

# Powered Industrial Trucks (Forklifts)

## Table of Contents

1. Summary .....	2
2. Scope .....	2
3. Policy and Regulation .....	2
4. Definitions .....	2
5. Roles and Responsibilities.....	2
6. Initial Training and Certification to Operate.....	3
7. Refresher Training .....	4
8. Training Records .....	4
9. Pre-Operational Procedures .....	4
10. Forklift Requirements .....	5
11. Operational Procedures – General Safety.....	5
12. Operational Procedures – Traveling at Speed.....	6
13. Operational Procedures – Changing Directions, Reversing, Steering .....	6
14. Operational Procedures – Traveling on Inclines.....	7
15. Operational Procedures – Loading Docks .....	7
16. Operational Procedures – Parking .....	8
17. Operational Procedures – Refueling .....	8
18. Maintenance of Powered Industrial Trucks.....	9
Appendix A - Department Specific Information.....	10
Appendix B - Operator Training Certification.....	11
Appendix C - Forklift Operator’s Daily Checklist.....	12

# 1. Summary

The purpose of these operating procedures is to ensure the safety of employees and to comply with OSHA requirements.

# 2. Scope

These operating procedures apply to all departments and employees within the University that operate powered industrial trucks, e.g., forklift trucks, motorized hand trucks, and other specialized industrial trucks powered by internal combustion or electric engines.

# 3. Policy and Regulation

The Occupational Safety and Health Administration regulates the use of powered industrial trucks in the workplace as detailed in 29 CFR 1910.178.

# 4. Definitions

**Forklift** – A powered industrial truck with a power-operated forked platform used to hoist and transport materials by means of steel forks inserted under a load.

**Powered Industrial Truck** – An industrial vehicle used to carry, push, pull, lift, or stack material powered by an electric motor or an internal combustion engine, including vehicles commonly called forklift trucks, rider trucks, motorized or powered hand trucks, pallet trucks and tugs.

Not included are compressed air or nonflammable compressed gas-operated industrial trucks, farm vehicles, or vehicles intended primarily for earth moving or over-the-road hauling, golf carts, Gators, and other similar types of rough terrain vehicles.

# 5. Roles and Responsibilities

Deans, Directors and Department Heads are responsible to:

- Designate and empower the department's Health and Safety Coordinator (or Program Coordinator or equivalent) and supervisors.
- Actively support these procedures within individual units.
- Ensure an environment where employees are encouraged to follow these procedures.

The Department Health and Safety Coordinator is responsible to:

- Act as an administrative liaison between the department and EHS.
- Provide administrative oversight of health and safety within the department.
- Facilitate the correction of safety problems within the department.

Supervisors are responsible to:

- Implement these procedures.

- Assure that staff is aware of this program and provided with training and the personal protective equipment.
- Maintain documentation and records as required.

Employees are responsible to:

- Comply with these procedures and any further safety requirements set by supervisors.

EHS is responsible to:

- Provide procedural guidelines, educational offerings, administrative consultations and reviews, and select technical and field services.
- Exercise surveillance over health and safety issues at the University.

## 6. Initial Training and Certification to Operate

Only trained and certified operators are permitted to operate a powered industrial truck. No one under the age of 18 may operate a powered industrial truck.

Training shall consist of a combination of formal instruction (e.g., lecture, discussion, interactive computer learning, video tape, written material), practical training (demonstrations performed by the trainer and practical exercises performed by the trainee), and evaluation of the operator's performance in the workplace.

**Formal instruction:** This can be completed by taking EHS's online ICON course (W057OS) and passing the related quiz. This course covers general information about hazards and operating techniques. Alternative training methods such as a course offered by Kirkwood Community College may also be used to provide the information and training and teach the driver how to operate the truck.

**Practical Training:** All operator training and evaluation shall be conducted by persons who have the knowledge, training, and experience to train powered industrial truck operators and evaluate their competence [1910.178(l)(2)(iii)]. In general, the trainer will only have sufficient "experience" if he/she has the practical skills and judgment to be able to personally operate the equipment safely under the conditions prevailing in the employer's workplace. For example, if the department uses certain truck attachments and the trainer has never operated a truck with those attachments, the trainer would not have the experience necessary to train and evaluate others adequately on the safe use of those attachments. However, the standard does not require that the trainers operate a Forklift regularly (i.e., outside of their operator training duties) as part of their job function or responsibility.

