

# Environmental Health, Safety and Emergency Management

APPALACHIAN STATE UNIVERSITY

## **Powered Industrial Truck Safety Program**

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## **1.0 Overview**

Powered Industrial Truck operation can present a significant safety concern. During the movement of products and materials, there are numerous opportunities for injuries and property damage. Powered industrial trucks, better known as forklifts are essential tools in handling materials. This document has been created to minimize the risk of injury to operators, bystanders, and to avoid damaging university property. Departments assigned this equipment will utilize this program to increase operator awareness of recognized safety standards. Qualified trainers will be used to provide all training activities. Written records will be kept in the respective departments and by the Department of Environmental Health, Safety, and Emergency Management (EHS&EM) to document all training. Specific responsibilities for monitoring the effectiveness of this program are assigned to departments, supervisors, operators, and EHS&EM. This document will be reviewed annually by EHS&EM, and those departments affected by its requirements. The annual review will assess the current level of program compliance, the program's effectiveness in reducing injuries and property damage, and address program improvements.

## **2.0 Purpose**

This program has been developed to reduce the risk of physical injury or property damage in areas where powered industrial trucks are in operation. It also brings the university into compliance with federal, state, and local law. Departments assigned powered industrial trucks must ensure that supervisors and operators comply with all aspects of this safety program. All university employees must successfully complete this training program, and receive certification prior to the operation of any powered industrial truck.

## **3.0 Powered Industrial Truck Safety Program Procedures**

### **3.1 Pre-Use Inspection**

- Prior to the operation of any powered industrial truck the Pre-Use Inspection Checklist found in Appendix A must be completed. This applies at the beginning of every work period, and whenever a new equipment operator takes control of the powered industrial truck.
- Any safety defects (such as hydraulic fluid leaks; defective brakes, steering, lights, or horn; and/or missing fire extinguisher, lights, seat belt, or back-up alarm) must be reported for immediate repair. They must also be locked and tagged, and taken out of service.

### **3.2 Operation**

- Operators must wear seat belts at all times.
- Operators must sound the horn and use extreme caution when meeting pedestrians making turns, and cornering.
- Passengers are not allowed to ride on an industrial truck, unless the truck has an extra seat that allows the passenger to buckle-up while riding.
- Arms or legs may not be placed between the uprights of the mast or outside the running lines of the truck.

- Persons are not allowed to stand or pass under any elevated portion of a truck.
- Travel-ways must be maintained free from obstructions, aisles must be marked, and wide enough (six-foot minimum) for vehicle operation.
- Maintain sufficient headroom under overhead installations such as: lights, pipes, sprinkler systems, etc.
- An overhead guard must be used as protection against falling objects.
- Lift capacity must be marked on all powered industrial trucks. Operators must assure the load does not exceed rated weight limits.
- When a powered industrial truck is left unattended (more than 25ft. away or out of sight), load engaging means must be fully lowered, controls neutralized, power shut off, and brakes set. Wheels must be blocked if the truck is parked on an incline.
- All modifications must be approved by the manufacturer, and new rated load capacities determined and posted on the truck. Written approval is required.
- Operators must report all accidents, regardless of fault and severity, to their Supervisor.

### **3.3 Loading**

- Only handle loads within the rated capacity of the truck.
- Loads should be safely arranged, stable, and centered – always use caution when handling loads. Adjust long or high (including multiple-tiered) loads that may affect capacity.
- Trucks equipped with attachments must be operated as partially loaded trucks even when not handling a load.
- A load engaging means must be placed under the load as far as possible. The mast must be carefully tilted backward to stabilize the load.
- Use extreme care when tilting the load forward or backward, particularly when high tiering. Tilting forward with load engaging means elevated is prohibited except to pick up a load. An elevated load may not be tilted forward except when the load is in a deposit position. When stacking or tiering, use only enough backward tilt to stabilize the load.

### **3.4 Traveling**

- 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 must travel with the load trailing.
- Loads must be tilted back and carried no more than four inches above the ground.
- The driver must look in the direction of and keep a clear view of the path of travel.
- Grades must be ascended and descended slowly. Position the load uphill relative to the operator when ascending or descending grades.
- Stunt driving and horseplay are prohibited.
- While negotiating turns, reduce speed and turn the hand steering wheel in a smooth, sweeping motion.

