

Powered Industrial Trucks

Model Safety Plan from Liberty Mutual Insurance

This document will provide you with guidance in developing, establishing, or improving your own safety and health program. This material is intended only as a basis for you to develop your own safety program by giving you some procedures covering topics most employers must handle. You are free to modify or delete items to fit your needs.

This material is not all inclusive and may not address special safety issues unique to your industry. This plan may not fulfill written or minimum performance standards of your state or federal regulations. Be certain that you evaluate any additional needs, related regulations and your commitment to workplace safety. Solicit input from members of your work force and management team in the development of this program. Remember, any written plan is only as good as your commitment.

Foreword

Developing a proactive safety and health program is one of the best ways to help you control your costs from workplace incidents of employee injuries and property damage. We are committed to helping you by providing materials and consultation designed to reduce your exposures and develop controls. Working together, we can identify Risk Control strategies to benefit your business, your work force, and your bottom line. Together, we can find solutions that will make a difference.

Why do you need a safety plan?

Here are some reasons to develop an effective safety and health program:

- Satisfy state and/or federal regulations
- Communicate procedures for recording and reporting accidents and incidents
- Reduce your risk of liability
- Plan for the unexpected
- Reduce the costs and financial impact of lost-time injuries
- Establish base line expectations and safe work procedures/practices
- Give employees ownership in your program
- Provide a managerial reference guide
- Document management's commitment, responsibility, authority and accountability for safe work performance
- Identify and reinforce safe work habits

Using this material

This model safety plan was developed as a set of best practices to help you enhance your current program or, if you have no current plan, to provide you a base line from which to begin. You can implement these policies and procedures now or fine tune to your own needs. However, the most essential element is you and your commitment to making it happen!

Begin by preparing a policy statement as an endorsement of your commitment to safety. Be sure to communicate your intent to your entire work force. Post this in a conspicuous location to help demonstrate your support, and keep it current to reflect your continuous interest in the program.

This topic has been developed to provide employers with guidance on many of OSHA's expectations. However, we do not intend that this plan necessarily assures compliance with the related OSHA standard. Contact your local or regional OSHA office of the federal or state specific plan having jurisdiction. In addition, your Risk Control consultant can provide additional guidance to help with implementation and training.

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This safety program and accompanying information does not identify all possible hazards and we cannot be responsible on your behalf for your obligations under any law, rule, or regulations. The principles contained in the material are general in scope and, to the best of our knowledge, current at the time of publication. Liberty Mutual specifically disclaims all liability for damages or personal injury alleged to arise from reliance on the information contained in this document.

Industrial Lift Truck Operator Training Program Goals

This plan is designed to ensure the safe operation of rider-type powered lift trucks in non-hazardous locations. Operator training is the most significant component. Other elements include administrative aspects, general lift truck principles and operating rules. To these core elements, (a designated person) will add details about the specific trucks each operator may use and site-specific conditions in this establishment.

Powered Industrial Truck (PIT) Program Administration

(Use this as a guide and customize to your organization's needs.)

This plan will be administered by _____ (a designated person) within our company.

The content of the training will include all applicable topics and other material provided by the lift truck and fork attachment manufacturers.

The training will include both classroom presentation and practical truck operation in the employees' regular work area. Initial training will be provided prior to job assignment.

Each trainee will be evaluated while performing assigned duties. A written (or verbal) exam will also be administered. Both evaluations will be judged on a pass/fail basis. Failure of either evaluation will result in retraining.

Annually, a designated person will evaluate the performance of each lift truck operator.

Retraining shall be provided to all affected operators whenever:

- An unsafe practice is observed or believed to exist
- Lift truck or attachment equipment is introduced or modified
- Applicable operating conditions change

All training and retraining must be documented. Appendix A, Lift Truck Operator Training Record serves this purpose. The training materials used must be attached to the Lift Truck Operator Training Record and retained for at least three (3) years after the training date.

The annual review of each lift truck operator must be documented in Appendix B, Lift Truck Operator Annual Evaluation Record. This form also will be used to evaluate the operator while performing assigned duties after initial training. Appendices C and D show the operator's familiarity with the truck, and knowledge of safeguards at the facility. Appendix E, Onsite Driver's Performance Checksheet, rates operators' on their proficiency.

Appendix F is a sample Lift Truck Operator Training Test. The Company may use a different written or oral exam, as desired. Answers are included in Appendix F.1.

All employees who have job functions that include the authorization to operate forklift trucks must be certified, licensed and appropriately trained before operating a lift truck, and at least annually thereafter. An evaluation of each PIT operator's performance shall be conducted at least once every 3 years.

Our company program mandates that training will include:

- Minimum 8-hour classroom training to cover the concepts and operating principles of operation, as well as the safety and health implications of care, maintenance and use.
- Demonstrated operational proficiency as determined by our in-house instruction.
- Certification that the training has been successfully completed and the objectives for safe operating principles have been achieved.

