

Vehicle Emergency Kit & Roadside Basics

What belongs in your car before you need it, and the roadside skills most people never actually practice: changing a tire, jump-starting a dead battery, handling an overheating engine, and knowing what to do if you're genuinely stuck. This is the hands-on side of the Transportation chapter and its addendum.

What belongs in the kit

Item	Why
Jumper cables or a portable jump starter	A dead battery is the single most common roadside failure
Tire plug/repair kit and a 12V tire inflator	Handles a slow leak or puncture without a tow
Properly inflated spare tire and a working jack	Useless if you've never checked either before you need them
Flashlight and extra batteries	For a breakdown after dark, or working under the hood
First aid kit	See the separate first aid guide for what to put in it and how to use it
Water and non-perishable food	For a stranded wait that runs longer than expected
Basic tool kit (pliers, adjustable wrench, screwdriver)	Covers most small roadside fixes
Reflective triangles or flares	Makes a stopped vehicle visible to other drivers, especially at night or in bad weather

Add this for winter driving, especially in Utah's canyons and mountain valleys

An ice scraper and snow brush, a small folding shovel, a bag of sand or non-clumping cat litter (or foldable traction mats) for tire traction on ice, a heavy blanket or mylar thermal blankets, and extra warm clothing: gloves, a hat, dry socks.

Being stuck in a canyon during a winter storm is exactly the scenario this matters for, and it's a realistic one here, not a hypothetical: winter storms are Utah's single deadliest weather hazard, per the state's own hazard data cited in the Case for Preparedness document.

If you regularly drive with an infant, add diapers and wipes, a pre-measured supply of formula (or a plan that doesn't depend on clean water if you're formula-feeding), a full change of clothes, and a blanket sized to fit around a car seat, not just the general-purpose blanket above. A stranded wait is a very different problem with a baby in the back seat.

Where to find it: auto parts stores and general retailers carry every item above individually, and also sell pre-assembled roadside kits; building your own from individual items is usually cheaper and lets you skip whatever a prepackaged kit includes that you don't actually need.

How to change a tire

1. Pull fully off the road onto a flat, firm surface, away from a curve or blind spot, and turn on your hazard lights.
2. Apply the parking brake. If you have wheel wedges or heavy rocks handy, chock the wheel diagonally opposite the flat.
3. **Loosen the lug nuts before you jack up the car**, about a quarter turn each, while the tire still has the ground to resist against. Trying to loosen them once the wheel is already off the ground just spins the tire in place.
4. Position the jack under the vehicle's frame near the flat tire (check your owner's manual for the exact jack point) and raise the car until the tire is a few inches off the ground.
5. Finish unscrewing the lug nuts, remove the flat tire, and set it aside.
6. Mount the spare, then thread the lug nuts back on by hand in a **crisscross, star pattern**, not straight around in a circle, so the wheel seats evenly.
7. Lower the car back to the ground, then fully tighten the lug nuts in that same crisscross pattern.

Most spares are only rated for lower speeds and limited distance; drive gently to a tire shop rather than treating it as a full replacement.

Watch it: Eide Subaru, "How to Change a Flat Tire (Step-by-Step for Beginners)".

How to plug a slow leak instead of changing the tire

A plug kit only fixes a puncture in the tread, not a sidewall puncture or a tear larger than about a quarter inch; a sidewall puncture or a bigger tear still means a full tire change and a shop visit, not a plug.

1. Find the object causing the leak (often still stuck in the tire) and pull it out with pliers.
2. Push the reamer tool from the kit into the hole and work it up and down while rotating it, widening the hole slightly and roughening the inside so the plug will actually bond.
3. Thread a plug through the eye of the insertion tool the way you'd thread a needle, so an even length hangs out both sides, and coat it with the rubber cement that comes with the kit.
4. Push the insertion tool straight into the hole with a firm, twisting motion until most of the plug is inside the tire, leaving a bit protruding on the outside.
5. Pull the insertion tool straight back out quickly; the plug stays behind, sealing the hole from both the inside and outside.
6. Trim the excess plug flush with the tire's surface, then reinflate with the 12V inflator and check the repair by wiping soapy water over it, watching for new bubbles.

A plugged tire is a get-you-to-a-shop fix, not a permanent one; have it properly patched from the inside or replaced once you're off the road.

How to jump-start a car safely

If your kit includes a battery-powered jump starter instead of cables, you don't need a second vehicle at all: with both engines and accessories off, connect the starter's red clamp to the dead battery's positive terminal and the black clamp to an unpainted metal surface on the frame or engine block, the same way as the last cable step below, then turn the jump starter on and try starting the car. A jump starter box runs at a lower, safer voltage than a running vehicle's charging system, which is part of why it's considered the safer option of the two, remove jewelry and wear eye protection either way, and keep it away from open flame or anything flammable while it's connected.

