Powered Industrial Trucks
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Appendix A - Types of Trucks

Appendix B - Sample Fork Truck Pre-Operation Inspection Checklist

Appendix C - Sample Permit

I. PURPOSE

Central Michigan University’s Powered Industrial Truck Program has been written to achieve compliance with the Michigan Occupational Safety and Health Administration (MIOSHA) Part 21 Powered Industrial Trucks Standard. This standard provides the minimum safety rules for the care and use of powered industrial trucks and provides for operator safety and equipment specifications.

II. SCOPE AND APPLICATION

All Central Michigan University departments using powered industrial trucks are required to comply with these procedures. This includes, but is not limited to, Landscape Operations, University Stores, Recycling, Powerhouse Operators, and the College of Science and Technology.

III. DEFINITIONS

American Society of Mechanical Engineers (ASME) type-liquid petroleum gas cylinder - a fuel container for liquefied petroleum gas made and inspected under the ASME Boiler and Pressure Vessel Code

Attachment – device, other than conventional forks or load backrest extension, mounted permanently or removable on the elevating mechanism of a truck for handling the load. Popular attachments are fork extensions, clamps, rotating devices, side shifters, load stabilizers, rams, and booms.

Cantilever truck – self-loading counter-balanced or non-counter-balanced truck equipped with cantilever load engaging means (Appendix A, Fig. 1)

Capacity - when referring to trucks, means:

- The capacity of a truck equipped with a load carriage and forks, or with attachments, is the maximum weight in pounds, at a specific load center which the truck, based on the strength of its various components and applicable stability, can lift to the maximum elevation of the load engaging means. Alternate capacities may be established at the same specified load center and at less than maximum elevation of the load engaging means.
- The capacity of a truck equipped with a platform is the maximum weight in pounds, at a specified load center which the truck, based on the strength of its various components, can lift to the maximum elevation of the load engaging means.

Carriage – a support structure for forks or attachments, generally roller mounted, traveling vertically within the mast of a cantilever truck

Center-control truck – a truck in which the operator’s control position is located near the longitudinal center of the truck

Counterbalanced truck – a truck equipped with load engaging means wherein all the load during normal transporting is external to the polygon formed by the wheel contacts (Appendix A, Fig. 1)
Department of Transportation type LP cylinder – fuel container for liquefied petroleum gas made and inspected under Department of Transportation regulations

Drift – to move without control

Electric Truck – a truck in which the principal energy is transmitted to motors in the form of electricity from a power source such as, but not limited to a battery or motor generator

End-control truck – a truck in which the operator’s position is located at the end opposite the load

Fixed platform truck – a truck equipped with a load platform which is non-elevating

Forks – horizontal tine-like projections, normally suspended from the carriage, for engaging and supporting loads

Fork height – the vertical distance from the floor to the load carrying surface adjacent to the heel of the forks with mast vertical, and in the case of a reach truck, with the forks extended

Fork-lift truck – a light-lift self-loading truck equipped with load carriage and forks for transporting and tiering loads

Free play – an uncontrolled movement

High-lift truck – a self-loading truck equipped with an elevating mechanism designed to permit tiering. Popular types are high-lift fork trucks, high-lift ram trucks, high-lift boom trucks, high-lift clamp trucks and high-lift platform trucks.

(Appendix A, Fig. 1)

High-lift platform truck – a self-loading truck equipped with a load platform, intended primarily for transporting and tiering loaded skid platforms (Appendix A, Fig. 2)

Industrial Crane Truck – means a truck intended primarily for pick and carry use in warehousing, yarding, or industrial plant operation over improved or hard surfaced roads and yards, including maintenance within these areas.

Industrial tractor – a truck designed primarily to draw 1 or more non-powered trucks, trailers or other mobile loads (Appendix A, Fig. 5)

Internal combustion engine truck – a truck in which the power source is a gas, LP gas, gasoline or diesel type engine

Issuing authority – an employer or his/her designated representative who instructed and trained the operator

Liquefied petroleum gas (LP gas) – a fuel, which is composed predominately of any of the following hydrocarbons, or mixtures of them: propane, propylene, butanes (normal butane or iso-butane) and butylenes.

