

 CSN Procedure	Facilities Management
Category: Environmental Health and Safety	Effective Date: 11/07/2022
Powered Industrial Trucks (Forklift) Program	

I. PURPOSE

To provide safe practices for the operation, maintenance, and inspection of powered industrial trucks.

II. SCOPE

This procedure applies to all powered industrial truck (forklift) activities under the management and control of the College of Southern Nevada (CSN) and applies to affected staff, students, contractors, and visitors. Contractors or outside personnel shall ensure their employees are properly trained and certified and operate their company's forklift equipment in compliance with safe work practices and standards while at CSN. Contractors failing to adhere to applicable safe work practices and standards will be asked to terminate their work until their program is brought into compliance.

III. OVERVIEW

Anyone using the forklift trucks must be certified in their operation through an approved certification training program. Non-certified personnel are not to operate this equipment under any circumstances except for the purposes of training only, and only under the direct supervision of the trainer.

IV. DEFINITIONS

Authorized Operator: An employee who has satisfactorily completed operational training on powered industrial truck (forklift) equipment at the College of Southern Nevada.

Center of Gravity: The point on an object at which all the object's weight is concentrated. For symmetrical loads, the center of gravity is at the middle of the load.

Competent Person: An employee who has the knowledge, training, and experience to train forklift operators and evaluate their proficiency.

Load Center: The horizontal distance from the edge of the load (or the vertical face of the forks or other attachment) to the load's center of gravity.

LPG: Liquefied petroleum gases.

Powered Industrial Truck (PIT): A mobile, power-driven vehicle used to carry, push, pull, lift, stack, or tier material. Powered industrial trucks can be ridden or controlled by a walking operator. Commonly known as forklifts, pallet trucks, rider trucks, fork trucks, or lift trucks.

Rated Weight Capacity: The maximum weight that the powered industrial truck is designed to lift, as determined by the manufacturer.

V. PROCEDURE

A. Responsibilities

1. Environmental Health & Safety (EHS)
 - Ensure administration of this procedure; conduct periodic reviews and updates.
 - Ensure compliance with environmental, health, and safety regulations through implementation of this procedure.
 - Participate in investigations.
 - Maintain records of ALL lift truck accidents, regardless of whether injury or property damage occurred.
 - Conduct or coordinate initial training for forklift operators.

2. Managers, Supervisors, and Faculty of Departments with Assigned Forklifts

- Ensure application of proper work procedures and required training in accordance with the program identified herein.
- Ensure only trained and certified lift truck operators are using forklift equipment in their area.
- Initiate investigation and notify EHS of ALL lift truck accidents occurring in their area.
- Ensure equipment repairs and maintenance are performed by authorized personnel only.
- Give priority for corrective action to all deficiencies reported by a lift truck operator.
- Do not allow anyone to alter a forklift or other industrial truck. If a truck must be altered, the manufacturer or distributor/vendor will be asked to make these changes.
- Purchase or lease only forklifts that meet the requirements of ANSI B56.1 and ask the supplier to verify this.
- Ensure forklifts are operated and maintained per the manufacturer's operating manual.
- Ensure purchased or leased forklifts are safe for the environment that they are to be used in.
- Ensure that all purchased or leased forklifts have overhead protection and are rated to handle the load they are expected to transport.
- Ensure that defective equipment is tagged out and removed from service until all problems are corrected by a qualified mechanic.
- Ensure re-certification training is conducted every three years by a designated competent person (see *Appendix B*).

3. Employees

- Comply with the program methods described in this procedure and any subsequently developed program(s) and procedure(s).
- Operate a forklift or other powered industrial truck only if properly trained and certified.
- Actively participate in the assigned training session and adhere to the information provided therein.
- Perform an inspection of the vehicle prior to operating it using the *Forklift Pre-Operation Inspection Checklist* as a reference (see *Appendix A*).
- Do not run the vehicle if any deficiencies are discovered. Tag out the equipment and report the problem immediately to the supervisor.
- Follow applicable fueling or charging procedures.

