

PBI's Real Cars

Tune-Up or Routine/Scheduled Maintenance?



While today's fuel-injected cars don't require tune-ups in the traditional sense, all vehicles still need a certain amount of regular maintenance that could fall into the tune-up category.

Older cars with non-electronic ignitions should be tuned up every 10,000-20,000 miles, while today's cars can go anywhere between 30,000-100,000 miles before a tune-up is needed.

Tune-ups on today's cars are commonly called Routine or Scheduled Maintenance.

Tune-ups will help improve gas mileage as well as ensure the maximum performance of your vehicle. Preventive maintenance (PM) and checking the car periodically can help assure it continues to deliver peak performance.

Today's cars are equipped with computer-controlled systems that some car owners find intimidating, so they put off preventative maintenance until something goes wrong.

During a tune-up/routine maintenance, the mechanic checks the fluid levels and top off if needed, and does oil and filter changes, tire rotations and various inspections such as the battery, ignition system and spark plugs.

You can avoid potentially costly breakdowns as well as extend the life of your car. By performing regular maintenance checks and tune-ups, your car will be reliable and will also help ensure your safety, the safety of your passengers and the safety of others on the road.

You can save yourself some time and money by some DIYers. You don't need to be a mechanic to perform basic maintenance on your car.

Preventive maintenance can save you money on repairs.

Engine Air Filter:

Check the air filter every other month.

Replacing your car's air engine filter annually is one of the easiest car tune-up tasks, and it can make your engine run noticeably better.

The average engine can suck in thousands of gallons of air per gallon of fuel.

This air comes straight from the atmosphere, meaning that the inside of the engine is exposed to all the dirt, bugs, moisture and other contaminants that come with it.

If your air filter gets too dirty or clogged, your engine won't be able to suck enough air into the combustion chambers.

The engine will then run rich (too much gas and not enough air). When this happens, your car will lose power and run roughly. Your Check Engine light may also come on.

It's recommended that you change your air filter once a year or 12,000 miles, whichever comes first. If you live in the city with frequent stop and go traffic, do it more frequently.

Cabin Air Filter:

Cabin air filters were introduced in cars that were built after the year 2000.

The cabin air filter is located behind the glove box, under the hood or in the dashboard and cleans the air as it moves through the car's HVAC system.

Cabin air filters purify the cabin air by trapping dust and other particles from the air you breathe within the car.

Failing to replace a dirty, clogged filter will impact the efficiency of the HVAC (heating ventilation and air conditioning) in your car.

A dirty air filter can also cause musty, unpleasant odors or a whistling sound coming from your vehicle's vents.

If your car has an unpleasant odor or the airflow has decreased, replace or have your mechanic replace the cabin filter.

Cabin air filters should be replaced once a year or more frequently if you are a smoker, in the city or places with poor air quality. Check your owner's manual for reference.

The six fluids you should check are: Engine Oil, Antifreeze/Coolant, Transmission fluid (automatic), Power Steering fluid, Brake fluid, and Windshield Washer fluid.

Engine Oil:

An oil change is not generally included in a tune-up, but you should check the oil and have oil changes when needed.

Always check on level ground when the engine is cool to give accurate reading. Remove the dipstick, wipe with a paper towel, reinsert the dipstick completely in the tube. Remove the dipstick and read oil level. The dipstick should have a normal range indicated.

Most service attendants will offer to check your oil when the engine is hot. Some will even show you the dipstick to validate claim engine needs oil, (the oldest trick to sell you more oil). It is then overfull causing a smoky exhaust.

Find the cap on your engine, usually labeled "Oil" and find the dipstick that should be close by on the engine block. Remove the dipstick and wipe off the oil with a paper towel or napkin. Look at the paper towel. Fresh good oil is a clear **golden** color. Is the oil especially black? Do you notice any sediment, or chunky-looking oil? If so, you're probably in need of an oil change. Put the dipstick back and remove it once more to check the level. Notches on the dipstick will show how full it is. If you're low, remove the cap and add motor oil appropriate for your type of engine. Ask your auto parts store or check your owner's manual what kind of oil to use.

Add oil only when oil level is at or below Add Oil mark. Be careful not to overfill.

Change your oil every 3,000 miles on older cars, or 7,000 to 10,000 miles on newer cars.

