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# Powered Industrial Truck Safety Program



Prepared by:  
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## I. Introduction

The University of North Carolina at Pembroke's Powered Industrial Truck Safety Program (PIT) applies to all UNCP staff members who operate powered industrial trucks. Powered industrial trucks include forklifts, platform lift trucks, motorized hand trucks, and other specialized industrial trucks powered by electric or internal combustion engines. The [Occupational Safety and Health Administration](#) (OSHA) and [National Fire Protection Agency](#) (NFPA) have established rules and guidelines for the protection of workers and facilities relating to powered industrial trucks in [29 CFR 1910.178](#) Powered Industrial Trucks; and [NFPA 505](#) Fire Safety Standard for Powered Industrial Trucks including Type, Designation, Areas of Use, Conversions, Maintenance, and Operations, which are incorporated into this plan.

## II. Purpose

This program has been established to:

- Ensure the safe operation of powered industrial trucks.
- Ensure that work units understand and comply with safety standards related to powered industrial trucks.
- Assign responsibilities to personnel that is necessary for successful implementation.

## III. Scope

This program applies to all employees operating powered industrial trucks on UNC Pembroke's campus.

## IV. Responsibilities

### Management

- Ensure that responsibilities assigned within this program are carried out within their administrative departments.
- Designate employees responsible for the implementation of this program within their department.
- Actively support this program to demonstrate overall safety culture development.
- Ensure adequate funding is available to support this program.

### Office of Environmental Health and Safety

- Assist departments with implementing a regulatory compliant powered industrial truck program.
- Assist with powered industrial truck training.
- Periodically review and update the powered industrial truck written program.
- Periodically evaluate the work site usage of powered industrial trucks.
- Investigate powered industrial truck usage injuries and damage.

### Supervisors

- Designating and identifying personnel authorized to operate powered industrial trucks (do not allow unauthorized use of the equipment).
- Ensuring authorized operators have received proper training and certification (every 3 years)

before operating a powered industrial truck. Review and ensure understanding of this program and its applicability to your department.

- Ensure all safety and manufacturer regulations and instructions are followed.
- Ensure powered industrial trucks are maintained in proper working order and repaired when necessary.
- Ensure employees comply with all provisions of this program.
- Ensure employees receive training appropriate to their assigned tasks and maintain documentation.
- Ensure employees are provided with and use appropriate personal protective equipment (PPE).
- Take prompt action including disciplinary action when unsafe conditions or acts are observed.
- Investigate powered industrial truck injuries and damage. Ensure periodic maintenance is performed on the powered industrial truck.

### Authorized Powered Industrial Truck Operators

- Attending and passing classroom and evaluation of competence training before operating a powered industrial truck.
- Performing and documenting powered industrial truck pre-use inspections.
- Reporting all vehicle maintenance issues to his/her supervisor and removing the equipment from service if necessary.
- Operating and maintaining equipment safely at all times.
- Adhere to the owner's manual and all provisions in this program.
- Consult with supervisor and/or EH&S Office regarding any unusual hazards.

## V. Definitions

**Authorized Person (Repair):** Someone with training and experience on the brands/models being serviced. There are specific safety considerations that are unique to forklift trucks, thus the training must be specific to the brands/models being serviced.

**Certified Operator:** Certification of a PIT operator at UNCP is a three-step process consisting of classroom instruction, hands-on training, and hands-on evaluation. Once the employee has successfully completed all three steps they are considered to be a certified operator.

**Competent Trainer:** An employee who has successfully completed a Train-the-Trainer or equivalent type of training program and is familiar with the type of PIT in their work unit. A contractor or equipment vendor who has experience training PIT safety and operation and is familiar with the equipment is also permitted to be a Competent Trainer.

**Competent Evaluator (Hands-on):** An employee in the department/work unit who is experienced and competent with the PIT. An employee must be familiar with the equipment and its safe operation. To be considered competent regarding conducting the evaluation portion of the PIT training, an employee must have successfully completed the classroom portion of PIT training. This employee could be but is not limited to a certified operator, supervisor/manager, or safety officer.

