



POWERED INDUSTRIAL TRUCKS (FORKLIFTS)

This PIT Operation Program establishes guidelines to be followed whenever any of our employees work with powered industrial trucks. The rules established are in compliance with 29 CFR 1910.178 and are to be followed to:

- Provide a safe working environment,
- Govern operator use of powered industrial trucks, and
- Ensure proper care and maintenance of powered industrial trucks.



When reviewing this program, whenever you see this symbol in the book, it means that failure to follow the instructions can result in serious injury or death.

WHY DO WE NEED FORKLIFT TRAINING?

Forklift overturns are the leading cause of fatalities involving forklifts and they represent about 42% of all forklift-related deaths. The case studies examined by the National Institute for Occupational Safety and Health (NIOSH) indicate that the forklift, the work environment, and actions of the operator can all contribute to fatal incidents involving forklifts. In addition, these fatalities indicate that many employees and employers are not using or may be unaware of safety procedures and the proper use of forklifts to reduce the risk of injury and death. Forklift training and certification is designed to help protect the safety of the forklift operator.

Accidents involving lift trucks and pedestrians almost always result in serious injuries or fatalities. Lift trucks have good visibility, particularly to the rear if an operator keeps a proper lookout in the direction of travel and maintains the lift truck under control. Pedestrians must be on the lookout for their safety and stay in constant communication and line of sight when working with a lift operator. Many accidents occur while the lift truck is traveling forward, when operators are carrying a load. Most reverse-travel accidents occurred within the first 10 feet of travel, when operators are maneuvering around a load. The accidents frequently involved injury to pedestrians who were not only aware of the presence of the lift truck, but who were, in fact, working with the operator of the truck that struck them. Accident contributing factors may include:

- Lift truck operator's lack of or low level of training
- Lack of operating audible or visible warning devices on lift trucks
- Lack of specific operating rules for lift truck travel, such as sounding the steering wheel horn at intersections or when changing directions
- Lack of communication between operator and pedestrian
- Not clearing the area of operations first and trying to maneuver around obstacles that obstruct vision or cause the operator to be distracted

WHAT DOES THE PIT STANDARD REQUIRE?

The standard requires employers to develop and implement a training program based on the general principles of safe truck operation, the types of vehicle(s) being used in the workplace, the hazards of the workplace created by the use of the vehicle(s), and the general safety requirements of the OSHA standard. Trained operators must know how to do the job properly and do it safely as demonstrated by workplace evaluation. Formal (lecture, video, etc.) and practical (demonstration and practical exercises) training must be provided. Employers must also certify that each operator has received the training and evaluate each operator at least once every three years.



POWERED INDUSTRIAL TRUCKS (FORKLIFTS)

Prior to operating the truck in the workplace, the employer must evaluate the operator's performance and determine the operator to be competent to operate a powered industrial truck safely. Refresher training is needed whenever an operator demonstrates a deficiency in operating the PIT.

It is our intent to comply with the requirements of OSHA's 29 CFR 1910.176 and 1910.178. These regulations have detailed requirements for powered industrial truck operator training and for powered industrial truck operations.

The screenshot shows the OSHA website's 'Regulations (Standards - 29 CFR) - Table of Contents' page. It lists the following details for 29 CFR 1910.178:

- Part Number: 1910
- Part Title: Occupational Safety and Health Standards
- Subpart: H
- Subpart Title: Materials Handling and Storage
- Standard Number: 1910.178
- Title: Powered industrial trucks.
- Appendix: A

Below this, the section for 1910.178(a) is titled 'General requirements.' and 1910.178(a)(1) states: 'This section contains safety requirements relating to fire protection, design, maintenance, and use of fork trucks, tractors, platform lift trucks, motorized hand trucks, and other specialized industrial trucks powered by electric motors or internal combustion engines. This section does not apply to compressed air or nonflammable compressed gas-operated industrial trucks, nor to farm vehicles, nor to vehicles intended primarily for earth moving or over-the-road hauling.'

WHAT IS A POWERED INDUSTRIAL TRUCK?

Any mobile power-propelled truck used to carry, push, pull, lift, stack or tier materials. Powered industrial trucks can be ridden or controlled by a walking operator. Forklifts (standup or sit down), powered pallet jacks and scissors lifts are all examples of a PIT used in the workplace.



Powered industrial trucks are classified into seven types based on their characteristics. Class 1 and class 3 type of PIT are typically used at our branch and client site operations.

Class 1 - Electric Motor, Rider, Counter-Balanced Trucks (Solid & Pneumatic Tires)

Class 2 - Electric Motor Narrow Aisle Trucks (Solid Tires)

Class 3 - Electric Motor Hand Trucks or Hand/Rider Trucks (Solid Tires)



POWERED INDUSTRIAL TRUCKS (FORKLIFTS)

Class 4 - Internal Combustion Engine Trucks (Solid Tires)

Class 5 - Internal Combustion Engine Trucks (Pneumatic Tires)

Class 6 - Electric and Internal Combustion Engine Tractors (Solid & Pneumatic Tires).

Class 7 - Rough Terrain Forklift Trucks (Pneumatic Tires)

Training is required on the unique handling characteristics of each type of vehicle an Operator is expected to use. The training should also emphasize the workplace's features that will affect how the vehicle must be operated. The training should include the general safety rules applicable to operating any powered industrial truck.

WHO CAN OPERATE A POWERED INDUSTRIAL TRUCK?

Only properly trained and certified employees are authorized to operate powered industrial trucks on behalf of the company. Training does not travel from one employer to another; each employer must train and certify their PIT Operators. At each client site you must be made aware of the specific operating procedures for the site before operating a PIT.

WHAT IS THE DIFFERENCE BETWEEN A PIT AND A CAR?

Driving a powered industrial truck is fundamentally different than driving a car or other trucks. In fact, powered industrial trucks:

- It's much heavier than a car. The average car weighs about 3,000 pounds; an average forklift weighs 9,000
- A forklift is easier to tip over on a turn whether it is loaded or not.
- A forklift is not as responsive as a car as it is turned by moving the rear wheels.
- A forklift can be driven backwards or forwards equally well.
- Steer more easily loaded than empty
- Are driven in reverse as often as forward,
- Automobiles use their front wheels to steer, but a forklift uses its rear wheels. This allows a forklift to turn in a tighter circle, but the back end will swing when turning a corner
- Have a center of gravity toward the rear, shifting to the front as forks are raised
- Is often steered with one hand.
- Cars use a four-point suspension system while forklifts use a three-point suspension. This system permits the center of gravity to shift in a forklift but makes it more likely to tip over.

