**YOUR COMPANY NAME HERE**

# VEHICLES - MAINTENANCE

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**VEHICLE MAINTENANCE**

## GENERAL

In the normal activities of vehicle maintenance, it is essential that adequate safety standards be prescribed and observed by all shop and company personnel. This should help promote efficiency and reduce the possibility of personal injury and property damage.

Oil and grease-soaked rags or other waste should be disposed of in self-closing metal waste cans approved (UL or FM) by safety recognized fire protection laboratories.

## MECHANICAL HOIST/LIFTS

* Every mechanical automotive hoist should have a brake that will automatically hold twice the rated load at whatever level it may be when lifting ceases.
* Hydraulic lifts have devices that will hold the load independently of the lifting means at the maximum "up" position.
* Hoists should never be used to lift vehicles that weigh beyond the rate lift's capacity or to lift one end of the vehicle only.
* The condition of lifts should be checked monthly. Leaks should be repaired, and oil levels maintained on hydraulic lifts.
* Controls on lifts should require continuous pressure from the operator and at a distance so the operator will not be struck by the falling load if the lift falls.
* No person should stand in front of vehicles being driven onto the lifts and no person should remain in a vehicle being lifted. No bystanders should be allowed near equipment being lifted.
* All lifts should have safety legs which will hold the load if the lift fails.
* Employees must always place these legs properly before working under raised equipment.
* Wearing safety goggles will save the annoyance of workers getting dust and an occasional serious injury from foreign particles in the eye.
* Employees should never put their hands over grease gun nozzles (grease can be forced under the skin if the gun handle is pulled).
* When lubricating springs, stand clear of lubricant spray to avoid inhalation.
* The tops of grease cylinders must be securely screwed or clamped in place to prevent blowing off under pressure.

## JACKS

The rated load should be legibly and permanently marked in a prominent location on the jack by casting, stamping, or other suitable means.

## OPERATION AND MAINTENANCE:

* In the absence of a firm foundation, the base of the jack should be blocked. If there is a possibility of slippage of the cap, a block should be placed in between the cap and the load.
* The operator should watch the stop indicator, which should be kept clean, in order to determine the limit of travel. The indicated limit should not be overrun.
* After the load has been raised, it should be cribbed, blocked, or otherwise secured at once.
* Hydraulic jacks exposed to freezing temperatures should be supplied with an adequate antifreeze liquid.

## TIRE REPAIRS (MULTI-PIECE AND SINGLE PIECE RIM WHEELS)

All employees will be instructed in and expected to follow the established safe operating procedures.

## EMPLOYEE TRAINING:

All employees who service rim wheels must be trained in the hazards involved and the safety procedures to be followed in a manner which the employee is able to understand.

Employees should demonstrate and maintain the ability to perform the following tasks:

* Demounting of tires (including deflation).
* Mounting of tires (including inflation with restraining device or another safeguard);
* Use of the restraining device or barrier, and other equipment required.
* Handling of rim wheels.
* Inflation of the tire when a single piece rim wheel is mounted on a vehicle.
* An understanding of the necessity of standing outside the trajectory both during inflation of the tire and during inspection of the rim wheel following inflation; and
* The Installation and removal of rim wheels.

Employees will be evaluated on their ability to perform the above-mentioned tasks and to service rim wheels safely. Additional training will be provided as necessary to assure employee proficiency is maintained.

## TIRE SERVICING EQUIPMENT

A restraining device or barrier for inflating tires on multi-piece wheels and single piece wheels is provided, unless on the single piece wheels the rim wheel will be bolted onto a vehicle during inflation.

Each restraining device or barrier should have the capacity to withstand the maximum force that would be transferred to it during a rim wheel separation occurring at 150 percent of the maximum tire specification pressure for the type of rim wheel being serviced.

Restraining devices and barriers should be capable of preventing the rim wheel components from being thrown outside or beyond the device or barrier.

Restraining devices and barriers should be visibly inspected prior to each day's use after any separation of the rim wheel components or sudden release of contained air.

Any of the following defects exhibited on any restraining device or barrier should be removed from service:

* Cracks at welds.
* Cracked or broken components.
* Bent or sprung components.
* Pitting of components due to corrosion; or
* Other structural damage that would decrease its effectiveness.

Restraining devices or barriers removed from service should not be returned to service until they are repaired and re-inspected. Any structural repairs such as component replacement or re-welding should not be returned to service until either the manufacturer or a Registered Professional Engineer certifies them.

For inflating tires, an airline assembly should be provided and consist of the following:

* A clip-on chuck.
* An in-line valve with a pressure gauge or one that can be pre-set; and
* A sufficient length of hose between the clip-on chuck and the in-line valve (if one is used) to allow the employee to stand outside the trajectory.