PITs General Requirements

(Use this as a guide and customize to your organization's needs.)

Operator Qualifications

Only those operators who meet the following requirements are eligible for lift truck operator assignments:

- Trained as described in this plan
- Passed both of the evaluations following the training
- Met the physical criteria established by _____ (company name)

Our medical provider, available through _____ (insurance company's preferred provider network), will help you in the evaluation process for the following physical capabilities of each operator:

- Vision distance
- Peripheral vision
- Color discrimination
- Hearing
- Ability to endure foreseeable environmental extremes (i.e. heat, cold, humidity, etc.)
- Any other characteristic which the medical provider believes to be relevant to the safe operation of a lift truck

Based upon the results of that evaluation, the medical provider will make a recommendation regarding whether that employee may operate a lift truck safely. We will accommodate recovering and impaired employees, where feasible, according to our injury management program.

Vehicle Procurement Requirements

Based on our uses and conditions, PITs may require warning devices, a load backrest extension and overhead guards. We will consider safety equipment needs and vendor training resources in our lift truck buying/leasing decision process. Each lift truck vendor will be asked if operator training resources include on site presentations, train the trainer workshops, or self study materials.

General Requirements for Training Curriculum

Initial training concepts must cover at least the following items in detail, and records must be retained in each personnel file:

- **Safety inspection detail:** Tires, brakes, oil, leaks, and general manufacturer recommended itemized checks
- **Operational checks**
- **Vehicle procurement requirements:** Engine start up, steering, brakes, gears, lights, horn, backup signals, lift mechanism
- **Safe driving habits:** Rear driving down ramps, approaching low clearances, high loads, dock loading precautions, chocking trailers, speed, blind corners, traffic control, right-of-way principles, courtesy, etc.
- **Auxiliary lighting:** Areas of the plant where lighting is less than two lumens per square foot
- **Warning devices:** Use and locations of strobes, backup audible alarms, horns, etc.
- **Alterations:** Platforms or riders are not allowed without manufacturer's approval and attachments have been procured by the safety coordinator; counterweights will not be permitted to allow for additional capacity, as this can seriously undermine the safety and ultimate lifting capacity of the mechanism and components.
- **Personal safety:** Mandatory use of seat belts, roll cages; general rules for conduct and personal protective devices during lift truck operation
- **Parking:** Idle vehicles placed with brake on, tines down, and wheels chocked; engine shut down, and keys removed
- **Dock plates:** Use of ICC bar grapplers, verifying clearance and stability before unloading or loading
- **Hydraulic systems:** Hoses, cylinders, and the entire system maintained and inspected monthly per maintenance procedures and manufacturer's requirements

Training Topics

Loading precautions:

- Know the capacity and do not overload
- Lift the load with both fork tines at once
- Do not push the load
- Know the swing clearance and identify wide-load paths before travel
- Position and balance the load evenly
- When lifting, keep the mast tilted slightly back, lift evenly and place the load against the mast for more support

Traveling with the load in place:

- Start and stop gradually. Scan area to be traveled for obstacles and clearances
- Start with your load at the lowest possible level to maintain visibility and stability
- With bulky or wide loads, or when proceeding down ramps, travel in a slow, backwards direction for improved vision and control
- Keep clear of the edges of docks, platforms, storage racks, and bridge plates
- Avoid blind intersections by using convex mirrors strategically placed for more visibility
- Avoid slippery spots, and report any spills immediately
- Observe posted speed limits, crosswalks, and aisles; do not obstruct employee walkways or exits

Demonstrating PIT Operator Driving Ability

_____ (Name, Title) will be assigned by our safety coordinator to instruct all employees who will be operating a forklift within the scope of their job. The test will include at least the following elements:

- Vehicle inspection before starting, and operational checks as previously identified
- Safe loading of the truck including the physical laws of capacity, stability, displacement and angles of mast
- Traveling with the load through traffic areas, pick/placement methods, traffic rules of the road, pedestrian travel, etc.

Certification of PIT Training

Each operator will receive a license and a written certification of successful achievement of the training. Retraining is to be completed at least annually and records retained accordingly.

Operator Training Program Outline

(Use this as a guide and customize to your organization's needs.)

Introduction

- Program overview.
- Program goal: to provide training based on the trainee's prior knowledge, the types of vehicles used in the work place, and the hazards of the work place.
- Each operator must obtain the knowledge and skills needed to do their job correctly and safely, using video, group discussion and hands on practice.

