduct fork inspections, which include checking for:
 - Wear of forks;
 - Surface cracks;
 - Straightness of blade and shank;
 - Angle of blade to shank;
 - Difference in height of fork tips;
 - Positioning lock (when originally provided); and
 - Legibility of fork markings (when originally provided).

9 EQUIPMENT OPERATION

Each workplace should develop and implement a set of rules and safe operating procedures to address the specific hazards in the workplace.

9.1 GENERAL SAFETY

There is a large variety of forklifts, all with different designs to meet a specific purpose or environment. The hazards associated with the use of a specific forklift depends on the type, make, model, and the function it needs to fulfill.

- Keep the forklift's travel path clear and free of hazards.
- Ensure overhead and side clearances in aisles, loading docks, and doorways allow for easy movement of load and safe operation of the forklift.
- Provide designated walkways that
 - separate pedestrians from forklift traffic.
- Provide adequate lighting wherever forklifts are operating.
- Control for additional hazards with outdoor yards and construction sites.
- Ventilate the workplace to prevent accumulation of gases and vapours.
- Ensure any storage racks used are secure and suitable for the type of forklift used and strong enough for the loads.



Safely carry all loads close to the ground.

The fire hazard designation, carrying capacity, reach capabilities, and the features of the forklift selected must be compatible with the:

- Types of load/materials;
- Terrain;
- Environmental conditions; and
- Workplace design.

All forklifts equipped with a seat, must also be equipped with a seat belt.

Employers must ensure that the operator of a forklift wears their seat belt.

9.2 FORKLIFT SEAT BELT SAFETY

Properly fitted seat belts are crucial to safe forklift operation.

When a forklift overturns, the safest place for the operator is in the cab.

Since the purpose of a seat belt is to restrain the operator in the event of a crash or rollover, the seat belt can affect the operator's range of motion. If the seat belt does not fit the operator properly, it may not protect the worker in an incident and can create additional hazards in a rollover.

If a forklift is not equipped with a seat belt, follow the manufacturer's specifications for seat belt installation.

9.3 FORKLIFT STABILITY

Operators need to pay careful attention to special operating conditions, such as uneven or changing surface conditions and rough terrain. They must exercise caution to avoid contact with overhead installations like lights and pipes.

Conditions that can affect forklift stability are:

Ground and floor conditions	Reach/retract
Load centre at given height	Battery weight
Dynamic and static forces	Improper operation
Grade	Improper tire inflation
Speed	Faulty maintenance
Loading practices	Poor housekeeping

Operators must not turn the forklift on a grade or with a raised load; this changes the load centre of the forklift and decreases the stability of the equipment. Operators should keep the load lowered as much as possible, until the forklift is in position to raise the load.



Always lower the load before a turn and raise the load only when necessary.

9.4 LOAD HANDLING

- Employers must provide the appropriate equipment for lifting, lowering, carrying, handling, or transporting heavy or awkward loads.
- When removing a load from a storage area, pile, or rack, it must move in a way that does not endanger anyone's safety.
- No load should exceed the maximum rated capacity. Handle all loads in accordance with the height and weight restrictions on the forklift's load chart.
- Fork lengths should be at least two-thirds of load length.
- An operator must remain in the cab when a load is in the raised position.
- Use additional care when positioning, securing, and transporting loads with attachments.
- Extreme care is required when tilting a load forward or backward.
- Secure loads that may tip or fall and endanger someone.
- Immobilize and secure a vehicle against accidental movement when a forklift has to enter or exit the vehicle during loading (wheel chocks, truck restraints, dock locks etc).
- The operator must immobilize and secure the forklift before leaving it unattended.
- Fork extensions, buckets or other attachments must be in the lowered position or firmly supported with an unattended forklift.
- If an operator does not have a clear view around the load; the operator may choose to drive the forklift in reverse or have a competent signaller guide them.



No part of a load can pass over any worker.

9.5 LOAD RATING

Employers must ensure that forklifts have a durable and legible load rating chart (capacity plate). Every forklift must have clearly displayed information showing:

- The maximum rated load; and
- The variation of the rated safe load capacity with the reach of the equipment.

A modified forklift **must** have the information revised to reflect the new load ratings.

