OSHA COMPLIANCE FOR Transportation

J. J. Keller & Associates, Inc.®
Since 1953

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Introduction

DOT regulations apply when a truck driver is in the truck; when the driver is in the facility, OSHA regulations apply. OSHA provides the following guidance on its jurisdiction over the trucking industry:

"OSHA regulations govern the safety and health of the workers and the responsibilities of employers to ensure their safety at the warehouse, dock, construction site, and in other places truckers go to deliver and pick up loads throughout the country. While OSHA does not regulate self-employed truckers, it does regulate workplaces to which the truckers deliver goods and the workers which receive those goods.

"OSHA is preempted by Section 4(b)1 of the OSH Act from enforcing its regulations if a working condition is regulated by another Federal agency.

"For example:

"While traveling on public highways, the Department of Transportation (DOT) has jurisdiction. However, while loading and unloading trucks, OSHA regulations govern the safety and health of the workers and the responsibilities of employers to ensure their safety at the warehouse, at the dock, at the rig, at the construction site, at the airport terminal and in all places truckers go to deliver and pick up loads.

"While operating at an airport, if there is an operational plan negotiated between the carrier and the Federal Aviation Administration (FAA) that covers a working condition, then the FAA has jurisdiction.

"Due to the DOT brake regulation, OSHA does not cite for failure to chock trailer wheels if the vehicle is otherwise adequately secured. DOT's regulation preempts enforcement and DOT has jurisdiction. However, if the vehicle is an intrastate truck, OSHA has jurisdiction. Only another Federal agency may preempt OSHA's jurisdiction."

In this publication, *OSHA Compliance for Transportation*, we have compiled information on the OSHA general industry rules that are likely applicable to a transportation company. This allows you to quickly find the guidance you need to comply with OSHA in your operations.

Getting started with OSHA compliance

- ❏ **Determine which specific OSHA regulations you must comply with**. Even if you know you are covered by OSHA's "General Industry" regulations, you still have to narrow down the focus to those that are specifically applicable to your operations. Some will apply, some will not. **Note**: This publication is focused on federal OSHA requirements; some states, such as California, Oregon, Washington, Michigan, and Minnesota, have their own approved state OSHA requirements which take precedence over federal OSHA. See the **OSHA** section of this publication for information on state versus federal jurisdiction.
  - OSHA's list of most frequently cited standards by industry can help you narrow down the scope. Type in your NAICS code at the following website: https://www.osha.gov/pls/imis/citedstandard.html.
  - You can also use prior inspection history, as well as injury and illness data to determine areas on which to focus.

- ❑ **Determine which written plans** you must have. Written plans outline how the company will carry out various functions of a program. For example, most employers are required to have a Hazard Communication program; the written plan would include a list of hazardous chemicals used, who is responsible for obtaining missing safety data sheets, which workers are exposed to hazardous chemicals, the type of training used, the type of labeling system used, where safety data sheets are kept, and so on. See the **list of required plans** in the Recordkeeping section of this publication. Also, see **sample written plan templates**, which appear at the end of most sections in the publication.
- ❑ **Determine training requirements**. OSHA requirements vary in their specificity with regard to training. Some require refresher training, some do not. Some require documentation, some do not. Each employer should review the individual training requirements to determine those that apply. See the **Training Requirements At-a-Glance** section in this publication for a guide to the "what," "when," and "what documentation" for training.
- ❑ **Determine inspection requirements**. Regular inspection of machinery and equipment is critical, though the degree to which OSHA addresses inspections in the regulations vary. In some cases, a visual inspection pre-use is required, in others a more thorough inspection may be required. See the **Inspection Requirements At-a-Glance** section in this publication for a guide to the "what," "when," and "what documentation" of inspections.
- ❑ **Survey workers** on safety and compliance needs. Workers can provide valuable input on hazardous conditions and potential controls.
- ❑ **Set up an incident investigation protocol** with a focus on root-cause analysis.
- ❑ **Implement a safety committee** with representation from all areas of the operations. (Some states require safety committees; federal OSHA does not, though they encourage their use.)
- ❑ **Document injuries and illnesses** (unless you are exempt) on OSHA recordkeeping forms. (See the Recordkeeping section of this publication).