Types, Features and Physics

- Familiarize each operator with the basic types and functions of powered industrial trucks.
- Understand rear-wheel steering: allow for sharp turns with wide clearance due to truck rear end swing.
- Develop an understanding of the information shown on a data plate.
- Understand the critical truck measurements that affect safety.
- Understand the forces that cause tip over, truck design considerations and safety ratings that help prevent them, including the "stability triangle."
- Counterbalance mechanism:
 - Truck balance is similar to a teeter totter
 - Heavy weight in the back of the truck is designed to balance the truck while loaded up to the stated capacity

- Loading the truck beyond its capacity will result in forward tipping
- Adding to the counterweight (to rear) of truck may stress machinery beyond its operational limits

Elevating Personnel

- If the truck is designed to lift personnel, before using, verify that limit switches and devices are operational.
- Use the restraining means recommended by the vehicle manufacturer, such as railings, body harnesses, deceleration devices, etc.
- If the truck requires an attachment to lift personnel, operate lifting mechanism smoothly.

Operating Lifting Mechanism

- Provide overhead protection, if necessary.
- Do not operate lift if any equipment is damaged, worn or malfunctioning.
- Do not fabricate platform unless ASME 56.1, 7.35.3, *Standard for Low Lift and High Lift Trucks*, is strictly followed.

Before Lifting

- Assure platform is attached securely.
- Assure platform is in a horizontal position and centered relative to the truck.
- Assure truck is on a level surface.
- Place all travel controls in neutral.
- Apply the parking brake.
- Mark the work area with cones to alert passersby to overhead work.
- Determine anticipated weight of platform, personnel and load.
- Assure total weight does not exceed one-half of the capacity listed on the nameplate.
- Allow personnel to enter and exit the platform only at floor level.

While Lifting

- Operate with mast in a vertical position (no angles).
- Assure platform remains in a horizontal position.
- Lift and lower personnel smoothly.
- Avoid overhead obstructions and electric wires.
- Avoid contacting controls other than those in use.
- Move the truck or platform horizontally only if necessary.
- Move as slowly as possible.
- Assure that personnel do not step off the platform floor.

Forks and Attachments

- Add attachment operation details to this training program, based on information from the attachment manufacturer.
- Forks/attachments must be appropriate for the intended use.
- Operators are not authorized to make any modification to the forks or attachments that could affect the lifting capacity. Modification must be performed by the manufacturer or with the written permission of the manufacturer.
- Vehicle nameplate must be adjusted to indicate current capacity.

Effects of Load Weight

- Exceeding the capacity of the truck will result in turnover. Do not exceed the truck's stated capacity.
- Turnover may result if the load's weight is not centered on the forks. Be sure to center the weight of the load on the forks.

Inspecting the Vehicle

- Be sure each operator understands the purpose and importance of pre-operational checkouts.
- Provide a basic understanding of areas covered during a pre-operational checkout.

- Familiarize each operator with the checklist for pre-operational checks, and what to do if a problem is discovered.

Driving the Truck

- Understand the elements of safe movement of a powered industrial truck.
- Understand the differences between an automobile and a powered industrial truck.
- Recognize the safety hazards associated with operating a powered industrial truck:
- Effects of load distance from mast: the effective weight of the load is increased the farther forward it is placed on the forks. Place the load against the mast to prevent forward tipping.
- Effects of vehicle turning: the force of the load will shift to the outside of the turning direction; the force of the load will increase with vehicle speed; the small wheel base of the truck makes vehicles unstable during turns. Turn vehicle at slowest possible speed to avoid tipping the vehicle.
- Effects of vehicle stopping: sudden stops can result in the load moving forward on the forks. The load could fall off of the forks and present a hazard to other workers. The truck could tip forward from the forward shift of the load weight. Stopping distance is affected by the weight of the load; the heavier the load, the longer distance is required to stop the truck. Travel slowly so that sudden stops do not result in load movement.
- Effects of empty vehicle movement: because it is designed to be stable only when loaded to capacity, the truck is unstable when empty or less than fully loaded. Turning an empty truck too fast may result in turnover. Travel slowly with an empty truck, especially on turns.

Load Handling

- Understand the elements of load lifting safety:
 - Effects of traveling with a load: a raised load can tip the truck forward, while a lowered load adds to truck stability. Raise loads only when stacking and unstacking. At all other times, lower the load to between three and six inches from the floor.
 - Effects of stacking at height: the small wheel base of lift trucks results in instability as loads are raised above the truck. Operate the mast within vertical limits of the model of truck used.
 - Visibility with load restrictions: avoid contacting other workers and equipment. Use all available mirrors on the vehicle and those posted in the work place to avoid collisions. Always look in the direction of travel, and travel only in the direction in which visibility is unobstructed, even if this means turning backwards.
- Understand safe operating procedures for raising and lowering loads in aisles, including tipovers:
 - Causes: overloading, traveling with load elevated, braking too quickly while turning, accelerating too quickly while turning, off-center loading, uneven surface, speeding.
 - Early symptoms: tire skidding, truck side sway, wheel lift.
 - What to do: hold on firmly to steering wheel to avoid falling from operator compartment; lean away from the direction of the fall.

Liquid Petroleum Gas (LPG) for Lift Trucks

- Discuss LPG and its properties.
- Understand the elements and procedures of safely refueling internal combustion vehicles.
- Describe tank components: service valve, surge valve, relief valve, etc.
- Discuss related safety issues.