Current charts (rim manuals) should have instructions available in service areas for the types of wheels being serviced.

Only tools recommended in the rim manual for the type of wheel being serviced should be used to service rim wheels.

## Tire Mounting

* Apply a thin layer of lubricating grease, oil or soap to the bead -- the groove on the inside edge of the tire sidewall -- to aid in achieving a successful bead seal.
* Place a piece of cardboard on the ground to protect the wheel and set the wheel on top of it. Carry tires with your hands. Do not carry more than two tires at a time; Do not roll tires. Place the tire on the wheel so the bead is supporting the tire atop the wheel.
* Force the bottom bead around the wheel by placing your knees on the tire then pushing down on the opposing side. It will take a lot of force. Ask for assistance if needed. Be careful so the tire and bead are not damaged when working it onto the wheel.
* Work the other bead over the wheel rim using a tire iron, crowbar, or other strong, flat, dull piece of metal. Place the end of the tool over the tire bead and slide it down until it grabs the inboard wheel rim. Once set, use your body weight and the tool as a lever to ease the bead around the wheel.
* Move the tool around the wheel rim to set the entire bead. Try to avoid removing the tool from the tire as reinserting it on the partially set bead may inadvertently damage the bead.
* Apply more lubricant the beads, place the tire in the cage and begin slowly filling the tire with air. Do not get impatient and attempt to air the tire quickly. The tire may make popping noises while it is being filled.
* Monitor the tire sidewall while filling the tire with air. Once the top sidewall begins to take shape, start closely monitoring the top bead and stop filling the tire when the top bead is approximately 75 percent seated. If the top does not seat itself from this point, slowly add small amounts of air until it is seated.
* Fill the tire to its recommended pressure when the bead is acceptably seated.

## Tire Demounting

* Remove the cap from the valve and remove the valve core using a valve core remover. Screw the remover onto the stem then use the end of the remover to grasp and unscrew the core from the stem.
* Place a piece of cardboard on the ground to protect the wheel and set the wheel on top of it. Carry tires with your hands. Do not carry more than two tires at a time; Do not roll tires. Lay the tire assembly flat on the cardboard and break the bead from the wheel using a bead breaker or tire spoon. Depending on the tire, this step may take a lot of effort. Ask for assistance if needed.
* Work the bead free from the rim using the crowbar or tire iron.
* Flip the tire over and unseat the other bead, but do not work the bead free from the rim. Instead, keep the free bead around the wheel and flip the tire over again.
* Lift the tire and work the bottom bead over the top rim of the tire. When it is free, the tire will be dismounted from the wheel.

## WHEEL COMPONENT ACCEPTABILITY

* Multi-piece wheel components should not be interchanged, except as provided in the charts or in the applicable rim manual.
* Multi-piece wheel components and single piece wheels should be inspected prior to assembly.
* Any wheel or wheel component exhibiting damage or defects such as cracks, bands, corrosion, etc. should not be used, tagged unserviceable, and removed from the service area.
* Damaged or leaky valves should be replaced.
* Rim flanges, rim gutters, rings, bead seating surfaces, and the bead areas of tires should be free of any surface rust, scale or loose or flaked rubber build-up prior to mounting and inflation.
* The size and type of both the tire and the wheel should be checked for compatibility prior to assembly of the rim wheel.

## CONTROLLING MOVING VEHICLES/TRAFFIC

* Movement of vehicles inside shops, and garages should be regulated by rigidly enforced traffic rules.
* Vehicles with air brakes should not be moved until sufficient air pressure has been built up.
* Mirrors should be installed at blind corners.
* Vehicles should be moved in low gear and at low speed inside shop areas, especially up and down ramps.
* Employees should stand out of the way of moving vehicles.
* No vehicle should be backed in a garage without assistance from a signalman.
* Mechanics should not work under vehicles while lying on "creepers" if there is any danger another vehicle will pass over the area where their legs are sticking out. If necessary, adjacent vehicles should be locked and tagged and/or adjacent spares should be blocked with barricades.
* Mechanics should follow lockout procedures when working on vehicles to ensure that engines are not started and vehicles are not moved while they are at work.
* Mechanics should:
  + Lockout the starting switch.
  + Place a warning tag on the starting control or steering wheel; and
  + Block wheels and all moving parts during maintenance.
* Tilt cabs and engine hoods should be propped up when not in place.
* To prevent steam burns, all vehicles should be equipped with a safety petcock, which should be opened to bleed steam off before removing radiator caps.

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