A new attachment can change the available load capacity. The operator must ensure the forklift is not overloaded.

APPENDIX A: COMPETENCY FORM












<p>Supervisor: Assess the employee in each area below using one of three ratings, then write a comment to support the rating. At minimum, the worker must meet expectations before being permitted to operate equipment independently.</p>		
<p>RATINGS</p>		
<p>Exceeds Expectations = 3</p>	<p>Meets Expectations = 2</p>	<p>Needs Improvement = 1</p>
<p>CATEGORY</p>		<p>RATING</p>
<p>General:</p>		
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.		
<p>Personal Protective Equipment [PPE]:</p>		
Always wears basic PPE (hard hat, safety glasses, hearing protection, safety boots, and gloves) where required.		
<p>Equipment Inspections:</p>		
Performs methodical walk-around inspection (check 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 daily checklist.		
<p>Ergonomics:</p>		
Demonstrates proper climbing technique (maintaining 3-point contact, doesn't climb with tools).		
<p>Equipment Operation:</p>		
Starts machine and listens for unusual sounds while machine is warming up.		
Demonstrates individual equipment functions and backup alarm check.		

RATINGS		
Exceeds Expectations = 3	Meets Expectations = 2	Needs Improvement = 1
CATEGORY	RATING	COMMENTS
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 area.		
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.		
Review:		
Month and year of next review:		
[Employee Name – Print]	[Employee Signature]	[Sign-off Date]
_____	_____	_____
[Evaluator Name – Print]	[Evaluator Signature]	[Sign-off Date]
_____	_____	_____
[Supervisor Name – Print]	[Supervisor Signature]	[Sign-off Date]
_____	_____	_____

APPENDIX B: PRE-OPERATION DAILY CHECKLIST

Forklift No:	Date:	Make:	Shift:
Evaluation			Comments
Forklift's appearance in good condition and clean?			
Proper ventilation to operate the forklift?			
Manufacturer's capacity plate clean and readable?			
Manufacturer's operation manual present?			
Check lift chains for equal tension, broken pins, damaged links, and corrosion.			
Check the forks for cracks, and that the locking pins are secure.			
Check for loose bolts and cracks on overhead guard, back rest, and seat. Is the seat belt present and working properly?			
Check that the lift, tilt and side shift cylinders are secure with no signs of leaks or corrosion.			
Are the hoses and fittings free from wear, leaks and corrosion?			
Check tires for loose or missing lug nuts. Are tires intact, without pieces missing from the rubber? Do they have the proper air pressure?			
Do the lights and horn work?			
Check fuel levels.			
Check the fluid levels for the brake fluid, engine oil, hydraulic oil, and coolant. Are there any signs of leaks under the forklift?			
Check the propane tank for leaks or frost around the fitting. Is the pressure release valve pointing straight up? Are the brackets holding the tank secure?			
Check the fire extinguisher.			
Start the engine and check the dashboard gauges for proper readings.			
Make sure there is no excessive free play in the steering wheel.			
Do the mast and forks raise, lower, and tilt smoothly?			
Check that the clutch engages properly. Does it shift roughly?			
Hold the brake pedal down for 10 seconds. Is there any noticeable drift with the pressure when in forward and reverse?			
Engage the parking brake in forward and reverse.			
Is the battery in good condition and charged?			
Are all connections tight? Is the discharge indicator showing sufficient charge when you turn the key?			
Report any findings to your supervisor immediately (insert notes here):			
Operator:		Signature:	

APPENDIX C: FORKLIFT HAND SIGNALS

 <p>Emergency Stop</p>	 <p>Stop</p>	 <p>Stop Engine</p>
 <p>Pause Everything</p>	 <p>Raise Load</p>	 <p>Lower Load</p>
 <p>Raise Load Slowly</p>	 <p>Lower Load Slowly</p>	 <p>This Far To Go</p>
 <p>Tilt Forks Up</p>	 <p>Tilt Forks Down</p>	<p>The operator must only respond to signals from the designated signaller.</p> <p>The only exception is if anyone gives the emergency stop signal, the operator must follow it.</p>

For a printer friendly version of these hand signals, please go to www.wsc.nt.ca

COUNTERBALANCED FORKLIFTS

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.