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Safely Changing a Flat Tire

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# Option A) Drivers well acquainted with flat tires.

(Quick fix may help temporarily using a can of tire sealer and inflator.)

1. Using a mini compressor, fill up the tire.
2. With about half a gallon of water or other liquid, pour it slowly over the tire to locate the hole in the tire—where bubbles appear.
3. If needed, partially jacking up the vehicle will give extra space to observe the bubbles. Use chocks for your safety.
4. You may need to roll the vehicle about a foot to bring up the bottom side of the tire.
5. Use FLAT-END pincers 8” or longer, to pull the nail up slightly without cutting it; (The beveled-end pincers will not work.)
6. With a pair of vice grips 8” or longer to remove the nail.
7. Plug the spot using a plug from a flat-tire repair kit with rubber-glue, per instructions.
8. Inflate tire.

# Option B) Basic steps: Drivers familiar with changing a tire.

1. Localize your vehicle’s tools and spare-tire location.
2. Have properly inflated tire or fill it with a mini compressor.
3. Chock both tires on the opposite side from where the flat is.
4. Locate lifting spots on the vehicle.
5. Follow **Figure sequence** on this procedure.

# Option C) Detailed: Drivers NOT acquainted the flat tires.

# Introduction

Your preparation to change a tire is as important as the insurance policy to protect you when you need it but hoping never to use it. Some insurance policies carry road-assistance for service in case of a flat tire. However, the service is available only when you notify the provider. Your access to the provider depends on your usage of your phone which is not available on some rural roads or in extreme circumstances. Your access to service is affected by your location, volume demand calls for assistance, and weather conditions. For your safety and convenience, it is prudent to prepare to change a tire on your vehicle.

# Users of These Instructions

You must prepare by getting acquainted with your vehicle. Start by knowing where the equipment is in your vehicle and remember that each vehicle is slightly different while the basics are the same.

Make a list of needed equipment and verify that the equipment is in the proper location to change a tire. Simulate changing a tire, this prepares you for when the need arrives. Learning how the equipment functions will help you to be calm while being successful when there is no help.

# Intellectual Property

The pictures on this document show parts and diagrams from the automakers KIA and HONDA. Parts from these brands are shown randomly as models.

# Equipment – essential

* Carjack belonging to your vehicle model, or a suitable jack.
* Flashlight, or vehicle flood light, and a portable warning light.
* Properly inflated spare tire
* Lug wrench (torque wrench optional), and carjack are normally in kits of modern vehicles.
* Wheel chocks, absolutely recommended for your safety.

## Equipment – recommended

* Kneepads or floor mat or cardboard to protect your knees.
* Owner’s manual, or relative instructions.
* Reflecting safety vest.
* Safety triangle and flares.
* Working gloves.

# Best Area to Change the Tire

1. If on the road, pull over to the shoulder, if flat and dry.
2. The spot on the road shoulder should be away from any rain-runoff ditch and way from any drenched soft soil.



1. The vehicle must be at the best level place possible.

# Procedural Steps Before Changing the Tire



1. Put the vehicle in parking gear, activate the parking brake, and turn the engine off.
2. All passengers must exit the vehicle.
3. Close the doors.
4. Verify that the wheel to be changed has one of the lug nuts on top (Fig 1).

* A close-up of a tire

  Description automatically generated with medium confidence

**Warning:** Observe all safety procedures, and activate a flare if you have it, and place the flare on the road about 100 feet behind your vehicle.

* Chock the wheels (Figure 1). **Avoid** **DANGER,** you must chock at least one wheel. If you do not have chucks use bricks or wedgy rocks about four inches think, placing each rock as close to the tire as possible.



* **Caution:** Chock the wheels on the opposite side from the flat tire(driver side versus passenger side).
* Shut off the engine to avoid exhaust fumes.



* Fully activate the emergency brake.

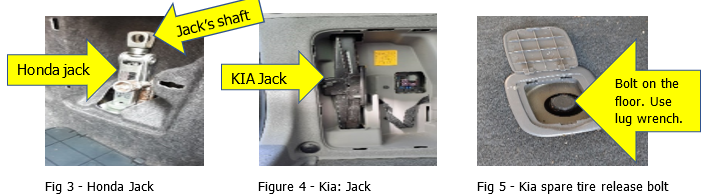


* Activate the emergency blinkers.



* Put on your reflective vest.
* Take the jack from its compartment, normally in the trunk.
* **Unscrew jack’s shaft (turning left), then lift up the jack until the jack is loose; then pull it out (Figures 3, 4).**





# Getting the Spare Tire

* Cars normally have the spare tire in the trunk, under the mat (Figure 2).
* Some minivans have spare tires under the vehicle (Fig 5, for release bolt).

Some spare tires in the trunk, may be fastened with a screw in the center of the wheel.

Turn the knob or screw to the left until the screw is loosened enough to come out, then take it out.