### **6.5 Fueling**

- Fuel tanks may not be filled while the engine is running. Avoid spillage.

- Spillage of oil or fuel must be absorbed using oil dry or vermiculite, the affected area carefully washed, and the fuel tank cap replaced before restarting engine.
- Any spill clean-up debris must be properly disposed at the direction of EHS&EM
- No truck can be operated with a leak in the fuel system.
- Open flames are not to be used when checking electrolyte levels in storage batteries, or gasoline levels in fuel tanks.

### **3.6 Changing and Charging Batteries**

- Battery charging installations must be located in areas designated for that purpose
- Facilities must provide for: flushing and neutralizing spilled electrolyte, fire protection, protection of charging apparatus from damage by trucks, adequate ventilation for dispersal of fumes from gassing batteries.
- Precautions must be taken to prevent open flames, sparks, or electric arcs in battery charging areas.
- Employees charging and changing batteries shall be authorized to do the work, trained in the proper handling, and required to wear protective clothing, including face shields, long sleeves, rubber boots, aprons, and gloves.

### **3.7 Maintenance**

- Any power-operated industrial truck not in safe operating condition must be removed from service. Authorized personnel must make all repairs.
- Repairs to the fuel and ignition systems of industrial trucks that involve fire hazards must be conducted only in locations designated for such repairs.
- Trucks in need of repairs to the electrical system must have the battery disconnected before such repairs.
- Only use replacement parts that are currently recommended by the manufacturer.

## **4.0 Responsibilities**

### **4.1 Departments Utilizing Powered Industrial Trucks;**

- Must implement and administer the Powered Industrial Truck program.
- Review the Powered Industrial Truck program annually for compliance and effectiveness.
- Verify that all employees who operate or work near powered industrial trucks are properly trained.
- Maintain written records of operator training on each model of a Powered Industrial Truck and the name of the trainer.
- Maintain written records of the frequent and annual inspections performed by the Powered Industrial Truck owner, including the date any problems found, the date when fixed, and the name of the person performing the repairs.
- Make recommendations for revisions if necessary.

## **4.2 Supervisors**

- Coordinate employee training, and certify that all operators receive training including, but not limited to, the items listed in Section 5.0 of this document.
- Annually review the powered industrial truck safety program with all operators in their departments
- Ensure that only trained and qualified individuals use powered industrial trucks.
- Verify employee compliance with the principles and practices outlined in the Forklift Safety Program.
- Provide specific operational training for each powered industrial truck in their department.
- Observe the operation of powered industrial trucks in your department, and correct unsafe practices.

## **4.3 Operators**

- Complete the Forklift Safety Program.
- Complete the Daily Pre-Use Inspection Checklist before operating any powered industrial truck.
- At least annually review the procedures outlined in Section 3.0 of this document.
- Observe the operation of powered industrial trucks in your department, and report unsafe practices to your supervisor.

## **4.4 EHS&EM**

- Annually review and update the Forklift Safety Program as necessary.
- Provide orientation and initial training as requested by university departments
- Provide the general safety training requirements for program.
- Monitor the effectiveness of the program by review of inspection checklists completed and retained in departments
- Evaluate designated areas for forklift use.
- Define appropriate eyewash facilities for battery changing/charging areas.
- Observe the operation of powered industrial trucks, and report unsafe practices to the appropriate supervisor.

## **5.0 Training Requirements**

Employees who are authorized to operate powered industrial trucks must receive training prior to engaging in their duties, review this program annually, and receive refresher training at least every three (3) years thereafter. The training is to ensure that the Forklift Safety Program is understood. The supervisor will also ensure that authorized powered industrial truck operators have acquired the necessary practical skills required for safe operation. Training is offered by both EHS&EM, and authorized department trainers. Department trainers will be selected by their department, and approved by EHS&EM. Department trainers must be experienced operators who have the knowledge, training, and skills necessary to evaluate the competence of trainees. Operational training will consist of a combination of general safety instruction, practical/operational training (demonstrations performed by the trainer, and practical exercises performed by the trainee), and evaluation of the operator's performance in the workplace. All operational training must be conducted under close supervision.