To jump-start with a second vehicle and cables instead: a car battery can vent flammable hydrogen gas, which is the reason the connection order below isn't arbitrary, it's built so that if a spark happens, it happens away from the battery itself.

1. Park the working vehicle close enough that the cables reach, then turn off both engines, set both parking brakes, and turn off accessories (lights, climate control, radio) in both cars.
2. Inspect both batteries first. If either is visibly cracked, swollen, or leaking, stop and call for help instead; damaged batteries can be dangerous to work with.
3. Connect one **red** clamp to the **positive** terminal of the dead battery.

4. Connect the other **red** clamp to the **positive** terminal of the working battery.
5. Connect one **black** clamp to the **negative** terminal of the working battery.
6. Connect the last **black** clamp to an unpainted metal surface on the dead car's engine block or frame, **not** to the dead battery's negative terminal. This is the step that keeps any spark away from the battery itself.
7. Start the working vehicle and let it run a few minutes, then try starting the dead one.
8. Once it starts, remove the cables in exactly the reverse order you attached them.

Watch it: ChrisFix, "How to Properly Jump Start a Car".

If your engine overheats

1. Pull over to a safe, level spot as soon as you notice the temperature gauge climbing or steam coming from under the hood. Don't keep driving to "make it home"; a few more minutes of overheating can warp or crack engine components.
2. Turn off the engine and let it sit. Don't open the hood right away; escaping steam can burn you.

Never open a hot radiator cap

A hot cooling system is under real pressure, and opening the cap releases it all at once as a spray of near-boiling coolant capable of causing serious burns. Wait at least 15–30 minutes for the engine to cool before touching anything under the hood, and even then, cover the cap with a thick cloth and turn it slowly to release any remaining pressure before removing it fully.

If the overheating was brief and the coolant level looks normal once it's safe to check, you may be able to continue cautiously to a repair shop. If it's serious, or you're not sure, call for a tow instead; continuing to drive a badly overheated engine risks far more expensive damage than the tow itself.

Watch it: Scotty Kilmer, "How to Fix a Overheating Car Engine".

If you get stranded in a winter storm

This is the scenario the winter kit additions above are actually for, and it comes with a real, specific danger beyond the cold itself.

A snow-blocked exhaust pipe can fill the car with carbon monoxide, fast

If snow packs in around your tailpipe while you're stopped, running the engine for heat can let carbon monoxide back up into the cabin instead of venting outside. NHTSA data attributes roughly 147 U.S. deaths a year to vehicle exhaust carbon monoxide poisoning, and dangerous levels can build up in under two minutes with a fully blocked pipe. It's colorless and odorless: you won't notice it happening. **Every time before you run the engine, get out and clear snow away from the exhaust pipe first.**

1. **Stay with your vehicle** rather than trying to walk for help. It's far easier for rescuers to spot a car than a person on foot in blowing snow, and it's easy to lose sight of your own vehicle and get disoriented within a short distance of it.
2. Make yourself visible: tie a bright cloth to the antenna or a rolled-up window, turn on your hazard lights, and use the dome light at night; it draws very little power.
3. Run the engine only sporadically for heat, roughly 10 minutes each hour, after clearing the exhaust pipe every time, and crack a window slightly whenever it's running.
4. Don't exhaust yourself trying to dig or push the car out. Conserve your energy and your phone's battery, and share your location with anyone you can reach.

Write your own plan, in one sentence

A kit list you read once isn't the same as a kit that's actually in your trunk. Finish this sentence with your own real plan:

"The next time I'm at the gas station, I will check my spare tire's air pressure."

Know someone this guide would actually help? Being the person who's ready includes being the person who says something.

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Sources

- Winter vehicle emergency kit contents: Clear Roads; Mass.gov
- Jump-starting procedure and connection order: Edmunds
- Tire-changing procedure, including the loosen-before-jacking sequence: Allstate

- Engine overheating response and radiator cap burn risk: GEICO; SlashGear
- Carbon monoxide poisoning from snow-blocked vehicle exhaust, NHTSA death-rate data: ABC7 New York
- Staying with your vehicle and winter-storm stranding guidance: AAA; NHTSA
- Infant-specific emergency car kit contents: AAA; Red Cross
- Tire plug kit procedure and repair limitations: AutoZone; Tire Crunch
- Portable jump starter use and voltage-safety comparison to jumper cables: LINE-X; Interstate Batteries