

MWR

AUTO CRAFT SHOP



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**Self-service and full-service
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AUTO CRAFT SHOP

Taking care of small concerns in time may save you a lot more

As soon as you feel there is something wrong with your car like any kind of irregular noise, vibration, shimmer, or you note some leak or any warning light comes on while driving or anything that seems to be irregular - have your car inspected at a dealer or a garage as soon as you can as it might be unsafe to drive. It's definitely better to check any small problem before it will cause something serious.

Regular mechanical inspection

For your safety, we recommend to have your car inspected regularly, at least once a year, by a mechanic. Have a mechanic that can lift your car and check major components such as brakes, suspension, etc., while having your tires rotated, for example. This is because many components (e.g ball joints), cannot be inspected visually.



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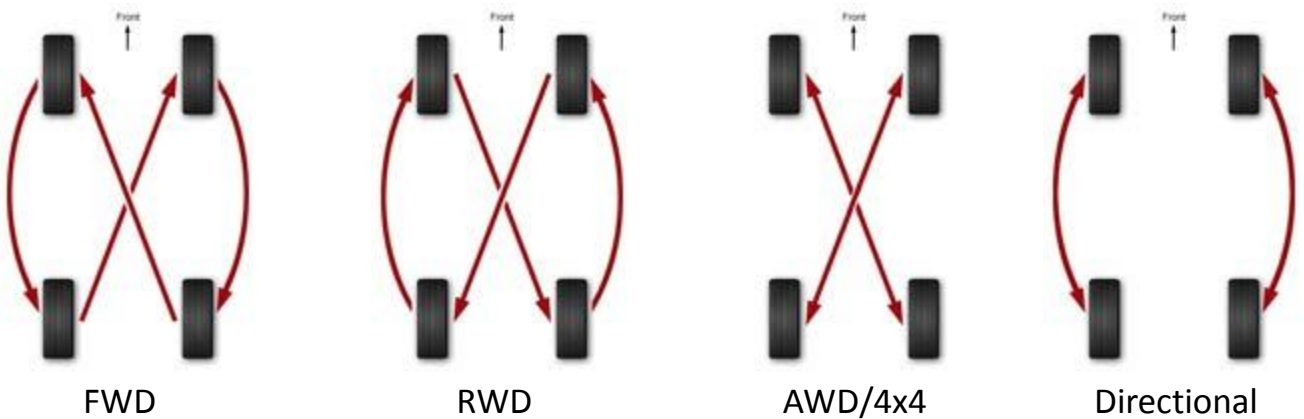


AUTO CRAFT SHOP

Wheels and tires

Rotate your tires! Every 5,000 miles rotate your tires!

This is the practice of swapping the front and back tires to even out the wear. So how should you rotate your tires? It depends on whether you have 2 wheel drive, 4 wheel drive, front or rear wheel drive, and whether or not you have unidirectional tires (meaning, those with tread designed only to spin in one direction). With unidirectional tires, you can swap the front and rear per-side, but not swap them side-to-side. If you do, they'll all end up spinning the wrong way for the tread. Generally speaking you should to rotate your tires every 5,000 miles (8,000km) or so, even if they're showing no signs of wear. The following table shows the correct way to rotate your tires.



Check your tire pressure

Check your tire pressure regularly, once a week is ideal. Bad tire pressures can affect fuel economy, handling and comfort. It's easy to do and there is no excuse not to.

Check your tread depth

Bald, slick tires might be good for motor racing but they're no good on the road. Most tires come with tread wear bars built into them now find one, examine it and if your tread is too low, replace your tires. Four new tires might seem expensive but they're cheaper than a fine or an accident.

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Engine

Check your belts

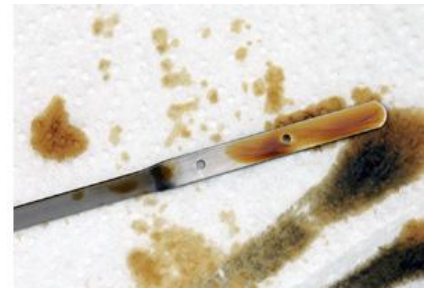
At the front of your engine there will be a series of rubber drive belts that loop around various pulleys, driving everything from the alternator to the a/c compressor. Rubber perishes, more so in extreme conditions like those found in an operating engine bay. Get your timing belt and accessory drive belt checked every 25,000 miles, preferably replacing it every 50,000 miles.

Fuel Economy

Check your tire pressures regularly - once a week is ideal. Bad tire pressures can affect fuel economy very noticeably. It's easy to do and there is no excuse not to.

Checking your oil level

This is something everyone can do - it's quick and easy and it'll tell you if your engine needs oil. If the oil is too high or too low, it can cause trouble for your engine. To check the oil, park on level ground and wait until the engine has cooled down after driving, then locate the dipstick. Pull it out and wipe it clean, then push it all the way back in until the top of it is seated properly in the dip tube again. Wait a moment then pull it out again. Check the level of the oil. If it's between the high and low marks, you're fine. (If it's too low, add a little.) The high and low marks can be denoted by two dots, an "H" and "L" or a shaded area on the dipstick. The photos below show a Honda dipstick which has the two dots. **Why not just read the level first time around?** The first time you pull the dipstick out, it will have oil all over it and it will be difficult to tell where the level is. That's why you need to wipe it on a rag to get a clean dipstick, then dip it back into the oil to get a good reading. More information on why you should check your oil level is [here](#)



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Checking your coolant level



Again, something everyone can do. The coolant is the other thing your engine cannot go without. Every engine is different but if you check your handbook you should find where the coolant reservoir is. It will normally be bolted to one side of the engine bay or the other, and be a white semi-transparent bottle. Wait until your engine is cool and take a look at it - the outside should have 'low' and 'high' markings on it and the level of coolant inside should be between the two.