Battery and Charging

- Understand the elements and procedures of safely changing and charging batteries.
- Discuss filling procedures and maintenance.
- Discuss related safety issues.

Safety Concerns

- Review/reinforce potential for serious injury.
- Review/reinforce safety procedures in your facility.
- Use seats belts where provided.

Hands-on Training

- Review features of specific PITs that will be operated.
- Review operating procedures of specific PITs that will be operated.

- Review safety concerns of specific PITs that will be operated.
- Learn/practice actual operation of specific PITs and specific workplace conditions.
- Demonstrate proficiency performing duties specific to the position and workplace conditions.

Summary of Lift Truck Differences from an Automobile

- Lift trucks are usually heavier and smaller than automobiles.
- Lift trucks are not designed to absorb the shock of uneven floor surfaces.
- When carrying a load, lift truck driver visibility is more restricted than in an automobile.
- Lift trucks tip over more easily than cars because of their narrow wheelbase and higher center of gravity.
- Both ends of a lift truck swing while turning.
- Lift trucks steer more easily with a load, whereas automobiles steer more easily unloaded.
- Battery-powered lift trucks are less likely to be heard by pedestrians than automobile engines.
- Lift truck steering control can be reduced by overloading because the rear wheels may not have continuous contact with the driving surface.
- Lift trucks share the “road” with pedestrians, whereas automobiles are usually separated from pedestrians.
- Lift truck loads are less secure and may be wider than the vehicle.

Inspection and Maintenance

(Use this as a guide and customize to your organization’s needs.)

A Pre-Use Inspection Record (Appendix G) has been prepared for operators to perform a visual and mechanical check before each shift that a forklift will be used. All defects must be reported to the maintenance department and the vehicle must not be used (if the defect represents a current or potential safety violation) until the problem is repaired and the unit is placed back into service. A detailed mechanical log is maintained on each truck and records are retained in our maintenance department. A regular scheduled preventive maintenance program will be included with each mechanic’s log for each lift truck.

Truck Types and Their Unique Hazards

Electric Trucks and Battery Charging Operations

Operators need to be trained, but are not necessarily authorized to do battery handling, charging or storing. Appropriate personal protection in the form of aprons, chemical goggles or masks, rubber gloves, and/or boots suitable for this work, will be required when handling or servicing these trucks to prevent acid burns from splashes or contact with batteries. Charging must be done in an area with hard plumbed emergency eyewash stations capable of at least 15 minutes of continuous dilution. We have provisions for spill containment and neutralization for small amounts. Contact the maintenance department for emergency spill provisions per our cleanup protocol.

- No smoking during refueling, recharging or fluid level checking, or in any area where such activities ever occur.
- Park vehicle, turn off ignition and set parking break prior to servicing.
- Refueling (liquid fuel systems):
 - Driver is not allowed to be on the truck during fueling
 - Spilled fuel must be cleaned and the fuel cap replaced before restarting engine
- Wear goggles, face shield, rubber gloves and a rubber apron when performing work that involves opening battery caps.
- Before installing a battery, be sure that its service weight is within the weight limits mentioned on the nameplate to avoid truck instability.
- Utilize overhead hoist to move battery into and out of vehicle.
- Keep tools and other metal objects away from tops of uncovered batteries to prevent arcing that could occur between the battery terminals.
- Do not stack batteries.
- Know how to use charging area safety equipment.

A trickle charge is required to provide recharging capacity. Do not set up a fast charge as hydrogen gas can accumulate quickly and cause a potentially explosive atmosphere. All charging must take place in the appropriate area provided with outtake exhaust ventilation to help dissipate hydrogen buildup. When charging, vent caps should be in place and battery covers open to dissipate the heat. Smoking and other ignition sources are strictly prohibited.

Gasoline Operated Trucks

Gasoline operated trucks must be stored and handled per NFPA 30 standards, governing the flammable and combustible liquids code.

- Smoking is prohibited at all times.
- Fueling must be done outside the building in a designated area using appropriate grounding and bonding techniques provided.
- Portable containers must be UL listed or FM approved.
- Engines must be shut down when refueling.
- Spills must be promptly reported and contained per our response procedures.

Liquid Petroleum (LP) Trucks

Fire is the primary risk when using LP lift trucks. Improper or loose fittings that are not tightened will release gas.

- Prohibit all forms of ignition and smoking materials in storage and fill areas.
- Do not replace fittings without the approval and assistance of the maintenance department.
- Use only approved LP gas containers to use for dispensing.
- Make sure excess flow check valve is installed and operational to prevent gas escape in the event of a fuel line rupture.
- Store fuel containers outdoors in approved locations we have at _____.
- Protect storage racks or areas from mechanical contact or damage.
- Allow only certified suppliers to fill tanks. Keep records of that vendor's certification/licensure.
- Before refilling, inspect for the following defects and remove tank from service if any are found:
 - Dents, scrapes, and gouges in the vessel
 - Damage to the valves, gauges or hoses
 - Debris in the relief valve
 - Damage to the relieve valve cap
 - Leaks at the valves and threaded connections
 - Damage to or loss of flexible seals
- Wear gloves when changing tanks to protect against the cold of escaping gas.
- Do not store trucks and LP containers together in the same area.