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Powered Industrial Trucks

ez Explanations™
summaries from the J. J. Keller® subject-matter experts

Powered industrial trucks (PITs), commonly called forklifts or lift trucks, are used in many industries, primarily to move materials. They can also be used to 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 either be ridden by the operator or controlled by a walking operator. Each type presents different operating hazards. Workplace type and conditions are also factors in hazards commonly associated with powered industrial trucks. For example, OSHA says that retail establishments often face greater challenges than other worksites in maintaining pedestrian safety.

Scope

OSHA's Powered Industrial Truck standard applies to most types of material handling equipment that is powered for horizontal movement. This includes forklifts, order pickers, powered pallet jacks, yard jockeys, stand-up and narrow aisle lift trucks, to name a few. The standard does not cover over-the-road haulage trucks and earth-moving equipment that has been modified to accept forks. In addition, the standard does not apply to scissor lifts or aerial lifts (some of those are covered by other OSHA standards, however).

Regulatory Citation

- 29 CFR 1910.178 — *Powered industrial trucks*

Key Definitions

- **Center of gravity**: the point on an object at which all of the object's weight is concentrated. For symmetrical loads, the center of gravity is at the middle of the load.
- **Counterweight**: the weight that is built into the truck's basic structure and is used to offset the load's weight and to maximize the vehicle's resistance to tipping over.
- **Grade**: the slope of a surface, which is usually measured as the number of feet of rise or fall over a hundred foot horizontal distance (the slope is expressed as a percent).
- **Load center**: the horizontal distance from the load's edge (or the fork's or other attachment's vertical face) to the line of action through the load's center of gravity.

Powered Industrial Trucks

- **Powered Industrial Truck**: Fork trucks, tractors, platform lift trucks, motorized hand trucks, and other specialized industrial trucks powered by electric motors or internal combustion engines, excluding compressed air or nonflammable compressed gas-operated industrial trucks, farm vehicles, and to vehicles intended primarily for earth moving or over-the-road hauling.
- **Stability triangle**: the 3-point suspension system that runs along an imaginary line between a forklift's two front tires and the center of the rear axle. Even though the vehicle has four wheels, it is only supported at these three points.

Summary of Requirements

OSHA requires employers to:

- **Evaluate the workplace for PITs**. OSHA's PIT standard covers most types of material handling equipment that is powered for horizontal movement. This includes sit-down rider forklifts, powered pallet jacks, order pickers, reach trucks, and narrow-aisle lift trucks to name a few.
- **Observe capacity ratings**. The PIT's nameplate contains important information on the PITs capacity. Capacity must never be exceeded.
- **Train all operators**. All PIT operators must undergo a rigorous training that includes 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. See 1910.178(l) for the full training requirements, which, among other things, include a specific list of topics, some of which may be truck- and workplace specific.
- **Re-evaluate operators** at least once every three years. Document this evaluation.
- **Provide refresher training** when operators are observed driving unsafely, involved in an incident or near miss, or are assigned a different type of equipment.
- **Allow only qualified persons to train operators.** Persons wishing to train forklift operators must have the "knowledge, training, and experience" to train operators and evaluate their competence. The OSHA standard does not further define this requirement or set any specific certifications.
- **Ensure equipment is inspected at least daily**. Where industrial trucks are used on a round-the-clock basis, they must be examined after each shift. OSHA does not require these inspections be documented; however, many companies keep a set number of inspections (e.g., ″the most recent 2-month period″) as a way to prove to OSHA the inspections are being conducted.
- **Remove unsafe equipment** from service immediately.
- **Only allow employees to operate correctly-classified equipment in hazardous atmospheres** — to prevent explosion hazards. See 29 CFR 1910.178 Table N-1.
- **Set and enforce** operating rules.
- **Provide designated areas** for battery charging/changing operations. This includes provisions for adequate ventilation, protection of the charging equipment, spill cleanup, and an eyewash/shower if workers could be exposed to the batteries' dangerous substances (e.g., they open the caps).
- **Obtain the manufacturer's prior written approval** before making modifications that would impact safety and capacity, such as adding a man basket.

Powered Industrial Trucks

In Depth

There are many types of powered industrial trucks. Each type presents different operating hazards. For example, a sit-down, counterbalanced high-lift rider truck is more likely than a motorized hand truck to be involved in a falling load accident because the sit-down rider truck can lift a load much higher than a hand truck. Workplace type and conditions are also factors in hazards commonly associated with powered industrial trucks. For example, retail establishments often face greater challenges than other worksites in maintaining pedestrian safety.