Do not take the radiator cap off to check coolant levels. If the coolant system is still hot then it is still under pressure and the pressure release will burn you.

Disconnecting and reconnecting your battery

If you're going to do any work on your car involving the electrical system, disconnect the battery first. To do this, loosen the connector for the negative/ground terminal first, and wiggle the terminal cap off. Use a wire-tie or similar to tie the cable back out of the way. If you need to take the battery out, you can now take off the positive connector.

Why negative then positive? If you disconnect the positive side of the battery first, the negative side is still connected to the entire car. If you drop a tool and it lands on the positive Battery terminal and touches anything else on the car, you'll have an electrical short. By disconnecting the negative first, you're cutting off the return path for the current. Now, if a tool drops on to either of the battery terminals, it doesn't matter if it touches part of the chassis or not - there's no continuous path for the electrical current.



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Reconnecting your battery.

Connect the positive terminal first, and the negative second the reverse of removal, and for the same reasons. When you slip the negative connector on, there will be a spark as it gets close and makes contact with the negative battery terminal. Don't be afraid of this - it's nothing to worry about. Make sure the terminal caps are on nice and tight.

Check your battery terminals

Most modern cars run on a 12 volt negative ground electrical system. If your battery terminals or contacts aren't clean, you're making it more difficult for the current to pass around the electrical system. Remove the terminal caps as described above and clean each contact post with a wire brush to get a nice clean metal contact surface. Do the same to the terminal caps, then reattach them as described above.

The check engine light.



Every new car now comes with OBD-II - On Board Diagnostics 2. This is a fault-registering system connected to sensors all over the car, engine, fuel and emissions system. When the check engine light comes on, it can mean many things. There are almost 4,000 unique OBD2 codes that can be stored on most vehicles. Handheld OBD2 diagnostic tools can be plugged in to the OBD2 port which is normally under the dash on the driver's side. These tools can read out the fault code and/or reset the system to contain no codes. Codes are split into two categories - historical/inactive, and active. The historical codes are lists of things that have been detected in the past but are no longer an issue, whilst the active codes are things that are a problem right now.

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The service engine light / Maintenance Required light.



This might indicate "Service", "Service Engine" or "Maint Req'd". It's an indicator that you're getting close to a scheduled maintenance interval. On some cars it's as simple as counting miles before it comes on, whilst on others it maps engine temperatures, oil temperatures, air temperatures and other indicators of probable stress to tell you when it might be time

for new oil or a service. In most cars this can be overridden or reset by you, the owner. Your handbook will tell you if this is the case. If you take your car for a service, the garage should reset it for you.

Typically this light will come on when you start your car, and then turn off again as part of the self-check. If it stays on for 10 seconds then turns off, it normally means you're within 500 miles of needing a service. If it flashes for 10 seconds, it normally means you've exceeded a recommended service interval.

The electrical fault light.



This warning light is different in every car but normally it looks like a picture of a battery, similar to the picture on the left here. You'll see it come on and go off when you start your engine as part of the car's self-test, but if this light comes on and stays on, it means the electrical charging system is no longer working properly. Think of it like a cellphone battery. If the cellphone is

plugged into the charger, you can use it indefinitely, but when you disconnect it from the charger, there's a limited amount of time before your battery runs out. It's exactly the same in your car, only bigger. Every car has an alternator - the charger - and a 12v battery used to supply power to the electrical system. If the alternator becomes faulty or the drive belt to it snaps, then it will not be able to do its job. The longer you drive, the more your car will use up the remaining juice in the battery and eventually the engine will die. This almost always requires a new or refurbished alternator.

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Brake warning light 1



Most cars nowadays have a brake warning light on the dash. Its purpose is to alert you that something is wrong in the braking system somewhere. If it comes on, check your owner's manual to find out its meaning. The brake warning light doesn't have a standard meaning; it could be used for multiple purposes. For example, the same light may be used to show that the parking brake is on. The light can also indicate that the fluid in the master cylinder is low. Each manufacturer has a different use and standard for this light.

Brake warning light 2



If you've got an ABS-equipped car, you also have a second light - the ABS light. If it comes on, get it seen to as soon as possible. It means the ABS computer has diagnosed that something is amiss in the system. It could be something as simple as dirt in one of the sensors, or something as costly as an entire ABS unit replacement. It's important to note that this light normally comes on when you start the car and then switches off a few seconds later. If it blinks, throbs, flashes or in any other way draws your attention to itself, then take note. Compared to a steady light, a blinking ABS light normally indicates something more serious. In some cases it could be as bad as "you have no brakes at all."

Coolant warning light



This is normally the coolant level warning light. If this comes on it means that the level of coolant in your radiator is low and needs topping up. **DO NOT OPEN THE RADIATOR CAP WHEN THE ENGINE IS HOT!** The coolant system is pressurized and it could easily release pressure and spray you with boiling coolant. Do it when the engine is cold. Top up the system with either a pre-mixed coolant bought from a shop, or with distilled water.

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Oil warning light



Typically this light will come on if your oil pressure is too low. Low oil pressure is serious and if you continue to drive with this light on, eventually your engine will die. Low oil pressure can be caused by a failed oil pump, a blocked oil filter or strainer in the sump, or by low oil levels - for example if your engine is burning oil. Either way, you need to get it fixed, and fast.

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The coin operated car wash features hot soap wash, hot cherry wax, hot rinse, tire cleaner, engine degreaser, foam brush and vacuum cleaners.

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