



ENVIRONMENTAL HEALTH & SAFETY

Forklift Safety Program

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ACRONYMS & DEFINITIONS

EHS	Environmental Health and Safety
Attachment	A device, other than conventional forks or load backrest extensions, mounted permanently or temporarily on the PIT for handling the load.
Counterbalanced Truck	A PIT equipped with load engaging means where the load during normal transporting is outside the area formed by the wheel contacts.
Fork Height	The vertical distance from the floor to the load carrying surface of the forks with mast vertical.
Free Fork Height	The attainable fork height before the stated overall lowered height of the mast is exceeded by any standard part of the forks, mast, or carriage assemblies, when loaded.
Powered Industrial Truck (PIT)	A powered wheeled vehicle, primarily intended for the movement of objects or materials and usually associated with manufacturing, processing, or warehousing, but not including vehicles intended primarily for earthmoving or over-the-road hauling.
Lift	The vertical travel of the carriage with mast vertical.
Lift Speed	The average velocity in feet per minute when raising the load carriage throughout its operating range, specified as empty and/or loaded.
Load Center	The point at which the center of load (i.e., center of gravity) is placed ahead of the fork face or equivalent attachment with the load resting on the forks.
Maximum Fork Height	The fork height attainable with the mast at the fully elevated position.
Non-Telescoping Mast	A mast in which the support member or members providing the guideways for vertical movement of the fork carriage do not move vertically with respect to the PIT.
Overhead Guard	A framework fitted to a PIT over the head of a riding operator.
Rated Capacity	The maximum weight, expressed in pounds, at a given load center, that a PIT can safely transport and/or stack to a specified height when equipped with a standard mast, carriage, and forks. The rated capacity is based on the strength of the various PIT components and the amount of counterweight.

Stability	A PIT's resistance to overturning.
Telescoping Mast	A multiple mast wherein one member is stationary and the other(s) movable vertically with respect to the stationary member and supporting the fork carriage in its vertical movement. This mast permits maximum lifts substantially greater than the overall lowered height.
Tilt	The amount by which the mast structure, forks and carriage may be tipped beyond the vertical position, forward or backward.
Turning Radius (outside)	The radius of the arc (circle) described by the PIT when driving slowly empty or loaded with the steering mechanism at the maximum steering angle.
PIT	A Powered Industrial Truck (PIT)
OSHA	Occupational Safety and Health Administration
EOHS	Employee Occupational Health Services

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1. PURPOSE

A Powered Industrial Truck (PIT) operator has an important professional responsibility. A PIT operator handles an expensive piece of equipment that is a vital part of the University's material handling operation. The operator also takes responsibility for expensive materials and for the safety of people in the vicinity every time a load is moved.

OSHA regulations 29 CFR 1910.178 states: "The employer shall ensure that each powered industrial truck operator is competent to operate a powered industrial truck safely". This program provides guidelines to outline the procedures for training and authorization to use powered industrial trucks.

2. SCOPE

This program is applicable to all University employees whose duties require them to operate or maintain (including repair or daily routine maintenance, i.e., fluid levels, refueling, etc.) PITs, including those units powered by electrical motors or internal combustion engines.

3. RESPONSIBILITIES

3.1. EHS Responsibility

- 1) Implement and maintain this program
- 2) Provide Powered Industrial Truck training
- 3) Perform periodic inspections of facilities utilizing Powered Industrial Trucks
- 4) Initiate corrective action if the program is not being followed

3.2. Supervisor Responsibility

Supervisors are responsible for ensuring that:

- 1) PIT operators complete training as required in Section 5 of this program.
- 2) No modifications or additions which may affect the capacity and safe operation are made to the equipment without the manufacturer's prior written approval.
 - a. If modifications are made, all capacity, operation and maintenance instruction plates, tags or decals shall be changed accordingly.

After attendance and successful completion of the classroom portion of the PIT Training, supervisors will be responsible for ensuring that:

- 1) Trainees only operate PITs under their supervision or the direct oversight of a competent licensed PIT Operator

3.3. Employee Responsibility

Only trained, qualified and authorized personnel shall be permitted to operate a PIT. Every employee assigned to operate a PIT will be required to:

- 1) Successfully complete the University training program outlined in Section 5.
- 2) Read and understand all operating instructions, warnings and precautions for the type of PIT being operated.
 - a. If this information is unclear contact the supervisor for clarification.
- 3) Visually inspect the PIT before each use at the beginning of each shift to ensure that the vehicle is safe to operate and ensure that the vehicle has an adequate amount of the following:
 - a. Fuel,
 - b. Oil,
 - c. Hydraulic fluid,
 - d. Coolant, and
 - e. Battery water.
- 4) Additions of oil and hydraulic fluid will be made only by departmental trained authorized personnel, or UNM Automotive, but operators are required to possess the knowledge and capabilities to add coolant, battery water and refuel the PIT.
- 5) Report all irregularities in the operation of the PIT to the supervisor.
 - a. Adverse conditions affecting the safe operation of the PIT shall render the vehicle unfit for service until such irregularities are corrected.
- 6) All other maintenance and repairs will be performed by the qualified mechanics at the [UNM Automotive Department](#).