Antifreeze/Coolant:

Check the antifreeze/coolant level once a month. In newer cars, it's recommended to check every 6 months. The antifreeze/Coolant Flush & Fill should be done once every 2-5 yrs.

Some cars have transparent reservoirs with level markings. This check should be done by removing the radiator cap from the cool engine or reservoir. Caution: Do not remove the pressure cap when engine is hot. If a refill is needed, fill with a 50/50 mix of water and antifreeze. If your coolant level is low, be sure to add the same type of coolant already in your car.

<<< Warning >>>

Antifreeze/coolant is toxic to children and animals.

Transmission Fluid:

Check the transmission fluid once a month.

Check while the engine is running. The transmission should be at operating temperature.

Remove dipstick, wipe clean, insert and remove again to check the fluid level. Be careful not to overfill!

The transmission fluid is part of a closed system and should be **reddish** in color. If you check it, and it's **brown** or smells burnt, it's time to replace the fluid.

Some manufacturers recommend that you should change your transmission fluid about every 30,000 miles. And others suggest once every 100,000 miles.

Power Steering Fluid:

Check the power steering fluid monthly and might never be replaced.

Check by removing and check the dipstick. Use the dipstick to check fluid level in the same way you would the engine oil. On newer vehicles, you can visually check the reservoir.

If you hear weird noises as you steer, or find it hard to steer, your power steering fluid may be running low. If your power steering fluid is low, it may just need to be topped off, but if it does, that's a good indicator you've got a leak somewhere in the system.

Brake Fluid:

Check your brake fluid every time you have your oil changed.

Usually in a clear reservoir marked with minimum and maximum lines.

This check is done by loosening the top on the master cylinder and removing the lid. If fluid is needed consult your owner's manual for correct type and fill to recommended level.

Check color of fluid, it should be a **golden** color. If the fluid appears **brown**, it is time to have the fluid replaced.

The brake fluid level will drop slightly as the brake pads wear out. This is a normal condition and you shouldn't worry about it. If the level drops noticeably over a short period of time or goes down to about two thirds full, have your brakes checked as soon as possible.

Take care when handling brake fluid. It can damage the finish of a painted surface.

Windshield Washer fluid:

This check should be done by removing the cap of the reservoir and filling it with washer fluid. Keep it full. It's important to keep your windshield clean, especially during the winter and anytime there is sun glare.

Transfer Case fluid:

In four-wheel or all-wheel drive vehicles, the transfer case is what shifts power from the transmission to the axles.

The transfer case fluid should be checked according to the vehicle manufacturer recommendations to make certain that it is properly filled and leak-free.

This requires you getting under the car, so it's recommended that you ask your mechanic to check it for you.

Windshield Wiper Blades:

Wiper blades are a critical part of vehicle maintenance.

Your windshield wipers play a significant role in keeping you safe, especially during rain or snow storms.

They're one of the easiest parts of your car to maintain. Check your owner's manual for the recommended length and type of wipers that's best for your car.

Inspect wiper blades for cracks, tears, and windshield contact. Be sure the wiper arms and springs are in good shape, and that the blade is held square to the windshield surface.

The metal part of your wipers can get bent or damaged for a number of reasons. If the frame or the blade is bent, it won't come into contact with your windshield properly, and even if the blades seem to function ok for now, they won't be for long. Time to replace them.

If you notice a consistent film of grime on your windshield, even after you've sprayed fluid to clean it off, that's a sign your wipers are dirty and need to be replaced.

Sometimes wiping the blades with a paper towel will clear up this problem.

Also, give your windshield a good cleaning inside and out, if it's hard to see, the problem may be inside, instead of out.

Wiper blades should be replaced at least once a year.

Alternator:

Test with a voltmeter, unless your car has a voltmeter gauge. Connect the meter leads to the battery terminals and look for 14 to 16 volts (engine running, lights and accessories off). That means the alternator is working properly.

Battery:

Car batteries last an average of 3 - 5 years, maybe a little longer.

Make sure the engine is off before checking the battery.

Visually check the car battery terminals (one is marked positive "+" and the other is marked negative "-"). Check battery cables. They should be attached securely and be free of corrosion. and posts for corrosion and clean them if needed.

Test the output voltage level with a car battery tester or multimeter. The battery voltage reading will show how "charged" the battery is.