**Fixed Jacks:** Devices which hold one end of a trailer to avoid the possibility of the trailer being "up-ended" in the course of PIT operations. The word "fixed" indicates that such jacks are not temporary

in nature but are an integral part of the trailer frame. They are folded up and under the trailer after loading or unloading activities have been completed and the trailer is reattached to its tractor.

**Powered Industrial Truck:** Vehicles which are commonly called “forklifts” or “lift trucks” and are used primarily to move materials. They can be used to move, raise, lower, or remove large objects or a number of smaller objects on pallets or in boxes, crates, or other containers. Powered industrial trucks can be ridden or controlled by a walking operator. Earthmoving and over the road haulage trucks are not included in this definition.

## VI. General Requirements

- Operators shall review and follow the manufacturer’s operating manual. A copy of the manual must be located on the equipment.
- Only certified operators shall operate a PIT.
- Operators shall follow safe work practices when operating a PIT.
- If a PIT is not equipped with a seatbelt the work unit must contact the manufacturer or forklift repair vendor to determine if a seatbelt can be retrofitted onto that PIT. If a PIT can be retrofitted with a seatbelt, it must be installed. If a seatbelt cannot be retrofitted, then the work unit must keep the documentation from the manufacturer.

## VII. Vehicle Requirements

All powered industrial trucks must be designed and constructed to meet minimum [American National Standards Institute](#) (ANSI) requirements established in the “American National Standard for Powered Industrial Trucks, Part II, ANSI B56.1-1969”.

All powered industrial trucks should be marked with a nameplate identifying their approval under ANSI B56.1-1969.

Additional information on the nameplate should include the designation of the powered industrial truck as outlined in Table 1.

**Table 1 – Designation of Powered Industrial Trucks**

Designation	Description
D	Diesel engine powered
DS	Diesel engine powered with additional safeguards to the exhaust, fuel, and electrical systems
DY	Diesel engine powered with the safeguards of the DS units AND do not have any electrical equipment and are equipped with temperature limitation features
E	Electrically powered
ES	Electrically powered with additional safeguards to prevent emission of hazardous sparks
EE	Electrically powered with the safeguards of ES units AND all electrical equipment is completely enclosed
EX	Electrically powered with the safeguards of ES and EE, AND are constructed to be used in atmospheres containing flammable vapors or dusts
G	Gasoline engine powered

GS	Gasoline powered with additional safeguards to the exhaust, fuel and electrical systems
LP	Liquefied petroleum gas powered
LPS	Liquefied petroleum gas powered with additional safeguards to exhaust, fuel and electrical systems

If a powered industrial truck is to be used in an area containing potentially hazardous atmospheric conditions, it is the responsibility of the operator and supervisor to ensure the correct forklift designation is available for use. Any operation of a forklift in a potentially hazardous atmosphere should be approved by the Environmental Health & Safety Office.

## VIII. Training

**Initial Training:** Supervisors must ensure all operators are adequately trained before operating a powered industrial truck. Training must consist of both formal instruction and practical evaluation.

Formal instruction includes lecture, discussion, online, video, and or written training and must consist of the following elements, when applicable:

- Specific operating instructions, warnings, limitations, and precautions specific to the type of powered industrial truck to be utilized by the operator.
- Differences between the powered industrial truck and a vehicle.
- Equipment controls and instrumentation including their location and proper operation.
- Operating the motor/engine.
- Steering and maneuverability.
- Visibility, including limitations when loading/unloading.
- Fork use and attachment adaptation, operation, and limitations (when applicable).
- Vehicle capacity and stability limitations.
- Completing equipment pre-use inspections.
- Refueling and/or battery changing/charging; and
- Specific workplace operation of the powered industrial truck including the following:
  - Handling loads specific to the operation of the powered industrial truck.
  - Operating in narrow aisles and/or around pedestrian traffic.
  - Operating on sloped surfaces.
  - Ventilation while using powered industrial trucks; and
  - Use restrictions based on hazardous locations.

**Practical evaluation (Appendix A Performance Checklist):** Includes demonstration performed by the trainer and practical exercises performed by the trainee in order to ensure competence by the operator when utilizing a powered industrial truck.

Practical evaluation should be conducted utilizing the powered industrial truck(s) to be used by the operator.