Unlike cars, some powered industrial trucks have a greater chance of tipping over when suddenly turned. Speed can cause the center of gravity to shift dramatically. Similarly, speeding over rough surfaces can cause tipping.

Although structurally different than cars, powered industrial trucks, like cars, can collide with property and people. Therefore it is our policy for all operators to be trained on the requirements of the program to reduce the risk of incident.



POWERED INDUSTRIAL TRUCKS (FORKLIFTS)

PROGRAM RESPONSIBILITIES

ADMINISTRATIVE DUTIES:

Safety & Quality is responsible for PIT Operation Program Administration, Safety acts as the representative of the Service Manager, who has overall responsibility for compliance to the plan. Copies of this written program may be obtained from the safety manual.

Safety is responsible for issuing and administering this program and making sure that it satisfies the requirements of all applicable federal, state or local PIT safety requirements. In addition Safety will assist in:

- Annual/necessary reviews and updates to the program
- Providing initial and periodic training of employees on the safe operation of forklifts.
- Administering the training records of all employees included in the training sessions
- Assessing the driving skills of employees who are being authorized to operate PIT in the company's facilities and at client sites.

SERVICE MANAGER RESPONSIBILITIES:

Maintaining all PIT according to manufacturers' recommendations and administer all outside maintenance contracts to service the company's PIT.

Identify employees that will be required to operate powered industrial trucks in your branch. If an employee has other duties, but sometimes operates a powered industrial truck, training must be provided.

Ensure that all employees who need to operate PIT have received appropriate training. They will provide observations and feedback to operators to ensure safe equipment operation. They will enforce all safety rules that apply to the facility and client work areas.

- Service Manager Training may include Hands-on Performance Evaluations
- Review of Department Specific Hazards and Safe Operating Rules
- Assessing the driving skills of employees who are being authorized to operate PIT in the company's facilities and at client sites.
- Requesting initial and periodic training of employees on the safe operation of forklifts.

Service Managers must ensure that each Powered Industrial Truck (PIT) operator is competent to operate a powered industrial truck safely. Competent operation will be demonstrated by the successful completion of the training and evaluation as specified in this document.

OPERATOR RESPONSIBILITIES:

All operators must review, understand and comply with all forklift operations and limits prescribed within this guide.

OPERATOR TRAINING

Once truck operators and types of trucks have been identified, the Safety Manager or a third party contracted by Tate Engineering Systems, Inc. must provide training. Training must consist of a combination of formal or classroom instruction and practical hands-on training. Using both methods is the only way to ensure that the trainee receives and comprehends the instruction and uses the information to safely operate a powered industrial truck.



POWERED INDUSTRIAL TRUCKS (FORKLIFTS)

INITIAL TRAINING



Under no circumstances shall an employee operate a powered industrial truck until he/she has successfully completed this company's powered industrial truck training program. Regardless of claimed previous experience.

REFRESHER TRAINING

Refresher training, including an evaluation of the effectiveness of this training, shall be conducted as required to ensure the operator has the knowledge and skills needed to operate the powered industrial truck safely. Refresher training in relevant topics shall be provided to the operator when:

- the operator has been observed to operate the vehicle in an unsafe manner;
- the operator has been involved in an accident or near-miss incident;
- the operator has received an evaluation that reveals that the operator is not operating the truck safely;
- the operator is assigned to drive a different type of truck;
- a condition in the workplace changes in a manner that could affect safe operation of the truck;
- three years has elapsed since the operators' last training and evaluation.



PIT HANDS-ON PERFORMANCE EVALUATION

Instruction Examiner: 100% Pass required for completion of PIT Evaluation, circle as each topic covered below.

Pre-Use

- | | |
|--|-------------|
| 1. Follows all safety procedures during refueling or charging; uses PPE as appropriate | Pass / Fail |
| 2. Completes Operator Pre-operation inspection using checklist | Pass / Fail |
| 3. Mounts/Dismounts truck using 3 points of contact | Pass / Fail |
| 4. Proper use of seat belt | Pass / Fail |

Traveling RESULT

- | | |
|--|-------------|
| 1. Clears area/path before traveling forward; maneuvers safely through aisles and loading area | Pass / Fail |
| 2. Considers all obstacles, surfaces and inclines/declines and operates PIT at a safe speed | Pass / Fail |
| 3. Traveled in the appropriate direction for the load carried; did not travel with a blocked view | Pass / Fail |
| 4. Maneuvers through aisle ways and loading area safely; takes all corners slowly and deliberately | Pass / Fail |
| 5. Clears area/path before traveling in reverse | Pass / Fail |
| 6. Turns head/body around and does not rely on mirrors for rearward operations | Pass / Fail |
| 7. Sounds horn before backing or when approaching a blind corner | Pass / Fail |
| 8. Forks tilted back | Pass / Fail |
| 9. Carried load with forks or load 2"-4" from the ground | Pass / Fail |

Loading / Unloading RESULT

- | | |
|---|-------------|
| 1. Verify truck/trailer wheels are chocked or trailer is locked to the dock | Pass / Fail |
| 2. Verify dock plate or ramp is properly attached and secure | Pass / Fail |
| 3. Used dock light and/or forklift lights as appropriate | Pass / Fail |
| 4. Ensures trailer/truck floor is safe and free from obstacles | Pass / Fail |
| 5. Verifies load is not too heavy for forklift | Pass / Fail |
| 6. Approached load properly; leveled and adjusted forks if needed | Pass / Fail |
| 7. Mindful of fork length and possible damage to other product from fork tips | Pass / Fail |



FORKLIFT 3 YEAR EVALUATION CERTIFICATE OF TRAINING

In accordance with OSHA 29 CFR Subpart N - Materials Handling and Storage (1910.178), the undersigned acknowledge receipt of the required training and at a minimum have been dutifully examined and found competent on the following topics and/or equipment types by the Examiner. Check or mark NA for all items listed below.

PRINT PIT OPERATOR NAME: _____

BRANCH: _____ DATE OF EVALUATION: _____

REVIEW

- _____ Review Tate Engineering System Inc. Safe Operating Procedures
- _____ Review of restricted areas of operation in branch
- _____ Review of PIT Operator Manual

PRACTICAL TRAINING (HANDS-ON)

- _____ Forklift pre-operational inspections and completion of DVIR
- _____ Warehouse speed limits, traffic flow
- _____ Hazardous areas and areas of restricted operations
- _____ Truck controls and instrumentation
- _____ Engine or motor operation
- _____ Steering and maneuvering
- _____ Visibility (including restrictions due to loading)

Each certified powered industrial truck operator is evaluated at least once every 3 years to verify that the operator has retained and uses the knowledge and skills needed to drive safely. This evaluation is done by the department supervisor. If the evaluation shows that the operator is lacking the appropriate skills and knowledge, the operator is retrained by our instructor(s).

