



How to Keep **Your Car** in **Top Shape**

And when to call the pros.

Outsmart Life®

How to Keep Your Car in Top Shape

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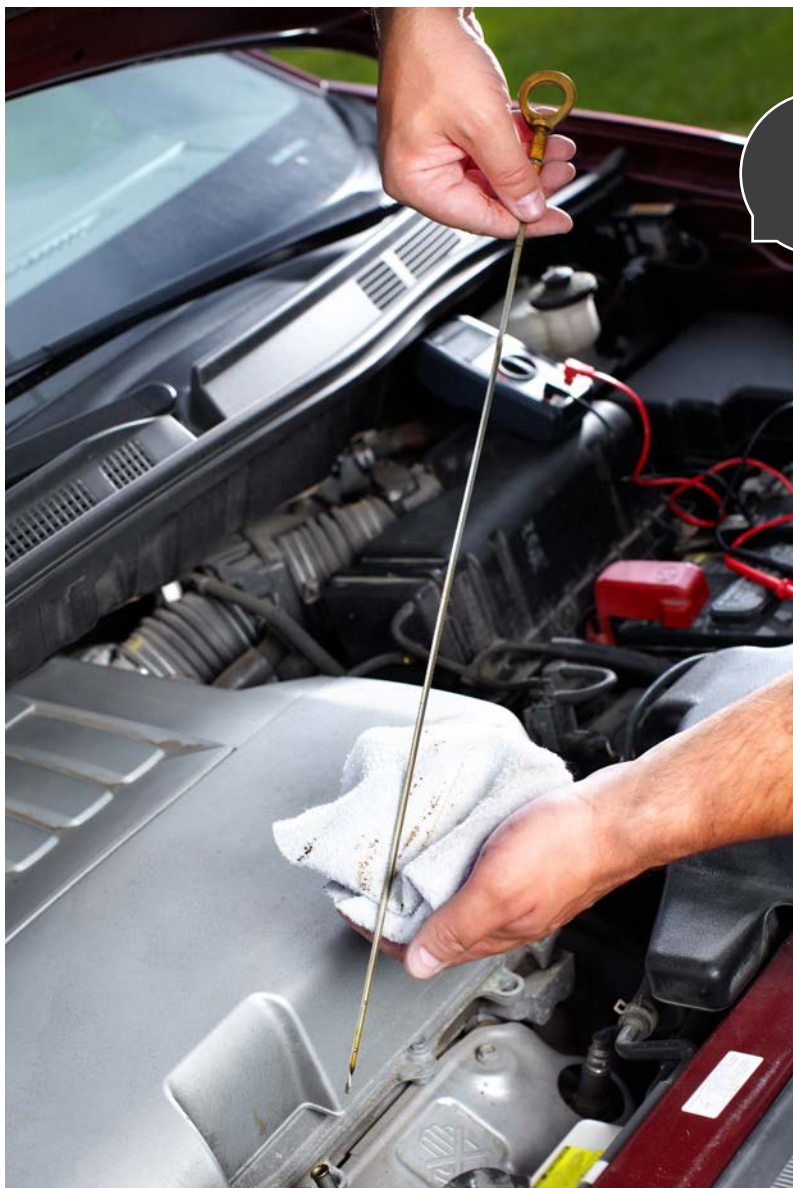


13 Car Care Basics Every Driver Needs to Know

Save money and keep
your vehicle road ready.

Paying ongoing attention to your vehicle will help you avoid big problems in the future. Thankfully, most preventive maintenance is easy to do at home without special tools or skills. When performed regularly, these small chores can extend the life of your vehicle and help you avoid unnecessary expenses, says Adrian Talamantes of AAA Auto Repair Centers. Tackle these tasks to save money and keep your car running smoothly.

BY CHAYA M. MILCHTEIN
AND JOSH SENS



1

Check engine oil

It takes less than five minutes to get a glimpse into your engine's health and catch potentially catastrophic problems before they develop. Most manufacturers recommend checking your oil level while the engine is cold (meaning you can comfortably touch the engine), but the owner's manual will offer specific instructions for your model.

