

## Powered Industrial Truck Training Manual

### Section 1

The powered industrial truck is not intended to be operated the same way that a car is operated. When operating a powered industrial truck, **extreme caution** must be exercised at all times! Safety is of the utmost importance. Your safety is our first priority!

- You **must be 18 years or older** to legally operate a powered industrial truck.
- Mechanisms of the Powered Industrial Truck
- Counterbalance System
- The powered industrial truck is constructed/operated on the principle of a teeter-totter. The load on the forks is balanced by the weight of the powered industrial truck. The front (drive) axle is called the pivot point. An example follows:
  - If a fulcrum or pivot was placed halfway between the load and the counterweight, a 100 pound load would require a 100 pound counterweight for accurate balance. However, the size of the load can be increased only if it is moved closer to the fulcrum. Therefore, a powered industrial truck is designed so the loads and the fulcrum (drive axle) are close together so the lighter counterweight can balance a heavier load.
  - Know the capacity of the powered industrial truck.
- As the distance between the center of the load and the drive axle **increases**, the load capacity **decreases**. Never attempt to lift a load that appears to be too heavy, large or lifts the rear wheels off the floor.

### Three-Point Suspension

Powered industrial trucks are suspended at three points: A, B and C. Points A and B are where the frame fastens on to the drive axle. Point C is located on the steering axle. To better understand this, see the picture provided below.

This suspension system affects the stability of the powered industrial truck. This prevents the truck from tipping over. The following are causes of instability:

1. Braking too fast.
2. Improper use of ramps.
3. Improperly centered loads.
4. Operating on soft tires and/or over unsafe flooring.
5. Overloads.
6. Raising loads too high or too far back.
7. Taking turns/corners at higher than necessary rates of speed.

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## Correct Operation of a Powered Industrial Truck

A pre-operational check on the powered industrial truck must be made and recorded daily, prior to use on each shift by the powered industrial truck operator. It is the individual operator's responsibility to see that the powered industrial truck is in 100% working order. If a problem is discovered, immediately contact your supervisor. ***Do not attempt to operate the powered industrial truck until proper steps have been taken to rectify the problem.***

The following is a list of company, state and federal requirements:

### Checklist

- |                                                        |                                                 |
|--------------------------------------------------------|-------------------------------------------------|
| <input checked="" type="checkbox"/> Brakes             | <input checked="" type="checkbox"/> Instruments |
| <input checked="" type="checkbox"/> Clutch             | <input checked="" type="checkbox"/> Oil         |
| <input checked="" type="checkbox"/> Fuel               | <input checked="" type="checkbox"/> Steering    |
| <input checked="" type="checkbox"/> Horn               | <input checked="" type="checkbox"/> Tires       |
| <input checked="" type="checkbox"/> Hydraulic Controls | <input checked="" type="checkbox"/> Water       |

## Starting a Powered Industrial Truck — Do's & Don'ts

### Do

- Set the handbrake
- Shift powered industrial truck into neutral
- Pull the choke button out halfway
- Turn the ignition switch on
- Push the gas pedal slightly
- Check the oil pressure gauge
- Warm up the engine at a low speed

### Don't

- Avoid excessive cranking of the engine. If it does not start immediately, locate the problem to avoid draining the battery or burning out the starter.
- Don't forget to warm up the powered industrial truck in cold weather.
- Don't forget to close the choke as soon as possible after starting a cold engine.

## Shifting Technique

A powered industrial truck is shifted using the same concept as a manual shift vehicle, so always shift smoothly and carefully. When you are making a descent, use a low gear. Never ride the clutch.

# Safety Tips from the WorkSafe People

## Section 2

### Stopping/Changing Direction

Come to a complete stop by gradually braking when you wish to reverse directions.

### Steering

The powered industrial truck is steered by the rear wheels. To avoid exaggerated tail swings, remember to start the turn from the inside corner, rather than from the middle of the aisle when attempting a sharp turn. Damage can occur if the wheel swings outside the frame.

### Traveling

Powered industrial trucks are driven and steered more easily if they are carrying a load on the forks, because this causes the weight on the rear steering axle to be reduced. However, it is important to be familiar with different weight loads, as some loads will react differently than others. The heavier the load the more caution must be used.

The reduction of large loads is necessary when maneuvering over uneven or rough terrain. Capacity loads on rough surfaces may cause the steering wheels to bounce off the ground causing the lift to continue on in a forward motion.

### Traveling Instructions

1. As you approach cross-aisles and exits, slow down and sound the horn.
2. Avoid water holes, potholes and uneven surfaces.
3. Remove any obstructions that may interfere with proper powered industrial truck operation.
4. To properly transport, tilt the uprights as far back as safely possible and as close to the ground as permitted (approximately 6 inches).
5. If visualization is impaired, travel in reverse, except when attempting to ascend.
6. Drive in reverse while descending and drive forward while ascending.
7. Be aware of overhead clearance at all times. Raise doors to their full height.

### Lift, Lower and Tilt

1. Operate all control levers smoothly.
2. Pull hoist lever back to raise hoist and push hoist lever forward to lower hoist.
3. Pull tilt mechanism back to tilt uprights back and push tilt mechanism forward to tilt uprights forward.
4. Lifting speed is controlled by the amount you pull control lever and the speed of the engine. However, excessive engine speed **will not** increase the speed of lifting and will only result in excessive engine wear. Lowering speed is not affected by engine speed; therefore, do not race the engine to lower a heavy load.
5. As you develop a "feel" for the powered industrial truck, you will be better equipped to determine the correct engine speed that is required.