4. TYPES OF PITs

- 1) Class 1: Electric Motor Rider Trucks
- 2) Class 2: Electric Motor Narrow Aisle Trucks
- 3) Class 3: Electric Motor Hand Trucks or Hand/Rider Trucks
- 4) Class 4: Internal Combustion Engine Trucks (Solid/Cushion Tires)
- 5) Class 5: Internal Combustion Engine Trucks (Pneumatic Tires)
- 6) Class 6: Electric and Internal Combustion Engine Tractors
- 7) Class 7: Rough Terrain Forklift Trucks

5. OPERATOR TRAINING

All employees who operate a PIT as part of their job requirements will be required to successfully complete an in-person classroom Powered Industrial Truck training prior to operating a PIT.

The Powered Industrial Truck Classroom Training is coordinated by a third party.

- 1) Employers must certify that each operator has been trained and evaluated in accordance with the OSHA standard [29 CFR 1910.178\(l\)\(6\)](#).
- 2) The certification must include:
 - a. Operator name.
 - b. Training date.
 - c. Evaluation date.
 - d. Name of person(s) performing the training or evaluation.
- 3) Operators completing the classroom training will then be classified as Trainees and allowed to operate PITs under:
 - a. The direct supervision of experienced PIT operators,
 - b. Any departmental personnel with knowledge, training, and experience of operating PITs, and
 - c. Where such operation does not endanger the Trainee or other employees.
 - d. Designed to teach the safe techniques of operating a PIT.

Upon successful completion of the on-the-job training program the department deems appropriate:

- 1) The Supervisor will maintain certification on file that the operator is competent and fully qualified to operate the equipment.
- 2) All operators must re-qualify for their PIT Operator Permit as specified in Section 6 of this program.

6. REFRESHER TRAINING

All PIT operators must complete refresher training and an evaluation of the effectiveness of that training to ensure that the operator has the knowledge and skills needed to operate the PIT safely whenever:

- 1) The operator has been:
 - a. Observed operating a PIT in an unsafe manner,
 - b. Involved in an accident or near-miss incident,
 - c. Assigned to drive a different type of truck than the one they were trained to,
- 2) The operator has received an evaluation that reveals that the operator is not operating the PIT safely,

- 3) A condition in the workplace changes in a manner that could affect the safe operation of the PIT, or
- 4) Three years have passed since the operator last completed a training session.

Refresher training consists of completion of the PIT classroom training and an evaluation by the department supervisor of relevant topics as necessary.

7. INSPECTION AND MAINTENANCE

PITs are powered by batteries, propane, or diesel. If you find a problem, never attempt to fix it yourself. Report any problems to your supervisor and let a qualified mechanic correct the problem.

7.1. Pre-Use Inspection

Always perform a pre-use inspection, making sure that the area of operation has adequate ventilation to prevent carbon monoxide poisoning.

- 1) Inspect the:
 - a. Mast for cracks,
 - b. Roller tracks and chains for lubrication (grease),
 - c. The hydraulic lines for wear, and
 - d. Hydraulic cylinders for leaks.
- 2) If using pneumatic tires, check for proper tire pressure.
- 3) Once the truck has been inspected for any visible damage, the PIT can be started.
 - a. Apply the foot brake, shift gears to neutral, and turn the key.
 - b. Check all gauges and indicators, check controls, steering and brakes for smooth operation.
 - c. Start the truck.

7.2. Battery Charging and Fueling

- 1) Operators are required to possess the knowledge and capabilities to add coolant, battery water and refuel the PIT.
 - a. Departmental trained authorized personnel will train new drivers in preventive maintenance procedures.
 - b. Adding coolant, battery water and refuel the PIT.
 - c. Never use an open flame to check the electrolyte level in batteries.
- 2) Working around batteries can be dangerous due to the acid content and potentially explosive gases.
 - a. Do not smoke or let anyone else smoke in a battery charging area.