1. With the vehicle parked on a level surface, grab a clean rag or paper towel, open your hood, and look for the oil dipstick, which generally has a yellow or orange top.
2. Pull the dipstick out, wipe the oil off it with the rag, and reinsert.
3. When you remove the dipstick again, your oil level should be between the two markings on the metal.
 - If the level is below, add the type of oil specified in the manual.
 - If there is no oil on the dipstick, add oil until it falls into the right range and take your car in to be inspected right away.
 - Oil that looks grainy or milky also warrants a trip to the repair shop.

Check tire pressure

Under-inflated tires cause uneven tread wear, reduce your vehicle's efficiency, and be generally dangerous to drive on due to the risk of a blowout.

- At least once a month, use a pressure gauge to ensure that all four tires are at the manufacturer's recommended PSI, found in your owner's manual or on the information sticker located either on the driver's side

door or where the door meets the frame.

- To get an accurate reading, test the pressure first thing in the morning or when your car hasn't been driven for a few hours. (Heat expands the air in the tire and can mask low tire pressure.)
- If any are low, use a tire inflator at home or at your local gas station to bring it up to the recommended level.



2

Replace wiper blades

New wiper blades should be installed every six to 12 months.

- To find the right size, measure both windshield wiper blades—most vehicles have two sizes—or use the reference guide available at most auto parts stores.
- When buying online, be sure to select the blades appropriate for your vehicle.
- To install new blades, lift the wiper arms off the windshield and cover the glass with a large towel or blanket. This will prevent your windshield from cracking if you accidentally drop the bare arms onto the glass.
- Directions for installing wiper blades are located on the back of the package, but if you want to replace just the rubber inserts or if you have an unusual style of blade, pulling up a YouTube video can come in handy.

3



4

Inspect belts and hoses

When you check your oil, give your hoses and belts a quick once-over, too, while the engine is cool.

- Squeeze hoses to make sure they don't feel crunchy.
- Look for cracks and for fluid seeping out at connection points.
- Check belts for fraying and glazing.
- Then, while the engine is running, listen for squealing and vibrations.

If you find any of these problems, you should take your vehicle to a professional for further inspection and repairs.



Add washer fluid

Washer fluid is vital for proper visibility. It's important to buy the fluid that's best for the climate you live in and to avoid using plain water, which will expand in freezing temperatures and damage the reservoir.

1. To add fluid, pop the hood and locate the washer fluid reservoir.
2. Open the reservoir, and pour the washer fluid in until it hits the fill line. If you don't have a steady hand, you may find it easier to use a funnel or create one from the spout of a milk jug.

5



Jump-start a dead battery

Before jump-starting your car, make sure your battery terminals are clean and the connections are strong. (See number 7.) If everything is in order, check your owner's manual: Some manufacturers advise against jump-starting, while others offer important instructions.

1. To jump-start most vehicles, attach the positive (often red) clamp of the cables to the dead battery's positive terminal post, which will often have a red cover or a plus sign (+) for positive.
2. Then, while both vehicles are turned off, attach the second

positive clamp to the working vehicle's positive terminal.

3. Now attach the negative clamp (typically black) to the negative terminal on the working battery.
4. Finally, take the remaining negative clamp and attach it to a non-painted metal surface on the main engine block of the car that won't start.
5. Start the working car; then, after a minute or two, start the other car. Disconnect in reverse order, being careful to not let any of the clamps touch.

7

Clean battery terminals and tighten connections

Loose connections and leaking battery acid can impact a vehicle's ability to start and reduce battery life. In most vehicles, the battery is under the hood, but if yours is not, your owner's manual will tell you how to access it.

- Look at the terminals, the two metal posts located on the top or side of the battery. If there's white or blue "dust" on or around the terminals, the battery is leaking acid. This doesn't mean that the battery has to be replaced immediately, but it may be on its way out.
- To remove the dust, put on latex gloves and use a wire brush to clean it off.
- Finally, check your terminal connections to make sure they don't move when you wiggle the wires side to side or up and down. Tightening them with an open end wrench takes just a few minutes; make sure the wrench doesn't touch both terminals at the same time.