The field performance evaluation (Appendix B) is to be conducted on the actual truck(s) used by the department. This must be completed by the designated trainer for the employee's work site, and be specific for the employee's work duties and the actual truck(s) used. If the employee operates more than one truck or uses more than one attachment on the truck, a field performance evaluation shall be completed for each

one. The site-specific form provided in the EHS online course includes a checklist guide that serves as an outline of the record of training.

Once the trainee has successfully completed all of the above training, they are authorized to operate the truck(s) used by that department. Completing Appendix B certifies that each operator has been trained and evaluated in accordance with the OSHA standard. [[1910.178\(l\)\(6\)](#)]

The certification must include:

- Operator name.
- Training Date.
- Evaluation Date
- Name of person(s) performing the training or evaluation

## 7. Refresher Training

Refresher training and field performance evaluations in the field are required every three years.

Refresher training is also required if the operator:

1. Has been observed to operate a truck in an unsafe manner.
2. Has been involved in an accident or near-miss incident.
3. Has received an evaluation that reveals that the operator is not operating the truck safely.
4. Is assigned to drive a different type of truck.
5. Conditions in the workplace change in a manner that could affect safe operation of the truck.

## 8. Training Records

Records are maintained by the department.

## 9. Pre-Operational Procedures

Operators shall perform a pre-use inspection and fill out the “Forklift Operator’s Daily Checklist” (Appendix C) or similar to ensure that its condition is safe for operation.

(Retain this form for one year)

- Trucks used on a daily basis must be examined prior to use each day.
- Trucks used on a multiple shift basis must be examined prior to the shift.
- Trucks used infrequently must be examined prior to each usage.

Any problems shall be reported immediately, to the manager or supervisor, and the equipment is to be tagged out to prevent its use until the problem has been repaired.

**Never use a defective forklift.**

## 10. Forklift Requirements

All forklifts purchased by a department must meet the design and construction requirements in ANSI B56.1, Safety Standard for Low Lift and High Lift Trucks.

Each operator is required to be aware of the truck specifications on the nameplate and what they mean. If there is a special attachment, it must be listed on the nameplate. The nameplate (also called the data plate) provides important information for the forklift operator, including the fuel type, forklift weight, and capacity. Operators should read the nameplate to know the forklift's capabilities and limitations.

- **Nameplates** - Ensure every truck has its durable, corrosion-resistant nameplate legibly inscribed with the following information:
  - Truck model and serial number.
  - Truck weight.
  - Designation of compliance with the mandatory requirements of ANSI B56.1, "Safety Standard for Low and High Lift Trucks," applicable to the manufacturer.
  - Capacity - The capacity is the manufacturer's guideline for how much weight a forklift can safely lift. Exceeding the capacity of a forklift presents serious hazards, including tip-over.
- **Modifications** - Modifications or additions that affect capacity or safe operation shall not be performed without prior written approval from the forklift truck manufacturer. Capacity, operation, and maintenance instruction plates, tags, or decals shall be changed accordingly. [\[1910.178\(a\)\(4\)\]](#)
  - These changes can only be made by the manufacturer or their authorized dealer/representative. No "In-House" made attachments are allowed.
- **Danger, Warning and Caution Labels** - In addition to the nameplate, forklifts may have other warning labels or decals that provide safety information to operators. Safety labels should be clearly visible to the operator and must be replaced if missing, damaged, or illegible.

## 11. Operational Procedures – General Safety

Forklift operators must follow safe operating rules at all times. Operators must always maintain control of the forklift, keep a proper lookout, and operate the forklift at speeds safe for the particular operation and worksite conditions.

- Always yield to pedestrians. They always have the right of way.
- Only the operator is allowed on the forklift. Riders are not permitted on a forklift.
- Wear a seat belt at all times of operation. Not required for stand up forklifts.
- Arms and legs are to be kept within the cab area. Never place any part of the body between the uprights of the mast or outside the running lines of the truck.
- No one shall be allowed to stand or walk under any portion of elevated forks,

- whether loaded or unloaded.
- A forklift shall never be used to elevate a person.
  - Stunt driving and horseplay are prohibited.
  - If objects are being lifted over head the forklift should have a protective cage over the driver.
  - Indoor Air Quality - When used indoors, forklifts powered with internal combustion engines can present indoor air quality hazards.
    - Exposure to engine exhaust containing carbon monoxide can occur. If the engine is not properly combusting fuel, the exhaust may contain high levels of carbon monoxide.
    - Do not operate in a poorly ventilated area where vapors can concentrate.
    - Shut the engine off when staying inside a small confined area like a trailer.