General Operator Rules for PITS and Agreement

(Use this as a guide and customize to your organization's needs.)

Before operating lift truck each shift:

- Complete vehicle inspection (see Appendix D, Pre-Use Inspection Record)
- Nameplate on the truck is legible and lists the weight of truck and any attachments
- Check condition of tires (inflated if pneumatic), battery, chains and cables, fuel system(s)
- Confirm the functionality of the following:
 - Warning and safety devices
 - Lights
 - Controls
 - Load and tilt systems
 - Attachments

- Limit switches
- Brakes
- Steering mechanism
- Seat belts where provided
- Any other item required by the manufacturer
- If any of the above are in need of repair or in any way unsafe, do not operate
- Place directional controls in neutral
- Before starting truck:
 - Manual transmission: disengage clutch
 - Automatic transmission: apply and hold brake
 - Sit only in operator's position

All operators must be trained and qualified. No one operating a lift truck may do so without certification from management and the safety coordinator. Attending and passing the training course, complete with road and written verification, will achieve this.

Report damage or faulty operation immediately. Never operate the lift truck until problems are corrected. Drivers shall check the lift truck at least once per shift. If found to be unsafe, it will be reported immediately to the supervisor or mechanic. The vehicle will not be put into service until it has been made safe.

Avoid lifting anything if it appears that it could fall on the operator or a bystander. A truck equipped with an overhead guard and load backrest extension provides reasonable protection to the operator from falling objects, but cannot protect against every possible impact. A truck without an overhead guard provides no such protection.

Allow no riders at any time. Use a secured safety platform that has been authorized and certified for use when lifting personnel. Appropriate railing and capacity must be verified from management before a personnel lift is to be attempted.

Keep arms, legs, etc., inside the driver's compartment. Seat belts must be used at all times!

Keep clear of the hoisting mechanism. Leave tines in the lowered position at all times unless transporting a load. Only then should the load be hoisted, and then only far enough to clear floor obstacles and allow the operator clear visibility during transportation.

Allow no one under load or carriage. Be sure to sound the horn when pedestrians may be in your path.

Avoid bumps, holes, slick spots, and loose materials that may cause truck to swerve or tip.

Travel slowly around corners. Blind areas need extra care. Utilize overhead mirrors for better visibility.

Shut off engine, lower carriage completely and set parking brake when leaving truck. Block wheels when on incline or working on truck.

Do not turn on an incline. Be sure that the load is stable and turn with caution, very slowly. Grades should be ascended or descended slowly. If the grade is greater than 10 percent, the load should be up grade. On all grades, the load and load engaging means shall be tilted back if applicable and raised only as far as necessary to clear road surface.

Do not fill fuel tank while engine is running. Be certain that the engine is stopped. Observe no-smoking policy in all areas of the facility.

Avoid sudden starts or stops. This can disturb your load and put undue stress on the brake system.

Do not drive vehicles onto elevators. If operator has specific permission to do so, make sure the capacity of the elevator will not be exceeded before entering.

Do not operate vehicles on floors, sidewalks, near doors or other platforms that will not effectively support the loaded vehicle. Flooring in trucks, trailers, and rail cars shall be checked for breaks and other structural weaknesses prior to driving on board. Watch clearances, especially forks, mast heights, overhead guard, and tail swing.

Observe the following load handling procedures:

- Handle loads within rated capacity.
- Handle only stable loads.
- Center weight of wide loads between forks.
- Watch “swing” when handling long loads.
- Keep load against carriage.
- Do not travel with load raised.
- For better vision with bulky loads, travel in reverse, but:
 - Look ahead in the direction of your travel
 - Always keep the load up grade on grades of 10 percent or more
- Lift and lower with mass vertical or tilted slightly back, tilting load forward only when directly over unloading place.
- If load or lifting mechanism is elevated to make pick up or deposit, keep tilt in either direction to a minimum.

Drive carefully, observe traffic rules and be in full control of the truck at all times. Be completely familiar with the operating procedures in the owner and operator’s guide furnished with the truck.

Maintain the authorized safe speed. Keep safe distances from other vehicles, keeping the truck under positive control at all times, and observe established traffic regulations.

No passing! Other trucks traveling in the same direction shall not be passed at intersections, blind spots or dangerous locations. Look in the direction of travel and do not move a lift truck until certain that all persons are in the clear.

Do not drive trucks up to anyone standing in front of a fixed object. The person could be caught between the truck and object or wall.

If vehicle is within 25 feet of operator and in view when left unattended, the power may remain on if controls are neutralized and the previous procedures are followed.