SMART TIP

AAA Battery Service Technicians can test, jump-start, and replace car batteries—a free service for AAA Members.

8



Change light bulbs

Headlights, taillights, brake lights, and turn signals are critical for safe, defensive driving. Luckily, when these lights go out, most are easy to change. All you need, in many cases, is a Phillips screwdriver.

- Many owner's manuals offer replacement instructions, and a vehicle-specific YouTube tutorial can help you visualize the process.

- Not all bulbs are the same. You may need to remove the bulb to find the number listed on it and match it up with the correct one at the parts store.
- Newer LED bulbs typically do not need to be replaced. If your car has LED lights that aren't working properly, it is best to enlist a professional who can correctly diagnose the problem.

9

Replace the cabin filter

If your car was manufactured after 2002, there's a good chance that the air passes through a cabin filter every time you turn on the fan, air conditioner, or heater. Your owner's manual will state an interval for replacement, but if you have allergies or have recently driven through wild-fire smoke, you may want to replace it sooner.

- In most vehicles, the filter is located behind the glove box, and it's usually an easy swap that requires few, if any, tools.
- Once you've exposed the filter compartment (your manual and YouTube can be helpful here), lift the latches to remove the faceplate and replace the filter.



10

Replace the engine air filter

Your car uses air as well as fuel when you step on the gas pedal, and that air first passes through the engine air filter to remove any potentially damaging particles. The filter generally needs to be replaced every 20,000 to 30,000 miles (check your manual) and is easy to access on most vehicles.

1. Locate the engine air filter box under the hood and undo the clips or screws along the top.
2. Carefully pull back the cover, remove the old filter, and place the new one in the same orientation.
3. Finally, close the cover and tighten the clips or screws.



Change a tire

If one of your car's tires goes flat while you're driving, stay calm. The car may seem unsteady or pull to one side, but don't jam on the brakes.

1. Use the turn signal and steer out of traffic, then brake with steady, easy pressure.
2. If you stop at the side of the road, turn on the emergency flashers. The car should be on a solid, level surface. You can drive a short distance, very slowly, if necessary to reach a safe spot.
3. Put the transmission in park (or, with a manual transmission, reverse). Set the parking brake.
4. Locate the spare tire and jack. Your vehicle's owner's manual includes instructions for using the jack, and many cars duplicate the instructions on a decal near the spare, too.
5. Operate the jack so that it puts a little upward pressure on the car, but don't raise the vehicle yet.
6. Use wheel chocks, if you have them, to block the wheel diagonally opposite the tire you're changing. Use bricks, rocks, or other likely chock substitutes if you need to.
7. Take off the wheel cover and loosen the wheel nuts just one turn each while the wheel is on the ground.
8. Jack the car up so that the flat tire clears the ground.
9. Unscrew the wheel nuts (put them in the wheel cover or they'll disappear); take the wheel and tire off.
10. Put the flat tire and wheel under the side of the car—if the jack fails, the car won't fall far.
11. Slide the spare on. Put the nuts back on with the tapered end facing the wheel and tighten them as much as reasonable with the tire still off the ground.
12. Take the flat from beneath the car, and lower the car until the spare just touches the ground.
13. Tighten the wheel nuts securely using a crisscross pattern; that is, tighten nuts opposite one another rather than going from one nut to the one beside it.
14. Lower the car completely; put the wheel cover back on. Remove the chock; put the flat and the jack in the trunk.

Install snow chains and tire cables

Chains and cables go on your “drive” wheels, so if your vehicle is front-wheel drive, you will put chains on both of your front tires.

- Check your car’s manual if you are unsure which are your drive wheels. Using four wheel drive? You need chains for all four tires when 4WD is engaged and conditions require chains for 4WD vehicles.
- While every chain or cable will be installed similarly—you will wrap the traction device around the wheel and tighten the fasteners to ensure a snug fit—always follow the instructions included with your chosen device to get a safe and secure fit.

SMART TIP

AAA Members save 10% on snow chains, tire cables, and everything else sold at Napa Auto Parts.



