



Automotive Safety - Vehicle Lifts

Vehicle lifts have largely replaced service pits as a means of accessing under carriage vehicle parts in the auto service industry. This change has eliminated serious hazards associated with service pits, but not without introducing new hazards. It is important for shop mechanics to be trained in the safe use and operations of this equipment and for employers to follow recommended maintenance schedules and have all service work performed by trained, qualified individuals.

There are many different types of vehicle lifts but all fall under two main categories: in-ground and above ground lifts. Within these two categories there are many types of lifts using various lifting mechanisms that include hydraulics, compressed air, electric and any combination of these. Each lift type has its own set of advantages and disadvantages as well as safety considerations

General Safety Guidelines (for all types of lifts)

Pre-lift basic safe operating rules to follow:

- Never allow a customer to position a vehicle onto a lift.
- Never allow a customer to linger in the work area or near lift controls. Never permit any one to stand closer than six feet from a vehicle being lifted or lowered.
- Turn the vehicle ignition switch to the off position.
- Close the vehicles doors, trunk, and hood securely.
- Set the vehicle transmission control lever in the neutral position.
- Line up pads or adaptors under the recommended vehicle contact points.
- Ensure that automatic chock devices or manual chocks are in place and remain in place as the vehicle is lifted.
- Ensure that the lift and the adaptors load capacity are not exceeded by the vehicle load and the content of the trunk or truck bed. Refer to the manufacturer's nameplate attached to the lift to determine its load capacity.

During lift basic safe operating rules to follow:

- Before raising a vehicle to the height required for service, always perform a partial lift, raising the vehicle approximately one foot off the ground and visually check all lifting points for proper contact and vehicle stability. Lower the vehicle if there is not good contact or the vehicle is not stable and re-adjust the position of the vehicle.
- Never block or tie open the controls of a lift or leave the control while a lift is in motion.
- Maintain adequate clearance between ceiling fixtures and the lifted vehicle.
- Never use a lift to lower a vehicle on jack stands. Always adjust the jack stands to the appropriate height.
- Never place any part of the body in pinch points when the lift is moving.
- When vehicle has been fully raised to the desired height, recheck contact points prior to working under the vehicle. Make sure that the lifts locking device is engaged and working.
- If a lift does not have a locking device or the lift is below the engagement point, use appropriately rated jack stands as additional support for the vehicle.
- As appropriate, wear goggles or safety glasses when working under a vehicle.
- Properly store tools and equipment to eliminate trip and fall hazards in the work area.

Before lowering a vehicle:

- Remove any equipment or tools underneath a raised vehicle prior to lowering the vehicle.
- Reel in pneumatic and other hoses not in immediate use.

Operator Training

Mechanics that use hydraulic lifts should be trained to:

- Perform a proper inspection of any lift they may be required to use in the shop.
- Keep a record of all lift inspections performed.
- Follow proper procedures for reporting problems or malfunctions with a lift.
- Use proper lock-out and tag-out safety procedures.
- Locate vehicle center of gravity and properly position vehicles on a lift.
- Inspect the condition of a vehicles lifting points for rust, damage, or presence of oil, grease, dirt or undercoating prior to lifting.
- Make sure that the vehicle and trunk or truck bed weight don't exceed the lift and motor manufacturers recommended load capacities.

Safety Inspection Procedures

To assure safe operation of hydraulic lifts, an inspection of the work area and lift components should be performed daily just prior to use of the lift. Before checking lift components for excessive wear and signs of stress or fatigue, the technician performing the lift inspection should be thoroughly familiar with the lift manufacturers recommended inspection procedures as well as the manufacturers recommendations for safe operating tolerances for critical lift components.