Do not drive into and out of highway trucks and trailers at loading docks unless the trucks are securely blocked.

Maintain a minimum distance of one tire width from the edge of a loading dock or other elevated surfaces.

Cross railroad tracks diagonally, whenever possible. Do not park closer than 8.5 feet from the center of a railroad track.

Do not load trucks in excess of their rated capacity. Do not move unless load is safe and secured.

Place the load-engaging device so that the load will be securely held and supported.

Workplace-Specific Information

Applicable situations must take into account the following conditions or work practices:

- Expected floor surface or terrain conditions
- Composition of probable loads and resulting stability
- Load movement, stacking and unstacking procedures
- Anticipated pedestrian traffic
- Restricted areas of operation
- Hazardous classified location operations (Note: This material does not address specific hazardous locations.)
- Sloped surface locations
- Confined areas and carbon monoxide/diesel exhaust
- Other work-place conditions

This is to verify and acknowledge that I have read, understand, and will apply all safety principles during the course of my employment with this company.

Name of Operator: _____

Name of Supervisor: _____

Date: _____

Note: Copies should be retained by the employee, the supervisor and human resources.

PIT Reference Sources

OSHA General Industry standard, 29 CFR 1910.178, Powered *Industrial Trucks*.

ASME B56.1-2000, *Safety Standard for Low Lift and High Lift Trucks*.

NFPA 505 (2006 ed.), *Fire Safety Standard for Powered Industrial Trucks Including Type Designations, Areas of Use, Conversions, Maintenance, and Operation*.

NIOSH 78-99 (October, 1978), *Outline for Training of Powered Industrial Truck Operators*.

UL 583, *Standard for Safety for Electric Battery Powered Industrial Trucks*.

UL 558, *Standard for Safety for Internal Combustion Engine Powered Industrial Trucks*.

Web Sites

OSHA PIT Training materials

<http://www.osha.gov/SLTC/powerindustrialtrucks/index.html>

OSHA PIT PowerPoint slide presentation

<http://www.osha.gov/dcsp/ote/trng-materials/pit/ppt/slide1.html>

Model Safety Plan: Powered Industrial Trucks

Appendices

Model Safety Plan: Powered Industrial Trucks Appendix B

Sample Lift Truck Operator Annual Evaluation Record

(Use this as a guide and customize to your organization's needs.)

Complete this form for each lift truck operator after training, and at least annually.

Date _____

Observer _____

Print name

Sign name

Name of Observed PIT Operator: _____

Observe the operator and score all conditions below as safe or unsafe

Condition	Safe	Unsafe	N/A	Comments
Operator maintains truck stability				
Loads are secure during handling				
Operator yields to pedestrians at all times				
Forks are lowered while driving				
Operator drives in direction of greatest visibility				
Speed is appropriate for conditions				
Vehicle inspected every shift by operator				
Operator maintains clearance while turning				
Acceleration is gradual				
Loads are stacked securely				
Loads handled are within truck's capacity				
Truck only used for intended purposes				
Maneuvers are performed in a safe manner				
Appropriate PPE is worn				
Maneuvers through obstacle course safely				
Appropriate use of restraint systems when operating the truck				
Sets the load flat on the floor before getting off PIT				
Other...				

If operator always operates the lift truck safely check here: _____

If any unsafe behavior* is observed, check here: _____.

* **Unsafe behavior** is defined as conduct which does not conform to our lift truck training plan or the recommendations of the lift truck or attachment manufacturer. When unsafe behavior is identified, retraining shall be provided to that operator. This record shall be attached to the training record of the retraining session. **Prompt coaching and referral for remedial training or action must be taken and documented.**

Model Safety Plan: Powered Industrial Trucks Appendix D

Knowledge of Safeguards within the Facility

(Use this as a guide and customize to your organization's needs.)

The operator is to identify and explain safety items at the dock area, battery recharging area, and overall facility safety.

Dock Area	Date Discussed	Comments
Wheel chocking		
Dock plate		
Trailer lighting		
Condition of trailer floor		
Don't jump off the dock		
Keep clear of others		
Be aware of signs		
Correct height of empty pallets		

Fire Safety	Date Discussed	Comments
Location of extinguishers		
How to use extinguisher		
Type of extinguisher to use		

Battery Charging	Date Discussed	Comments
Protective equipment		
Acid neutralizing		
MSD		
No smoking policy		
Plug/unplug practices		
Clean-up procedures		
Eyewash station		
Commercial battery safe practices		

Personal Safety	Date Discussed	Comments
Use of eye protection during banding operations		
Eyewash station		
Other: _____		

Model Safety Plan: Powered Industrial Trucks Appendix E

Sample On-Site Driver's Performance Check Sheet

(Use this as a guide and customize to your organization's needs.)