Check for recalls

When a vehicle has a problem that presents a safety risk, it needs to get off the road. That’s where recalls come in. Car recalls are issued when a manufacturer or the National Highway Safety Transportation Administration (NHTSA) determines that a vehicle or specific motor vehicle equipment (tires or car seats, for instance) pres-

ent a safety hazard or fail to meet minimum safety standards.

It’s important to keep your vehicle registration and address up to date as auto manufacturers communicate recalls by mail. But you can check if a recall has been issued on your vehicle by going to NHTSA.gov and entering your vehicle’s 17-digit VIN (vehicle identification number).

If you discover a recall notice, contact your dealership. Most dealerships and manufacturers are “very responsive when safety is an issue,” says Randy Tinsley, an auto service manager at AAA Arizona. If you already paid for the repair out of pocket, you may be eligible for a reimbursement from the vehicle’s manufacturer.

When to call a professional

Not all car repairs or maintenance should be attempted yourself. Sometimes, it's best to turn to a professional, whether by bringing your vehicle into a AAA Owned and Operated Auto Repair Center or AAA Approved Auto Repair shop, or by calling AAA Emergency Road Service for help.

Tasks that are complicated or dangerous if done incorrectly, including brake and transmission repairs and services, should be

handled by a repair shop. You may also avoid the personal hassle and get more comprehensive service by taking your car in. For example, changing the oil yourself rarely saves much money, and you miss the opportunity to have your vehicle inspected, which can catch problems before they get more extensive.

If your check engine light comes on and the vehicle's drivability changes, or if the light

starts flashing, pull over immediately and call roadside assistance.

Other signs that you should stop driving and have your car towed to the shop: Your oil pressure light comes on, fluids are leaking, you're having difficulty steering, the brake pedal is lower to the floor than normal, your vehicle is smoking or steaming, or you hear grinding or knocking noises. ●



What to Pack in an **EMERGENCY CAR KIT**

Gather these essentials
for on-the-road safety
and peace of mind.

BY JOSH SENS

What to keep in your glove compartment

- ☐ Properly fitting cloth mask for every member of your household
- ☐ Disinfectant wipes and hand sanitizer
- ☐ Battery-powered cell phone charger
- ☐ Paper maps of unfamiliar places you're traveling (in case GPS is unavailable)
- ☐ Flashlight
- ☐ Pen and notepad (for swapping information in the event of a collision; writing down emergency phone numbers; or jotting down mile markers, geographic features, or other landmarks to help emergency workers locate you)
- ☐ Tire gauge (check pressure once a month; keeping tires properly inflated is important for performance and safety)





What to keep in your trunk

- ☐ First-aid kit (including gloves, bandages, anti-septic ointment, bug spray, tweezers, and gauze pads)
- ☐ Warning triangles or flares
- ☐ Reflective vest
- ☐ Jumper cables
- ☐ Jack, lug-wrench, flat board to place under the jack, and other tire-changing tools
- ☐ Motor oil (a quart or more)
- ☐ Coolant (a gallon or more)
- ☐ Empty gas can
- ☐ Drinking water (in non-plastic containers such as sealed glass bottles, metal cans, or reusable water bottles you bring along each time you drive) and a portable water filter
- ☐ Electrolyte drinks
- ☐ Protein bars or other nonperishable snacks
- ☐ Warm blanket (such as a Space blanket)
- ☐ Rain poncho
- ☐ Sturdy shoes (in case you need to walk over rough terrain)
- ☐ Small tool kit (screwdriver, pliers, and a wrench)
- ☐ Extra batteries for flashlight and cell phone charger
- ☐ Duct tape, cable ties, and fuses (for stopgap repairs until your vehicle can be professionally serviced)
- ☐ Hand-crank radio (particularly important during a natural disaster like an earthquake)
- ☐ Lighter or matchbook
- ☐ Seasonal gear (such as snow chains, ice scraper, and/or a small shovel, in case you have to dig a tire out of the mud or snow)

It's also a good idea to check your emergency kit four times a year—and before any road trips—to make sure that your provisions, such as water and snacks, are fully stocked and batteries are charged. Whenever you check your kit, take a peek at your spare tire to make sure it hasn't gone flat. If you don't have a spare, consider adding a can of Fix-a-Flat or a handheld portable air compressor to your kit. ●



4 Most Common **ROADSIDE EMERGENCIES**

And how to avoid them.