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## Proper Loading

1. Do not operate a powered industrial truck with a load that causes the rear wheels to raise off the ground or makes steering the truck difficult. Never attempt to load or off-load a lift that is oversized.
2. As you pick up a pallet, place forks an equal distance from the center stringers and well out toward the sides. Make sure that the forks are level.
3. Before attempting to raise a load, tilt the uprights back slightly. This will prevent the load from sliding or lunging forward. However, do not tilt a raised load forward unless it is positioned over the location where it is to be deposited.
4. Use only enough backward tilt to stabilize the load against the face of the mast.
5. Only transport loads that are properly loaded.
6. Always lift loads with both forks. Never lift with one fork or the tip of the fork.

## Positioning

1. Approach load at a right angle.
2. Load must be centered on forks and squarely against backrest guard. This should be accomplished with a minimum of maneuvering.
3. Do not attempt to straighten loads by bumping into objects.
4. To remove high tiers or stacked pallets, position forks under the load, but do not drag the forks across the next tier (see picture below).
5. To lower loads, back straight out slowly until load is completely clear of the lower tiers, then lower load to the floor or safe travel height. Do not race the engine as this will not control the lowering speed.
6. To position a load on top of a stack, raise load to a point several inches above the proper position. Make certain the load is straight then tilt uprights forward to a horizontal position and lower the load onto the stack. Back straight out to free the forks then lower the forks before traveling.

# Safety Tips from the WorkSafe People

## Blocking

1. Bottom lift should be off the ground, well-blocked and level.
2. When attempting to block on one tier, use blocks of the same thickness. Use enough blocks to prevent materials from sagging or bowing.

All Dimension Lumber:	
Length	No. of Blocks
8'	2
10'	2
12'	3
14'	3
16'	3
18'	4
20'	4

4. In multiple stacks, blocks must be placed over each other and in equal amounts per lift.
5. When placing blocks under lifts, **never** place hands, feet, fingers or body under the powered industrial truck blades or lifting mechanism.

## Section 3

### Parking

1. Never leave a powered industrial truck unattended at a distance of over 25 feet while the motor is running or if the truck is not within sight of the operator.
2. Always return the powered industrial truck to its assigned place at the end of shift.
3. Forks must be lowered to the floor with the brakes set, shift in neutral position, ignition off and the key removed.

### Refueling (Gasoline)

1. Refueling should be done on a daily basis or if fuel gauge is below 1/4 of a tank. This will help to avoid serious damage to the powered industrial truck. Refueling will bring the engine to a normal operating state.
2. Refueling must be done in a safe location and outside all buildings.
3. Proper extinguisher should be available in case of an emergency.
4. When refueling, the powered industrial truck must be shut off.
5. **Do not smoke while refueling.**
6. Avoid overflowing the fuel tank.
7. Replace tank cap, clean up excess spillage and inspect tank and powered industrial truck for any leakage before starting.

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## Refueling (Propane)

1. Turn off valve on cylinder to be removed and allow engine to idle until **all** fuel in the system is used.
2. Turn off the ignition switch.
3. Remove empty cylinder and replace with a full cylinder. Be sure to make all appropriate connections before opening the valve on the new cylinder. Store empty cylinder in proper storage space.
4. Inspect the cylinder and the powered industrial truck for leakage before starting. Securely clamp the tank on the powered industrial truck.

## Powered Industrial Truck Cautions

1. Never off-load rubbish from a pallet by banging back and forth with the mast against the dumpster. This causes extensive damage.
2. Never use the powered industrial truck as a snow plow.
3. Never use tire chains on a powered industrial truck.
4. Never lift or move a person on the powered industrial truck blades.
5. Never allow a rider on a powered industrial truck.

## Driving Violations

1. Failure to keep forks down. Forks must be raised only high enough to clear floors and obstacles.
2. Failure to push forks all the way under the load. This results in costly damage and lost production.
3. Lifting unstable loads. Never attempt to lift unstable loads.
4. Failure to tilt load back for traveling.
5. Failure to keep to the right.
6. Failure to maintain a safe distance between the powered industrial truck and other vehicles.
7. Failure to face in the same direction that you are traveling.
8. Using reverse as a brake.
9. Leaving a combustion engine-powered vehicle running unattended.
10. Driving with wet/greasy hands.
11. Failure to slow down for wet/slippery floors.
12. Riding the clutch.
13. Failure to make/turn in daily maintenance checks.
14. Pumping accelerator while in operation.
15. Failure to report all mechanical problems immediately.
16. Failure to refuel gasoline/LPG powered industrial trucks in properly designated areas.
17. Failure to clean up spilled gasoline leaks.
18. Unauthorized transportation of passengers.
19. Failure to approach intersections without sounding horn/slowing down.
20. Wheel-spinning starts/reversals.

## Safety Tips from the WorkSafe People

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21. Tire-skidding halts.
22. Failure to drive backward when load is too large/too wide to see around.
23. Failure to watch where you are going.
24. Failure to back down a ramp in low gear when carrying a load.
25. Turning sideways on an incline.
26. Overloading the powered industrial truck.
27. Carrying double-tiered loads.
28. Failure to know weight limitations of elevators/floors in trucks/freight cars.
29. Failure to keep unauthorized individuals from operating the powered industrial truck.
30. Driving too close to the edge of loading docks.
31. Damage to overhead structures.
32. Failure to secure bridge plates in place.
33. Failure to insist that trucks/railroad cars have wheels locked to avoid rolling.
34. Bumping/ramming stacked goods with forks/rear end of powered industrial truck.
35. Failure to space forks properly to fit load.
36. Carrying loads off center.
37. Failure to make a complete stop before changing gears.
38. Driving with legs/arms outside the powered industrial truck.
39. Improper use of the powered industrial truck as a personal elevator.
40. Failure to shut off engine and cease smoking while refueling.
41. Failure to lower forks flat on the ground when parked.
42. Failure to place the powered industrial truck in neutral gear before leaving seat.