- b. NOTE: Smoking and the use of tobacco products are prohibited at the University of New Mexico and its branches, except in a small number of outdoor designated areas...
- 3) When checking fluid levels in batteries, personal protection (face and hand protection) must be worn, and an eyewash station or portable eyewash station should be readily available.
- 4) Fuel tanks shall not be filled or exchanged while the engine is running. No PIT shall be operated with recognized leak in the fuel system.
 - a. Never use an open flame to check the gasoline level in fuel tanks.
- 5) Report all irregularities in the operation of the PIT to the supervisor.
 - a. Adverse conditions affecting the safe operation of the PIT shall render the vehicle unfit for service until such irregularities are corrected.
- 6) All other maintenance and repairs will be performed by the qualified mechanics at the [UNM Automotive Department](#).

8. OPERATING A PIT

Turning a PIT will require more concentration than driving a car. Most PITs steer from the rear. The back end of the PIT swings wide and can injure co-workers or damage products or equipment if the operator is not careful. A typical PIT has a high center of gravity and a short wheelbase. Many PITs have only three points of stability, two front wheels and the center of the rear axle. An automobile has four points.

- 1) The vehicle's counterweight is another key principle. The counterweight is designed to stabilize the truck when a load is lifted. This is referred to as longitudinal stability. Here, the "see-saw" principle comes into play when a PIT carries its payload outside of its supporting base. Therefore, all loads must be placed as close to the back of the mast as possible, not forward on the forks. Even a light load could tip a PIT forward if it is placed near the front of the forks.
- 2) Stopping a PIT is not as easy as stopping a car. Most PITs have only two braking wheels and the brakes are much smaller than a car. It is also important to note that a typical auto weighs 3,000 to 4,500 lbs. An unloaded PIT can easily weigh twice as much—and with a capacity load, three times as much. Consequently, a PIT cannot stop on a dime. This is why so many pedestrians are struck by PITs.
- 3) Engage all loads squarely on the forks and center the weight of the load between the forks. Only stable or safely arranged loads shall be handled. Caution shall be exercised when handling off-center loads which cannot be centered.
- 4) When carrying pallets, the forks should be spaced as wide as possible and positioned evenly between the pallet stringers. Do not bump or jar loads. Drive the PIT forward under the load until the load touches the carriage. Tilt the mast backwards slightly, and then lift the load. DO NOT lift the load higher than necessary for safe traveling. There must always be sufficient headroom under overhead installations, lights, pipes, sprinkler systems, etc.

- 5) If the load obstructs your vision, operate the truck slowly backwards and look in the direction of travel. Sound the horn at cross aisles and other locations where vision is obstructed. If possible, use spotters to assist in the movement of large loads.
- 6) During truck unloading, it is the PIT operator's responsibility to ensure that the brakes of highway trucks (tractor trailers, semis and/or "bobtails") are set and wheel chocks are placed under the rear wheels to prevent the truck from rolling while they are being boarded by PITs. The flooring of trucks, trailers, and railroad cars shall be checked for breaks and weakness before they are driven onto.
- 7) PITs shall not be driven up to anyone standing in front of a bench or other fixed object.
- 8) Carrying a passenger on a PIT truck is prohibited unless a passenger seat is installed on the vehicle.
- 9) All personnel are prohibited from extending their arms and legs between the uprights of the mast or outside the running lines of the truck.
- 10) When parking a PIT, or if a PIT is left unattended, i.e., the operator is 25 feet or more away from the vehicle or if the vehicle is out of his/her view, the forks shall be fully lowered, controls in neutral, brakes set, and power shut off. On inclines or uneven surfaces, wheel chocks will be used in addition to the forks being lowered to the ground to prevent movement by the PIT.
- 11) PITs shall not be used to elevate personnel unless a safety platform, which has been specifically designed and engineered for that purpose and specifically the PIT is firmly secured to the lifting carriage and forks. Such operations must be approved by SRS prior to the work. Additionally, means shall be provided whereby personnel on the platform can shut off power to the PIT.
- 12) A safe distance shall be maintained from the edge of ramps or platforms while on any elevated dock, platform, or freight car. Trucks shall not be used for opening or closing freight doors.
- 13) Only approved PITs shall be used in hazardous locations.
- 14) Emergency egress, access to stairways, and fire and other emergency equipment shall be kept clear at all times. When on grades, operators should travel in a straight line and avoid turning.
- 15) Under all travel conditions, the PIT shall be operated at a speed that will permit the unit to be brought to a stop in a safe manner.
- 16) Stunt driving and horseplay shall not be permitted.
- 17) The operator shall be required to slow down for wet and slippery surfaces. Avoid driving on surfaces that won't support the PIT, such as sand or loose soil.
- 18) Dock boards or bridge plates shall be properly secured before they are driven over. They also shall be driven over slowly and carefully. Dock boards or Bridge plates shall be kept dry and free of oil and grease and their rated capacity shall never be exceeded.












Forklift Safety Program R2.3

Final Audit Report

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