AVOIDANCE OF DUPLICATIVE TRAINING

All new employees or re-hired employees, regardless of experience, must complete the full training and certification program as outlined above. Forklift certifications are valid from building to building. However, a transferring employee must complete the hands-on evaluation and a review of the safe operating limits at each new location they are assigned to.



POWERED INDUSTRIAL TRUCKS (FORKLIFTS)

CERTIFICATE OF TRAINING

A Certificate of Training will be completed after; formal and practical and testing is completed documenting the completion of all aspects of training:

TRAINING TOPICS

Topic	Class-room	Hands-On
Operating instructions, warnings, and precautions for the types of truck the operator will be authorized to operate.	X	X
Differences between the truck and the automobile.	X	X
Truck controls and instrumentation	X	X
Engine or motor operation, steering, maneuvering & visibility.		X
Fork and attachment adaptation, operation, and use limitations.		X
Vehicle capacity and stability	X	
Any vehicle inspection and maintenance that the operator will be required to perform	X	X
Refueling and/or charging and recharging of batteries.	X	X
Operating limitations and regulations.	X	X
Any other operating instructions, warnings, or precautions listed in the operator's manual.		X
Site specific workplace-related topics	X	X
Surface conditions where the vehicle will be operated.	X	X
Composition of loads to be carried and load stability.	X	X
Load manipulation, stacking, and unstacking.	X	X
Pedestrian traffic in areas where the vehicle will be operated.	X	X
Narrow aisles and other restricted places where the vehicle will be operated	X	X
Hazardous (classified) locations where the vehicle will be operated	X	X
Ramps and other sloped surfaces that could affect the vehicle's stability.	X	X
Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust.	X	
Prohibited operations (lifting of personnel, etc.)	X	
Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation	X	



POWERED INDUSTRIAL TRUCKS (FORKLIFTS)

EVALUATION

Successful completion of the Forklift Certification Test with a grade of 80% or higher, and 100% pass of the Hands-on-Performance evaluation is required to become a PIT Operator. The trainee must successfully

demonstrate safe operation on all tasks listed on the performance standards. A review of incorrectly answered test questions will be completed with the trainee.

The OSHA standard also requires that an evaluation of the operator's performance be conducted at least once every three years and after refresher training. The trainer will complete a CERTIFICATION OF TRAINING containing the name of the operator, the date of the training, the date of the evaluation, and the identity of the person(s) performing the training or evaluation. If the operator does not have a valid certificate, the operator is prohibited from using a PIT until recertified.

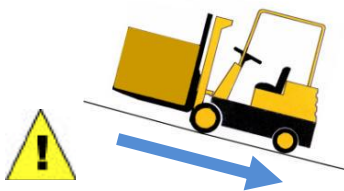
CAPACITY AND STABILITY

When improperly loaded your PIT can become unstable. Load weight and distribution (size, shape, and position) are key factors affecting the stability of your forklift. The center of gravity for a forklift will move depending on the load and how it is positioned. Forklifts are designed to carry the centered weight of the load at the center of the forks, commonly 24 inches from the mast.

Of course, most loads are not perfectly shaped cubes having their center of gravity exactly in the middle of the cube. When the weight is unbalanced or is not centered on the forks the lifting capacity may be reduced. Make sure that you are not exceeding the load capacity of the forklift that appears on the forklift's data plate (or "nameplate"). It is very important to carry a load correctly to assure stability.

Improper operations can lead to an unstable forklift, to avoid injury to the operator, damage to the forklift and to the load: always position the load close to the mast and tilted back to maintain vehicle/load balance. Never lift a load with the mast tilted forward. Avoid quick acceleration, turning or braking which may cause the load to shift. Travel with the load as close to the ground as possible.

Make forklift operations your sole focus of attention when moving a load. Take the time to balance the load on the forks and be certain the load is secured before lifting.



If you drive a forklift on an incline, you must keep the load on the uphill side. Otherwise, you may have no weight on the wheels that steer and can lose control! The load could also fall off or cause the forklift to tip.

Always position the load close to the mast and tilted back to maintain vehicle/load balance. Avoid quick acceleration, turning or braking and keep the load as low as possible when traveling.



POWERED INDUSTRIAL TRUCKS (FORKLIFTS)

FORKLIFT SAFETY FEATURES



A backrest extension on the forks prevents part of the load from falling rearward toward the operator. This is required when loads are lifted high and the type of load would allow all or part of it to fall to the rear under conditions such as acceleration, sudden stops or driving on an uneven surface.

Required when handling small objects or un-banded units

Openings cannot be wider than 6 inches

Must be capable in size and strength to prevent the load, or any part of the load from falling toward the operator.



An overhead guard prevents an object on the forks or on a high rack from falling onto the operator while picking or placing a load at elevation. Most vertical mast forklifts are equipped with the falling object protective structure; other forklifts, such as rough terrain, are equipped with roll over protective structures. The guard is not designed to withstand the impact from a full load. It can be effective in deflecting small packages. It is required on all forklifts that can lift a load above the operator unless conditions such as clearances would not allow the forklift to be used. It must be large enough to extend over the operator under normal circumstance, must not interfere with your vision and guard openings cannot be larger than 6 inches in one of the two dimensions.