<< Warning >> Use extreme caution when handling a battery since it can produce explosive gases and the risk of risk of fire, acid exposure, electrocution and electrical burns. Do not smoke near a battery and always wear protective glasses and gloves.

If the connector cables are frayed, or are damaged in any way, replace them immediately. These cables transmit electrical energy from the battery to the engine. If the protective covering is damaged and the metal wiring is exposed, there is an extreme risk of electrocution or electrical burns. Before cleaning the connections or removing the battery, disconnect the negative terminal first whenever you disconnect the battery cables from the terminals. Make sure to remove both the positive and negative connections first.

If the battery terminals don't come off easily, use a battery puller tool to take them off. Do not use a screwdriver to pry the terminals off, because it can break the battery post internal connections. Clean them with a metal brush, rag, or used tooth brush.

If the external casing of the battery is cracked, you should replace the battery. The chemicals in batteries are hazardous and you shouldn't take the risk of keeping a cracked battery. If the battery is cracked, store it in an acid-resistant storage container until you can properly dispose it.

Spark Plugs:

Replace your spark plugs anywhere between 30,000 miles and 100,000 miles.

In today's cars, electronic ignition and fuel injection systems eliminated the 'traditional' tune-up practices of adjusting carburetors, installing points, and setting the timing. Most of today's don't have distributors or distributor caps.

Today's engines use individual coil packs instead of distributors.

The ignition is triggered by toothed timing wheels spinning with the crankshaft, which is much more accurate than points. There are individual coils for each cylinder, fired by the engine computer called the electronic control unit (ECU).

Many newer cars do not have spark plug wires; they have "coil-on-plug" (COP) ignition systems. The coil-on-plug system eliminates the need for high voltage spark plug wires that can cause ignition problems over time.

An ignition coil, also known as a spark coil, is an induction coil in your car's ignition system which transforms the battery's low voltage into thousands of volts which are needed to create an electric spark in the spark plugs to ignite the fuel.

An ignition coil is essentially a transformer that turns the 12-volt signal from the ignition amplifier to the 20,000 to 30,000 volts needed to arc across the plug.

In older cars, a single ignition coil is connected to a distributor cap with a fat plug wire. Individual wires then connect the cap to each spark plug. As the engine rotates, the distributor spins around, opening and closing the points that trigger the spark. The rotor inside the cap distributes the spark in round-robin fashion to each plug.

On today's cars, the coil-on plugs, also called stick coils, snapped onto the tops of spark plugs, with not even a plug wire between them.

The stick coils and plugs are typically hidden inside the engine under a plastic cover that looks like the top of a Shop-Vac.

The only reason to replace plugs more often than recommended is if the engine is hard to start, idles roughly, hesitates, misfires, uses more fuel than usual or if the check engine light comes on. Manufacturers use different kinds of spark plugs, check your owner's manual for what kind your vehicle takes and how often to change them. They can also cause your check engine light to come on.

Changing the Spark Plugs:

How to change the spark plugs if you are a DIYer, or have your mechanic check if and when the spark plugs need to be replaced. Your mechanic will plug a computer into your car to look for a “code” that will tell them what needs to be replaced.

Disconnect the negative terminal of your car battery when working on anything electrical.

Even though spark plugs come properly gapped from the factory, use a spark plug gap tool to ensure the gap is correct before installing. If adjustment is needed, gently open or close the gap until the tool just fits at the correct gap. Check your owner's manual for correct setting.

If you have a coil-on-plug (COP) system with no spark plug wires, simply disconnect the coils and set them aside in a safe location. Ignition coils are often secured to the cylinder head cover with one bolt, often a 10 mm.

Ignition coil connector tabs become brittle and fragile with age. To avoid snapping them off, use a pick to gently pry up on the tab while you pull the connector off of the coil.

Fit the combination of extensions and swivels to the spark-plug socket to comfortably fit the tool to the spark plug and turn the spark plug counterclockwise until it comes free.

Carefully insert the plug into the open hole by hand and gently screw the plug in with a clockwise rotation. Use your hand tool to tighten each plug (about an additional quarter turn) after hand tightening to the manufacturer's specification. With the spark plug securely installed, insert the ignition coil. Repeat the process for each of your remaining spark plugs until you've replaced them all. Make sure to write down your car's current mileage in your maintenance logbook, so you know when or if you should change the spark plugs again.