Load-axle – the truck axle nearest the load

Load backrest extension – a device extending vertically from the fork carriage frame

Load center – the horizontal longitudinal distance from the intersection of the horizontal loading-carrying surface and vertical load-engaging faces of the forks, or equivalent load positioning structure, to the center of gravity of the load

Loading engaging – means a load handling device attached to a powered industrial truck for the purpose of handling a load
Low-lift truck – a self-loading truck equipped with an elevating mechanism designed to raise the load sufficiently to permit horizontal movement. Popular types are low-lift platform trucks and pallet trucks. (Appendix A, Fig. 3)

Low-lift platform truck – a self-loading truck equipped with a load platform intended primarily for transporting loaded skid platforms (Appendix A, Fig. 3)

Mast – a support member providing the guideways permitting vertical movement of the carriage. It is usually constructed in the form of channels of similar sections providing the supporting pathway for the carriage rollers

Motorized hand truck – a truck designed to be controlled by a walking operator and used to lift, tow, carry, stock and tier materials (Appendix A, Fig. 4)

Motorized hand or rider truck – a dual purpose truck designed to be controlled by a walking operator or by a riding operator (Appendix A, Fig. 6)

Narrow aisle truck – a self-loading truck primarily intended for right angle stacking in aisles narrower than those normally required by counterbalanced trucks of the same capacity (Appendix A, Fig. 10)

Non-elevating truck – a non-counter-balanced truck designed primarily for burden-carrying and not capable of self-loading.

Operator – an employee who has been trained, tested, and authorized by the present employer to operate a powered industrial truck.

Order picker truck, high-lift – a high-lift truck controlled by the operator stationed on a platform movable with the load engaging means and intended for manual stock selection. The truck may be capable of self-loading, of tiering or both. (Appendix A, Fig. 9)

Overhead guard – a framework fitted to a truck over the head of a riding operator

Overall lowered mast height – the maximum vertical dimension from the ground or floor to the extreme top point of the mast with the fork carriage in the fully lowered position and unloaded.

Pallet truck – a self-loading low-lift truck equipped with wheeled forks of dimensions to go under a single faced pallet or between the top and bottom boards of a double faced pallet and having wheels capable of lowering into spaces between the bottom boards so as to raise the pallet off the floor for transportation (Appendix A, Fig. 4)

Parking Brake – a device to prevent the movement of a stationary truck

Powered industrial truck or truck – a mobile, power driven vehicle used to carry, push, pull, lift, stack, or tier material

Reach truck – a self-loading truck, generally high-lift, having load engaging means mounted so the means can be extended forwardly under control to permit a load to be picked up and deposited in the extended position and transported in the retracted position (Appendix A, Fig 7)

Rough terrain forklift truck – means a wheeled-type truck which is designed primarily as a fork truck that has a vertical mast or pivoted boom, or both, which has variable fixed length reach and which may be equipped with attachments and that is intended for operation on unimproved natural terrain as well as the disturbed terrain of construction sites. A machine that is designed primarily for earth moving, such as a loader or dozer, even though its buckets and blades are
replaced with forks or a machine that is designed primarily as an over-the-road truck, that has a lifting device, is not a rough terrain forklift.

**Self-loading** – the capability of a truck to pick up, carry, set down and, in the case of high-lift types, to stack or tier its load without the aid of external means.

**Service brake** – a device designed to bring a moving truck to a halt

**Side loader** – a self-loading truck, generally high-lift, having load engaging means mounted in such a manner that the means can be extended laterally under control to permit a load to be picked up and deposited in the extended position and transported in the retracted position (Appendix A, Fig. 8)

**Straddle truck** – a general class of cantilever truck with horizontal structural wheel supported members extending forward from the main body of the truck, generally high-lift, for picking up and hauling loads between its outrigger arms (Appendix A, Fig. 10)

**Tire** – standard solid, cushion solid, pneumatic or solid pneumatic style tire

**Tiering** – a process of placing a load on or above another load

**Unattended truck** – a truck beyond the vision, or more than 25 feet from the operator, whichever is less

### IV. RESPONSIBILITIES

#### A. Employer

1. **Operator Selection**

   An employer shall be able to demonstrate that an employee is trained and qualified to operate a powered industrial truck (PIT) prior to authorizing the employee to operate a PIT.