BY VIA STAFF

While cars are a lot more complicated than they were just a few years ago, they are also more reliable. Even so, AAA Emergency Road Service trucks keep busy answering calls from stranded motorists. So far, the cutting-edge electronics and machinery beneath the hoods of today's cars have yet to make a dent in the traditional reasons people call for roadside help. The top culprits remain Model-A era maladies easily understood and avoided by anyone clever enough to know which end of the ignition key to insert, and where.



Here are the most common reasons AAA Emergency Road Service is called, and how you can avoid them.

1 Flat tire

Road hazards can destroy even a new tire. But good, old tire maintenance still is valuable in heading off trouble. It's nothing you don't already know, but here's a reminder: Regularly inspect each tire for proper inflation. This means using a gauge, as eyeballing side-wall bulge isn't sufficiently precise. Don't forget the spare; tires can lose air just sitting there, and flat spares are both common and frustrating.

The tire manufacturer's recommendation for maximum tire inflation is printed on the tire's sidewall. Typically, it's about 44 pounds per square inch (PSI) for passenger car tires. This is a maximum that should never be exceeded. The average normal inflation is 35 PSI, but always check the car's owner manual or door jamb sticker to confirm the best pressure for your vehicle's tires. Air pressure should always be measured while the tire is cold. Use your own high-quality gauge, as those on gas station air hoses may not be accurate.

Check the tires for cuts and bulges—these inevitably mean trouble ahead. Uneven wear can also be a problem. Rotating tires can even out the wear among all four; follow the rotation pattern and schedule suggested in the manual. Always replace tires with excessive tread wear.



2 Empty fuel tank

People have been running out of fuel since at least the 1890s, when gas gauges consisted of wooden dipsticks.

It doesn't take a rocket scientist: When out on long, empty stretches of road, heed those signs warning "Next fuel 89 miles." Even when close to home, pay attention to that fuel gauge, and make the occasional timely visit to a filling station.



3

Lockout

When it comes to getting locked out of your car, prevention is simple and cheap: Carry a spare key in your wallet or purse. Don't try to hide it in a wheel well or beneath the floorboards.

Get into the habit of locking your car door with the key. This ensures you have it with you when the car is locked up.

Write down the key code number and keep it in your wallet or purse. A locksmith may be able to make a new key using the number. The key code number sometimes can be found on a sticker in the glove box, sometimes in the car's owner manual, sometimes on a metal tag accompanying the key, or you can ask the dealer.