### **5.1 Initial Training**

- Receive instruction on the intended purpose and function of each control.
- Prior to operating any Powered Industrial Truck the trainee will read and understand the manufacturer's operating instruction(s) and user's safety rules, or receive training by a qualified person on the contents of the manufacturer's operating instruction(s) and users safety rules.
- Be informed of the Powered Industrial Truck operating limitations and restrictions as defined by the manufacturer.
- Understand by reading or having a qualified person explain all decals, warnings, and instructions displayed on the Powered Industrial Truck.
- Pass the Forklift Written Exam with a score of 75% or better
- During operational training, trainees may operate a powered industrial truck only under the direct supervision of authorized trainers, and where such operation does not endanger the trainee or other employees.
- All training and evaluation must be completed before an operator is permitted to use a powered industrial truck without continual and close supervision.
- The Operator Evaluation Form must be utilized during each live evaluation

### **5.2 Refresher Training – must include at least the following**

- Occur at least every three years
- Review of the Pre-Use Forklift Inspection & Maintenance Record
- Review of Section 3.0 – Procedures.
- Updated information on new equipment.
- Review of university written program.

### **5.3 Training Records**

- A copy of all training sign in sheets must be sent to EHS&EM for retention.
- Each department must maintain a record of all individual training, including:
  - Subject of training.
  - Date of training.
  - Name of individual trained.
  - Name of supervisor or EHS&EM person providing the training.
  - Training records must be maintained by the department for a minimum of 3 years.

## Forklift Pre Start Checklist

- Pre start checklist is to be completed every day prior to using the equipment. Operator is to initial when inspected, Supervisor is to review the checklist and sign off at the end of each week.
- Seat Belts to be worn where fitted.

Forklift Type..... Forklift Department.....

Date (Week Commencing Mon).....

	M	T	W	T	F	S	S
<b>Initials of person doing inspection</b>							
<b>Tick if item is acceptable, cross if it is not</b>							
TYRES – check they are in good condition, intact with rim. Look for visual wear or damage. Check tyre pressure							
FLUIDS – check oil, hydraulics, battery, fuel and coolant for leaks including hoses under fork lift							
STRUCTURE – check for cracks, bends, dents, distortion or broken parts. Check apron & overhead guards are intact & secure							
TINES/FORKS – check they are evenly spread with locking pins in place. Check there is no sharp edges or distortion							
MAST – check chains are level with no obstructions, rams not pitted or leaking. Check for any wear to lift chains and guides, inspect hydraulic cylinders, look for any leaks							
BATTERY – check it is operational and for any damage							
BATTERY CHARGE – discharge meter in full green or 75% after raising forks (where applicable)							
GAS OPERATED FORKS – check gas levels are ok and gas cylinder is not damaged. Check gas cylinder is secure							
ENGINE BAY – check it is generally clean? Hydraulic oil-brake pads and brake fluid (cb machines only).							
CONTROLS (pre start) – check seat condition. Check controls are clearly marked, seat & steering wheel are secure & properly adjusted. Seat belt (where fitted) works as intended.							
CONTROLS (post start) – check controls and pedals are working. No unusual noises.							
CAPACITY/LOAD PLATE – check load-capacity plate if fitted, legible and correct. What is your safe working load (inc when travelling, tilted & lifting)?							
REVERSE BUZZER & HORN – check working							
LIGHTS & BEACON – check working							
STEERING – check smooth from lock to lock, no binding							
BRAKES – check both brake & park brake for proper operation							
SAFETY PEDAL – check the motor cuts out							
POWER DISCONNECT – check all electric power cuts out							
HYDRAULICS – Operate lift, tilt & reach to full extent of travel							
GUARDS – check overhead, load backrest							
ATTACHMENTS – check they function correctly, no unusual noises							

If any items above are not working, the forklift is to be tagged out and reported to the supervisor for repair.

Description of Issue.....

Date and time tagged out:..... Tagged out by:..... Returned To Service:.....

Weekly Supervisor sign off.....

## Forklift Operator Evaluation Form

Instructions: Use this checklist during the field session to evaluate operator proficiency. It can also be used for period evaluation to ensure that operators are continuing to operate forklifts properly.