B. Procedures

1. Truck Selection

- The College of Southern Nevada uses LPG and electric-powered industrial trucks. Due to problems such as exhausting indoors, avoid using LPG-powered forklifts or platform lifts indoors when possible.
- The manufacturer will install a vertical-load backrest if the load to be handled is such that it presents a hazard to the operator (for example, boxes falling from a pallet during travel).
- Trucks used in dim areas of the facility will come equipped with their own light, including forklifts used to load semi-trailers.

2. Inspections

- Inspect forklift trucks before being placed into service and at least once per shift to determine that the trucks are in safe working condition.
- Use the *Forklift Pre-Operation Inspection Checklist (Appendix A)* as guidelines when completing daily inspections.
- Notify the supervisor immediately when deficiencies are found that prevent the safe operation of the truck.
- Take trucks out of service when they are found to be unsafe.

3. Powered Industrial Truck Safe Operating Rules

Only Authorized Operators will operate powered industrial trucks. Because of the hazards involved with powered industrial truck operations, the following safe operating practices have been developed to ensure that authorized employees drive in a safe manner:

- NEVER ride on the forks of a powered industrial truck or any other portion of a truck other than the seat provided by the manufacturer.
- Only powered industrial trucks equipped with a work platform that has a handrail, mid-rail, and toe board will be used to elevate employees while on the forks. The platform must be securely attached to the mast of the powered industrial truck. The employee lifted on the platform must be tied off and able to shut off the power to the truck in an emergency.
- When traveling with or without a load, keep forks just high enough to avoid uneven floor surfaces.
- Always keep the operator's arms and legs inside the running lines of the powered industrial truck. The operator must never reach through the mast of a forklift truck to adjust the load.
- Take the following precautions when a forklift is unattended. Note that a forklift is considered unattended when the operator is more than 25 feet away and remains in their view, or when the truck is out of the operator's view:
 - The forks are fully lowered.
 - The operating controls are neutralized.
 - The motor is shut off.
 - The hand/parking brake is set.
 - The wheels are chocked if the powered industrial truck is parked on an incline.
 - The key is removed from the ignition.
- Slow down and sound the horn when crossing aisle ways, approaching blind corners, and at intersections.
- When ascending or descending ramps, keep the load center uphill and the mast tilted back as far as possible.
- Secure dock boards and bridge plates before driving over them.
- Never exceed the rated weight capacity of dock boards or bridge plates.
- Never exceed the rated weight capacity of powered industrial trucks. In addition, do not counterweigh a powered industrial truck to increase its capacity, unless approved by the truck's manufacturer.
- Always obey traffic signs and speed limits.
- Never drive the truck up near anyone standing in front of a bench or other fixed object.

4. Changing LP Tanks

- Wear a long-sleeve shirt and proper PPE to change the LP tank.
- Only replace LP tanks outside or in a well-ventilated area inside.
- Check for leaks in the LP tank as well as the forklift's fuel line prior to removing the tank.
- Secure the forklift by making sure the shift selector is in the "neutral" position.
- Set the parking brake.
- Lower the forks so they rest completely on the ground.
- Evacuate the fuel line by shutting off the gas by turning the tank valve knob clockwise until it is tight.
- Turn the forklift on and let it run until it shuts off by itself. This step removes any extra gas that's in the line and eliminates the possibility of blowback when you unscrew the LP line coupler from the tank.
- If it does start, make sure you've completely closed the valve. If it doesn't start, turn the key to the "off" position.
- Disconnect the LP fuel hose by unscrewing it by hand. No tools should be needed.
- Never use metal tools when changing cylinders.
- Remove the empty LP tank by disconnecting the latch securing the tank. Use two hands to remove the tank.
- Install the full LP tank by carefully lifting using a proper lifting technique. A full LP tank can weigh 40 to 80 pounds.
- Rotate the tank within the bracket to line the tank collar with the screw in the bracket. This will lock the tank into place. The LP tank pressure relief valve should point upward.
- Before connecting the LP coupler to the tank valve, ensure the valve is closed.
- Take the fuel line coupler and screw it clockwise onto the valve until tight.
- Once in place, secure the full LP tank by pulling the latch over the tank and securing it.
- Turn the tank valve knob counterclockwise until it is fully open. A soft hissing noise will occur for about three seconds when the valve is opened. This will indicate a proper gas flow.
- Look, listen, and smell for a noticeable hissing noise, rotten egg smell, or white frost around the tank or valve. This could be an indication of a leak.
- If a leak is detected, close the valve immediately and ventilate the area to prevent combustion. Remove and tag out the defective tank and return it to the vendor.