Belts and Hoses:

Check all hoses monthly.

Check for cracks, frays, leaks and bulges, especially at the ends where they are attached. If a hose looks bad, or feels too soft or too hard, it should be replaced.

Inspect the engine belts regularly, especially the serpentine belt. This type of belt looks flat on one side with several ribs on the other side. You should check the ribbed side for signs of dry and cracked rubber.

Worn belts will affect the engine performance. Look for cracks and missing sections or segments. Replace worn, glazed or frayed belts. Tighten them when more than 1/2" of slack can be depressed between the pulleys. Cars with spring loaded belt tensioners require no adjustment. Replace bulging or brittle hoses and tighten clamps.

Service Brakes:

Brakes should be inspected at least twice a year.

Signs of Brake Failure:

Squeaks and Noises, Brake Light, Pulling to one side or brake drag, Low or Fading Brake Pedal

<<<Warning>>> Delaying brake repairs is extremely dangerous!

Inspect Your Brakes:

Master Cylinder - The master cylinder, contains a reservoir for brake fluid. It is located on the firewall and should be checked periodically to ensure the proper fluid level.

Brake Lines - Attached to the master cylinder, steel brake tubing runs to all four wheels. Brake lines should be inspected for rust, which can lead to leaks. If the lines are damaged they should be replaced.

Brake Hoses - Rubber brake hoses run from the brake lines to the brake calipers and wheel cylinders. Constant exposure to road grime, dirt, salt and other elements can cause the rubber to become brittle and crack, leading to brake failure.

Calipers and Wheel Cylinders - Brakes are activated by brake fluid pressure from the master cylinder pushing a piston located in the caliper or wheel cylinder against the pad or shoe. A leak can cause erratic braking or brake failure.

Shoes, Linings and Pads - The pads and brake shoe linings should be checked periodically for uneven or excess wear, cracking on the friction surface, glazing, or saturation from brake fluid or grease. If defects are found, replace the pads immediately. Shoes should be worn evenly and have no rivets protruding to the friction surface.

Drums - The drums should not have excessive grooves or have a deep "trough" dug into them where the shoes ride.

Bearings and Seals - Wheel bearings should be inspected and lubricated periodically. Worn wheel bearings, which can cause faulty steering as well as erratic braking, should be replaced.

Rotors - Rotors should be inspected completely around the surface and on both sides for any grooves or obvious defects. If defects are found, replace your rotors immediately. Any rotor discoloration may be a sign of overheating. Badly worn or overheated rotors can damage wheel bearings and the complete wheel hub assembly. These parts often cost as much or more than the brakes themselves.

Parking Brake - The parking brake should be adjusted periodically.

Exhaust System

The components of the exhaust system include:

Exhaust Manifold: The exhaust manifold is attached to the engine at the cylinder head and is responsible for collecting gases produced during combustion. After that, it delivers those gases to the exhaust pipe.

Oxygen Sensor: The vehicle's computer is continually measuring the air/fuel mixture in the engine. The oxygen sensor measures the amount of oxygen in the exhaust and alerts the computer so it can determine how much fuel to send to the combustion chambers.

Exhaust Pipes: They start at the front of the engine and carry the exhaust through the entire system.

Catalytic Converter: Carbon monoxide, hydrocarbons and nitrogen oxides are converted into water vapor and less harmful gases.

Resonator: The resonator is part of your exhaust system, but it is not the muffler. It is sometimes known as a pre-muffler because it is installed in the exhaust system after the catalytic converter and before the muffler. Resonators change your car's engine sounds, while mufflers reduce the volume.

Muffler: If you've ever had to replace a bad muffler, you know that its job is to "silence" the loud noises produced during combustion.

Some signs of exhaust system problems may include: decreased power, decreased fuel economy, hissing noises, metallic rattling noises, an overly loud engine, exhaust fumes, the check engine light is on, and damage due to the system hanging low underneath the car.

Visually check the exhaust system regularly.

Look underneath for loose or broken exhaust clamps and supports. Check for holes in muffler or pipes. Replace rusted or damaged parts.

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Oxygen Sensor (O2)

Check your exhaust system once a year or have your mechanic check it for you.

The oxygen sensor, developed in the early 1980s, is an essential part of the car's emissions control system. Today's cars have two to four oxygen sensors.