Practical evaluation should simulate typical work to be conducted with the powered industrial truck and may consist of the following:

- Performing pre-use inspections

- Safe operation of the industrial truck
- Handling a load
- Maneuverability

**Refresher Training:** Refresher training may be necessary due to certain circumstances as follows:

- The operator is observed operating the vehicle in an unsafe manner.
- The operator is involved in an accident or near-miss incident.
- The operator receives an evaluation revealing unsafe practices.
- There is a change in workplace conditions affecting the operation of an industrial truck.
- There is a change in the type of industrial truck being utilized in the workplace.

**Certification:** Powered Industrial Truck operators shall be certified before operating a powered industrial truck. This certification must be documented and include the following.

- Operator name
- Date of training
- Date of evaluation
- Trainer name.

**NOTE:** Powered Industrial Truck operators must be recertified every 3 years.

## **IX. Pre-Shift Powered Industrial Truck Inspections**

Before the use of a powered industrial truck by an operator, a pre-use inspection must be completed to ensure the safe operation of the equipment at all times.

Pre-use applies to each shift when multiple shifts are in place utilizing the equipment.

The pre-use inspection checklist must include the following general items:

- Identification of the powered industrial truck.
- Name of person conducting the inspection.
- Date/time of inspection.
- Inspection of equipment condition when not powered on.
- Inspection of equipment operation and controls when powered on.

**Pre-Shift Inspection (Appendix B Pre-Operational Checklist):** provides a pre-shift inspection checklist for use on powered industrial trucks.

If at any time a deficiency is noted during the pre-shift inspection, the powered industrial truck must be removed from service and repaired by an authorized mechanic before being placed back into operation.

Appropriate methods for removing a powered industrial truck from service can be found in the UNCP Lockout/Tagout Control of Hazardous Energy Program.

Inspection documents should be maintained by the department supervisor, or their designee, for recordkeeping purposes.

## X. Maintenance of Forklifts/Industrial Trucks

- Any powered industrial truck found not safe for operation must be immediately removed from service under the Lockout/Tagout program.
- Maintenance to be conducted on any powered industrial truck shall not be performed in a hazardous location (Class I, II, and III) as outlined in Table 2

*Table 2-Summary Table on Use of Industrial Trucks in Various Locations*

Classes	Unclassified	Class I locations	Class II locations	Class III locations
Description of classes	Locations not possessing atmospheres as described in other columns	Locations in which flammable gases or vapors are, or may be, present in the air in quantities sufficient to produce explosive or ignitable mixtures	Locations which are hazardous because of the presence of combustible dust	Locations where easily ignitable fibers or flying's are present but not likely to be in suspension in quantities sufficient to produce ignitable mixtures.

- Utilize Lockout/Tagout procedures to control hazardous energy sources during maintenance operations.
- All repairs shall be made by an authorized service technician.
- Powered industrial trucks shall be deemed safe for operation following all maintenance activities.

## XI. Fuel/Battery Handling, Storage and Filling

### Charging Batteries:

- Charging is permitted only in designated areas.
- Warning signs shall be posted at battery charging locations that state "Caution-battery charging station, No Smoking or Open Flames" (or equivalent).
- Adequate ventilation must be available to avoid the build-up of hydrogen gas during battery charging.
- A 10 lb. ABC fire extinguisher must be located within 20 feet.
- A means to protect charging apparatus from damage from trucks must be provided.



### **Filling Batteries:**

- When filling batteries with water, the following personal protective equipment (PPE) at a minimum must be worn: Safety goggles or face shield w/ safety glasses, acid-resistant gloves, and acid-resistant aprons.
- A properly equipped battery filling station shall have:
- An eyewash able to provide a 15-minute flow. The eyewash shall be located within 10 seconds walking distance of all battery filling areas.
- A phone or other means of communication in the event of an emergency.

### **Fueling (Liquid Petroleum, Gasoline, Diesel, etc.):**

- Signs shall be posted at fueling locations that state: "Danger – Propane, No Smoking or Open Flames" (or equivalent).
- Liquid petroleum (LP) cylinders shall only be stored outside in a secured and protected designated rack or storage area.
- When removing and attaching the connection to the LP cylinder the following PPE at a minimum must be worn: Safety glasses and work gloves (leather or equivalent).
- LP cylinders shall be secured to the forklift before operating.
- LP cylinder connections shall be checked for leaks by using liquid soap to detect the site of the leak.