Operator Name	Evaluator Name
Date of Evaluation	Equipment Operated

OPERATOR BEHAVIORS	RATING				COMMENTS
<b>Pre-Use Inspection</b>					
1. Follow Operator's Daily Checklist.	GOOD	FAIR	POOR	N/A	
2. Look for Damage.	GOOD	FAIR	POOR	N/A	
3. Document all findings on the checklist	GOOD	FAIR	POOR	N/A	
<b>Picking Up The Load</b>					
1. Square up on the center of the load.	GOOD	FAIR	POOR	N/A	
2. Stop with the fork tips about 1 foot from the load.	GOOD	FAIR	POOR	N/A	
3. Clear personnel from the area near the load.	GOOD	FAIR	POOR	N/A	
4. Level the forks; then slowly drive forward until the load contacts the carriage.	GOOD	FAIR	POOR	N/A	
5. Lift the load carefully and smoothly until it is clear.	GOOD	FAIR	POOR	N/A	
6. Tilt the mast back slightly to stabilize the load.	GOOD	FAIR	POOR	N/A	
7. Look over both shoulders.	GOOD	FAIR	POOR	N/A	
8. After out and stopped, lower the load to travel height.	GOOD	FAIR	POOR	N/A	
<b>Traveling</b>					
1. Do not raise or lower the load and forks while traveling.	GOOD	FAIR	POOR	N/A	
2. Maintain a safe speed.	GOOD	FAIR	POOR	N/A	
3. Observe all traffic rules, warning signs, floor load limits and overhead clearances.	GOOD	FAIR	POOR	N/A	
4. Keep arms and legs inside the forklift.	GOOD	FAIR	POOR	N/A	
5. Follow other vehicles at safe distance.	GOOD	FAIR	POOR	N/A	
6. Slow down when cornering.	GOOD	FAIR	POOR	N/A	
7. Use the horn to alert others.	GOOD	FAIR	POOR	N/A	
8. Travel with the load facing uphill while on a ramp or incline.	GOOD	FAIR	POOR	N/A	
9. Stop smoothly.	GOOD	FAIR	POOR	N/A	

<b>Putting Down A Load</b>					<b>COMMENTS</b>
1. Make sure there is sufficient clearance for the load.	GOOD	FAIR	POOR	N/A	
2. Clear personnel from the area near the load.	GOOD	FAIR	POOR	N/A	
3. Square up to the location; then stop about 1 foot away.	GOOD	FAIR	POOR	N/A	
4. Raise the load to placement level.	GOOD	FAIR	POOR	N/A	
5. Move slowly forward.	GOOD	FAIR	POOR	N/A	
6. If the load is on a pallet, lower it into position and lower the forks further.	GOOD	FAIR	POOR	N/A	
7. Look over both shoulders before backing out.	GOOD	FAIR	POOR	N/A	
8. Back straight out until the forks have cleared.	GOOD	FAIR	POOR	N/A	
9. Lower the forks to traveling position.	GOOD	FAIR	POOR	N/A	
<b>Parking</b>					
1. Fully lower the forks.	GOOD	FAIR	POOR	N/A	
2. Neutralize the controls.	GOOD	FAIR	POOR	N/A	
3. Set the brakes.	GOOD	FAIR	POOR	N/A	
4. Turn off the power.	GOOD	FAIR	POOR	N/A	
5. If parked on an incline, block the wheels.	GOOD	FAIR	POOR	N/A	
6. Park only in authorized areas.	GOOD	FAIR	POOR	N/A	
<b>Fueling And Battery Recharging</b>					
1. Engine off.	GOOD	FAIR	POOR	N/A	
2. Fire extinguisher nearby.	GOOD	FAIR	POOR	N/A	
3. Proper personal protective equipment worn.	GOOD	FAIR	POOR	N/A	
4. Safe fueling and battery recharging procedures followed.	GOOD	FAIR	POOR	N/A	
5. Spills cleaned up immediately.	GOOD	FAIR	POOR	N/A	

Based on my evaluation, the operator has successfully completed the evaluation and is qualified to operate the following equipment:

Based on my evaluation, the operator has not demonstrated competence in operating the following equipment:

Evaluator Signature: \_\_\_\_\_

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

## Forklift Certification Written Exam

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

1. *You can stand under the forks, if the engine of the lift truck is turned off.*

- 1) True
- 2) False

2. *You can place your hands and feet outside of the operator's compartment, as long as your head and body are protected.*

- 1) True
- 2) False

3. *You can drive a lift truck over any type of surface.*

- 1) True
- 2) False

4. *What is wrong with this illustration?*



- 1) Driving in the wrong direction
- 2) Load is too high
- 3) Nothing

5. *Before loading or unloading a trailer at a loading dock, you should:*

- 1) Inspect the floor of the trailer to ensure that it will support the lift truck and the load.
- 2) Chock the wheels of the trailer.
- 3) Make sure that dock plates, boards, and ramps are in place and secure.
- 4) All of the above.