Grab the inner side of the wheel and pull it while tilting. The tire should feel free (Figure 2).

# Spare Tire Under the Vehicle

The spare tire under the vehicle, is loosened from inside the vehicle.

1. Locate the bolt on the floor (Fig 5), **behind** the front passenger seat in some mini vans.

* The release bolt may be covered by the matt. Look at the corresponding area, under the vehicle, you will see the tire. Check your owner’s manual for your vehicle’s spare tire location.

1. With the lug wrench or vehicle’s designated wrench, turn the bolt to the left until it feels a bit tight. It will take a while for the wheel to be fully released to the ground.
2. When the wheel is on the ground, drag it towards the outside. You may have to lift one side of the wheel to tilt the bracket in parallel to the cable.
3. Take the bracket out, as shown in (Figure 6).

# A close-up of a wheel Description automatically generated with low confidence

# Place to Lift the Vehicle

**Lift the vehicle at the point closest to the tire to be changed, follow the lifting diagram.**A close-up of a sign

Description automatically generated with low confidence

# Setting up the Jack

1. Assemble the crank and hook it to Jack (Figures 7, 10).
2. Turn the crank to the right, and the jack extends (Figure 11).
3. Align the jack with proper lifting spot (Figures 9, 11, 12).

A picture containing screenshot, text

Description automatically generated

# Procedural Steps in Removing the Wheel

1. Lift the vehicle until the wheel is about halfway lifted.
2. Loosen lug-nuts about half of a turn, by turning the lug wrench to the left (Figure 13).
3. When all lugs are loosened half of a turn, finish lifting the vehicle until the tire is completely off the ground.
4. Let the top nut be the last to come out; so the wheel stays in place safely until ready to come out.
5. Unscrew all the nuts and place them in an area free from sand or dirt.
6. If the wheel is stuck in place, you can kick the edge of the tire. The wheel should come loose and may drop. Be ready to hold the tire by placing one hand on each side of the tire. If the tire does not drop, pull it out slightly, it will drop.

# Installing the Spare

* **NOTE 1:** If the wheel is too heavy for you to lift it up, use the wrench-handle for leverage (Figure 16). With part of the handle under the tire, grab the other end, then lift it up, it will cause the wheel to lift with less effort.
* **NOTE 2:**  In some vehicles the lugholes are deep; thus, you may need to install the nuts by using the wrench, similarly to unscrewing.
* **CAUTION**: The nuts must screw feeling free. If a nut feels hard to turn by hand, STOP. Unscrew it. Otherwise, the thread gets jumped and the bolt and the nut may need replacing; it is expensive.

1. Align a spare tire’s hole with the top-bolt (Figure 14 and Figure 15).
2. Lift the wheel until the top bolt goes int the hole; the wheel should go freely into place.
3. Holding the wheel with one hand, gently start screwing the **top nut** (Figure 17), turning it to the right a few turns.
4. With the wrench screw (turning to the right), each nut until it feels hard to turn.

# A close-up of a wheel hub Description automatically generated with medium confidence

# Lowering the Vehicle

1. After all lug-nuts are tightened, start lowering the vehicle by turning the **jack crank to the left**, **until the wheel touches the ground**, then STOP.
2. Finish tightening each nut to be properly secure. If you use a torque wrench set it to about 80 pounds. And tighten each nut until the torque clicks. **CAUTION:** Check the owner’s manual for specifications. Some passenger vehicles require torque up to 105 pounds; see owner’s manual.
3. If you do not have a torque wrench, use your foot (Figure 18) until you feel it hard to press.
4. After each nut is properly tightened, lower the vehicle completely.

A close up of a wheel

Description automatically generated with low confidence

# Returning the Tire to the Place of the Spare

1. For vehicles with the spare tire under, place the holding bracket that is at the end of cable, into the hole at the center of the wheel, and push the tire in about eight inches (Fig 6).
2. Place the wrench on the release bolt (Fig 5) and turn it to the right until it feels tight.
3. Look under the vehicle and verify that the wheel is straight against the vehicle. If the wheel looks crooked, release the tire down, and straighten it. It must be parallel with the vehicle.
4. Tighten the release bolt until it feels secure-not too tight. Verify that the tire is straight.
5. **CAUTION**: If you choose to not return the tire to its place, you **must crank the release bolt** until it is snug. Raising the holding bracket keeps it from dangling and damaging the vehicle.

# Finishing the Task

* Remove the chocks from the wheels. If a chock is tight under the tire, roll the vehicle slightly in the opposing direction, then recover the chock after the vehicle is in parking.
* Recover any debris caused by your activities.
* Remove the flare from the road. **WARNING:** It is hot, follow its safety instructions. Using a tool, extinguish the flames. Pouring sand or dirt over it may help extinguish the flare. Above all, practice environmental rules
* **WARNING:** Do not discard the flare remains anywhere that may start a fire.