## **XII. Recordkeeping**

Department supervisors shall maintain documentation of the following:

- Training certifications for all powered industrial truck operators including names and dates of training; and the equipment they are certified to operate.
- Pre-use inspection checklists.
- Maintenance records for each powered industrial truck.
- Accident reports involving powered industrial trucks.
- A copy of the Powered Industrial Truck Safety Program.

## **XIII. Contractors**

Contractors are required to follow all applicable OSHA-powered industrial truck regulations and manufacturer's instructions. Contractors are not permitted to use UNCP owned PITs.

## **XIV. Safe Operations, Traveling, and Loading**

Operation of a powered industrial truck must be done safely to prevent injury to the operator or pedestrians in the area; to prevent damage to property during operation. Safe operation of a powered industrial truck includes the following practices.

- Trucks shall not be driven up to anyone standing in front of a fixed object.
- Passing under a raised load or other elevated portion of a truck is prohibited.
- Unauthorized persons shall not "ride" on a powered industrial truck unless the powered industrial truck is equipped with a proper passenger area.
- Operators must keep hands and feet inside the powered industrial truck at all times.

- When left unattended, forklift load engaging means (forks) shall be in the lowered position, controls neutralized, power shut down, and brakes set. If parked on an incline, wheels shall be blocked.
  - A powered industrial truck is considered unattended when the operator is 25 feet, or more, away from the truck or whenever the truck is not in direct view of the operator.
  - If an operator dismounts a powered industrial truck and remains within 25 feet of the truck, the forks shall be lowered, controls neutralized, and brakes set to prevent movement.
- Maintain a safe distance from the edges of ramps or platforms.
- Forks shall not be used for purposes other than those specified by the truck manufacturer such as opening doors, raising persons to elevated areas, etc.
- Ensure sufficient headroom under overhead installations such as lights, sprinklers, pipes, etc.
- An overhead guard shall be in place on the truck to provide protection against falling objects.
- Only approved powered industrial trucks shall be used in hazardous locations.
- Ensure aisles, passageways, and access to fire equipment and emergency exits remain clear at all times.
- If at any time a powered industrial truck is found to need repair, defective, or in any way unsafe, the truck must be immediately taken out of service until it is restored to safe operating condition.
- Lighting shall be sufficient to ensure the safe operation of a powered industrial truck.
  - If general facility lighting is insufficient (less than 2 lumens per square foot) auxiliary lighting must be provided on the powered industrial truck.
- Ventilation shall be sufficient to prevent the accumulation of gases from petroleum-powered industrial trucks.

Safe traveling while operating a powered industrial truck is essential to maintaining a safe workplace. The following traveling safety points shall be implemented to the operation of trucks:

- Observe all traffic regulations while operating a powered industrial truck including speed limits.
- The right of way shall be yielded to ambulances, fire trucks, or other emergency vehicles.
- Other trucks shall not be passed when traveling in the same direction.
- When approaching an intersection at aisles and other locations, the operator shall slow down, sound the horn, and ensure no pedestrians or other trucks are in the area.
- Powered industrial trucks shall be driven forward unless the load being carried obstructs the view, in which case the forklift shall be driven in reverse.
- Cross railroad tracks diagonally.
- Always ascend/descend grades slowly.
  - If traveling on an incline greater than 10%, the load shall be maintained up grade to prevent tipping.
- When traveling with a load, the forks shall be tilted back and raised only enough to provide clearance in the direction of travel.
- Stunt driving and horseplay are prohibited.
- Maintain a safe operating speed at all times including when operating on wet/slippery floors, while negotiating turns; and when operating around other trucks/pedestrians.
- Ensure no debris or loose objects are in the path of travel.