5. LP Tank Storage Requirements

- Tanks must be protected from damage, heat, and tampering.
- Outlet valves should always be closed.
- The amount of gas stored indoors shouldn't exceed 300 lbs. (unless it's within a specialized storage area).
- Tanks can only be stored indoors if it's not a publicly accessible building.
- Tanks stored indoors should be kept away from exits, entries, staircases, and walkways.
- Tanks stored outdoors must be kept out of direct sunlight and a safe distance away from buildings and walkways.
- Storage locations must be provided with at least one approved portable B:C rated fire extinguisher.
- The required fire extinguisher must be located no more than 50-feet from the storage location.

6. Battery Maintenance

Change and charge batteries on electric-powered industrial lifts only in a designated area equipped with the following:

- Materials to capture or neutralize spilled electrolyte, if required.
- A siphon for handling the electrolyte, if required.
- Fire extinguisher.
- A means for protecting charging batteries against damage by other trucks operating in the area.
- Adequate ventilation for fumes from gassing batteries to disperse.
- A conveyor, overhead hoist, or other material handling equipment to move batteries more than 50 pounds.
- Prohibited smoking in the area.
- Emergency shower and eyewash that can flush for at least 15 minutes.
- Set the brake on the truck when changing or charging batteries.
- Always add acid to water and validate proper electrolytic ratios.
- Keep tools and other metal objects away from charging batteries.

C. Training

1. Operator Training

- All operator training and evaluations shall be conducted by persons who have the knowledge, training, and experience to train powered industrial truck operators and evaluate their competence.
- Initial operator training will be facilitated by EHS prior to allowing anyone to operate an industrial truck.
- After initial training, the department's competent person will conduct equipment orientation and practical training with the new operator on the department's equipment.
- Re-certification for experienced drivers will be conducted every three years by a designated powered industrial truck competent person within their department.
- Initial equipment orientation and triannual re-certifications shall be recorded on the *Forklift Operator Evaluation Form (Appendix B)*. Completed forms will be uploaded into CSN's training management program CAPE.
- All authorized operators will also complete annual forklift safety awareness training via CSN's CAPE online training platform.
- See *Forklift Operator Training Program Overview (Appendix C)* for additional details.

2. Non-Operator Training

Employees working in areas where forklifts and electrically powered industrial trucks operate should be made aware of the following general safety rules:

- Never pass under the raised forks of a lift truck, regardless of whether they are carrying a load or not.
- Walk around the forks of the truck, never over or between.
- Never "hitch a ride" on someone else's truck.

- Be aware that it is much easier for a pedestrian to see a forklift. Allow lift trucks the right of way at intersections.
- Never assume that the forklift operator can see you.