4

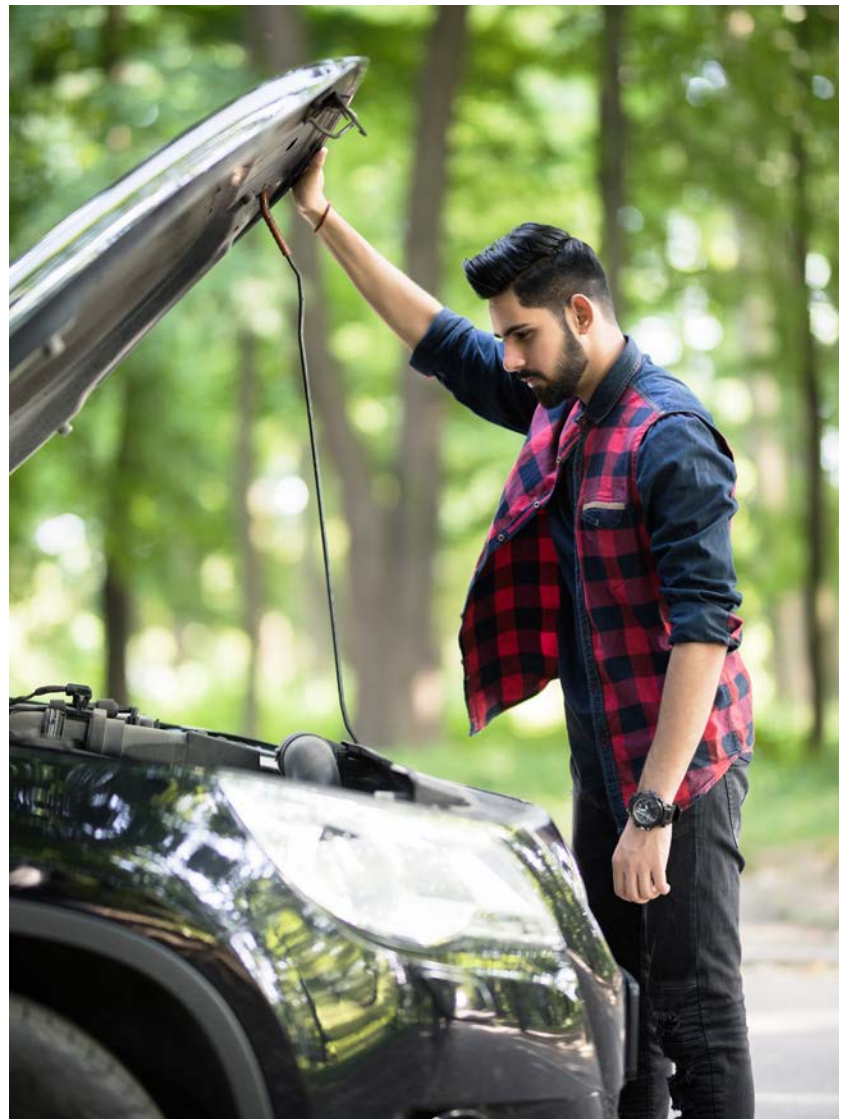
Dead battery

People had been running out of gas for over a decade and having flat tires for nearly as long when Cadillac introduced the electric starter in the 1912 model year. As the hand crank was phased out, battery problems came on strong.

Modern batteries require little maintenance, but over time they eventually become too weak to start the car. They can also be adversely affected by extremes of cold and heat.

"Low maintenance" batteries occasionally may need to be topped off with distilled water, while "maintenance free" batteries have sealed covers instead of filler caps, so you couldn't top one off if you wanted to. This doesn't mean they're truly maintenance free, however. You should check regularly for loose, dirty, or corroded terminals and cables. These can drain power or prevent the battery from charging. Use a commercial cleaner or a mixture of baking soda and water with a wire brush to clean corroded terminals.

Since batteries pack less of a punch with age, be aware of the length of your battery's guarantee. Five years is a common figure. While the battery may last well beyond its guarantee, it quite possibly will not and, even if still alive, may not be able to perform as it once did. Replacement at the battery's expected age limit can be a helpful bit of preventive maintenance. ●





What Do Check Engine and Other **Car Warning Lights** Mean?

What is that ominous red symbol trying to tell you—and what should you do about it?

BY JOHN GOEPEL

Your car has a variety of gauges and warning lights to help you monitor what's going on, mechanically and electrically, as you drive. Gauges communicate in an unambiguous way, but when a warning light blinks on, it isn't always easy to decipher exactly what messages it's trying to get across.

All the warning lights should come on for a few seconds when you start the car. This reassures you that the bulbs still work. But when one stays on longer or starts to glow as you drive, it's trying to tell you something.

Here's a rundown of dashboard warning lights and what they mean.



Oil pressure warning light

Cars that are not pure electric vehicles often have two warning lights dealing with oil. The oil pressure light is the one that requires immediate action. Pull over and turn the engine off.

If engine oil pressure is low, excessive, rapid wear can result. The cause may simply be insufficient oil. You can check this with the dipstick and, if necessary, add oil. It will probably take two or three quarts to reach operating level. It might take a quart or two just to reach the end of the dipstick. If the oil level is not low, or if the warning light returns for more than a couple of seconds when you restart the car after adding oil, turn the engine off again and call for a tow.