Beyond that, many workers can also be injured when:

- Lift trucks are inadvertently driven off loading docks;
- Lifts fall between docks and an unsecured trailer;
- They are struck by a lift truck; or
- They fall while on elevated pallets and tines.

Determining the best way to protect workers from injury largely depends on the type of truck operated and the worksite where it is being used. Employers must ensure that each powered industrial truck operator is competent to operate a powered industrial truck safely, as demonstrated by the successful completion of the training and evaluation specified in 29 CFR 1910.178(l)(1).

Types of PITs

There are many classes and types of PITs, from the common sit-down type to the narrow aisle stand-up type; and from order pickers to powered pallet jacks. They may be powered by electricity, LP gas, diesel fuel or gasoline. Some are approved for use in certain hazardous conditions.

In fact, PITs can be grouped into the following classifications:

- Class 1 — Electric motor, sit-down rider, counterbalanced trucks (solid or pneumatic tires)
- Class 2 — Electric motor, narrow aisle trucks (solid tires)
- Class 3 — Electric motor hand trucks or hand/rider trucks (solid tires)
- Class 4 — Internal combustion engine trucks (solid tires)
- Class 5 — Internal combustion engine trucks (pneumatic tires)
- Class 6 — Electric and internal combustion engine tractors (solid or pneumatic tires)
- Class 7 — Rough terrain trucks (pneumatic tires)

No matter the class, OSHA requires operators be trained and evaluated prior to being allowed to operate the equipment in the workplace.

Powered Industrial Trucks

Operator training

PIT operators must receive 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. Training must cover certain specific topics.

Truck-specific topics

The OSHA regulation outlines several PIT-related topics:

- Operating instructions, warnings, and precautions for the types of truck the operator will be authorized to operate.
- Differences between the truck and the automobile.
- Truck controls and instrumentation: where they are located, what they do, and how they work.
- Engine and motor operation.
- Steering and maneuvering.
- Visibility (including restrictions due to loading).
- Fork and attachment adaptation, operation, and use limitations.
- Vehicle capacity.
- Vehicle stability.
- Any vehicle inspection and maintenance that the operator will be required to perform.
- Refueling and/or charging and recharging of batteries.
- Operating limitations.
- Any other operating instructions, warnings, or precautions listed in the operator's manual for the types of vehicle that the employee is being trained to operate.

The regulation also requires training in several workplace-related topics:

- Surface conditions where the vehicle will be operated.
- Ramps and other sloped surfaces that could affect the vehicle's stability.
- Composition of loads to be carried and load stability.
- Load manipulation, stacking, and unstacking.
- Pedestrian traffic in areas where the vehicle will be operated.
- Narrow aisles and other restricted areas where the vehicle will be operated.
- Hazardous (classified) locations where the vehicle will be operated.
- Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust.
- Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation.

Compliance Point

Young workers

It is a violation of Federal law for anyone under 18 years of age to operate a forklift. See the Fair Labor Standards Act's list of prohibited dangerous machinery/jobs.

Capacity

Most PITs work on essentially the same principle as a teeter-totter — the weight of the load on the forks must be counterbalanced by the weight of the truck body. Simple enough, but how do you know how much of a load your lift can handle? The primary source of this information can be found on the nameplate, also known as a data plate, capacity plate or ID plate.

The nameplate will state the capacity of the lift — in other words, the manufacturer's guideline for how much weight can be safely lifted.

Did You Know

The capacity data on the nameplate is critical information. But, it was calculated using a load with a specific load center, commonly 24 inches. So, unless every load an operator lifts has a load center of 24 inches — or whatever load center the truck was rated at — and is placed perfectly on the forks, employers have to remember that the actual capacity will be reduced. The same thing goes for attachments — which also typically reduce capacity.

Hazardous Locations

Where chemicals or other hazardous substances are or can be present, special precautions must be taken to select the correct type of PIT. To make the correct selection, you must know the type of location (known as Class), the specific chemical or substance, as well as the likelihood for the hazard to exist (Division). You also need to understand the Type Designation for each PIT

Classes

- Class I location – may or does contain flammable gases or vapors.
- Class II location – may contain combustible dust.
- Class III location – may contain easily ignited fibers.
- Unclassified – Doesn't contain hazard conditions described in Class I, II, or III.