## **12. Operational Procedures – Traveling at Speed**

Be aware of the travel conditions along the planned route:

- Under all travel conditions the truck must operate at a speed that will permit it to be brought to a stop in a safe manner.
- The driver must slow down for wet and slippery floors.
- The driver must look in the direction of, and keep a clear view of, the path of travel.
- The driver must slow down and sound the horn at cross aisles and other locations where vision is obstructed.
- If the load being carried obstructs forward view, the driver is required to travel in reverse.
- While negotiating turns, speed shall be reduced to a safe level by turning the steering wheel in a smooth, sweeping motion.

## **13. Operational Procedures – Changing Directions, Reversing, Steering**

**When changing directions:**

- Come to a complete stop before changing directions.
- Use a horn or warning light to warn pedestrians when reversing.

**While backing up or reversing:**

- Drive in reverse if the load obstructs the forward view.
- Keep a clear view.
- Look in the direction of travel. When reversing, the driver should turn their head and look behind.
- Use a horn or warning light to warn pedestrians when reversing.

### **While steering:**

- When turning, reduce speed to a safe level.
- Proceed with caution when making turns, especially when working in confined areas or narrow aisles. When the lift truck turns a corner, the rear of the lift truck swings in the opposite direction of the turn.
- Never turn with forks elevated above a safe traveling height.
- Never turn on a grade. The forklift may tip over laterally on even a very small grade.

## **14. Operational Procedures – Traveling on Inclines**

While traveling on a grade or incline:

- Grades shall be ascended or descended slowly.
- Always look in the direction of travel.
- When traveling with a load, the load should point up the incline, regardless of direction of travel.
  - Drive loaded trucks forward going up a ramp with the load upgrade.
  - Drive in reverse going down a ramp with the load upgrade.
- When traveling without a load, always drive unloaded trucks with the forks downgrade.
  - Going up the incline: Drive in reverse, turn head and face upgrade, forks pointed downgrade.
  - Going down the incline: Drive in reverse, turn head and face downgrade, forks pointed up the grade.

## **15. Operational Procedures – Loading Docks**

When operating a forklift on a loading dock:

- Dock plates shall be secured in place prior to traveling over them.
  - Portable dock plates must be strong enough to carry the load being imposed on them; secured in position by anchors or other devices to prevent slipping; and be equipped with handholds or other effective means to permit safe handling. [\[1910.30\(a\)\]](#)
  - Powered dock plates must be designed and constructed in accordance with Commercial Standard CS202-56 (1961) "Industrial Lifts and Hinged Loading Ramps" published by the US Department of Commerce.
- 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/tractor. [\[1910.178\(k\)\(1\)\]](#)
  - If trailers are secured by mechanical dock locks, wheels do not need to be blocked.



## 16. Operational Procedures – Parking

While parking and leaving an unattended vehicle:

- When a truck is left unattended, forks shall be fully lowered, controls shall be neutralized, power shall be shut off and brakes set. (A truck is considered "unattended" when the operator is more than 25 feet away from the truck which remains within their view, or whenever the truck is not within their view).

**Note:** When the operator of an industrial truck is dismounted and within 25 ft. of the truck still in his/her view, the load engaging means shall be fully lowered, controls neutralized, and the brakes set to prevent movement. It is not required that the power be shut off. [\[1910.178\(m\)\(5\)\(iii\)\]](#)

- Select a hard, level surface.
- Do not park on a grade, unless wheels are blocked.
- Fully engage the parking brake.
- Lower the load engaging means (lifting mechanism) fully.
- Neutralize the controls: Set the direction lever in neutral, and lock the mechanism (if available).
- Tilt the mast forward slightly and lower the forks to the floor until the fork tips touch the floor.
- Turn the key to OFF, and stop the engine. Remove the key.
- Get off the forklift without jumping.

## 17. Operational Procedures – Refueling

Guidance on recharging and refueling all truck types can be found in [NFPA 505](#): Fire Safety Standard For Powered Industrial Trucks.

Internal combustion: Forklifts powered by internal combustion engines run on a variety of fuels, including liquid petroleum gas (LPG), gasoline, and diesel fuel. LPG is commonly used for forklifts.