Oil service light

Your car's computer is suggesting that you get the oil changed.



Temperature warning light

Many cars have a dashboard temperature gauge and a warning light. The ominous march of the needle toward the red zone can warn you about impending overheating in time for you to head it off.

If you see the temperature gauge creeping toward the red zone, try turning off the air-conditioning and turning on the heater. The AC is an added burden for the engine, possibly causing it to run hotter. The heater acts as an auxiliary radiator for the engine, allowing coolant to do its job more efficiently. But once the light comes on, trouble has arrived; you should pull over, turn off the engine, and let it cool.

When the engine's hot, don't try to remove the radiator cap. Doing so can result in a spray of superheated coolant.



Brake warning light

This might only mean you've left the parking brake on. Or the trouble might be more serious, such as brake failure or insufficient brake fluid. Have a technician diagnose the situation.

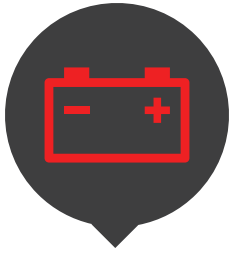


ABS light

Vehicles with antilock brakes have a separate light to let you know when there is a problem with the anti-lock system. This doesn't necessarily mean the brakes won't work, but it is likely that the antilock feature has a problem. Have a technician inspect the system.

SMART TIP

When it's time for an oil change, head to a AAA Owned or AAA Approved Auto Repair Center near you.



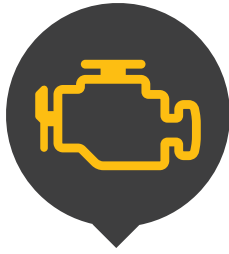
Car charging system light

This indicates the battery isn't being charged. Causes can range from the expensive (such as a faulty alternator) to the cheap (such as a slipping belt). Take the car to a repair facility immediately.



Airbag Malfunction or SRS Light

Not to be confused with the lights that let you know if the passenger side airbag is on or off, this light indicates that a sensor has detected a problem with the airbag system. When it comes on, have the airbag system inspected.



Check engine light

Technically this is the malfunction indicator lamp, but it is usually labeled Check Engine or something similar. It indicates a problem with the systems that control engine functions. In some cars, it also monitors the transmission.

Usually the situation isn't verging on catastrophe, as the problems that activate the oil pressure or temperature lights can be. But you never know. Look at the gauges for a clue to what's wrong, and be especially alert to the way your car is running. If you determine that the problem means imminent trouble, pull over and call for a tow. Otherwise, take your car to a repair facility for diagnosis.



Tire Pressure Monitoring System (TPMS) light

Most often, the light comes on once a tire's pressure (sometimes including the spare tire) is 25 percent under or over the pressure dictated by the manufacturer, but a faulty tire pressure sensor can also trip the system.

The warning light appearance varies depending on your vehicle. However, it will usually be either an exclamation point surrounded by what's supposed to look like the walls of a tire or a simple light that says TPMS. On some cars, the pressure on each wheel may also show up on your dashboard separately to indicate which wheel has the problem.

Improperly inflated tires are a safety issue and should be fixed as soon as possible. Your tire might be a few PSI underinflated, or it might rapidly be losing air. If the light comes on while you are driving, pull over when safe, and check the pres-