2. **Training**

   a. Risk Management, Environmental Health & Safety will coordinate with supervisors to provide training to the employee prior to the employee’s assignment as an operator of a powered industrial truck. Instruction shall include:

   - Capacities of the equipment and attachments
   - Purpose, use, and limitations of controls
   - How to make daily checks
   - Practice and operating assigned vehicles through their functions necessary to perform the required job
   - The state safety standards listed in this program under employee responsibilities
   - Hazards associated with exhaust gases produced by fossil fuel powered industrial trucks (e.g. carbon monoxide components of diesel exhaust), and hazards associated with the handling of electrolyte chemicals

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used for battery operated trucks (e.g. sulfuric acid), shall be provided in accordance with MIOSHA General Industry Part 92. Hazard Communication.

b. Training shall consist of a combination of formal instruction (e.g. lecture, discussion, interactive computer learning, videotape, and written material), practical training, and testing of the operator’s performance in the workplace as required under the rule for testing.

c. Refresher training in relevant topics shall be provided to an operator under any of the following conditions:

- An operator has been observed to operate the vehicle in an unsafe manner.
- An operator has been involved in an accident, or a near-miss incident.
- An operator has received an evaluation that reveals that the operator is not operating the truck safely.
- An operator is assigned to a different type of truck.
- A condition in the workplace changes that could affect safe operation of the truck.

d. An evaluation of each operator’s performance shall be conducted before renewal of a truck operator permit. An individual who is authorized by the employer and who has the knowledge, training, and experience to train and evaluate the competence of the operator shall provide training and evaluation.

3. Testing

a. Supervisors, in coordination with Environmental Health & Safety shall test an employee before authorizing the employee to operate a powered industrial truck, except a motorized hand truck. The test shall evaluate the employee’s:

- Operating ability
- Knowledge of the equipment
- Knowledge of state safety standard rules, listed under employee responsibilities
- Knowledge of daily checks

b. A performance test shall be given to determine whether the employee can operate the assigned powered industrial truck
through the functions necessary to perform the required work.

c. Central Michigan University will use the MIOSHA Powered Industrial Truck Testing exam and answer key.

d. An employee who has a valid permit to operate a powered industrial truck issued by another employer must complete Central Michigan University’s training program.

4. Permits

a. Environmental Health & Safety shall provide the employee with a permit to operate a powered industrial truck only after meeting the requirements prescribed in Operator Selection, Training and Testing.

b. The operator shall carry a permit at all times during working hours.

c. A permit shall indicate the type of truck an operator has been trained on and is qualified to operate.

d. A permit to operate a powered industrial truck shall be valid for a period of not more than three years.

e. A permit shall contain the following information (See Sample Permit – Appendix C):

   - Operator’s name
   - Name of issuing authority
   - Type of truck authorized to operate
   - Operator restrictions, if any
   - Date issued
   - Expiration date

f. If a restricted permit to operate is issued, the permit shall state the nature of the restriction.

V. USE RESTRICTIONS

A. Except as stated below in 2., a powered industrial truck shall not be used in an environment containing:
• Gases or vapors, such as, but not limited to, acetylene, hydrogen, oxygen, ether, gasoline, naphtha or acetone, which may be present in quantities sufficient to produce an explosive or ignitable mixture.
• Combustible mixtures of dust such as, but not limited to, metal dust, coal dust, coke dust, grain dust, flour dust or organic dust.
• Ignitable fibers such as, but not limited to, baled waste, cocoa fiber, cotton, excelsior, kapok or oakum.

B. A powered industrial truck used in a hazardous environment shall be equipped as prescribed in the National Fire Protection Association standard, 505-1969, Type Designations, Areas of Use, Maintenance and Operation of Powered Industrial Trucks.

VI. MECHANICAL CONDITION AND MAINTENANCE

A. Supervisors shall not permit a powered industrial truck to be used if:
• The service and parking brakes do not perform their intended function.
• The fuel system leaks.
• A lift cylinder of a load engaging means allows a downward drift of the load engaging means loaded or unloaded in excess of 5 inches in 5 minutes.
• A tilt cylinder of a mast allows a forward drift of the mast in excess of 2 degrees in 5 minutes with the mast in a vertical position and a capacity load on the fork of load engaging means.
• The steering mechanism allows free play of the steering wheel of more than ¼ turn on trucks capable of speeds under 8 miles per hour and more than 1/8 turn on trucks capable of speeds over 8 miles per hour.
• A hydraulic system leaks and creates a hazard for an employee and equipment in the area.

B. Repairs to a fuel and ignition system which involves a fire hazard shall be made only in a designated location. Repairs shall not be made in a location made hazardous by:
• Flammable gases or vapors
• Combustible dusts
• Ignitable fibers

C. Repairs to the truck electrical system shall be made only after the battery has been disconnected.

D. A replacement part shall have not less than the equivalent safety of the original part.
E. A truck running in excess of normal operating temperature which creates a hazardous condition shall be removed from service and repaired.