- LPG
  - LPG is extremely cold when exposed to the atmosphere. If skin or eyes are exposed to LPG, an operator can get frostbite. This can occur when changing LPG tanks. Wear proper PPE to protect from this exposure.
  - Follow proper procedures for storing and handling liquid petroleum gas. [\[1910.110\]](#), and NFPA Storage and Handling of Liquefied Petroleum Gases ([NFPA 58](#)).
  - Cylinders stored in buildings shall not be located near exits, stairways, or in areas normally used, or intended to be use, for the safe egress of

people.

- The handling and storage of liquid fuels such as gasoline shall be in accordance with the National Fire Protection Association (NFPA) Flammable and Combustible Liquids Code ([NFPA 30](#)).

Electric:

- Designate an area for the purpose of battery charging. ([NFPA 505](#))
- Provide equipment at the charging station to allow for flushing and neutralizing spilled electrolyte, fire protection, adequate ventilation, and emergency eye washing. ([NFPA 505](#))
- Warning signs shall be posted at battery charging locations that state “Caution-battery charging station, No Smoking or Open Flames” (or equivalent).
- When charging batteries, acid shall be poured into water; water shall not be poured into acid.

PPE

Personal protective equipment (approved face shield, goggles, gloves) shall be worn during all inspections, refueling and battery filling/charging operations; propane tank change-outs, and any other potentially hazardous operation.

## **18. Maintenance of Powered Industrial Trucks**

Scheduled maintenance is critically important to the safe operation of your vehicle.

- Perform preventive maintenance according to manufacturer's scheduled recommendations.
- Authorized personnel must make all repairs. Do not attempt to fix it yourself unless you are trained and authorized to do so.
- Any power-operated industrial truck not in safe operating condition must be removed from service.
- Keep the industrial truck in clean condition, free of lint, excess oil, and grease.

Retain maintenance records in accordance with University record retention guidelines.

- Demonstrates that all essential features of the vehicles are inspected routinely.
- Provides evidence that the vehicles are being inspected as required.

## Appendix A - Department Specific Information

Department Name: \_\_\_\_\_

Powered Industrial Truck Program Administrator: \_\_\_\_\_

Location of Written Program: \_\_\_\_\_

Date Program Updated: \_\_\_\_\_

Location of Training Records: \_\_\_\_\_

- Training certifications (Appendix B) for all forklift/industrial truck operators including:
  - Names and dates of training
  - Equipment they are certified to operate
  - Name of person giving the training

Location of Completed Daily Operator Checklists (retain for 1 year): \_\_\_\_\_

Location of Maintenance records for each forklift/industrial truck (retain for 5 years):

\_\_\_\_\_

# Appendix B - Operator Training Certification

## PERFORMANCE TEST FOR FORKLIFT OPERATORS

Employee Name \_\_\_\_\_ Date \_\_\_\_\_

Forklift Model: \_\_\_\_\_

1. Y\_\_ N\_\_ Properly filled out the pre-use checklist.
2. Y\_\_ N\_\_ Can point out where safety equipment is located: fire extinguisher, seat belt, safety cage.
3. Y\_\_ N\_\_ Wears seat belt at all times while operating. Not required for stand-up trucks.
4. Y\_\_ N\_\_ Showed familiarity with truck controls.
5. Y\_\_ N\_\_ Demonstrates how to properly change a propane tank (if applicable).
6. Y\_\_ N\_\_ Gave proper signals when turning.
7. Y\_\_ N\_\_ Sounded horn at intersections.
8. Y\_\_ N\_\_ Kept a clear view of direction of travel.
9. Y\_\_ N\_\_ Turned corners correctly – was aware of rear end swing.
10. Y\_\_ N\_\_ Drove under control and within proper traffic aisles.
11. Y\_\_ N\_\_ Approached load properly.
12. Y\_\_ N\_\_ Lifted and balanced the load properly.
13. Y\_\_ N\_\_ Maneuvered properly.
14. Y\_\_ N\_\_ Traveled with load at proper height.
15. Y\_\_ N\_\_ Lowered load smoothly/slowly.
16. Y\_\_ N\_\_ Stopped smoothly/completely.
17. Y\_\_ N\_\_ Carried load back against the backrest.
18. Y\_\_ N\_\_ Carried parts/stock in approved containers.
19. Y\_\_ N\_\_ Checked bridge plates/ramps.
20. Y\_\_ N\_\_ Placed loads within marked area.
21. Y\_\_ N\_\_ Stacked loads evenly and neatly.
22. Y\_\_ N\_\_ Drove in reverse when required.
23. Y\_\_ N\_\_ When required, determined weight of load.
24. Y\_\_ N\_\_ Yielded to pedestrians at all times, and provided them the right of way.
25. Y\_\_ N\_\_ When parking, placed forks flat on floor, neutralized controls, set brake, shut power off.