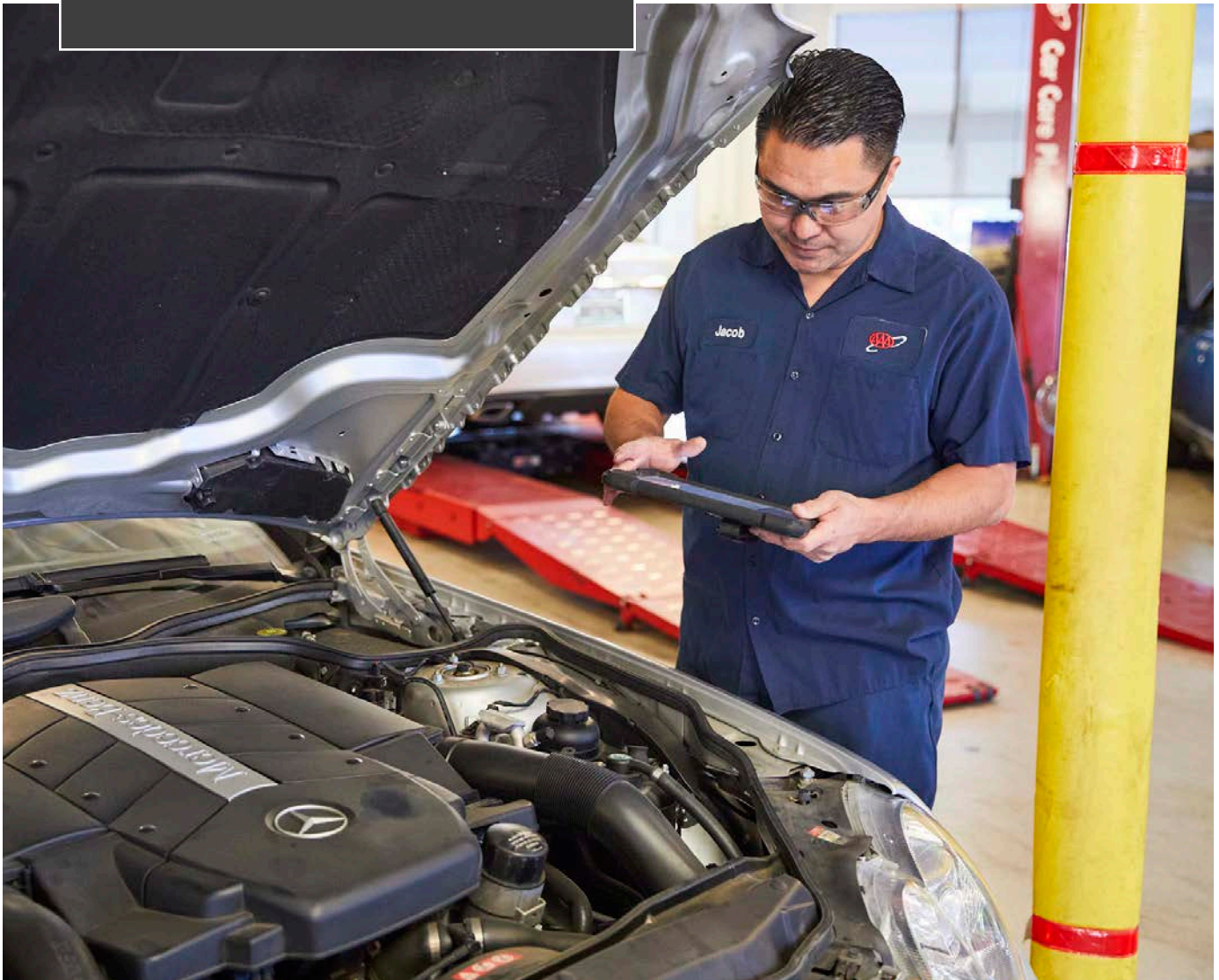
sure on all four tires—as well as the spare if yours has a pressure sensor. If a tire is slightly underinflated, drive to a nearby gas station and add air to the tire. If it's significantly underinflated or flat, call roadside assistance or use a portable tire inflator. If the tire holds the added air, you may be able to drive to your mechanic so they can determine if your tire is damaged. If a tire is overinflated, release air until it meets your vehicle's specifications. If the pressure on your tires and spare fall within the recommended range, you may have a problem with the sensor or system and you should have it inspected by a mechanic. ●

Need a pro?

We can help.

From routine maintenance to major repairs, our ASE certified technicians at AAA Auto Repair Centers do it all. Plus, AAA Members save 10% off labor costs, and receive an extended two-year/24,000-mile warranty*.

For a shop near you:
[AAA.com/Repair](https://www.aaa.com/Repair)



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*Valid Membership card is required to receive 10% labor discount and Member extended warranty of 24 months or 24,000 miles, whichever comes first; 10% labor discount excludes already discounted services.