VI. APPENDICES:

Appendix A – Forklift Pre-Operation Inspection Checklist

(Internal Combustion Engine & Electric Industrial Truck)

Appendix B – Forklift Operator Evaluation Form

Appendix C – Forklift Operator Training Program Overview

Appendix D – Additional Forklift Safety Precautions

Appendix A - Forklift Pre-Operation Inspection Checklist (Internal Combustion Engine)

Forklift Pre-Operation Inspection Checklist - Internal Combustion Engine

Operator: _____ Date: _____



Manufacturer & Model: _____ Serial # & Asset Tag #: _____

Engine OFF Checks	OK	Maintenance*
Leaks – Fuel, Hydraulic Oil, Engine Oil or Radiator Coolant		
Tires – Condition and Pressure		
Forks, Top Clip Retaining Pin and Heel – Check Condition		
Load Backrest – Securely Attached		
Hydraulic Hoses, Mast Chains, Cables, and Stops – Check Visually		
Overhead Guard – Attached		
Finger Guards – Attached		
Propane Tank (LP Gas Truck) – Rust Corrosion, Damage		
Safety Warnings – Attached (Refer to Parts Manual for Location)		
Battery – Check Water/Electrolyte Level and Charge		
All Engine Belts – Check Visually		
Hydraulic Fluid Level – Check Level		
Engine Oil Level – Dipstick		
Transmission Fluid Level – Dipstick		
Engine Air Cleaner – Squeeze Rubber Dirt Trap or Check the Restriction Alarm (if equipped)		
Radiator Coolant – Check Level		
Operator's Manual – In Container		
Nameplate – Attached and Information Matches Model, Serial Number, and Attachments		
Seat Belt – Functioning Smoothly		
Hood Latch – Adjusted and Securely Fastened		
Brake Fluid – Check Level		
Engine ON Checks (Unusual Noises Must Be Investigated Immediately)	OK	Maintenance*
Accelerator or Direction Control Pedal – Functioning Smoothly		
Service Brake – Functioning Smoothly		
Parking Brake – Functioning Smoothly		
Steering Operation – Functioning Smoothly		
Drive Control – Forward/Reverse – Functioning Smoothly		
Tilt Control – Forward and Back – Functioning Smoothly		
Hoist and Lowering Control – Functioning Smoothly		
Attachment Control – Operation		
Horn and Lights – Functioning		
Gauges – Ammeter, Engine Oil Pressure, Hour Meter, Fuel Level, Temperature, Instrument Monitors – Functioning		

* Any powered industrial truck not in safe operating condition shall be tagged out and removed from service. Have a **qualified** mechanic correct all problems.

Appendix A - Forklift Pre-Operation Inspection Checklist (Electric Industrial Truck)

Forklift Pre-Operation Inspection Checklist - Electric Industrial Truck

Operator: _____ Date: _____



Manufacturer & Model: _____ Serial # & Asset Tag #: _____

Motor OFF Checks	OK	Maintenance*
Leaks – Hydraulic Oil, Battery		
Tires – Condition and Pressure		
Forks, Top Clip Retaining Pin and Heel – Condition		
Load Backrest Extension – Securely Attached		
Hydraulic Hoses, Mast Chains, Cables & Stops – Check Visually		
Overhead Guard – Attached		
Finger Guards – Attached		
Safety Warnings – Attached (Refer to Parts Manual for Location)		
Battery – Check Water/Electrolyte Level** and Charge		
Hydraulic Fluid Level – Check Level		
Transmission Fluid Level – Dipstick		
Operator's Manual – In Container		
Nameplate – Attached and Information Matches Model, Serial Number, and Attachments		
Battery Restraint System – Adjust and Fasten		
Operator Protection		
Sit-down Truck – Seat Belt – Functioning Smoothly		
Man-up Truck – Fall protection/Restraining means - Functioning		
Hood Latch – Adjusted and Securely Fastened		
Brake Fluid – Check Level		
Motor ON Checks (Unusual Noises Must Be Investigated Immediately)	OK	Maintenance*
Accelerator Linkage – Functioning Smoothly		
Service Brake – Functioning Smoothly		
Parking Brake – Functioning Smoothly		
Steering Operation – Functioning Smoothly		
Drive Control – Forward/Reverse – Functioning Smoothly		
Tilt Control – Forward and Back – Functioning Smoothly		
Hoist and Lowering Control – Functioning Smoothly		
Attachment Control – Operation		
Horn – Functioning		
Lights & Alarms (where present) – Functioning		
Hour Meter – Functioning		
Battery Discharge Indicator – Functioning		
Instrument Monitors – Functioning		

* Any powered industrial truck not in safe operating condition shall be tagged out and removed from service. Have a **qualified** mechanic correct all problems.