As applicable, an operator's inspection should include:

- Check work area for oil or grease and any signs of leaks; correct any unsafe conditions found.
- Check hydraulic pistons for dirt, damage, or unusual wear.
- Check that the control lever automatically returns to the neutral position when released by the operator.
- Check for any visible distortions to lifting arms and other structural components.
- Check lifting arms for signs of bending.
- Check for proper hydraulic operating pressure.
- Check for recommended hydraulic oil levels in the reservoir.
- Check condition of hydraulic and pneumatic hoses.
- Check condition of lift adaptors and extenders.
- Check for presence of oil or grease on contact pads that could cause a vehicle to be unstable once lifted.
- Check welds for any signs of cracks or separation at welds and in castings.
- Check chains and/or cable for excessive stretch, wear, or metal fatigue.
- Check hole connections at chain ends for signs of stretching, corrosion, or wear.
- Check coatings and sheaths on cables for signs of wear.
- Check for signs of hydraulic oil leaks or blow-by in the cylinder housing.
- If equipped with slack sensors, check to make sure they are functioning properly.
- Check the over-travel stops for wear.
- For lifts that are mounted on or anchored to concrete, inspect for concrete damage at the lifting posts.
- Check floor-mounting bolts for tightness.
- On screw-type lift, check to make sure that the safety follower nut is working properly.
- For in-ground lifts, check for water or soil damage to pistons and underground hydraulic fluid storage tanks.

Automotive Safety - Vehicle Lifts

Hazardous Equipment Conditions

A hydraulic lift that displays any of the following characteristics should be placed out of service until an inspection and/or appropriate repairs have been performed by an authorized, trained, technician. The defective equipment should be locked out and tagged out of service until maintenance and repairs have been completed. Conditions to look for include:

- Hydraulic fluid leaks detected at hose connections
- The exhaust air blown out includes an oil mist
- The lifting or lowering movement is either unusually fast or slow
- The motion of the lift is not smooth or continuous
- There is any motion of the lift when the controls are unattended and are in the neutral position

The above characteristics may be early indications of hydraulic failure.

Hazardous Procedures

When lifting and working under a raised vehicle, it is crucial that the weight of the vehicle remain evenly distributed during the entire process. Sudden shifts in the center of gravity of the vehicle could result in the load becoming unstable, causing the vehicle to fall off the lift. Such conditions can arise when:

- Heavy parts such as an engine, transmission, or axle components are removed from the vehicle
- A cheater bar is used to loosen a wheel or other part
- A loaded spring or load supporting bolt on the vehicle is released
- Cargo or trunk content shifts

Appropriately rated and adjusted jack stands at the four corners of the vehicle can help maintain vehicle stability during such operations.

Maintenance Procedures

Minor maintenance procedures identified by the lift manufacturer as not requiring specially trained technicians, may be performed by in-house, trained staff following the manufacturer's recommended safety procedures. Regardless of who may be performing maintenance work, the following general safety protocols should be strictly followed:

- Lock-out and tag-out procedures should be followed at all times.
- Drain any stored energy, including air pressure or hydraulic pressure, before beginning to work on any system or component of the lift.
 - If any, adhere to recommended procedures for bleeding pressure valves and fittings.
 - If any, remove hydraulic fluid fill or drain plugs carefully, using hand tools only, in case the fluid is still pressurized.
 - If any, clean filters, and magnets. If any, check around piston seals, packing, and wipers.
 - If any, maintain any gearboxes, V- belts, timing belt drives, and drive screw systems as required by manufacturer's instructions.
 - If any, replace worn or damaged parts with high quality parts recommended by the



Automotive Safety - Vehicle Lifts

- manufacturer.
- If any, lubricate cable, chains, sprockets, pulleys, and swivel joints.
- Keep water and other contaminants away from the lift and moving parts.

The guidelines provided in this bulletin are only intended to provide an overview of some of the more important steps that can be taken by management to establish a safe workplace. The guidelines are not considered exhaustive of all measures and controls that can be implemented by management to address all potential loss or injury producing causes. Ultimately it is the responsibility of management to take the necessary steps to provide for employee and customer safety. It is not intended as an offer to write insurance for such conditions or exposures. The liability of Republic Indemnity Company of America and its affiliated insurers is limited to the terms, limits and conditions of the insurance policies underwritten by any of them. © 2022 Republic Indemnity of America, 4500 Park Granada, Suite 300, Calabasas, CA 91302.