F. A truck shall be maintained in a condition, reasonably free of lint, excess oil and grease. Solvent with a flash point of less than 100 degrees Fahrenheit shall not be used to clean the truck. Precautions regarding ventilation, fire and toxicity shall be observed when using a cleaning agent.

G. A truck approved for use of one type of fuel may be converted to another type of fuel if the conversion qualifies the truck to its new designation, such as GS, LP or LPS. Only approved parts shall be used. The conversion shall be made only with the written approval of the manufacturer.

H. All repairs shall be made by authorized personnel.

VII. BLOCKS AND SAFETY STANDS FOR MAINTENANCE

A. Supervisors shall ensure the following are provided:
   • Chock blocks, support blocks or jack stands for the maintenance department’s use when repairing powered industrial trucks or their components.
   • Blocks or safety stands as a means of support for powered industrial trucks elevated from the floor by a hoist or a chain fall.

B. When repairing a powered industrial truck, an employee shall use chock blocks, support blocks, or jack stands if there is a hazard from movement.

C. An employee shall not place his or her body under a powered industrial truck unless the powered industrial truck is supported by properly arranged blocks or jack stands capable, in total, of supporting a minimum of 1 ½ times the weight of the component of the truck to be repaired.

VIII. FUEL

A. Supervisors shall provide safety fuel cans where trucks are refueled with gasoline at other than a gas pump area.

B. The University shall provide a special area for refueling not less than 25 feet from the source of open flame or spark and these shall be posted to this effect.

C. Use and storage of LP gas shall be as specified by the Michigan General Industry Safety Standard Part 56 Storage and Handling of Liquefied
Petroleum Gases. (Available on request from Risk Management, Environmental Health & Safety)

D. Handling and storage of fuel, such as gasoline and diesel fuels, shall be as prescribed by the Michigan General Industry Safety Standard Part 75 Flammables and Combustible Liquids. (Available on request from Risk Management, Environmental Health & Safety)

E. Smoking while refueling is prohibited.

F. The fuel level shall not be checked in an area where there is an open flame.

G. An employer shall ensure that an employee is protected from exposure to airborne contaminants created in exhaust gases (e.g. carbon monoxide) of fossil fuel powered industrial trucks as required by R 325.51101 et seq., “Air Contaminants.”

IX. ELECTRIC TRUCKS

A. Where electric trucks are used, the University shall provide a designated area specifically located for battery changing and/or charging. This area must be free from all extraneous combustible materials. Battery charging shall be performed by a trained and authorized employee. During charging, all ignition sources must be removed/eliminated from the designated area. Precautions to prevent open flames, sparks, or electric arcs in the battery charging area are necessary. Where there is the potential for exposure to injurious corrosive electrolyte solutions during servicing/adding water, etc., (e.g. sulfuric acid) the employer shall provide personal protective equipment including rubber or neoprene gloves, safety goggles, and face shield. In addition, suitable facilities for quick drenching or flushing of eyes and body shall be located within 25 ft. or less of the designated area for immediate emergency use. Plumbed or self-contained units must be capable of delivering a continuous supply of water for 15 minutes. The emergency eyewash/shower units must be clearly marked and easily accessible.

B. Provisions shall be made in a battery charging area where batteries are removed from the truck for flushing and neutralization of spillage, for fire protection, and for air movement sufficient to disperse fumes from gassing batteries.

C. Smoking and other sources of ignition are prohibited in these areas.
D. A truck shall be positioned and the brake applied before changing or charging a battery. A reinstalled battery shall be positioned and secured before releasing the truck for use.

E. Material handling equipment, such as, but not limited to, a conveyor or overhead hoist, shall be used for removing and replacing a battery. A spreader bar or an equivalent device shall be used with any overhead battery hoist so that the lifting stresses are vertical. A chain type powered battery hoist shall have a container to accumulate the excess lifting chain. When a hand hoist is used, an uncovered battery shall be covered to prevent the hand chain from shorting on cell connections or terminals. Tools and other metallic objects shall be kept away from the terminals.

F. When mixing electrolyte for a battery, a carboy tilter or siphon shall be provided for handling electrolyte. Acid concentrate shall be poured into water; water shall not be poured into acid concentrate.