** Always use PPE such as a face shield, rubber apron, and rubber gloves when checking electrolyte.

Appendix B – Forklift Operator Evaluation Form

Forklift Operator Evaluation Form

Operator: _____ **Evaluator:** _____



Date of Evaluation: _____ **Equipment Operated:** _____

***Instructions:** Use this checklist during the field session to evaluate operator proficiency. It can also be used for periodic evaluation to ensure that operators are continuing to operate forklifts properly.*

OPERATOR BEHAVIORS		Good	Fair	Poor	N/A	Comments
Pre-use Inspection						
1.	Follow the Operator's Daily Checklist					
2.	Look for damage					
Picking Up A Load						
1.	Square up on the center of the load					
2.	Stop with the fork tips about 1 foot from the load					
3.	Clear personnel from the area near the load					
4.	Level the forks; then slowly drive forward until the load contacts the carriage					
5.	Lift the load carefully and smoothly until it is clear					
6.	Tilt the mast back slightly to stabilize the load					
7.	Look over both shoulders					
8.	After out and stopped, lower the load to travel height					
Traveling						
1.	Do not raise or lower the load and forks while traveling					
2.	Maintain a safe speed					
3.	Observe all traffic rules, warning signs, floor load limits, and overhead clearances					
4.	Keep arms and legs inside the forklift					
5.	Follow other vehicles at a safe distance					
6.	Slow down when cornering					
7.	Use the horn to alert others					
8.	Travel with the load facing uphill while on a ramp or incline					
9.	Stop smoothly					

Appendix B – Forklift Operator Evaluation Form (Continued)

OPERATOR BEHAVIORS		Good	Fair	Poor	N/A	Comments
Putting Down A Load						
1.	Make sure there is sufficient clearance for the load					
2.	Clear personnel from the area near the load					
3.	Square up to the location, then stop about 1 foot away					
4.	Raise the load to placement level					
5.	Move slowly forward					
6.	If the load is on a pallet, lower it into position and lower the forks further					
7.	Look over both shoulders before backing out					
8.	Back straight out until the forks have cleared					
9.	Lower the forks to traveling position					
Parking						
1.	Fully lower the forks					
2.	Neutralize the controls					
3.	Set the brakes					
4.	Turn off the power					
5.	If parked on an incline, block the wheels					
6.	Park only in authorized areas					
Fueling & Battery Recharging						
1.	Turn the engine off					
2.	Keep a fire extinguisher nearby					
3.	Use the proper Personal Protective Equipment (PPE)					
4.	Follow safe fueling and battery recharging procedures					
5.	Clean up spills immediately					
FINAL EVALUATION						
<input type="checkbox"/>	Based on my evaluation, the operator has successfully completed the evaluation and is qualified to operate the following equipment:					Equipment Type
<input type="checkbox"/>	Based on my evaluation, the operator has not demonstrated competence in operating the following equipment:					Equipment Type
Evaluator Signature:					Operator Signature:	

Appendix C – Forklift Operator Training Program Overview

- The forklift training program shall be presented to all new operators regardless of previous experience.
- Personnel who have not been trained to operate powered industrial trucks may operate a truck for the purposes of training only, and only under the direct supervision of the trainer. This training should be conducted in an area away from other trucks, obstacles, and pedestrians.
- Forklift operators must successfully complete Forklift Training before they are allowed to operate equipment independently.



