AN EDUCATIONAL GUIDE FOR:

FORKLIFT SAFETY

BWC Division of Safety & Hygiene

This booklet is one in a series BWC Division of Safety & Hygiene publishes to address specific workplace safety and health concerns.

Information contained in this publication is offered as suggestions to help safeguard you on the job. Each task presents its own special problems, so these guidelines cannot possibly cover every situation.

If an injury occurs, BWC offers quick claims service to help you get back on the job as soon as possible, or into rehabilitation when necessary.

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Forklift Safety

Industrial plants and warehouses are relying more and more on powered industrial trucks. In fact, the industrial truck is indispensable in most plants and warehouses, providing an easier and safer method of handling materials.

Most truck manufacturers provide manuals with operating instructions and suggestions for maintenance. This booklet contains rules for the safe operation of powered industrial trucks, which can be followed by all plants and operators regardless of the make or style of trucks used.

The basic reference for the safe operation of powered industrial trucks is ANSI/ASME B56.1-1993. A copy may be obtained from the American National Standards Institute, 11 W. 42nd St., New York, NY 10036.

According to the ANSI standard, there are more than just mechanical hazards to overcome in the operation of industrial trucks. Perhaps the most important key to safe operation is the operator. To ensure an operator's competence and mental and physical fitness, OSHA requires training and evaluation of operators.

The serious hazards involved with operating a powered industrial truck are overloading, load instability, obstructions in the path of travel or lift, and equipment used for a purpose for which it was not designed.

Setting up the traffic pattern

The first step to prevent powered industrial truck accidents is to establish a traffic pattern. This is the responsibility of management.

Aisles must be well-lighted and free from obstructions of any kind. Floors must be kept sound and in good shape.

Aisles must be clearly marked. When they are wide enough for two trucks to pass each other, the center of the aisle and the two extreme edges should be marked with painted lines. In some plants the aisles are made wide enough for two truck lanes and a pedestrian lane.

It should be strictly against the rules for two trucks to run side by side in the same direction.

A truck must never pass another truck at an intersection, blind spot or other dangerous location. In areas where there is high concentration of truck traffic, one-way aisles are highly recommended.

A speed limit should be set by management and strictly enforced. A few speed limit signs at strategic points serve as constant reminders to truck operations.

"Stop" signs should be prominently displayed at all crossings. Each plant must set up its own rules regarding traffic control, but a required four-way stop at every intersection is a wise way to avoid collisions. Plants that have adopted the four-way stop requirements have found that no significant time is lost by this extra precautionary measure.

Other standard precaution management should consider include guardrails or flashing lights in front of doors that open into aisles; curbs around docks, pits or drop areas; and mirrors at intersections.

Training truck operators

Prospective truck operators should be given a set of the company's safety rules covering the safe operation of powered industrial trucks. It is good to give all candidates a written test based on these rules.

Some companies require prospective truck operators attend a course, which includes:

- Classroom instruction covering the company's safety rules pertaining to powered industrial truck operation;
- Basic material-handling techniques;
- Basic instructions on the operation of the truck;
- A driver's performance test on an obstacle course in the plant, simulating actual driving conditions, such as restricted turns; maneuverability; entrance to elevators, freight cars or common carrier trucks; and proper stacking and placement of materials.

The prospective lift- truck operators must realize that the operation of a lift truck differs in several ways from that of a car or truck.

- A lift truck can be steered by one of two ways: by the front wheels or the rear wheels.
- A lift truck steers more easily loaded than empty.
- A lift truck is often driven as much in reverse as in forward gear.

Employees who are assigned to drive powered industrial trucks should be given a certification card and be required to carry it.

The rules of operation

It is important that the safe operating rules be printed and given to prospective industrial truck drivers. The drivers should keep these rules. The following checklist of safety rules is prescribed by many industrial plants and is in accordance with ANSI/ASME B56.1-1993. These rules can be adapted to the particular safety needs of each individual plant.

- At the beginning of each shift, check brakes, steering controls, forks hoists, warning devices and lights. Report any defects to the supervisor immediately. Also check to see that the fire extinguisher is in place and properly serviced.
- Always face the direction of travel.
- Before you start driving, look to see that no person or object is in your path. Always look before backing up.
- Do not drive over objects lying on the floor, such as trash, lumber and pipes. These could damage the truck, shift or topple the load, or flip out and strike another employee.
- Use low gear when going down ramps or steep grades. On upgrades, keep the load in front. On downgrades, keep the load in back.
- Under normal traffic conditions, keep to the right.
- Do not exceed the speed limit established by the plant.
- Avoid quick starts or turns, and jerky stops; always come to a complete stop before reversing the direction of travel.
- Keep a safe distance between vehicles at all times (three truck lengths).
- Make a complete stop at all doors, corners, exits and stop signs.
- No horseplay at any time.!
- Stay alert — concentrate on the job at hand.
- Remember that pedestrians have the right of way at all times. Look out for them.

