

## INTRODUCTION

In many different industries, forklifts are commonly used to help move large quantities of items around facilities or job sites, to move items to and from shelving, moving large objects, and more. Forklifts are also known as powered industrial trucks, lift trucks, and fork trucks. While these vehicles are commonly used in many industries, they can still expose both drivers and pedestrians to hazards if certain precautions are not followed. In this lesson, we will cover the types of forklifts that may be found in the workplace, the hazards, the personal protective equipment, and the safe work practices associated with these vehicles.



## TYPES OF FORKLIFTS

There are many different types of forklifts that may be found in the working environment. These types include:

- Class 1: Electric motor rider trucks
- Class 2: Electric motor narrow aisle trucks
- Class 3: Electric motor hand trucks or hand/rider trucks
- Class 4: Internal combustion engine trucks (solid/cushion tires)
- Class 5: Internal combustion engine trucks (pneumatic tires)
- Class 6: Electric and internal combustion engine tractors
- Class 7: Rough terrain forklift trucks

As per the classifications, forklifts can be powered by either:

- Electric batteries, which can include:
  - Flooded Lead-Acid (Wet Cell) batteries
  - Gel Cell Lead-Acid (Gel Cell) batteries
  - Absorbed Glass Mat (AGM) batteries
  - Lithium-Ion batteries
- Internal combustion engines, which may be powered by:
  - Gasoline
  - Diesel fuel
  - Liquid petroleum gas (LPG)
  - Compressed natural gas



*For more information on electric batteries, please refer to our “Forklift: Battery Charging” and “Forklift: Changing Battery” lessons. And for more on propane tanks for forklifts, please refer to our “Forklift: Propane Tank Safety” lesson.*

## HAZARDS

When driving or working around a forklift, you could be exposed to hazards that include, but may not be limited to:

- Tipping of the machine due to the weight of the load or when ascending and descending slopes
- Striking pedestrians or stationary objects when either backing up or moving forward due to blind spots
- Tipping of unsecured loads which could lead to crushing injuries
- Skidding when driving over wet and/or slippery floors
- Fire from either refueling or charging batteries where sparks or other ignition sources are present
- Runway forklifts from damaged brakes or brakes not being engaged when the forklift is parked

## PERSONAL PROTECTIVE EQUIPMENT

To help minimize accidents occurring the appropriate personal protective equipment (PPE) should be worn by forklift operators and pedestrians. PPE should be based on worksite conditions and may include:

- Hard hat
- Safety glasses or goggles
- Hearing protection
- Reflective vest or clothing
- Steel-toed boots

Inspect all provided PPE for wear and damage before you put it on. Report worn and damaged items to your supervisor. Do NOT wear damaged PPE.

## SAFE WORK PRACTICES

### Before Driving a Forklift

Before driving a forklift, you should inspect it either at the beginning of the workday or at the beginning of each shift, depending on the work schedule. Inspections should include the following:

- Make sure that name and data plates are in place and are legible.
  - Report missing or illegible name and data plates to your supervisor.
  - Replace missing or illegible name and data plates as needed.
  - If attachments are to be used, assure that the data plate has been updated with the attachment information.
- Assure that all warning and safety labels are in good condition and legible.
  - Report missing or illegible warning and safety labels to your supervisor.
  - Replace missing or illegible warning and safety labels as needed.
- Check that all safety devices are in place and in good condition. Safety devices include:
  - Seat belts or restraints
  - Rollover protection structure (ROPS)
  - Horns
  - Backup alarms for when the forklift reverses
  - Warning lights
  - Directional signals and brake lights
  - Mirrors
  - Fire extinguishers
    - Report missing or damaged safety devices to your supervisor.
- If applicable, assure that all attachments have been properly attached in accordance with the manufacturer's instructions.
- Make sure that all fluid levels for the forklift are at manufacturer-recommended levels.
- Assure that all hoses, coupling devices, hydraulic lines, batteries or propane tanks, and forks are free of damage.
  - Report damaged components to your supervisor.
- Check hoses, coupling devices, hydraulic lines, batteries or propane tanks for damage.
  - Refill fluid levels as needed in accordance with the manufacturer's instructions.
- Visually check tires for wear, damage, and tire pressure (if applicable).
  - Report worn or damaged tires to your supervisor.
  - Replace tires as needed in accordance with the manufacturer's instructions.
  - If applicable, refill tires to manufacturer-recommended psi levels.
- Make sure that brakes and forks are operating properly.
  - Report malfunctioning brakes or forks to your supervisor.

- Make sure that a copy of the owner's or operator's manual is in its designated spot in the forklift.
  - Report missing manuals to your supervisor.

If a forklift does not pass inspection, it should be removed from service until all worn, damaged, or defective items have been repaired or replaced. Only trained and authorized employees should perform maintenance on forklifts in accordance with the manufacturer's instructions.