Employee's Name		Observer's Name			Date	
KEY:	5	4	3	2	1	0
	Excellent	Good	Fair	Poor	Unsatisfactory	Not Observed

1. Performs proper maintenance inspection.	5	4	3	2	1	0
2. Travels with forks close to floor	5	4	3	2	1	0
3. Wears seat belt where provided	5	4	3	2	1	0
4. Approaches load properly	5	4	3	2	1	0
5. Carries load properly	5	4	3	2	1	0
6. Removes any obstacles in aisles	5	4	3	2	1	0
7. Slows down at corners or intersections	5	4	3	2	1	0
8. Sounds horn at blind corners and stops if necessary	5	4	3	2	1	0
9. Looks where he/she is going	5	4	3	2	1	0
10. Travels in reverse if necessary	5	4	3	2	1	0
11. Slows down on wet or slippery floors	5	4	3	2	1	0
12. Corners properly	5	4	3	2	1	0
13. Starts and stops smoothly	5	4	3	2	1	0
14. Obeys plant traffic rules	5	4	3	2	1	0
15. Negotiates ramps properly	5	4	3	2	1	0
16. Understands proper refueling or recharging procedures	5	4	3	2	1	0

Items 17 – 22: Evaluate the driver's ability to deposit a load in a storage area.

17. Makes a proper turn	5	4	3	2	1	0
18. Raises load properly	5	4	3	2	1	0
19. Tilts upright forward only after the load is over the storage location	5	4	3	2	1	0
20. Lowers load slowly	5	4	3	2	1	0
21. Load sits squarely	5	4	3	2	1	0
22. Backs truck away properly	5	4	3	2	1	0

Items 23 – 26: Evaluate the driver's procedures if called away from the truck.

23. Parks truck properly	5	4	3	2	1	0
24. Knows rated capacity of truck	5	4	3	2	1	0
25. Knows weight and load center of the load just moved	5	4	3	2	1	0
26. Is aware of hazardous areas in the plant	5	4	3	2	1	0

Items 27 – 31: Evaluate dock and trailer procedures.

27. Checks trailer's door opening as well as the condition and capacity of trailer floor	5	4	3	2	1	0
28. Checks for the necessity of using a free-lift upright	5	4	3	2	1	0
29. Checks to ensure that trailer wheels are blocked	5	4	3	2	1	0
30. Checks dock board for capacity and mounting	5	4	3	2	1	0
31. Avoids the edge of dock	5	4	3	2	1	0

Items 32 – 35: Evaluate elevator use.

32. Knows capacity of elevator	5	4	3	2	1	0
33. Knows combined weight of truck and load	5	4	3	2	1	0
34. Enters elevator properly	5	4	3	2	1	0
35. Once in the elevator, shuts down vehicle properly	5	4	3	2	1	0

Items 36 & 37: Evaluate outside operation.

36. Avoids uneven terrain	5	4	3	2	1	0
37. Other(?)						

Model Safety Plan: Powered Industrial Trucks Appendix F

Sample Lift Truck Operator Training Test

(Use this as a guide and customize to your organization's needs.)

Select the Best Answer		T	F
1.	A careful driver may hang his/her leg outside a machine when it is protected by a wide load.		
2.	As the load's center of gravity moves away from the mast, the weight handling capacity of the truck decreases.		
3.	Backward tilt moves the combined center of gravity closer to the rear wheels.		
4.	A lift truck should never be driven in reverse.		
5.	Other workers may stand nearby when you stack materials.		
6.	It is all right to leave the engine running if you are only going to be gone a short time.		
7.	Rear-wheel steering provides good maneuverability, but also requires constant awareness of tail swind.		
8.	It is not necessary to report slippery conditions in your driving area.		
9.	Stability is resistance to overturning. A lift truck operator must be continually aware of both forward and side stability, particularly when driving on a slope.		
10.	Although there is a margin of safety built into the capacity rating of a new lift truck, the rated capacity should never be ignored.		
11.	A good driver drives fast to be the most productive and efficient.		
12.	It is not necessary to observe the condition of building, railroad car, or truck flooring because codes and regulations require they be in good condition.		
13.	If your truck begins to make a peculiar noise, it is a good idea to tell your supervisor about it at the end of the shift.		
14.	The center of gravity on a lift truck always remains constant.		
15.	Checking for safe brake operation is one of the daily checks an operator makes.		
16.	Tire skid marks on the floor are telltale signs of poor driving habits		
17.	It is all right to lift a person on the fork tines only in an approved overhead work platform attached to the truck.		

Short Answer

18. A lift truck is suspended at _____ points. Lines of side support form a _____ with the points.
19. List three fluid level checks a trained operator should make at the beginning of each shift.
20. Describe what will happen if, during a material handling operation, the vehicle's center of gravity extends beyond the lines of side support.
21. The load center of a lift truck is measured at a distance of _____ inches from the heel of the forks.

Multiple Choice

Select the answer that is most correct.