Within the Classes, there are Divisions providing an indication of the potential for the hazard.

Types/Designation

The OSHA standard specifies 11 designations of powered industrial trucks:

- Type D — Diesel powered; few safeguards against fire hazards.
- Type DS — Diesel powered; more safeguards than Type D, such as exhaust, fuel and electrical safety features.
- Type DY — Diesel powered; more safeguards than Type DS and has completely enclosed electrical equipment, and includes a temperature limitation feature.
- Type E — Electric powered; few safeguards against fire and electrical shock hazards.
- Type ES — Electric powered; more safeguards than Type E, such as spark-arresting features and suppression of surface sparks.
- Type EE — Electric powered; more safeguards than Type ES, by enclosing all electrical equipment.
- Type EX — Electric powered; constructed for use around certain flammable vapors, dusts and fibers (check with your supervisor for specifics).
- Type G — Gasoline powered; few safeguards against fire hazards.
- Type GS — Gasoline powered; more safeguards than Type G, such as fuel, exhaust and electrical system safety features.
- Type LP — LP gas powered; few safeguards against fire hazards.
- Type LPS — LP gas powered; more safeguards than Type LP, such as fuel, exhaust and electrical system safety features.

When selecting the correct PIT for a given location, the equipment manufacturer is often a good source. In addition, fire codes may provide more detail/restrictions. (**Note:** As a result of newer technology, there are now vehicles manufactured with additional Type designations than are listed in the OSHA standard; see the National Fire Protection Association's *Fire Safety Standard for Powered Industrial Trucks* — NFPA 505.)

Fueling/Recharging

OSHA requires employers to charge batteries only in a properly equipped location. A properly equipped battery charging area will have:

- No smoking.
- Warning signs posted.
- Adequate fire protection.
- Ample and readily available water supply for flushing and neutralizing spilled electrolyte.
- An eyewash able to provide a 15 minute flow, and for large installations a drench shower and an eyewash. **Note**: OSHA has said that where batteries are simply being plugged in for charging — there is no maintenance performed, no removal of batteries from the trucks, and no electrolyte is present in the area — there usually isn't a need for an eyewash/shower.
- A phone or other means of communication in the event of an emergency.
- Adequate ventilation to avoid the build up of hydrogen gas during battery charging.

- Soda ash or other neutralization materials in the immediate area.
- A dry chemical, CO2 or foam fire extinguisher.
- Means to protect charging apparatus from damage from trucks.

Only trained personnel should charge and change batteries in electric forklifts. In addition to training in battery changing and charging procedures, these employees should be trained on emergency procedures in the event of an acid splash, including how to use eyewash and shower facilities.

Best practices and requirements

In addition to having a properly equipped charging area, it is important to follow safe procedures when charging. OSHA has requirements covering some portions of the charging operation, and in an eTool offers best practices. Both are provided below.

- Follow the recharger manufacturer's recommendations for attaching and removing cables and for proper operation of your equipment.
- Properly position trucks and apply brakes before attempting to change or charge batteries. §1910.178(g)(8)
- Use a lifting beam or equivalent material handling equipment when lifting the battery. Do not use a chain with two hooks. This may cause distortion and internal damage. §1910.178(g)(4)
- Charge batteries in the designated battery charging area. §1910.178(g)(1)
- When charging batteries, pour acid into water. Never pour water into acid. §1910. 178(g)(7)
- Care must be taken to assure that vent caps are functioning. The battery (or compartment) cover(s) must be open to dissipate heat. §1910.178(g)(9)
- Prohibit smoking in the charging area. §1910.178(g)(10)
- Take precautions to prevent open flames, sparks, or electric arcs in battery charging areas. §1910.178(g)(11)
- Remove all metallic jewelry before recharging. Tools and other metallic objects must be kept away from the top of uncovered batteries. §1910.178(g)(12)
- Wear personal protective equipment (face shield, safety goggles, neoprene or rubber gloves and apron). §1910.132
- Check the electrolyte level before recharging. Record the specific gravity with the hydrometer in the service log. Check the pilot cell.
- Check the water level. Do not add water prior to recharging. Record in service log.
- Check the voltage. If the battery has sealed vents, do not recharge with a current greater than 25 amperes.
- Unplug and turn off the charger before connecting or disconnecting the clamp connections.
- Attach the positive clamp (+, usually colored red) to the positive terminal first and then the negative clamp (-, usually colored black) to the negative terminal, keeping the proper polarity.
- Turn off the charger if the battery becomes hot or the electrolyte fluid comes out of the vents. Restart charging at a lower charging rate.

