

Midland Engineering Co., Inc. Safety Management System			Doc No:	FORK
			Initial Issue Date	12/14/15
Chapter 16-Forklift & Industrial Trucks			Revision Date:	Initial Version
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PURPOSE

The purpose of this procedure is to establish guidelines for safe operations of forklifts and industrial trucks (also referred to as “powered industrial trucks”).

SCOPE

This procedure applies to all operations involving Midland Engineering Co., Inc.

REFERENCES

29 CFR 1910.178

INTRODUCTION

Forklifts are powerful vehicles designed to handle heavy loads. Operating a forklift is serious business and recklessness or carelessness will create dangerous situations that could lead to accidents, injury, and death. The safe operation of a forklift is a big responsibility and accidents can be avoided. A professional forklift operator understands how forklifts operate, is familiar with company rules and safe operating procedures, completes the pre-shift inspection form, uses safety equipment (seat belt), and keeps the vehicle under control at all times.

DEFINITIONS

Chocking- also referred to as blocking is when the wheels on an industrial truck or other pieces of equipment are immobilized by a physical stopper to prevent unintended movement

Qualified Person- OSHA Definition of a Qualified Person: “One who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work, or the project.”

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TRAINING

Only an authorized operator who is trained and certified with the specific type of equipment shall be permitted to operate the powered industrial truck. Operators shall be trained in the safe operation of each powered industrial truck used at the facility or construction site. Training shall include formal instruction, practical training and operator evaluation in the workplace. Training must be conducted by only qualified instructors. Formal instruction can include a varying style of written materials, lectures, videos and similar media channels. Practical training will consist of the instructor demonstrating the real-life practice discussed prior during formal instruction. Operators will be evaluated on their ability to perform tasks using the powered industrial truck in a safe manner by their instructors.

Course content should include at the minimum:

- Operating controls and proper instructions
- Load capacities, balance and center of gravity
- Power sources, including refueling practices
- Safe work practices

Mandatory refresher training is required when unsafe operations are observed, suspected or reported, after an accident or if there are changes in vehicle types, conditions or roles.

To ensure safe work practices, operators must be re-evaluated at least every three years.

Training documentation will be kept on file by the safety coordinator.

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FORKLIFT BALANCE & CENTER OF GRAVITY

The stability of a forklift is based on the *principal of balance*. The drive wheels are the balance or pivot points of a forklift. An internal combustion forklift uses the engine, transmission, steer axle, counterweight, and frame to help offset or counterbalance a load. An electric powered forklift uses the battery, control panel, motors and pumps, steer axle, counterweight, and frame to help offset or counterbalance a load.

The center of gravity is located within an object at a point around which all weight is evenly distributed. The forklift center of gravity is located within the "*stability triangle*" which is an area contained inside a set of straight lines drawn between the two drive tires and the center point of the steer axle. If the center of gravity remains within the "stability triangle", the forklift will remain counterbalanced. The center of gravity will move as a result of two forces, static and dynamic:

- *Static Forces* - Static forces are load characteristics, lift height, amount of tilt, and tire condition.
- *Dynamic Forces* - Dynamic forces are acceleration, travel speeds, braking, and surface conditions.

Imbalance occurs when the center of gravity extends beyond the "*stability triangle*" and can result in loss of steering, loss of traction, unstable loads, and potential tip over. By properly positioning the load on the forks the forklift becomes balanced. Always put the load as close to the backrest as possible. The weight of the vehicle and the position of the load determine the amount a forklift can lift. If the load is too heavy it will bring the front of the forklift down and the back of the vehicle up. You can find the lifting capacity of your forklift on the identification plate. **Do not exceed the weight limit. If you have any questions consult your supervisor.**

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FORKLIFT WARNING LABEL & IDENTIFICATION PLATE

All forklifts are required by law to have labels warning that improper operation could result in injury or death. The identification plate also displays certain performance data of the forklift. This information includes:

- Machine working capacity
- Gross vehicle weight
- Rated load center
- Maximum lift height
- Attachment identification
- Tire data

FORKLIFT TIRES

There are two types of forklift tires, cushion or solid and pneumatic or air-filled. The type of surface a forklift is operating on will determine the tire best suited for purposes of stability, load sensitivity, and the overall safety of load movement.

Cushion or Solid- These tires are used mainly indoors because they operate effectively on smooth surfaces.

Pneumatic or Air-Filled- These tires are used on uneven surfaces because the tire design provides a smooth ride which helps stabilize a load.

TYPES OF FORKS

Most of the forklifts used in industry today use one of two general types of forks, half-tapered and full-tapered. *Half-Tapered Forks* are preferred for heavier loads. They can be identified by the appearance of the fork with a gradual increase in the width of the tip to its maximum thickness about midway back on the fork. *Full-Tapered Forks* are usually preferred for lighter duty lifting. They are also more convenient for pallet lifting and stacking.

FORKLIFT POWER SOURCES

Forklifts can be powered by: Diesel Fuel, Gasoline, Liquid Propane (LP) or Battery.

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SAFE OPERATING PROCEDURE & RULES (SAFE WORK PRACTICES)

- All nameplates and markings shall remain in place and be maintained in a legible condition.
- Only trained and authorized operators shall be permitted to operate powered industrial trucks. Operators shall be trained in the safe operation of each powered industrial truck used at the facility or on projects.
- No person shall be allowed to stand or pass under the elevated portion of any truck, whether loaded or empty.
- No person shall ride on the lifting mechanism of a forklift, or use the forklift as a work platform. A manufactured approved personnel basket may be used if all stipulations of the manufacture are met.
- When a powered industrial truck is unattended, loads shall be fully lowered, controls neutralized, power shut off, and brakes set. Wheels shall be blocked if the truck is parked on an incline.
- Always use caution and proper positioning when loading, lifting, traveling, or executing turns.
- If a powered industrial truck is found to be in need of repair, is defective, or is in any way unsafe, the truck shall be taken out of service until it has been restored to safe operating condition. Authorized personnel shall make all repairs.
- Maintain a clear view, watch out for fellow employees, obey all posted signs and stay in designated areas.
- Do not block emergency exits and equipment and call attention to hazards.
- Stay aware of overhead clearance.