G. When charging a battery:
   - The vent cap shall be kept in place and functioning.
   - The battery or compartment covers, where provided, shall be kept open to dissipate heat and gases.

H. The electrolyte level shall not be checked in an area near an open flame.

X. DOCKBOARDS AND PLATES

A. Supervisor shall provide dockboards and plates designed to carry the load imposed on them. The carrying capacity shall be marked on a dockboard or plate.

B. The dockboard or plate shall be secured in position, either by being anchored or equipped with devices to prevent it from slipping out of position.

C. Hand holds, or other effective means, shall be provided to permit safe handling. Where a fork truck is used, fork loops, pockets or lugs shall be provided for safe handling.

D. A dockboard or plate shall have a slip-resistant surface such as, but not limited to, a tread plate, designed to reduce the possibility of slipping by an employee or truck.

E. A dockboard or plate shall be designed and maintained so the end edges will have sufficient contact with the dock or loading platform and the
carrier to prevent the dockboard or plate from rocking or sliding out of position.

F. A portable dockboard or plate used by a powered industrial truck to bridge an opening in excess of eighteen inches shall have curbs. The height of the curb on a dockboard or plate used by a powered industrial truck with solid or cushion tires shall be not less than fifteen percent of the diameter of the largest tire of the truck; however, the maximum curb height need not exceed three inches.

XI. FORK LIFT TRUCK PLATFORMS

A. An employee shall not be lifted or transported except when a platform is attached to the forks by enclosed sleeves, a safety chain or a mechanical device in such a manner that the platform cannot tip or slip.

B. A platform shall be equipped with a railing not less than 36 inches or more than 42 inches high and a toeboard. The railing shall consist of 1 of the following materials:

- Wood posts of at least 2 x 4 inches nominal stock; the top rail shall be made of 2 right angle pieces of not less than 1 x 4 inch nominal stock and an intermediate rail of 1 x 4 inch nominal stock.
- Steel or aluminum pipe post and rails of not less than 1 inch inside diameter and an intermediate rail of ¾ inch inside diameter pipe.
- Structural steel or aluminum post, rails and intermediate rail of angle iron of not less than 1 x 1 x 3/16 inch size of other shapes of equal strength.

C. The intermediate rail may be omitted from one side.

D. A toeboard shall be made of not less than 1 inch x 4 inches nominal wood stock or a material of equal strength.

XII. LOAD BACKREST EXTENSIONS

A certified load backrest extension, shall be used whenever necessary to minimize the possibility of a load, or part of it, falling rearward.

XIII. SPINNER KNOBS

A spinner knob shall not be attached to a steering handwheel of a truck unless originally equipped with such; the truck is equipped with power steering; or the truck is equipped with an anti-kickback device on the steering mechanism. The knob shall be installed within the periphery of the handwheel.
XIV. EMPLOYEE RESPONSIBILITIES

A. Daily Checks

1. At the start of each shift, the operator of a powered industrial truck or a qualified employee shall perform daily/preoperational checks of the equipment as required by this program. See Appendix B for the inspection checklist.

2. Any defects affecting the safe operation of the equipment shall be repaired before use.

3. An operator shall promptly report any defect on the powered industrial truck to the supervisor.

B. General Operating Rules

1. An operator shall safeguard other employees at all times.

2. An operator shall not drive a truck up to anyone who is standing in front of a bench or other fixed object.

3. An operator shall not allow anyone to stand or pass under the elevated portion of any powered industrial truck, whether loaded or empty.

4. No employee except the operator shall ride on a powered industrial truck unless the truck is provided with a passenger seat. Passenger seats on a forklift truck shall be under the overhead guard.

5. An operator shall not put his or her arms or legs between the uprights of the mast or outside the running lines of a moving truck.

6. Talking on a cell phone while operating a forklift is prohibited.

7. Wearing radio or music headphones while operating a forklift is prohibited.

C. Parking

1. When leaving a powered industrial truck unattended, an operator shall fully lower the forks flat to the floor, neutralize the controls, set the brakes, and shut the power off.

2. Whenever it is necessary to leave a truck on an incline, the truck wheels shall be blocked and the steering wheels turned toward the curbing, wall or raling.
D. Loading Trucks and Trailers

1. When being boarded by a powered industrial truck, a highway truck and trailer shall have their brakes set and not less than two rear wheels blocked or restrained by other mechanical means installed in a manner that will hold the trailer from movement.