It's recommended to replace your oxygen sensors every 60,000 to 90,000 miles. Cars older than the mid-1990s will require replacement at 50,000 to 70,000 miles.

If your car's Check Engine Light is on, it could be an oxygen sensor malfunctioning.

The oxygen sensor can last up to 100,000 miles. However, most experience problems before this point. As you use your vehicle, the O2 sensor becomes coated with combustion byproducts. After a while, the lead, sulfur and fuel additives become caked on the sensor. This debris prohibits the sensor from sending the appropriate signal. At this point, it must be replaced.

Today's fuel injected cars utilize O2 (oxygen sensors) to measure how much oxygen is present in the exhaust. It looks very similar to a spark plug, but performs a different function.

The O2 sensor monitors the amount of unburned oxygen in the exhaust and produces a voltage signal that varies from about 0.1 volts (lean) to 0.9 volts (rich). The car's computer adjusts the fuel-oxygen mixture that is provided for the engine. The sensor tracks both the cleanliness of the exhaust and the converter's efficiency. On OBD II-equipped vehicles, a second O2 sensor after the catalytic converter is used to monitor converter efficiency.

Signs that your oxygen sensor is faulty:

A Decrease in Fuel Mileage, Failure to Pass the Emissions Test, Check Engine Light On
Black Smoke from Tailpipe, Poor Performance, Rough Idling, Stalling, Etc.

You can choose to replace the sensors yourself, but you need a special socket to do so. It's also important not to get any oil or grease on the sensor. It's recommended that you have your mechanic check it for you. Your mechanic can make sure it's installed correctly.

Shocks & Struts:

Look for signs of oil seepage on shock absorbers, test shock action by bouncing the car up and down. The car should stop bouncing when you step back.

Worn or leaking shocks should be replaced.

Always replace shocks and struts in pairs. Replacing one or two at a time can create a balance problem that could make your car unstable when braking and accelerating.

Tires/Wheels

When you think of a tune-up or routine vehicle maintenance, you may think of an oil change or the spark plugs. But the tires are the most essential part of maintaining your car.

According to the National Highway Traffic Safety Administration (NHTSA) statistics, nearly 11,000 tire-related accidents happen every year, many of them because of tire failure due to uneven wear.

Tire balance: Tire balancing is a tune-up for your wheel-tire set.

It is recommended to get your tires balanced every 5,000 to 6,000 miles or as recommended in your owner's manual.

When all areas of the wheels are as equal in weight as possible, the tire will roll smoothly. This helps the tires wear evenly.

Tires that are out of balance puts stress your on shocks, bearings, and entire wheel assembly. Driving a vehicle with unbalanced tires is unsafe and can cause serious damage.

Some signs that your tires need balancing are:

Vibration in the Steering Wheel, Poor Fuel Economy, and Uneven Tread Wear. Hitting a curb or potholes can also cause tires to come out of balance.

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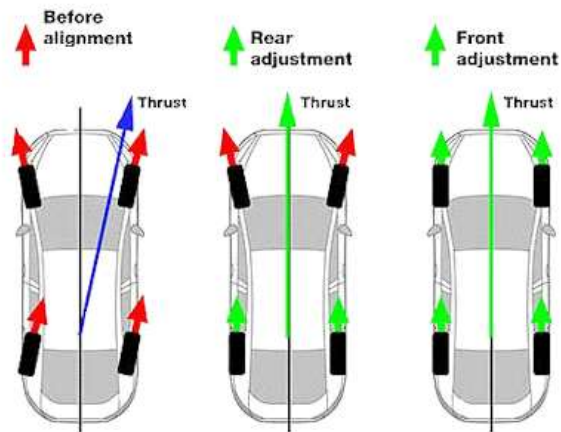
Wheel Alignment

A tire balance corrects the weight imbalance on your tire and wheel assemblies, while an alignment corrects the angles of the tires so that they come into contact with the road in just the right way.

A wheel alignment refers to an adjustment of a car's suspension, the system that connects the vehicle to its wheels. A Wheel alignment is also referred to as tracking. It is not an adjustment of the tires or the wheels themselves.

It's recommended that you get a wheel alignment once every 2-3 years, or once a year if you drive on rough roads such as our pothole infested streets of Milwaukee. The wheel alignment is also recommended when new tires are installed.