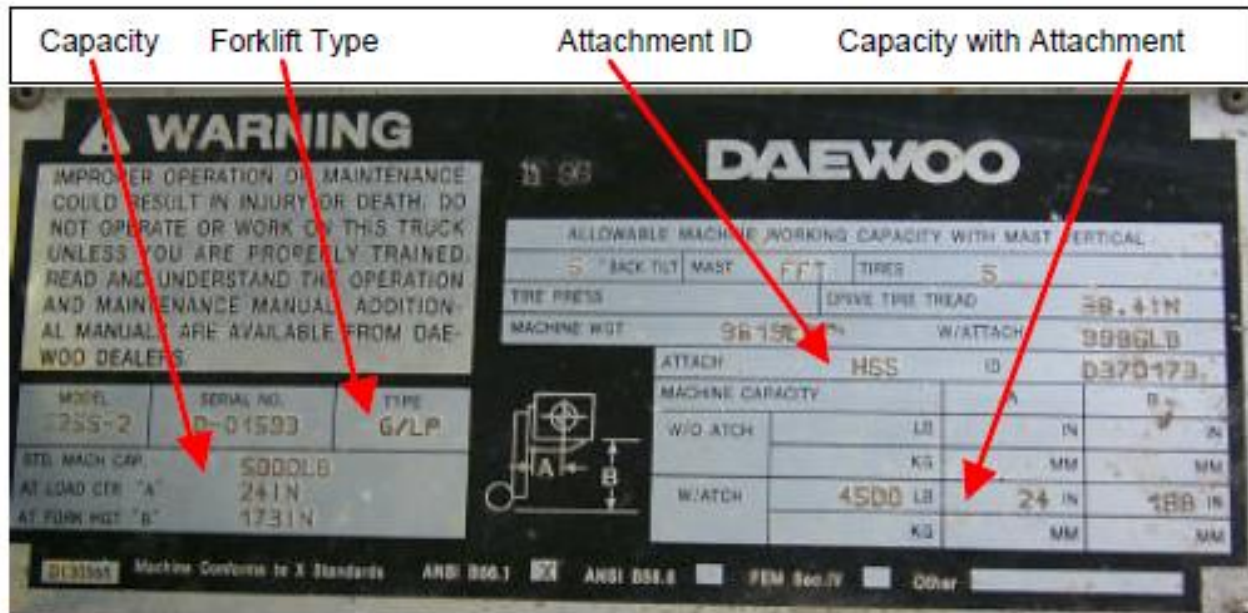
Operator restraints will hold you in the seat if you strike an object or if the forklift overturns. The powered industrial truck standard does not specifically require the use of seat belts. However, employers are required to protect workers from serious and recognized hazards, as well as require all employees to make full use of safety devices. Further, employers are expected to adhere to equipment manufacturer recommendations. Most, if not all, industrial truck manufacturers recommend the use of operator restraints and install operator restraint systems. If your forklift begins to overturn, you are safest when you stay in the seat, hold on firmly, and lean in the opposite direction of the fall rather than trying to jump. Many fatal accidents happened when the operator tried to jump. As the forklift begins to tip, it will move slowly – tricking the operator into believing there is time to jump. Once the center of gravity is past the wheel line, the forklift will rapidly fall. The forklift's overhead guard will quickly pin or crush a jumping operator.



Failure to wear a seat belt can result in the operator being thrown outside the protective cage in the event of overturn. If your forklift has a restraint such as a seat belt or a lap bar, you must use it.

Forklifts have a capacity plate to tell the user what loads are safe to lift. If the plate says the capacity is 30,000 pounds or less then that capacity is rated for a load with a center of gravity 24" from the face of the forks. If the forklift capacity is greater than 30,000 pounds then the label will rate the load at a 36" or 48" center of gravity since larger forklifts usually lift physically larger loads.

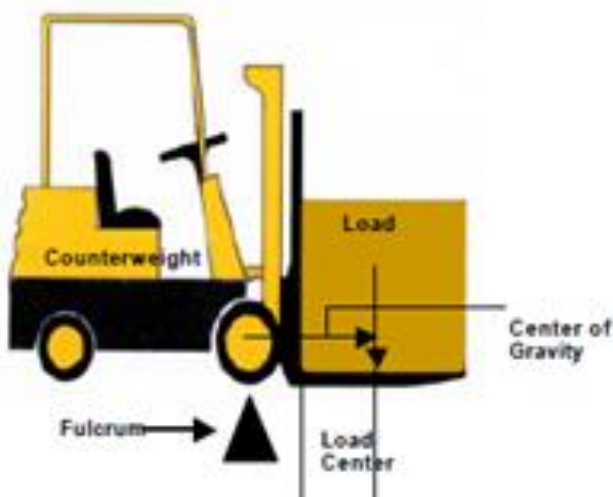
POWERED INDUSTRIAL TRUCKS (FORKLIFTS)



This LP Gas forklift can safely lift 5000 lbs. 173" high with a center of gravity 24" from the face of the forks. With an attachment labeled "HSS", the safe load drops to 4500 lbs. |

Using the example and capacity plate above, a forklift rated at 5000 pounds would safely lift a load with a moment of up to (24" X 5000 lb.) = 120,000 inch pounds. In this case the load above would be safe to lift.

HOW FORKLIFTS SAFELY CARRY AND LIFT HEAVY LOADS - FORKLIFT STABILITY TRIANGLE



A forklift is counterbalanced and operates on a teeter-totter principle. A load on a beam (the forks) supported by a fulcrum (the front wheels) is counterbalanced by a weight on the other end of the beam (the forklift body and counterweight built into it).

Forklifts are designed and manufactured deliberately unbalanced! The load of the forks must be balanced by the weight of the lift truck in order for this principal to work. We need a proper load to balance our "teeter-totter".

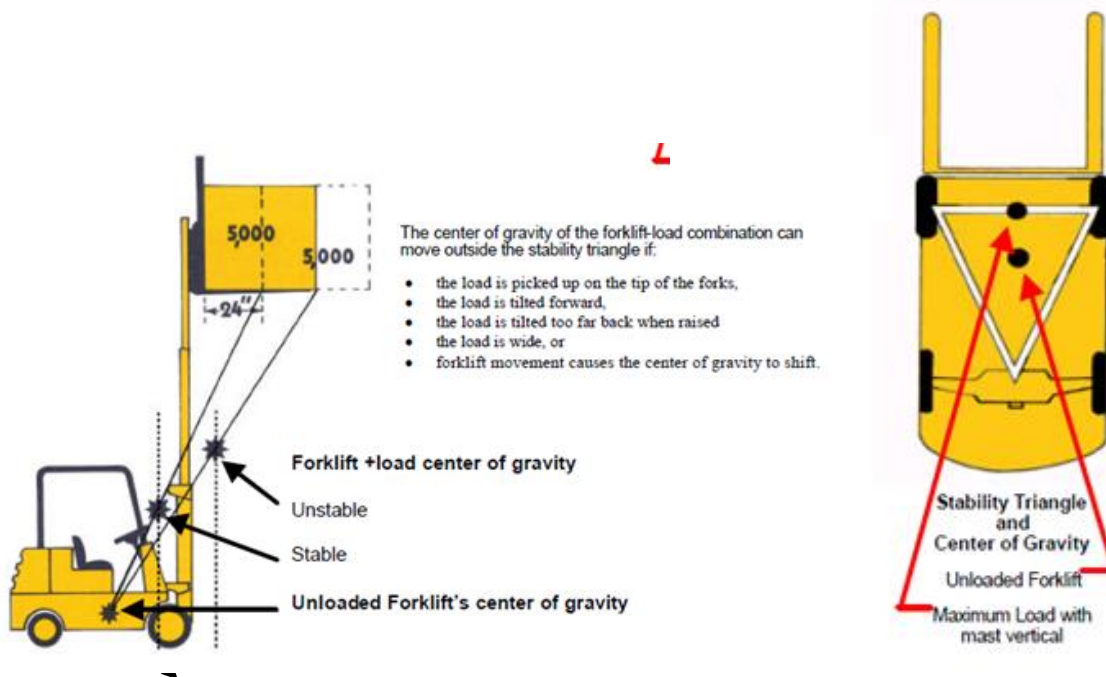
You balance at both ends! A properly loaded lift truck does not exceed the rated capacity of the truck as listed on the trucks data plate.