2. The landing gear of all semitrailers shall be visually inspected immediately before the trailer is uncoupled from the tractor to assure its ability to support the imposed load.

3. A semitrailer less than thirty feet in length, when not coupled to a tractor and being loaded or unloaded with a powered industrial truck, shall be provided a support capable of sustaining the load at the front.

4. The flooring of trucks and trailers shall be checked for breaks and weakness before they are driven onto.

E. Surveying Path of Travel/Hazardous Areas

1. Before moving or stacking, an operator shall survey the path of travel in order to avoid obstacles, such as, but not limited to, pipes, light fixtures, and sprinkler systems. A safe distance shall be maintained from the edge of ramps or platforms while on an elevated dock.

2. When operating a powered industrial truck in a hazardous area, only a truck specifically equipped for such an operation shall be used. See use restrictions.

F. Reporting Accidents

A powered industrial truck operator shall report all accidents, injuries, and near misses to their supervisor.

G. Clear Access

An operator shall maintain clear access of fire aisles, stairways and fire equipment when depositing loads.
I. **Making Repairs**

Operators shall not make any repairs or adjustments unless specifically authorized by their supervisor.

J. **Flammables**

A fuel tank shall not be filled while the engine is running. Spilled fuel shall be properly cleaned and disposed. The fuel tank cap shall be replaced before restarting the engine.

K. **Certification**

A powered industrial truck shall be certified by the manufacturer that the truck covered has been produced according to the mandatory requirements of the American National Standards Institute USA B56.1-1969, Safety Standard for Powered Industrial Trucks.

XV. **APPROVED LABELS**

1. A powered industrial truck which has been accepted by an approved testing laboratory shall bear a label of marking indicating such acceptance.

2. A nameplate, label or tag provided on such a truck shall be maintained in place and in legible condition.

XVI. **EQUIPMENT**

A. **Warning Devices and Lights**

1. A truck, except a motorized hand truck, shall be equipped with an audible device to warn of approach.

2. A truck used in areas where general lighting is less than two foot candles shall be equipped with auxiliary lights to illuminate the work in process.

B. **Modifications**

1. An additional counterweight shall not be installed by the University without written assurance from the truck manufacturer that the stability of the truck will not deviate from rule 406 of section 4 of the American National Standards Institute standard B56.1-1969.
2. Other modifications affecting capacity or safety shall not be made without written approval of the manufacturer or an engineer knowledgeable on the subject. Capacity, operation, and maintenance instruction plates, tags, or decals shall be changed accordingly.

3. If the truck is equipped with front end attachments, the name plate shall be marked to:

- Identify the attachments.
- Show the approximate weight of the truck and attachment.
- Show the load capacity of the truck and attachment combination at maximum elevation of the load engaging means with load laterally centered.

C. Parking Brakes

The parking brake on a sit-down rider truck shall be capable of holding the truck on the maximum grade which the truck can negotiate with rated load, or on a fifteen percent grade, whichever is less. The parking brake shall be manually or automatically applied and shall remain applied until released by the operator.

D. Tires

Tires shall be used as recommended by the truck manufacturer.

E. Operator Platforms

1. An end control, reach, narrow aisle, order picker high-lift, order picking and stacking, and motorized hand rider truck shall be equipped with a platform extended beyond the operator’s position, and shall withstand a compression load equal to the weight of the loaded vehicle applied along the longitudinal axis of the truck with the outermost projection of the platform against a flat vertical surface. The back protective guard, where provided, shall permit rapid and unobstructed ingress or egress from the platform.

2. On an order picker truck, high-lift:

- A removable operator platform shall be provided with a device that attaches the platform to the lifting means.
- The operator platform shall be equipped with side guard rails.
- When the platform is elevated, the horizontal travel speed of the truck shall be automatically reduced to a degree necessary to maintain stability under maximum braking load and turning.
F. Steering Control

1. Except on a motorized hand or rider truck, the steering control on a powered industrial truck shall be confined within the plane view outline of the truck, or guarded to prevent injury to the operator during movement of the controls when passing an obstacle such as a wall, post, equipment, box or another truck.

2. On a motorized hand or rider truck, the steering handle shall be provided with a guard or device to protect the operator’s hands from injury when passing an obstacle such as a wall, post, equipment box or another truck.

G. Load Handling Controls, General

A load handling control on a truck shall be:

- Preferably located for right hand operation.
- A single lever used to perform more than one function. Push button or pre-selected controls shall be properly identified.
- Clearly and durably identified to indicate function and direction of motion of load or equipment.
- Self-centering.