When your car's suspension and all of the steering components are lined up and straight, the wheels are aligned.



If you experience any of the following problems, check with your mechanic for an alignment inspection:

Your steering wheel is not straight when driving on a level road.

You hear unusual noises in your suspension system.

The car is pulling to the right or left when traveling in a straight line or when braking.

You feel vibration in the steering wheel or through your vehicle's seat.

Your tires are wearing unevenly. Squealing tires on turns.

Correct alignment is critical to safely controlling your vehicle, braking stability, extending tire life, and ensuring a comfortable ride.

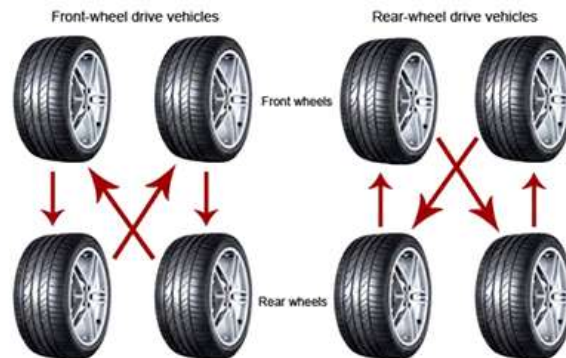
Tire Rotation:

It's recommended that tires should be rotated every 6 months to a year.

Tire treads can wear down unevenly to create a rough and potentially unstable driving surface, which can decrease your safety on the road. Tire rotation can preserve balanced handling and help maintain traction. That's especially important when roads are slick from rain or snow.

Rotating your tires will help your tires last longer and maintain the fuel efficiency of your tires.

Tires are expensive these days, it's frustrating to replace tires that are only worn out on one side. By rotating your tires, you give the tires a chance to even out their wear and get extended life out of your tires.



Depending on whether you have a front-wheel drive, rear-wheel drive, or a 4-wheel drive, the tires will wear at different rates.

Check your owner's manual for information on how frequent the tires on your car should be rotated and the best pattern for rotation.

Also have your mechanic check the condition of your wheel rims, which can be bent by hard impacts from potholes.

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Tire Care:

The importance of properly maintaining your tires is crucial for the safety of yourself, your passengers, and others on the road.

Use the inflation pressure recommended by your vehicle's manufacturer, not the maximum pressure embossed on the tire's sidewall.

It is important to check your tires once a week, checking your tires only takes a couple minutes. Make sure the vehicle is turned off and the parking brake is engaged.

Check the sidewalls for cuts, cracks and bulges. Don't worry about fine surface cracks.

Check for objects that may have punctured the tire, such as nails, screws, glass, or stones.

Before you touch the tire, make sure there are no pieces of steel belting or metal embedded in the rubber which could result in a cut or splinter. Also regularly inspect your tires for irregular wear and sidewall bubbles. Sidewall bubbles are caused by a break in the sidewall and could cause a blow-out.

Do the quarter test: You've heard of the penny test, but AAA actually suggests using a quarter for a safer measurement. Simply insert a quarter, headfirst, into the tread of your tire. If you can see all of George Washington's head, your tire tread has worn down and you need to replace it. Do this in 3 locations across the tire's tread (outer edge, center, inner edge) in case there's also an inflation problem. Tire tread that is worn down to 2/32 of an inch are not safe and should be replaced.

Remember to check the air pressure in your spare tire every month.

Many of today's cars do not have a spare tire and come equipped with tires or inflator kits that "claim" to make a spare tire unnecessary. If your car doesn't come equipped with a spare, purchase a spare tire because you never know when you'll get a flat or puncture and be stranded on the side of the road.

Also check for small cracks in the sidewall called 'dry rotting'. Dry rotting is not as common as underinflation. Like most other things, tires also have a shelf life.

When a tire ages, it loses the protective resin which keeps the rubber from oxidizing and drying out. As those oils evaporate, the tire becomes brittle, and starts developing cracks and begins to break apart.

To maintain tire safety, purchase new tires that are the same size as your car's original tires.

Tire Pressure Monitoring System (TPMS)

Today's cars are required to come equipped with the Tire Pressure Monitoring System (TPMS).

A TPMS warning light isn't required to come on until a tire is 25% below the manufacturer's recommended tire pressure. That's also well below the pressure required for safe driving, according to AAA.