As the load is raised, it becomes possible for the forklift to fall to the side as well as tip forward. The operator must consider the center of gravity of the forklift and load together. This combined center of gravity moves as the load is moved and as the forklift travels over surfaces that are rough or inclined.

POWERED INDUSTRIAL TRUCKS (FORKLIFTS)

Forklifts have a “stability triangle”. The triangle is an imaginary three point suspension underneath the forklift that connects the two front wheels to the rear pivoting (steering) axel. The forklift’s center of gravity is located within the stability triangle. The center of gravity for a forklift moves depending on the load and how it is positioned. The forklift is most stable when the center of gravity remains within the stability triangle. It is important to carry a load correctly to assure stability, to avoid injury to the operator and to avoid damage to the forklift and the load.

A forklift becomes unstable when the center of gravity shifts outside the stability triangle creating a greater risk of tip over. Improper operations that can lead to an unstable forklift include: Abrupt turns, a load that is too heavy for the forklift rating, a load not centered on the forks, unsecured or shifting loads, driving down inclines front forward, driving on uneven ground or over debris, carrying loads too high on the mast, driving too fast, driving or lifting with mast tilted away from forklift.



To prevent your forklift from tipping over, falling sideways or dropping its load:

- Make sure the load is stable and safely arranged on the forks.
- Do not tilt the forks forward except when picking up or depositing a load.
- Tilt the load backward only enough to stabilize the load.
- Keep the load low just above the pavement with forks tilted back when traveling.
- Cross railroad tracks diagonally when possible.
- Enter elevators squarely.
- Keep the load uphill when going up or down an incline.
- Drive at a speed that will allow you to stop safely within the stability triangle.
- Slow down on wet or slippery surfaces.
- Slow down to make turns.
- Avoid driving over loose objects or on surfaces with ruts and holes.



POWERED INDUSTRIAL TRUCKS (FORKLIFTS)

PRE USE INSPECTION

Do not operate any equipment found to have operational defects. Trucks must be removed from service when found to be in need of repair, defective, or otherwise unsafe. The forklift must be checked for defects daily – Even if you operate a forklift safely, a defect can cause or contribute to a serious accident. We use the TATE ENGINEERING DAILY FORKLIFT CHECKLIST:



TATE ENGINEERING DAILY FORKLIFT CHECKLIST

NAME OF INSPECTOR:		BRANCH:					
FOR WEEK OF:	MON.	TUE.	WED.	THU.	FRI.	SAT.	
ENGINE AND COMPONENTS: no fluid leaks or visible damaged on:							
Battery - Inspect connection for damage							
Inspect cables for bare wires.							
Battery - Check electrolyte level- fill with water as needed							
All Wires - No fray or cut damage							
Fuel line - No leaks – Do not use if detected							
Fuel Tank/ LPG tank - straps functioning							
Gauges, Temperature – safe reading							
Hydraulic Fluid - level OK							
Belts - All in good condition							
Forks - Any indication of bending, impact or physical damage?							
Tires, Check for foreign particle gouges/cuts							
BODY							

MODIFICATION

No in-house modifications to powered industrial trucks are allowed. All attachments must be purchased and utilized within its intended design. Modifications and additions that affect capacity and safe operation shall not be performed by Tate Engineering Systems. Upgrades recommended by the manufacturer must be installed by an authorized representative. Using an unapproved attachment could alter the forklift's lifting and balance characteristics and lead to a forklift overturning.

In addition, the forklift owner's manual will have routine checks and preventive maintenance tasks that must be done by a skilled maintenance person to keep the forklift in safe operating condition. Keep a record of this maintenance as well as any repairs that are made. An OSHA compliance officer assigned to investigate an accident involving a forklift will ask to see maintenance and repair records. If you do not have them, then you will have a hard time proving that you did any maintenance at all.

INSPECTING THE WORKPLACE

The surface a forklift operates on can cause serious safety problems. Loose objects, bumps, or depressions can cause you to lose control of steering, bring you to a sudden unplanned stop or cause you to drop your load. A soft dirt surface can cause a wheel to sink and destabilize an elevated load and the forklift.

Any surface a forklift drives on must be able to support the forklift and its load with a safety factor of four. If a 7,000 pound forklift is carrying a 3,000 pound load then the floor must be able to support 40,000 pounds. Remember that nearly the full weight of the load plus a part of the weight of the forklift may be centered near a single wheel. Wet, oily or icy surfaces should be avoided. Clean them up as soon as possible.



POWERED INDUSTRIAL TRUCKS (FORKLIFTS)

PIT SAFE OPERATION PROCEDURES

Tate Engineering Systems has adopted rules and procedures for operators to safely operate forklifts and for personnel working or passing through areas where forklifts are present. Each PIT Operator will be provided a copy of the Safe Operation Procedures to sign off on and kept in their training file.

All forklift operators must obey the following rules for safely operating a forklift:

1. Equipment Operators must complete a Daily PIT Inspection before placing the PIT into service.
2. Seatbelts are required at all times when operating Forklift.
3. Yield right of way to pedestrians
4. Report to your supervisor any damage or problems that occur to a forklift immediately. Report all incidents and near misses involving employees, structures and equipment to your supervisor immediately.
5. PIT must not be operated if a known functional or critical maintenance problem exists which creates a safety hazard or potential damage to an employee, property or the vehicle.
6. Do not raise or lower the forks while the forklift is moving, or drive PIT with raised forks.
7. Do not handle loads that are heavier than the weight capacity of the forklift.
8. Operate the forklift at a speed that will permit it to be stopped safely. Consider a safe speed is a walking speed.
9. Slow down/Stop and look and sound the horn where vision is obstructed.
10. ALWAYS look in the direction travel and keep a clear view of it.
11. NEVER allow passengers to ride on the trucks forks or frame.
12. When dismounting from a forklift set the parking brake, lower the forks or mast, and neutralize the controls and use 3 points of contact – do not jump.
13. Do not drive up to anyone standing in front of a bench or other fixed object.
14. Do not use a forklift to elevate workers who are standing on the forks.
15. Horseplay or stunt driving is strictly forbidden.
16. When changing/charging batteries, adding water or changing LP tanks, all necessary personal protective equipment (face shield, apron, gloves, etc.) must be worn and all proper procedures must be followed.
17. When storing product, do not put product in front of any fire extinguisher, electrical panels, doorways, walkways, emergency exits, etc.
18. PIT Operators must control vehicle only from the standing or seated operator's position.
19. All trailers must be properly checked before loading & unloading. Insure dock boards are properly in place, trailer restraints are in locked position and or chocks are in place.
20. Power Industrial Trucks can only be used in authorized areas by trained/authorized employees.
21. When approaching a pedestrian, drivers should slow down and verbally acknowledge each other to insure safety.
22. Directive to a Truck Driver to move a trailer must come from the PIT Operator currently involved in loading/unloading the PIT.
23. Never stand or pass, or allow someone else to stand or pass, under the elevated forks.
24. Always keep arms, hands, or legs inside the truck.
25. Stability of the load is the responsibility of the PIT operator to ensure it is safe to lift
26. When leaving a truck unattended, lower the forks to ground level, neutralize controls, shut power off, and set brakes. Place chocks on the down-slope side of tires if parked on an incline.
27. No Smoking, open flame or spark is permitted within 25 feet of a PIT.



POWERED INDUSTRIAL TRUCKS (FORKLIFTS)

UNATTENDED PIT

Any time the operator leaves the forklift and his or her view of the forklift is obstructed, or the operator is 25 feet or more away from the forklift, the operator will follow this sequence of precautions:

1. Lower the load to the ground with the forks parallel to the ground surface.
2. Neutralize the controls.
3. Set the brakes.
4. Turn off motor.
5. Never park where emergency service may be blocked or forks become trip hazard
6. Chock the tires if parked on an incline.

In addition to the Safe Operation Procedures there are additional requirements for safe: travel, loading and unloading, refueling and recharging and rules specific to operation in each branch.

TRAVELING

Forklift operators will obey the following rules when the forklift is traveling:

- Adjust forks to widest point under load for maximum stability
- Know the load weight before lifting to verify it is within the capacity of PIT
- As soon as you are seated in the PIT fasten seat belt and keep all parts of your body inside of cage
- A clear view of the travel route will be maintained; travel with the load behind, forks trailing, if it blocks the forward view. Use a spotter when moving loads that cannot be moved trailing.
- Carry loads with the forks as low to the ground as possible, no more than a 12 inches above the ground or floor. 1 to 2 inches is the preferred height.
- Ensure there is a safe distance along the path of travel from the top of the forklift mast or load and any overhead objects (e.g., lights, pipes, ventilation equipment).
- Loads will not be raised or lowered while traveling.
- Slow down on a wet or slippery floor.
- Never turn while on an incline
- Stay at least three truck lengths behind another truck or from pedestrians.
- Slow down before making a turn; beep horn - sharp turns can tip the truck.
- Stay a safe distance from the edge of a dock platform or ramp.
- Keep load tilted back while traveling
- Drive in reverse looking over shoulder is preferred for most visibility, never drive forward if view is obstructed by load
- Always consider wide back swing and clearance during turns
- Cross railroad tracks diagonally if possible.
- Go up and down grades slowly, keeping the load upgrade and raised only enough to clear the surface.
- Do not drive a PIT to an exit during an emergency, power PIT off, set the brake and walk to the nearest exit
- Drive at a brisk walk and never slam on brakes, this can cause the load to fall
- NEVER CARRY A RIDER



POWERED INDUSTRIAL TRUCKS (FORKLIFTS)

RIGHT-OF-WAY (HIERARCHY)

Because powered industrial trucks are typically used near pedestrians, we require both pedestrians and powered industrial truck operators to watch out for each other.

- Pedestrians have the right-of-way over all operations.
- Vehicles carrying a load have the right-of-way over those not.

Make every effort to alert workers when the forklift is nearby. Use horns, audible backup alarms and flashing lights to warn workers and other forklift operators in the area. Flashing lights are especially important in areas where the ambient noise level is high.

Separate forklift traffic and other workers when possible, use a spotter when working at a client site to alert pedestrians. Install physical barriers where practical to ensure that workstations are isolated from aisles traveled by forklifts.

LOADING AND UNLOADING

Forklift operators will comply with the following rules when loading or unloading materials with a forklift:

- Verify you know the weight of the load to be lifted is within the capacity of the PIT.
- Verify no persons are standing near the load
- Level the fork and slowly center and approach the load head on
- Place the forks under the load as far as possible (the load will touch the forklift carriage) and tilt the mast backward enough to stabilize the load.
- Lift load 1 to 2 inches to ensure it is stable and you have just cleared ground
- Look over both shoulders and ONLY then place PIT into motion – ALWAYS look in the direction of travel
- Never carry anything on the overhead guard or unsecured on the forks.
- Do not bulldoze or push load, lift them and move them with the forks.
- Check the maximum safe height of an area before stacking or tiering a load.
- Never tilt the load forward unless depositing it onto a rack or stack.
- After placing load, look over both shoulders and ONLY then place PIT into motion – ALWAYS look in the direction of travel
- Back straight out until forks have cleared, STOP, lower forks to 1 to 2 inches above ground, continue moving
- If you are unloading a truck, the PIT Operator is responsible for chocking truck wheels. Driver of truck must be a safe distance for loading/unloading process. Truck cannot be moved until the PIT Operator dismisses them.

STACKING AND STORING

- Verify you know the weight of the load to be lifted and stacked is within the capacity of the load.
- Verify no persons are standing near the loads to be stacked or stored
- No product should be stacked within 18" of sprinkler heads or 36" of warehouse lights.



POWERED INDUSTRIAL TRUCKS (FORKLIFTS)

- Do not block access to fire or emergency exits, stairways, fire equipment, or electrical panels with load placement.
- Remove any empty cartons, pallets, strapping and trash from storage lane before stocking driving into storage lane.
- Do not use broken or damaged pallets – re-palletize if necessary.
- Do not use forklift to push up against and tighten up product, lift pallets that need to be adjusted
- Always follow manufactures recommended stack height limits printed on carton. In the absence of printed stack height limits do not stack pallet higher than 3 levels.
- Ensure product is positioned squarely on top of other product. Product must not overhang or stick out from the product it is resting on.
- Ensure product is not resting on adjacent product.
- Ensure product is stable and properly supported before releasing the load and backing away.