Initial Forklift Training will consist of three parts:

1. **Formal Instruction** (e.g., lecture, discussion, interactive computer learning, videotape, written material)
2. **Practical Training** (demonstrations performed by the trainer and practical exercises performed by the trainee)
3. **Evaluation of Operator's Performance** in the workplace (recorded in Appendix B)



Training Program shall include the following topics:

Truck-related topics:

- Operating instructions, warnings, and precautions for the types of truck the operator will be authorized to operate;
- Differences between the truck and the automobile;
- Truck controls and instrumentation: where they are located, what they do, and how they work;
- Engine or motor operation;
- Steering and maneuvering;
- Visibility (including restrictions due to loading);
- Fork and attachment adaptation, operation, and use limitations;
- Vehicle capacity;
- Vehicle stability;
- Any vehicle inspection and maintenance that the operator will be required to perform;
- Refueling and/or charging and recharging of batteries;
- Operating limitations;
- Any other operating instructions, warnings, or precautions listed in the operator's manual for the types of vehicle that the employee is being trained to operate.

Workplace-related topics:

- Surface conditions where the vehicle will be operated;
- Composition of loads to be carried and load stability;
- Load manipulation, stacking, and unstacking;
- Pedestrian traffic in areas where the vehicle will be operated;
- Narrow aisles and other restricted places where the vehicle will be operated;
- Hazardous (classified) locations where the vehicle will be operated;
- Ramps and other sloped surfaces that could affect the vehicle's stability;
- Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust;
- Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation.



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, or;
- A condition in the workplace changes in a manner that could affect the safe operation of the truck;
- An evaluation of each powered industrial truck operator's performance shall be conducted at least once every three years.



Triennial Evaluation:

Operator evaluation doesn't need to take excessive time, be unduly burdensome, or interrupt daily activities. In most cases, the person conducting the evaluation would do two things:

1. First, observe the powered industrial truck operator during normal operations to determine if the operator is performing safely, and
2. Second, ask pertinent questions to ensure that the operator has the knowledge or experience needed to operate a truck safely.

Appendix D – Additional Forklift Safety Precautions

Instability Hazard:

Follow proper operation procedures to reduce the instability hazard caused by the shifting of the material being handled:

- While negotiating turns, speed shall be reduced to a safe level by means of turning the hand steering wheel in a smooth, sweeping motion. Except when maneuvering at a very low speed, the hand steering wheel shall be turned at a moderate, even rate.
- Only stable or safely arranged loads shall be handled. Caution shall be exercised when handling off-center loads which cannot be centered.
- Only loads within the rated capacity of the truck shall be handled.
- The long or high (including multiple-tiered) loads which may affect capacity shall be adjusted.
- Trucks equipped with attachments shall be operated as partially loaded trucks when not handling a load.
- A load engaging means shall be placed under the load as far as possible; the mast shall be carefully tilted backward to stabilize the load.
- Extreme care shall be used when tilting the load forward or backward, particularly when high tiering. Tilting forward with load engaging means elevated shall be prohibited except to pick up a load. An elevated load shall not be tilted forward except when the load is in a deposit position over a rack or stack. When stacking or tiering, only enough backward tilt to stabilize the load shall be used.

Tip-Over Hazard:

Move the vehicle only when the load is at its lowest practical point to avoid tipping over.

Sit-down Rider Truck Tip-Over:

- When a sit-down rider truck tips over and the operator attempts to jump off the vehicle while it is tipping over, the operator is often crushed when struck by the overhead guard.
- In these cases, since the normal tendency is for a person to jump downward, the operator lands on the floor or ground in the path of the overhead guard, and receives a crushing injury to the head, neck, or back.
- Staying with the vehicle and leaning away from the direction of a fall will reduce the severity of or eliminate these injuries.

Stand-up Rider Truck Tip-Over:

- When a stand-up rider truck tips over laterally, the operator should step off the vehicle toward the rear of the vehicle.
- The operator can safely do this because he/she is not moving in the direction in which the truck is falling, but rather is moving perpendicular to the direction of the vehicle's fall.