Driving on a badly underinflated tire can cause you to lose control of your car and have an accident.

When the TPMS light comes on, you should check the pressure on all tires. If the light is flashing, there could be a malfunction with the TPMS system. It could also mean that you are using the spare tire and your car's computer can not detect the sensor of the original tire.

Cold temperatures also can affect tire pressure and trigger your TPMS light. Colder temperatures will cause tire pressure to drop about 1 psi for every 10°F drop in air temperature. When you first start up the car after a cold night, you might see the TPMS will come on for a short time and then shut off.

Rely on the old school basics:

Do not use the TPMS warning light as a substitute for regularly checking your tire pressure.

People who rely on the TPMS to warn them about low pressure are taking chances with a risk of a safety hazard.

Check the tire pressure once a month (more frequently in the winter), and before a long trip or when carrying extra load.

Signs of Low Tire Pressure:

If your car pulls to the right or left. Loss of fuel economy. Your car takes longer than usual to come to a complete stop. Steering problems: Swaying into turns, taking too long to turn compared to normal, or just feels odd in terms of steering and maneuverability.

Manually check your tire pressures with a 'Tire Pressure Gauge' and add air until the pressures reach the vehicle manufacturer specification. (You'll find the correct pressure on the driver's door jamb or in the owner's manual, not on the sidewall of the tire- that's the tire's maximum pressure.)

Keep a tire pressure gauge in your vehicle. A tire can suddenly lose pressure if you drive over potholes or bump into a curb when you park.

Lights:

The following is not included in a tune-up or routine vehicle maintenance, but is essential for safety for yourself and others on the road.

The lights on your vehicle serve 3 purposes: They allow you to see, they allow you to be seen, and they allow you to signal other drivers of your intentions.

When was the last time you checked your Headlights or Tail Lights?

On the checklist of car maintenance items, lights often fall to the bottom. People don't pay much attention to them until one burns out and they're left with only a partially lit view of the road ahead. This is not only dangerous, but it's also illegal.

Check all the Lights:

Walk around your car and inspect all lights including headlights, turn signals, brake lights and emergency flashers (4-ways). They are necessary for communication.

Replace bulbs if they are burnt out. Don't forget to also check all the reflectors if applicable.

When they're not working properly, other drivers can't see what your intentions are and could result in a fender bender or much worse. Whether it's a parking light, brake light, or headlight, it can be dangerous, and it can also lead to a traffic ticket.

To check the back-up lights, (reverse lights), ask a friend or someone you can trust to help you.

To check your back-up lights, if you don't have anyone to help you: Turn the ignition switch to the "on" position (without starting it), then put the transmission in reverse with the parking brake on. It is very important to make sure the parking brake is on.

To check your brake lights, if you don't have anyone to help you: Back up to a wall and operate the lights. The reflected light on the wall should be enough show if they are working properly.

Check all external lenses for cracks. A cracked tail light allowing white light to shine out can quickly lead to a ticket.

Keep your lights and reflectors clean, especially during the winter. Clear all snow and ice from your lights. "Make Sure They See You."

Studies have shown that using your headlights during the day can help reduce accidents significantly. Majority of today's cars are equipped with standard daytime running lights.

Because a well lit car is a safer car.

Mirrors:

Always keep the mirrors clean, especially in the winter. Lot of accidents happen just because drivers don't see a car moving from behind while turning or changing a lane.

Check mirrors adjusting before driving.

Horn:

Be sure your horn works properly, it can prevent you from a collision in many cases.

Wash Your Car Regularly:

Maintaining your car's exterior is important in preserving it and can extend the life of a car.

Windows, mirrors, lights and windshield should be clean at all times for optimum visibility and safety.

While failing to wash your car won't result in immediate damage, over time the elements will corrode your vehicle, along with its potential re-sell value.

Wash your car to prevent the damage to the paint. Dirt, grime and salt can damage the finish. The underneath of the car should be cleaned as well because it is exposed to the debris from the road, which might affect the car's performance or functioning.

Wash your car once or twice a month in the Summer, and every week, or at least every other week in the Winter.

Wax at least every 6 months. When water beads on the finish become larger than a quarter, it's time for a wax job.