FUELING CHARGING



These practices are designed to prevent explosion of flammable vapors due to spark or collision with unprotected fuel tanks.

BATTERY OPERATED FORKLIFTS

When refueling or charging batteries, observe the following precautions:

- Do not smoke or allow any open flames or spark /arc generating equipment in the refueling / charging area.
- Make sure there is adequate ventilation to disburse fumes.
- When charging and fueling, set brakes and chock wheels.
- Wear personal protective equipment.
- Make sure there is a fire extinguisher nearby.
- Keep the battery vent caps in place to prevent electrolyte spray. (Check that the vent caps are not plugged).
- Keep the battery compartment open to dissipate heat.
- Keep tools and other metal objects away from the top of the battery to prevent an arc or explosion due to short circuited terminals.
- When adding fluid to the battery, wear safety glasses and a face shield for protection against electrolyte splash or spray.
- Battery charging areas must have a way to flush and neutralize spilled electrolyte.
- Make sure you have clear access to the eye wash station before servicing or changing batteries,
- Do not attempt to remove a battery from the forklift unless you have been trained and the charging station is equipped with a hoist designed for this purpose.



POWERED INDUSTRIAL TRUCKS (FORKLIFTS)

REFUELING LIQUID PROPANE FUEL HANDLING AND STORAGE

Liquefied petroleum (LP) gases are flammable, nontoxic gases. Because Tate Engineering Systems, Inc. uses these gases as a fuel to operate equipment, we are dedicated to the protection of employees who store, handle, use, or work around LP gas.

All propane tanks (empty, full or marked leaking) must be stored in compliance with the compressed gas guidelines. Do not leave any tanks outside of the building. Smoking is not permitted within 50 feet on the tank storage area. Do not transport propane tanks from building to building under any circumstance.

USE AND HANDLING

Under normal use tanks have a limited operating time and need replacement often. Handling tanks of compressed gases can be dangerous and when the gas is flammable the danger increases. Extreme care is required when these tanks are removed and replaced.

1. Never smoke in fueling areas and prevent open flames, sparks, or electric arcs while fueling.
2. Propane in liquid form is very cold and can cause burns to your body upon contact. Wear personal protective equipment when changing propane tanks. Insulated gloves protect you from the extreme cold of the compressed gas and safety glasses will protect you from uncontrolled discharge of fuel.
3. Stop the forklift, set the parking brake and with the engine still running, turn off the valve on the propane tank. Allow the forklift to continue running until the engine dies. This ensures that no gas is still contained in the transfer hose from the tank to the engine.
4. Disconnect the hose from the propane tank and remove the holding straps on the tank.
5. Remove the tank and replace with a full tank. The pin on the lift truck must fit into the cut out hole(s) provided on the LP cylinder. This is required by law.
6. Reattach the holding straps. Position the hose at the valve of the tank and tighten the nut.
7. Check for leaks around the valve, along the connection hose and at the connecting nut itself. If you find any leaks in the region of the valve, tighten the connecting nut more. Recheck for leaks.
8. If you again find leaks, replace with another full tank. Tag leaking tanks with the red tags provided at each cage. Return all empty or leaking tanks to the cage.
9. Place the empty container in the outdoor storage rack with the valve end of the container pointing into the rack. (This indicates that the container is empty.)
10. Never transport LP tanks on the forks of a truck. The tanks are to be transported by hand or by cart.

POWERED INDUSTRIAL TRUCKS (FORKLIFTS)



1. Find the locator pin on the bracket.



2. Find the locator hole on the cylinder.



3. Place the bracket locator pin in the cylinder locator hole.



4. Tighten the bracket.



5. Connect propane fitting until it is firmly connected, leak free (no tools required). Open valve and start engine.



When the cylinder is positioned correctly, should the relief valve open, the propane would expel away from the driver. This propane release would be vapor, which reduces the amount of propane release.



The locator pin in the locator hole restricts the movement of the cylinder. This decreases the wear and tear on the hose and connection fittings.



POWERED INDUSTRIAL TRUCKS (FORKLIFTS)

Fuel shall be stored and handled in accordance with appropriate safety standards. Operators and forklift maintenance personnel will comply with the following rules when refueling a forklift:

- No smoking no open flames within 25 feet of fueling.
- Turn off the engine.
- Have a fire extinguisher and spill cleanup materials ready.
- Do not operate a forklift with a leak in the fuel system until the leak is fixed.
- Perform all fueling operations in well-ventilated areas designated for that purpose.
- Take empty propane tanks outside and open the valve to let any leftover propane escape to the open air.
- Wear appropriate hand and face protection.

SAFE OPERATION SPECIFIC RULES

Each Service Manager shall maintain a list of forklift operating rules unique to their branch. These rules, PIT RESTRICTED OPERATING AREA, shall be reviewed by all operators during initial and recurrent training. All forklifts have a hazard designation assigned to them that tells whether they are suitable for use in certain kinds of hazardous atmospheres. You can find the designation on the forklift's load capacity plate. The table below explains the designations.

Type	Built-in Safeguards Against Fire Hazards
D (Diesel forklift)	Minimum
DS	D + additional for fuel, exhaust and electrical systems
DY	DS + all electrical equipment enclosed
E (Electric forklift)	Minimum
ES	E + prevents sparks and limits surface temperatures
EE	ES + all electric motors and equipment completely enclosed
EX	Can be used in flammable vapor or dust atmospheres
G (Gasoline forklift)	Minimum
GS	G + additional for fuel, exhaust and electrical systems
LP (Liquid Petroleum)	G + minimum safeguards for liquid petroleum gas
LPS	LP + additional for fuel, exhaust and electrical systems


LOADING DOCK SAFETY

Loading docks are busy areas. Workers must pay attention to the hazards associated with loading and unloading a trailer, their equipment, pedestrian traffic and strictly observe their safety training and supervision of the tasks. Safety starts at the dock approach, so make sure it is in good repair, free of any obstacles, combustible items such as compressed gas cylinders and unauthorized flammable liquid, cracks and excessive debris.

- Ensure that dock plates are used and stored correctly.
- Delivery drivers should always observe the unloading of their trailers, staying in constant communication with material handlers.
- Wear personal protective equipment: Safety glasses and safety shoes.