6. *If your truck starts to tip over:*

- 1) Don't jump.
- 2) Stay in your seat.
- 3) Grip the wheel securely.
- 4) Brace yourself with your feet.
- 5) All of the above

7. *Rear wheel steering is used on lift trucks because it gives the operator greater control when using the forks.*

- 1) True
- 2) False

8. *If the lift mechanism on your lift fails, you should try to repair the chains or hydraulic system yourself.*

- 1) True
- 2) False

9. The most important safety device on your lift truck is \_\_\_\_\_.

- 1) Horn
- 2) Seat Belt
- 3) Warning Light
- 4) Backup Alarm
- 5) You

10. The three major parts of a lift truck are the body (truck), overhead guard, and hydraulic lift.

- 1) True
- 2) False

11. When transporting a load, you should not raise your load more than 8" from the ground.

- 1) True
- 2) False

12. It is safe to give someone a ride on your lift truck.

- 1) True
- 2) False

13. When parking or leaving your truck, you should:

- 1) Park or leave your truck in a safe area away from traffic.
- 2) Lower the forks until they are flat on the floor.
- 3) Turn off the engine.
- 4) Set the parking brake and set the directional control to neutral.
- 5) All of the above

14. The load capacity of a truck can be found on its data plate.

- 1) True
- 2) False

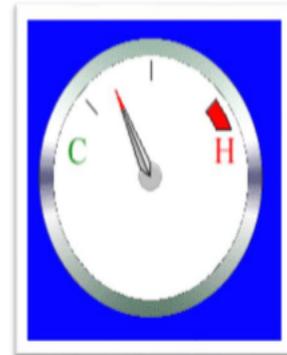
15. All industrial trucks (lift trucks) are equipped with a clutch.

- 1) True
- 2) False

16. The front wheels of a lift truck serve as the \_\_\_\_\_ between the weight of the truck and the weight of the load being carried.

- 1) Balance Point
- 2) Fulcrum Point
- 3) Center of Gravity
- 4) Seesaw Center

17. The gauge on the right is a/an:



- 1) Gas Gauge
- 2) Amperes Gauge
- 3) Oil Gauge
- 4) Total Hour Meter
- 5) None of the above

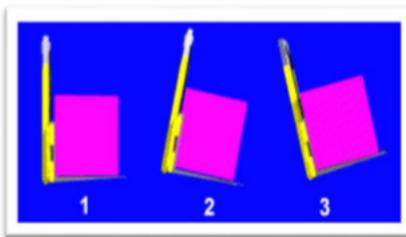
18. *Wide and long loads are more unstable than other types of loads.*

- 1) True
- 2) False

19. *All industrial trucks (lift trucks) are equipped with controls which allow you to raise / lower and tilt the forks.*

- 1) True
- 2) False

20.



*Of the three load positions illustrated above, which is most stable?*

- 1) 1
- 2) 2
- 3) 3

21. *Anyone who has a valid driver's license can operate a lift truck.*

- 1) True
- 2) False

22. *Which of the following should NOT be allowed during the refueling or recharging process?*

- 1) Park your lift truck in a designated refueling / recharging area.
- 2) Do not block doorways or access to production or emergency equipment.
- 3) Keep a flame burning nearby to burn off unwanted vapors or gases.
- 4) Check to see that there is a fire extinguisher nearby.

23. *It is part of your job to complete a Daily Operator's Report after you have thoroughly inspected your lift truck.*

- 1) True
- 2) False

24. *A brake pedal that sinks to the floor under continued pressure is in good operating condition.*

- 1) True
- 2) False

25. *In order to solve an "Inch Pound Equation", you must use information provided on a truck's data plate.*

- 1) True
- 2) False

26. *Lift trucks use a hydraulic cylinder attached to chains to raise and lower the forks.*

- 1) True
- 2) False

27. *Which of the following is NOT a type of lift truck?*

- 1) Gasoline Powered
- 2) Diesel Powered
- 3) Air-cooled Powered
- 4) Electric Powered

28. *Always check the air pressure in tires from the side, not by facing the tread.*

- 1) True
- 2) False