22. Regarding the right-of-way, trucks:
- a) cannot stop as quickly as pedestrians, and, therefore have the right-of-way
 - b) must always yield to pedestrians
 - c) have the right-of-way whenever the horn is sounded
23. Before loading or unloading truck trailers:
- a) determine how fast to drive the lift truck to jump the gap between the trailer and the dock
 - b) determine if a dock plate is needed to level the trailer with the dock
 - c) ensure the dock plate is securely in place
24. Which of the following should be minimized to avoid truck turnover?
- a) the height of the forks while traveling
 - b) the length of the fork under the load
 - c) the backward tilt of the mast
25. The counterbalanced design of the lift truck means:
- a) if the back wheels leave the ground temporarily, but come back down, then the truck is in balance
 - b) to increase the vehicle's lifting capacity, more weight should be added to the rear
 - c) the truck is least stable when empty
26. The stability of the lift truck while turning:
- a) increases because of the weight of the truck
 - b) depends upon the load
 - c) decreases because the force on the truck pushes to the outside of the turn
27. A lift truck differs from an automobile in that a lift truck:
- a) steers more easily while unloaded
 - b) is more difficult to stop
 - c) is more likely to be noticed by pedestrians
28. The lift truck operator needs to know which of the following when transporting chemicals:
- a) nothing; only those who use the chemicals need to read the MSDSs
 - b) what to do in case the chemical spills
 - c) what the chemicals' intended use may be
29. When elevating personnel with an approved personnel platform, the anticipated weight of the platform, personnel, and load should not exceed:
- a) one-half of the capacity listed on the nameplate
 - b) the capacity listed on the nameplate
 - c) it does not matter; if the platform is designed to lift personnel, then the truck can handle the weight
30. Changes in the lift truck's capacity may be made by:
- a) any operator who knows how
 - b) the truck manufacturer or anyone with written permission from the truck manufacturer
 - c) the truck manufacturer only
31. Lift truck operators should store chemicals:
- a) away from incompatible substances
 - b) at height, so they are less likely to be contacted accidentally away from battery charging areas

Model Safety Plan: Powered Industrial Trucks Appendix F.1

Sample Lift Truck Operator Training Answer Sheet

1. A careful driver may hang his/her leg outside a machine when it is protected by a wide load. False
2. As the load's center of gravity moves away from the mast, the weight handling capacity of the truck decreases. True
3. Backward tilt moves the combined center of gravity closer to the rear wheels. True
4. A lift truck should never be driven in reverse. False
5. Other workers may stand nearby when you stack materials. False
6. It is all right to leave the engine running if you are only going to be gone a short time. False
7. Rear-wheel steering provides good maneuverability, but also requires constant awareness of tail swing. True
8. It is not necessary to report slippery conditions in your driving area. False
9. Stability is resistance to overturning. A lift truck operator must be continually aware of both forward and side stability, particularly when driving on a slope. True
10. Although there is a margin of safety built into the capacity rating of a new lift truck, the rated capacity should never be ignored. True
11. A good driver drives fast to be the most productive and efficient. False
12. It is not necessary to observe the condition of building, railroad car, or truck flooring because codes and regulations require they be in good condition. False
13. If your truck begins to make a peculiar noise, it is a good idea to tell your supervisor about it at the end of the shift. False
14. The center of gravity on a lift truck always remains constant. False
15. Checking for safe brake operation is one of the daily checks an operator makes. True
16. Tire skid marks on the floor are telltale signs of poor driving habits. True
17. It is all right to lift a person on the fork tines only in an approved overhead work platform attached to the truck. False

Short Answer

18. A lift truck is suspended at **3** points. Lines of side support form a **Triangle** with the points.
19. List three fluid level checks a trained operator should make at the beginning of each shift. **Oil, Water Fuel, Hydraulic Oil.**
20. Describe what will happen if, during a material handling operation, the vehicle's center of gravity extends beyond the lines of side support. **Vehicle could tip over to that side.**
21. The load center of a lift truck is measured at a distance of **24** inches from the heel of the forks.

Multiple Choice

Select the answer that is most correct.

22. Regarding the right-of-way, trucks: **b) must always yield to pedestrians**
23. Before loading or unloading truck trailers: **c) ensure the dock plate is securely in place**
24. Which of the following should be minimized to avoid truck turnover? **a) the height of the forks while traveling**
25. The counterbalanced design of the lift truck means: **c) the truck is least stable when empty**
26. The stability of the lift truck while turning: **c) decreases because the force on the truck pushes to the outside of the turn**
27. A lift truck differs from an automobile in that a lift truck: **b) is more difficult to stop**

28. The lift truck operator needs to know which of the following when transporting chemicals: **b) what to do in case the chemical spills**
29. When elevating personnel with an approved personnel platform, the anticipated weight of the platform, personnel, and load should not exceed: **a) one-half of the capacity listed on the nameplate**
30. Changes in the lift truck's capacity may be made by: **b) the truck manufacturer or anyone with written permission from the truck manufacturer**
31. Lift truck operators should store chemicals: **a) away from incompatible substances**