H. Load Handling Controls: Direction of Motion and Guards

1. A lever or handle type control, including a toggle switch, shall be in accordance with the following table:

<table>
<thead>
<tr>
<th>Function</th>
<th>Of Load or Equipment</th>
<th>Of the Operator’s Hand When Actuating the Control Handle While Facing the Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hoist</td>
<td>Up</td>
<td>Rearward or up</td>
</tr>
<tr>
<td></td>
<td>Down</td>
<td>Forward or down</td>
</tr>
<tr>
<td>Tilt</td>
<td>Rearward</td>
<td>^Rearward or up</td>
</tr>
<tr>
<td></td>
<td>Forward</td>
<td>Forward or down</td>
</tr>
<tr>
<td>Reach</td>
<td>Retract</td>
<td>^Rearward</td>
</tr>
<tr>
<td></td>
<td>Extend</td>
<td>Forward</td>
</tr>
<tr>
<td>Clamp</td>
<td>Clamp</td>
<td>Rearward or up</td>
</tr>
<tr>
<td></td>
<td>Release</td>
<td>Forward or down</td>
</tr>
<tr>
<td>Side Shift</td>
<td>Right</td>
<td>Rearward or up</td>
</tr>
<tr>
<td></td>
<td>Left</td>
<td>Forward or down</td>
</tr>
<tr>
<td>Rotate Laterally</td>
<td>Clockwise</td>
<td>Rearward or up</td>
</tr>
</tbody>
</table>
2. Moving parts that represent a hazard from the operator’s position shall be protected by suitable guards.

I. Overhead Guard on High-Lift Truck

1. Except when the load is limited to a single rack or pallet, a highlift truck shall be fitted with an overhead guard. The overhead guard shall be capable of supporting a uniformly distributed static load in accordance with the following table: The overhead guard is not intended to withstand the impact of a falling capacity load.

<table>
<thead>
<tr>
<th>Truck Capacity Rating (in pounds)</th>
<th>Static Test Load as A % of Truck Capacity Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Through 5,000</td>
<td>200% of truck rating</td>
</tr>
<tr>
<td>Over 5,000 through 10,000</td>
<td>10,000 pounds plus 100% of increment rating over 5,000 pounds</td>
</tr>
<tr>
<td>Over 10,000 through 20,000</td>
<td>15,000 pounds plus 50% increment rating over 10,000 pounds</td>
</tr>
</tbody>
</table>

2. An overhead guard may be omitted from a high-lift truck if the truck is never used to lift or raise material or objects more than 72 inches measured from the floor to the forks, and if all of the following are complied with:

a. The load is limited to a single rack or pallet.

b. The truck is not operated in an area where material or objects are stacked above the operator’s head.

c. A sign with lettering not less than ½ inch high is securely attached in the area of the operator’s controls stating, “This truck shall not be used to lift materials above the operator’s head or in an area where materials are stacked above the operators head.”
3. A low-lift rider truck which is used to lift material stacked higher than the head of the operator, and which would likely vibrate and fall back onto the operator, shall be provided with an overhead guard.

4. The overhead guard shall be capable of withstanding the impact of a one-hundred-pound solid hardwood cube, or equivalent, dropped a distance of five feet ten times, without failure or without permanent deflection exceeding ¾ inch.

5. The overhead guard shall be constructed in a manner that does not interfere with visibility. Openings in the top shall not exceed six inches in one of the two dimensions, width or length. The guard shall be large enough to extend over the operator under all normal circumstances of truck operation, including forward tilt.

6. A fork truck equipped with a single-tilt cylinder shall be made to avoid injury to the operator by the overhead guard resulting from failure of this cylinder or associated parts.

7. On a truck where the operator is seated, a vertical clearance of not less than thirty-nine inches should be maintained from the point of maximum depression of the seat under the operator to the underside of the section of the overhead guard under which the operator’s head moves during normal operation.

8. On a powered industrial truck where the operator stands on a platform, a vertical clearance of not less than 74 inches should be maintained from the platform to the underside of the section of the overhead guard under which the operator’s head moves during normal operation.

9. Where head room conditions limit the overall lowered height of the truck, a normal overhead guard height may be reduced.