- Dock boards/bridge plates shall be secured in place before traveling over them.
  - Portable dock boards must be strong enough to carry the load being imposed on them; secured in position by anchors or other devices to prevent slipping; be equipped with handholds or other effective means to permit safe handling.
  - Powered dock boards shall be designed and constructed per Commercial Standard CS202-56 (1961) "Industrial Lifts and Hinged Loading Ramps" published by the US Department of Commerce.
- Caution must be taken when loading and unloading trucks/trailers with powered industrial trucks. The following precautions should be taken to prevent accidents, injuries, and/or property damage during loading and unloading events.
  - Loads to be handled must be stable and safely arranged to permit safe handling.
  - Ensure the rated capacity of the powered industrial truck is not exceeded by the load to be handled.
  - When picking up a load, the load engaging means (forks) shall be placed under the load as far as possible and the mast tilted backward to stabilize the load.
  - Use extreme care when tilting loads backward and forward, especially during high-tier movement and/or storage.
  - When loading/unloading trucks/trailers, ensure the truck/trailer brakes are set and wheels blocked to prevent movement. Fixed jacks may be necessary to support trailers not connected to trucks/tractors.
  - The flooring within trailers shall be sufficient to support the loads as well as the powered industrial truck being utilized to load/unload the trailer.



### NSC Lift Truck Operator • Performance Checklist Summary

Program date: \_\_\_\_\_ Operator name: \_\_\_\_\_

Program name: \_\_\_\_\_

Program location: \_\_\_\_\_

	Meets Requirements	Needs Practice
<b>Skill Step</b>		
1. Recognizes lift truck controls		
2. Conducts a thorough pre-shift safety inspection		
3. Conducts a thorough worksite inspection		
4. Reads a data plate accurately		
5. Follows safety guidelines when traveling without a load		
6. Follows steps to pick up a load		
7. Follows safety guidelines when traveling with a load		
8. Follows steps to set down a load		
9. Follows steps to pick up and set down a load in a narrow aisle		
10. Follows steps to shut down a lift truck		
<b>Complete Skills</b>		
<b>Optional Skills</b>		
11. Reads a load chart accurately		
12. Follows safety guidelines for driving on a slope		
13. Follows safety guidelines for loading a tractor-trailer		

Facilitator Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Attachment B Pre-Operation Checklist

PRE-OPERATION CHECK - PIT

Make: Hyster Model: H-40-60XT SN: 010012174993

Operator Name: \_\_\_\_\_

Operator Signature: \_\_\_\_\_

Date: \_\_\_\_\_ Hour Meter: \_\_\_\_\_







Check item:	Yes	No	N/A
Obvious damage of loose parts			
Overhead guard			
Bridge and mast			
Forks and locking pins			
Chains			
Tires			
Fuel			
Wires, hoses, cables and belts			
Fire Extinguisher			
Engine fan belts and wiring			
Data plate and load limitations			
Placards or warnings			
Falling Object Protective Structure / Rollover Protective Structure			
Outrigger			
Worksite Hazards			
Boom extension			
Attachments			
Grab handles and steps			
Seat belts			
Steering			
Mirrors			
Operating manual			
Controls			
Gauges			
Operation of lift			
Unusual noises			
Fluids under truck			
Brakes			
Horn			
Lights			

COMMENTS:

NOTE: This form must be kept on file for 1 year and is subject to review by the Environmental Health and Safety Office. Documentation of repairs shall be maintained with the tractor's preventive maintenance records.

Attachment C Classes of Powered Industrial Trucks

CLASS 1	CLASS 2	CLASS 3	CLASS 4	CLASS 5
<b>Electric Counterbalanced Rider Trucks</b>	<b>Electric Narrow Aisle Trucks</b>	<b>Electric Hand Trucks</b>	<b>Internal Combustion Engine (cushion tire)</b>	<b>Internal Combustion Engine (pneumatic tire)</b>
1.0T to 5.5T	1.5T to 6.0T	1.5T to 8.0T	1.0T to 7.0T	1.0T to 52.0T
<p>Electric CB</p>  <p>3 wheel Electric</p> <p>4 wheel Electric</p>	<p>Warehouse Equipment</p>  <p>Reach Trucks</p> <p>Very Narrow Aisle Trucks</p> <p>Pallet Trucks</p> <p>Order Pickers</p> <p>Stackers</p>	<p>ICE CB</p>  <p>Internal Combustion Engine</p>	<p>Big Trucks</p>  <p>Empty Container Handlers</p> <p>Forklifts</p> <p>Reach Stackers</p> <p>Laden Container Handlers</p>	