Pass Yes \_\_\_\_ No \_\_\_\_

This employee was observed performing the above tasks in a satisfactory manner.

He/she has passed both the ICON course and driving skills tests and is now certified to operate above named forklift model in this facility.

Trainer Name (Print) \_\_\_\_\_

Date: \_\_\_\_\_

# Appendix C - Forklift Operator's Daily Checklist

Inspection Performed by: \_\_\_\_\_ Week beginning \_\_\_\_\_

Note: This check must be made by the truck operator daily at the start of the shift. Check (✓) OK or □ Needs repair or adjustments (give details in comments section below). Retain this form for one year.

	Inspection Sequence	MON		TUES		WED		THURS		FRI		SAT		SUN	
		OK	Repair	OK	Repair	OK	Repair	OK	Repair	OK	Repair	OK	Repair	OK	Repair
VISUAL CHECKS	<b>DAMAGE</b> - Bent, dented or broken parts														
	<b>LEAKS</b> – Fuel, oil, radiator, hydraulics														
	<b>TIRES &amp; WHEELS</b> – Drive wheels, steer wheels, load wheels, casters, etc.														
	<b>FORKS</b> – Secure, not bent, cracked or badly worn														
	<b>CHAINS, CABLES &amp; HOSES</b> – In place														
	<b>BATTERY</b> – Battery cable and connector condition. Cable routing (not outside of truck). Battery retainer securely in place.														
	<b>GUARDS</b> – All guards in place and condition. Overhead, load backrest, etc. Gates and side rails (SP & Turret Models)														
	<b>MECHANICAL SAFETY DEVICES</b> – Operator harness or seat belt, fire extinguisher, name/data plate, warning labels, etc. in good condition.														
	<b>OPERATOR COMPARTMENT/CONTROLS</b> – All controls, steer tiller, pedals, etc. in good condition. Seat locks in position.														
OPERATIONAL CHECKS	<b>POWER UP</b> – Turn on key. All indicator lights and alarms are working.														
	<b>POWER DISCONNECT</b> – Cuts off all electrical power.														
	<b>ELECTRICAL SAFETY DEVICES</b> – Horn, audible signals, entry bar, flashing lights, indicator lights, etc. work properly														
	<b>STEERING</b> – No binding, no excessive play														
	<b>BRAKES &amp; TRAVEL CONTROLS</b> – Check braking & plugging distances while traveling slowly at first. If ok, then check at higher speeds. Acceleration smooth, not jerky.														
	<b>PARKING BRAKE</b> – Seat, hand or foot														
	<b>HYDRAULIC CONTROLS</b> – Test all hydraulic functions for smooth and proper operation and no unusual noise.														
	<b>ATTACHMENTS</b> – Function properly, no unusual noise, securely in place especially removable attachments.														
	<b>LIMIT SWITCHES</b> – Travel limit, lift limit, tilt limit, safety reverse (walkies), etc.)														
	<b>BATTERY CHARGE</b> – Discharge meter in full green or 75% charge after raising forks.														
	<b>WIRE GUIDANCE (SP and Turret Option)</b> – Acquisition, tracking. Brakes set, alarm works, test by slowly driving off end aisle wire.														
	<b>END AISLE CONTROL (SP and Turret Option)</b> – Alarm beeps and truck slows down or stops as programmed at aisle end.														

**Comments:** (Items needing repair or adjustment)

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**Caution** – If the truck is found to be in need of repair or in any way unsafe, or contributes to an unsafe condition, the matter shall be reported immediately to the designated authority, and the truck shall not be operated until it has been restored to a safe operating condition. If during operation, the truck becomes unsafe in any way, the matter shall be reported immediately to the designated authority, and the truck shall not be operated until it has been restored to safe operating condition. Do not make repairs or adjustments unless specifically authorized to do so.