- Check water level after charging. Add distilled water or de-ionized water if water level is below level indicator. Record in service log.
- Return battery to forklift with lifting beam and secure in place after charging. §1910. 178(g)(4) and (g)(5)
- Check the indicator on the hour meter to see that battery is fully charged.

LP gas cylinders

While the OSHA PIT standard does not specifically address changing cylinders on liquid petroleum gas (LPG)-powered forklifts, industry best practices include:

- Wear protective gloves to avoid freeze burn from contact with LPG.
- Before you start, close the fuel line valve on the cylinder, then run the engine until it stops to empty the connection hose.
- Shut off the ignition, disconnect the hose and the holding straps and remove the empty cylinder.
- Never use metal tools to change a cylinder. One small spark could ignite a fire or explosion.
- Replace the empty cylinder with a full one in the proper position.
- The locating pin should engage the hole in the cylinder handle so the relief valve is straight up in the 12 o'clock position.
- Connect the holding straps, tighten the connecting nut and check the hose to make sure it's tight.
- Slowly open the valve on the cylinder part way and check for leaks. Smell, listen and look for leaks. You can also use a solution of soap and water to test the seal. Never use matches or a flame.
- If the valve leaks:
  - Tighten the nut and continue.
  - If it still leaks, change the cylinder.
  - If it still leaks after that, have the hose changed or repaired.
- Once there are no leaks, slowly open the valve all the way, secure the cylinder and start the engine.

Gasoline/diesel fueling

- Make sure you have the proper fuel.
- Turn the engine off and set the parking brake.
- Don't over-fill the tank.
- Replace the fuel cap and clean up any spilled fuel before starting the engine.

Maintenance/Inspection

In terms of how to inspect, the OSHA PIT standard does not provide a specific list of items. Rather, OSHA expects employers to check the manufacturer's recommendations. Each truck will have specific features and unique inspection needs. Generally speaking, the daily inspection will consist of two parts:

- First, the operator should conduct a pre-start visual check with the key off.
- And, then the operator should perform an operational check with the engine running.

General items:

- Fluid levels
- Leaks, cracks, visible defects
- Hydraulic hoses and mast chains
- Tire condition and pressure including cuts and gouges
- Forks, including the top clip retaining pin and heel
- Load backrest extension
- Finger guards
- Safety decals and nameplates
- Operator manual on truck and legible
- Operator compartment. Check for grease and debris
- Safety devices including the seat belt

After completing the pre-operation inspection, operators should conduct an operational inspection with the engine running. This inspection typically includes the following:

- Accelerator linkage
- Inch control (if equipped)
- Brakes
- Steering
- Drive control: forward and reverse
- Tilt control: forward and back
- Hoist and lowering control
- Attachment control
- Horn
- Lights
- Back-up alarm (if equipped)
- Hour meter
- Other checks per manufacturer

Once the inspection has been conducted, OSHA expects employers to fix safety issues before operation. But, what constitutes something severe enough to require the equipment be taken out of service?

In OSHA's standard there are a few very specific conditions that warrant immediate removal from service. These are in 1910.178(p) and (q); dealing with hazardous sparks from the exhaust, excess operating temperatures, and leaky fuel systems.

In addition there is also a general provision to remove quote "unsafe" equipment. OSHA has said they will take a variety of factors into consideration when making the determination as to whether a truck is unsafe. But, at the least, any item that could present harm or risk would need to be taken out of service. OSHA has said that improperly functioning gauges would constitute an unsafe situation. Similarly, broken welds, missing bolts, or damage to the overhead guard would indicate that a truck is unsafe. Similarly, tires that are missing large pieces of rubber would usually be unsafe. Reference: 6/17/04 OSHA Letter of Interpretation

Documentation

OSHA does not actually require that daily PIT inspections be documented or written. And, that means of course there are no specific record retention times set if you do decide to document your inspections. Even though not required, using an inspection checklist, either written or electronic, is a good idea for two reasons:

- Ensures that all essential features of the vehicle are inspected routinely, and
- Provides evidence to an OSHA compliance officer that the vehicles are being inspected as required.

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