- Never drive with wet or greasy hands. If necessary, keep a towel or rag handy at all times.
- Reduce speed on wet and slippery floors.
- Whether loaded or empty, carry forks and platforms on lift trucks as low as possible. This lowers the center of gravity and reduces the possibility of overturning the truck or dumping the load.
- Don't run trucks onto elevators unless authorized to do so. Be sure you have sufficient clearance before entering any elevator or going through a doorway. Once the truck is in the elevator, shut off the power, set the brakes and stay in the operator's seat in case of an emergency.
- Check the clearance of any overhead crane or other object before raising forks or tiering.
- Never use your truck as an elevator for other employees (for example, to service light fixtures or stock material).
- Never use a truck to move a freight car, or to open or close a freight car or other doors.
- When leaving the truck at any time, shut off the power, set the brakes, remove the ignition key, and put the forks or platforms in the down position.
- Never leave a truck in an aisle. Park the truck to one side, so traffic will not be blocked.
- Before driving the truck into a freight car or trailer, always secure the bridging plate with bolts or pins. That way it cannot move when the power wheels of the truck pass over it. Before moving the truck onto the bridge or into the carrier, walk into the freight car, truck or trailer and check the floor for holes or weak spots (the weight of your truck might break the floor).
- Keep your feet and legs inside the overhead guard, which is there to protect you.
- Drive with extreme care, especially during shift changes.
- A valid industrial truck driver's badge should be worn by the operator at all times.

The rules for loading and unloading

Because of the wide variety of equipment used and the different kinds of stock and materials handled, each company must form additional rules for loading and unloading to fit the needs of its facilities. The following are basic rules:

- Know the maximum load that each truck can carry safely; do not overload it. An overloaded truck will not operate in a safe manner.

Most machines are designed for a 24-inch load center, which is the horizontal distance from the vertical face of the forks to the center of gravity (balancing point) of the load. If the load center is increased, the capacity of the truck is decreased.

Note: This load limit must be posted on the truck in a conspicuous place.

- Never load a truck or permit it to be loaded so that your view is obstructed. If a load cannot be lowered enough to prevent obstructing your view, you should drive the truck backward.
- If possible, center every load.
- Avoid carrying unstable loads. If material or equipment of irregular shape must be carried, it should be placed so that it cannot fall off, shift, or become unbalanced. If necessary, such a load should be cross- tied, as well as neatly piled.
- On ramps, loaded trucks should be driven in low gear with the forks or pallet about 4 inches from the floor.
- Loads should be raised or lowered at the point of loading or unloading — not during travel. The operator

should make certain before raising a load that it will not strike any cranes, girders, wiring, cables, ropes or other overhead obstructions.

- When handling bulk materials with a shovel attachment on the front of the truck, work the front of the pile. Undercutting a pile creates a dangerous overhang.
- When lifting, lowering or carrying loads, have the mast vertical or tilted back, but never back beyond the maximum angle of tilt. For stability, as much of the load as possible should be over the front wheels.
- Lift and lower loads slowly; stop gradually.
- Do not permit anyone to stand under or too close to a load that is being hoisted or lowered.
- Never attempt to straighten stacks by butting with the forks or the end of your truck.
- Sound horn only when necessary.
- Do not use any truck other than the one assigned to you unless authorized.
- Be certain the backup alarm is operating properly.

The rules of maintenance

Maintenance should be in accordance with rules prescribed by the truck manufacturer. These are some of the rules that should be followed by truck operators who are responsible for maintaining their own equipment:

- When servicing electric storage batteries, wear protective clothing to guard against chemical splashes and burns. Rubber boots, a rubber apron, chemical goggles, a face shield and rubber gloves should also be worn.
- Do not attempt to lift a storage battery without suitable hoisting equipment.
- The storage battery should be handled carefully to prevent cracking the case and spilling the fluid.
- Batteries should be changed and charged in locations designed for this specific purpose.
- Internal combustion powered trucks should be refueled in the open or where ventilation will carry vapors away.
- Trucks should not be left unattended or parked with the engine running.
- Internal combustion engines should be turned off before refueling.
- No smoking in service areas.

A few special rules apply to the maintenance and operation of trucks powered by propane or liquefied petroleum gas.

- Always carefully check for any gas leaks. Never start the motor if there is a leak in the unit.
- Don't store the truck near intense heat or combustible materials.
- If the unit is to stand for any length of time, shut off the hand valve and let the fuel system rule dry.
- Fuel containers may be exchanged if the fuel supply is shut off and the engine operated until ALL fuel in the fuel system is consumed.
- Never try to connect a fuel container when liquefied petroleum gas is escaping from the connecting point.
- Battery charging stations for electrically driven trucks can produce flammable hydrogen. Keep in the open. Don't smoke.

It should be the duty of every truck driver to promptly report to the person in charge any mechanical trouble with the truck, any bad flooring or obstruction in the aisles, and any other safety hazards that are encountered. NOTE: The plant maintenance department should conduct inspections of all trucks at regular intervals.