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FORKLIFT INSPECTIONS

According to OSHA standards, industrial powered trucks shall be examined before being placed into service. A daily inspection will be made and if the industrial powered truck is used continuously during a twenty-four hour period then the inspection shall occur before each new shift begins. Any defects observed during inspection should be reported to the supervisor immediately. Defects should be corrected immediately or that piece of equipment could be taken out of service until further notice. This is required to protect all employees, prolong equipment life, and assist maintenance personnel in effective replacement of parts and repairs.

VISUAL CHECKS

- Tire Condition (foreign particles, gouges, cuts, pressure)
- Fuel System (check for leaks)
- Radiator (Check level) Caution!
- Engine Oil (Check level)
- Head and Tail Lights (Condition)
- Mast, Fork, Carriage, or Attachment (Check for loose or missing bolts, etc.)
- Oil and Water (Check for leaks)
- Radiator Water Level
- Fuel Level or Battery Charge
- Battery Connector (Cleanliness, tight)
- Hydraulic System (Check for leaks)
- Safety Equipment (Back-up alarm/seat belt)

OPERATIONAL CHECKS

- Horn
- Steering
- Service Brakes
- Parking Brakes
- Hydraulic Controls
- Seat
- Brake
- Battery Load Test

TRAILER CHECK

The operator must verify prior to loading and unloading that trailers are chocked and secured. This includes supports and dock plates.

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DAILY FORKLIFT CHECKLIST

Operator Name: _____ Date: _____

Unit #: _____ Model #: _____ Serial #: _____ Shift: 1 _____ 2 _____ 3 _____

Check Accordingly: Internal Combustion: _____ Electric: _____

Hour Meter Reading Start of Day: _____ End of the Day: _____

These items are to be checked weekly before operating this piece of equipment. Report all items in need of repair to the supervisor at time of inspection. Turn in the check sheet to the supervisor at the beginning of each week.

VISUAL & OPERATIONAL CHECKS	OK	NEEDS ATTENTION
<u>Tire Condition</u>	___	_____
<u>Fuel System</u>	___	_____
<u>Radiator</u>	___	_____
<u>Engine Oil</u>	___	_____
<u>Head and Tail Lights</u>	___	_____
<u>Mast, Fork, Carriage, or Attachment</u>	___	_____
<u>Oil and Water</u>	___	_____
<u>Radiator Water Level</u>	___	_____
<u>Fuel Level or Battery Charge</u>	___	_____
<u>Battery Connector</u>	___	_____
<u>Hydraulic System</u>	___	_____
<u>Safety Equipment</u>	___	_____
<u>Horn</u>	___	_____
<u>Steering</u>	___	_____
<u>Service Brakes</u>	___	_____
<u>Parking Brakes</u>	___	_____
<u>Hydraulic Controls</u>	___	_____
<u>Seat Brake</u>	___	_____
<u>Battery Load Test</u>	___	_____

Operator Signature: _____

Supervisor Signature: _____

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FORKLIFT OPERATOR TEST

Name: _____ Date: _____

1. OSHA requires forklift operators to be trained. True False
2. Which is NOT a characteristic of a professional forklift operator?
 A. Responsible B. Wears personal protection
 C. Capable of unloading a trailer in 15 minutes D. Keeps truck under control
3. List 3 components of a forklift.
 A. _____ B. _____ C. _____
4. List two sources of fuel used by forklifts.
 A. _____ B. _____
5. On what principle is the stability of a forklift based?
 A. Gravity Principal B. Stability Principle
 C. Principle of Balance D. Principle of rear-end swing
6. What is the imaginary point in the load around which all the weight of the load is evenly distributed?
 A. Principle of Balance B. Center of Gravity
 C. Stability Triangle D. Steer Axle
7. List 2 factors which affect the center of gravity of a forklift.
 A. _____ B. _____
8. Forklifts can tip if the center of gravity doesn't remain inside the stability triangle. True False
9. What happens when the vehicle's center of gravity moves outside the stability triangle?
 A. A condition of imbalance occurs. B. The steering wheel can be lifted off the ground.
 C. Steering control is lost D. All of the above
10. A detailed inspection of the forklift is required at the beginning of each shift. True False
11. When moving up a ramp or grade with a load you travel in what direction? _____

I acknowledge that I have received information and training according to OSHA standard 1910.178 "Industrial Powered Trucks." I understand that this information or completion of this course does not imply licensing certification. It only represents participation in this course. I will follow and obey all rules, policies, and procedures set forth by the company. If I do not understand any instructions I will ask questions.

Participant Signature

Instructor Signature

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Forklift Driver Evaluation Form

Driver Name: _____ Date: _____

Procedure:

Correct Completion/Comments:

- | | | | |
|----------------------------------|-----|----|-------|
| 1. Pre-Inspection | Yes | No | _____ |
| 2. Engaging the load | Yes | No | _____ |
| 3. Preparing the load for travel | Yes | No | _____ |
| 4. Traveling with the load | Yes | No | _____ |
| 5. Approaching the drop-off area | Yes | No | _____ |
| 6. Positioning for drop-off | Yes | No | _____ |
| 7. Disengaging the load | Yes | No | _____ |
| 8. Safe Shutdown | Yes | No | _____ |

Additional Comments:

Instructor Signature: _____ Date: _____