POWERED INDUSTRIAL TRUCKS (FORKLIFTS)

-  Do not enter a trailer unless it is chocked and firmly seated against the dock. Verifying wheel chocking is the responsibility of the PIT Operator not the driver of the truck.
- Inspect the trailer floorboards to ensure that they will withstand the load of the materials, the PIT, and you.
- Use dock lights and always operate a forklift in a trailer with headlights on.
- Maintain good housekeeping in the loading dock work environment.
- Keep aisles and work areas free of debris, trash, and stored materials.
- Store and secure any compressed gas cylinders and LP tanks immediately to lower the risk of accidentally knocking them over.
- When you find that you must manually maneuver a load use safe lifting and handling techniques.
- Always stay alert when you are walking in a loading dock area, be aware of your surroundings and watch for forklifts and moving trailers. Stop and look at every blind corner and make yourself known to all operators.
- Close all dock doors as soon as trailers have departed to lower the risk of an accidental fall.

CARBON MONOXIDE AWARENESS

Powered industrial trucks with internal combustion engines produce carbon monoxide (CO), an odorless, colorless, and deadly gas. Overexposure combined with less oxygen results in carbon monoxide poisoning. Mild poisoning can result in headaches, tightness in the chest, dizziness, drowsiness, inattention, fatigue, flushed face, or nausea. Prolonged exposure to CO gas in a confined space, such as the inside of a trailer with a running PIT can lead to: lack of coordination, confusion, weakness, or loss of consciousness may result. We do not have operations that will require you to be working inside a trailer for extended periods of time with a PIT. If a situation is created causing the need for personnel to be working inside a trailer, running LP PIT are not permitted

IDLE PALLET STORAGE

Pallets are an important material handling tool for warehousing. However, idle pallets present a significant fire hazard: they provide a source of dry fuel, their frayed edges are subject to easy ignition, and their open construction provides flue spaces through which fire can grow very hot and spread quickly. A pallet fire can severely test a sprinkler system's ability to contain the fire, and may result in severe damage to a building's structure and its contents.

While most pallets are made of wood, the durability, reusability, and recyclability of newer plastic pallets has spurred an increase in the number of plastic pallets in use. While plastic pallets have many advantages over wooden pallets, including the capacity to be customized for specific operations (e.g., pharmaceutical and food industries), their greater flammability requires special attention to fire protection.

During a fire, plastic pallets will release more heat, (approximately twice that of wood), will burn for longer periods, and may melt and pool, contributing to rapid fire spread.



POWERED INDUSTRIAL TRUCKS (FORKLIFTS)

PREFERRED STORAGE ARRANGEMENT FOR PALLETS STORED INSIDE BUILDINGS

Prohibit storage of any type of idle pallets in aisles or between racks. Pallets in racks promote a more intense fire and exposes stored commodities, as well as other areas of the building to severe fire damage.

IF YOU MUST STORE PALLETS INSIDE:

Eliminate or reduce the storage of idle combustible pallets as much as possible. Limit the number of pallets on hand to the amount required for one day's operations.

STORAGE FOR WOOD PALLETS:

Store pallets flat and stack no higher than 6 feet; never stack them on end.

Separate each pallet pile (no more than 4 stacks per pile) from other pallet piles by at least eight feet.

Separate each pallet pile from other commodities by at least 25 feet.

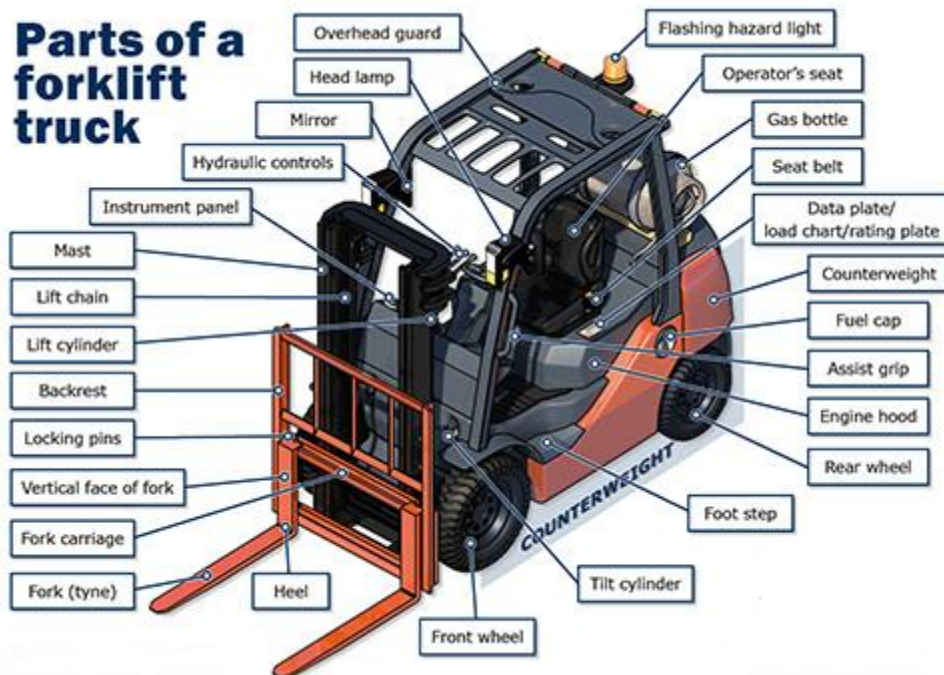
STORAGE FOR PLASTIC PALLETS:

Storage should be piled no higher than 4 feet. Separate each pallet pile (no more than 2 stacks per pile) from other pallet piles by at least eight feet.

Separate each pallet pile from other commodities by at least 25 feet.

Idle pallet storage is a necessary hazard for many types of occupancies. While storage of idle pallets may be a necessity, storage location, storage arrangement and special sprinkler protection must all be addressed if idle pallets are to be stored with adequate safety.

FORKLIFT PARTS





POWERED INDUSTRIAL TRUCKS (FORKLIFTS)

PROBLEM SOLVING

A forklift is a powerful tool when used by a well-trained operator. It helps to move materials and can reduce the risk of back injury by eliminating the need to lift and carry items by hand. However, the deaths of nearly 100 workers and 20,000 serious injuries that occur each year show that a forklift can be dangerous.

prevent your workplace from adding to these statistics:

Use the appropriate forklift and attachments based on the driving location, size of load, and potential for hazardous atmosphere. Maintain forklifts in safe condition free of defective or missing parts through daily visual checks and regular preventive maintenance.

Always correct any errors or hazards immediately; do not continue to work if you notice there is a safety issue. If you are unable to correct the hazard, report it.

"STOP, THINK, BEFORE EVERY ACTION, ALL ACCIDENTS ARE PREVENTABLE"