10. An overhead guard is intended to offer protection from the impact of small packages, boxes, and bagged material representative of the job applications, but not to withstand the impact of a falling capacity load.
J. Moving Trucks

1. Operation
   a. An operator shall operate a powered industrial truck according to the rules of this program and in accordance with local traffic rules when on a public road.
   
   b. When following another truck, a safe distance shall be maintained, approximately three truck lengths from the vehicle ahead and the vehicle shall be kept under control at all times.
   
   c. An operator shall give the right of way to ambulances, fire trucks, or other emergency vehicles.
   
   d. An operator of a rider-type powered industrial truck shall not pass another truck traveling in the same direction at intersections, blind spots, or other dangerous locations.
   
   e. An operator shall cross railroad tracks diagonally whenever possible and shall not park closer than 8 ½ feet from the center of a railroad track.

2. Slow Down at Crossings and Obstructions

   An operator shall slow down and sound the warning device at cross aisles and other locations where the operator’s vision is obstructed by fixed objects.

3. Clear View

   An operator shall look in the direction of and keep a clear view of the direction of travel. When moving loads blocking the forward visibility, the operator shall drive the truck with the loading trailing.

4. Ascending and Descending Grades
   a. An operator shall ascend and descend grades of ten percent or more at a speed of not more than two miles per hour.
   
   b. When ascending or descending a grade that exceeds the back-tilt of the mast, the load shall be facing upgrade.
c. On all grades, unloaded trucks shall be driven with the load engaging means downgrade, tilted back and raised only as far as necessary to clear the floor or road surface.

5. **Traveling**

In level areas an operator shall travel with the load engaging means elevated only sufficiently to clear obstacles on the floor or roadway.

6. **Starts, Stops and Turns**

Starts, stops and turns shall be made in a manner to prevent a load from shifting or overturning the truck.

7. **Horseplay**

Stunt driving and horseplay shall not be permitted.

8. **Wet Floors, Dockboards, and Bridgeplates**

a. An operator shall drive at a slow speed over wet or slippery floors.

b. Before driving over a dockboard or bridgeplate, an operator shall verify that the dockboard or bridgeplate is secured.

9. **Running Over Loose Objects**

An operator of a truck shall avoid running over loose objects.

10. **Loading Safety**

**Operator’s Loading Rules**

An operator shall:

- Operate a truck equipped with attachments as a partially loaded truck when not transporting a load.
- When loading a fork lift truck, place the load engaging means under the load as far as possible and tilt the mast backwards to cradle the load.
- Exercise caution when tilting loads, especially when they are segmented.
- Lift or transport only a load that is within the rated capacity of the truck.
- Lift or transport only a load that cannot fall out of a basket or container, or off the load engaging means during the normal movements of the truck.

- Tilt an elevated load forward only when in a deposit position over a rack or stack.
APPENDIX A
Types of Trucks

Fig. 1
- High-Lift Truck
- Counterbalanced Truck
- Cantilever Truck
- Rider Truck
- Fork Lift Truck

Fig. 2
- High-Lift Truck
- High-Lift Platform Truck
Fig. 3
- Low-Lift Truck
- Low-Lift Platform Truck

Fig. 4
- Motorized Hand Truck
- Pallet Truck
Fig. 5
- Industrial Tractor

Fig. 6
- Motorized Hand/Rider Truck
Fig. 7
- Reach Truck

Fig. 8
- Side-Loader Truck
Fig. 9
- Order Picker Truck

Fig. 10
- Narrow Aisle Truck
- Straddle Truck
APPENDIX B
Fork Truck Pre-Operation Inspection Checklist

Sample Checklist

Complete the pre-operation checklist with one of the following responses after each item.

✓ If working properly, enter an X in the “O.K.” column.
✓ If not working properly, enter an X in the “Needs Repair” column and explain the condition.

Turn the checklist in to the appropriate person or place on the truck in a designated folder.

<table>
<thead>
<tr>
<th>Truck No.</th>
<th>Operator</th>
<th>Date</th>
<th>Type of Truck</th>
<th>Shift</th>
<th>DEPARTMENT</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Checklist</th>
<th>O.K.</th>
<th>Needs Repair</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessory Control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Battery Indicator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brakes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluid Levels</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forks, Mast, Chains, Stops, Backrest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Horn</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydraulic Cylinders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydraulic Hoses and Fittings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lift Control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lights</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limit Switches</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LP Leaks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overhead Guard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tilt Control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tires and Wheels</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX C
Sample permit

[Image of Equipment Operator Permit and Training Certification / Equipment Operator Permit]