Additionally, you should read and become familiar with manufacturer-provided owner's or operator's manual for your forklift.

## When Driving a Forklift

When driving a forklift, you should do the following:

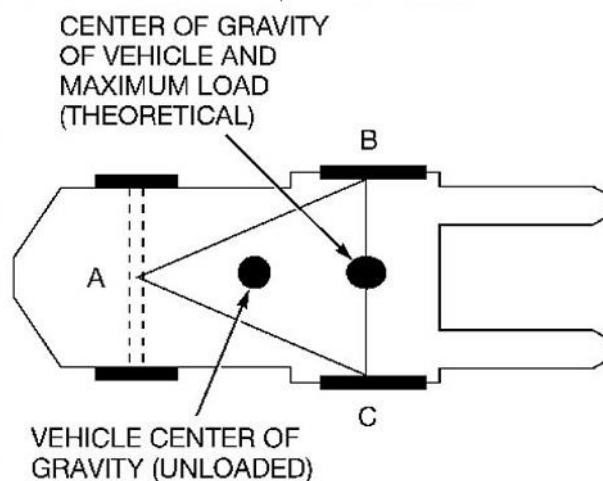
- Only allow trained and authorized employees to drive forklifts.
  - Per OSHA and other state laws, only trained and authorized employees who are 18 years or older should be driving the forklift.
- Do NOT drive a forklift while under the influence of drugs or alcohol.
  - If you are on prescription medications that could affect your ability to drive a forklift safely, please speak with your supervisor.
- Inspect your shoes for grease as this could cause you to slip as you mount or dismount the vehicle.
- Maintain three points of contact when entering or exiting the forklift.
- Always wear your seatbelt when driving a forklift.
- Do NOT have passengers on the forklift or on the forks.
- Only drive the forklift at manufacturer-recommended and company-posted speeds.
  - Slow down in areas where floors are wet and slippery, when crossing aisles and other locations where your vision is obstructed, when making turns, and when ascending or descending grades.
  - Where there are other forklifts traveling in the same direction, drivers should maintain around three truck lengths between each forklift.
- Always look in the direction of travel.
  - Do NOT proceed until all pedestrians are clear of your path of travel.
- Do NOT perform any stunt driving or engage in horseplay.
- Only drive on floors that will support the weight of the forklift and loads.
- If applicable, use all attachments in accordance with the manufacturer's instructions.
- Where your view will be obstructed, you should use a spotter.
  - If you have a load that is obstructing your front view, you should travel with the load trailing.
- Where you are driving in areas with low or no lighting, where possible, use a forklift with headlights to help with visibility.
- When in areas where pedestrians may be present and when reversing, use your horn to alert those in the area of your presence.
  - *For more on pedestrian safety, please refer to our "Forklift Safety: Pedestrians" lesson.*
- Do NOT exceed the weight limit of the forklift when picking up and moving loads.
- Make sure that loads have been properly secured in accordance with your company's policies and procedures and in accordance with the manufacturer's instructions before traveling with a load.
- Practice extreme care when tilting loads.
  - Except when picking up a load, you should NOT tilt the load forward.
  - Elevated loads should NOT be tilted forward except when the load is being deposited onto a storage rack or equivalent.
  - If you are stacking or tiering, the backward tilt should be limited to that necessary to stabilize the load.

- Do NOT drive forklifts up to anyone standing in front of a bench or stationary object where the person could be caught between the object and the truck.
- Do NOT allow anyone to walk under lifted forks or lifted loads.
- If you must leave the forklift and will be 25 feet from the forklift or when you finished using it, make sure that it has been parked in a safe location with the parking brake engaged and the power turned off.
  - Forks should be lowered until contact is made with the floor when the forklift is parked.
  - If parked on an incline, the wheels should be blocked with the power turned off.

## Traveling with a Load

When traveling with a load, you should do the following:

- Remember the stability triangle.
  - Loads should be carried as low as possible to help with stability and visibility.
- When ascending or descending grades that are in excess of ten percent, forklifts carrying loads should travel with the load upgrade.
  - When descending with a load, you should travel in reverse while facing the direction of travel, just as you would when reversing a car.



## CONCLUSION

To conclude, forklifts are commonly used in many different industries to help with the lifting and moving of items and objects. These vehicles can be powered by either electricity or an internal combustible engine. Just as with other vehicles, improper operation or maintenance could expose both drivers and pedestrians to harm. To help minimize the chances of an accident occurring, forklifts should be inspected either at the beginning of the workday or at the beginning of each shift, depending on the work schedule, and operated in accordance with the manufacturer's instructions and your company's policies and procedures. If you have questions about your forklift, please speak with your supervisor.