Plus, having a nice clean car helps boosts your mood. Study shows that most drivers feel much better about themselves when their car is clean and shiny.

If you wash your car by hand, do not use dish soap.

Even though dish soap is a great degreaser, it is also considered to be an abrasive soap. When you use an abrasive soap on something like car paint, it accelerates the oxidation process and gives the car a dull look.

Always use car wash shampoo. Don't use too much car-wash concentrate in your bucket of water or it will leave a filmy residue on the glass.

Don't forget to clean the interior. Keeping your car's interior clean and tidy can reduce stress in your life and make the driving experience more enjoyable.

Winter driving Safety Tips:

On cold winter mornings, do not rev up the engine after you start it.

Allow your engine to run at idle speed for a few minutes before starting out, especially when it's below 10°F degrees. Then drive moderately until it warms up.

Warming up the engine for more heat inside the car may be nice for the driver, but it's hard on the engine.

Before you go, fully defrost your windows and brush snow from every part of your vehicle, windows, mirrors, lights, and hood.

Don't use an ice scraper on anything else except the windows, scraping ice or snow off painted surfaces is likely to damage the finish.

Clear all the lights off of snow and ice, which builds up in foul weather. They are vital, more than ever when visibility is poor. LED lights especially accumulate snow and ice. Keep everything clean, so you can be seen.

Turn your lights on:

Turn your headlights on to improve visibility, even in light rain or overcast conditions. You may be able to see others, but can they see you?

It's also the Law in the State of Wisconsin. Wisconsin State Legislature implemented the Headlight Visibility Law. The law states drivers must turn on their headlights when weather conditions limit visibility.

Slow down & Increase your following distance:

At fault accidents are mostly due to excessive speed.

Driving at the speed limit may be legal, but is often too fast for snow covered or icy road conditions. Take as much time as necessary. If you're running late, stay late.

Make sure to keep a safe distance from other drivers. Icy roads make stopping very difficult, so keeping a safe distance from the vehicle in front of you will prevent any rear-end collisions.

Don't follow the pack:

Following the pack can be dangerous. You've heard the horror stories on the news of dozen(s) of car pileups on an icy freeway. Stay safe, stay out of the pack.

Slow down:

Keep your eyes on the road and both hands on the wheel. Approach vehicles such as snowplows, salt or sand trucks with caution.

Stay well back from large trucks and buses. If you can't see their mirrors, they can't see you. If you have to pass, do it safely.

Don't follow the tail lights of the vehicle ahead: When it's snowing heavy, the visibility is low, seeing the tail lights of the vehicle ahead means you're following too close.

Keep a safe driving distance back from the vehicle ahead, at all times, especially in bad weather. If the driver ahead of you should make an error, there's a chance you will too.

Wiper Blades:

Before winter starts, get new wipers that are specially designed for winter, even if your blades are functioning fine, now.

The ice and snow will damage regular wiper blades much faster than those designed to withstand winter's fury.

Check and keep the Windshield Washer Fluid full:

Keep it full. It's important to keep your windshield clean, especially when there is sun glare. Don't fill your washer fluid reservoir with anything except washer fluid. Make sure you have an extra container of fluid in your car for when you need it.

Keep your fuel tank filled:

It is recommended that you keep your gas tank at least half full at all times during the winter.

Condensation of moisture in the air in the gas tank causes an accumulation of water. Because water is heavier than gas, it settles to the bottom of the tank, entering the gas line and eventually working its way to the lowest point in the fuel system. Once the moisture freezes, the fuel flow is blocked and the engine may not start. In fuel injected cars, the fuel pump is located inside the gas tank. Cooled by the gas that surrounds it, the pump can be damaged from overheating when fuel level is too low. It's also better to have a full tank of gas in case of an emergency.

Also keep a bag of kitty litter in the trunk. The extra weight will help increase the traction for your car.

The Smith System:

The Smith System was established in 1952 by Harold Smith, it operates on the principle that most collisions are preventable if the right driving habits are learned, practiced and applied consistently. Since then, millions of drivers have benefited from this system.

5 Keys of Defensive Driving:

1. Aim High in Steering:

Look 15 seconds ahead, not just at the vehicle in front of you.

2. Get the Big Picture:

Look for Hazards. (Other vehicles, Pedestrians, construction zones)

3. Keep Your Eyes Moving:

Don't stare. Use your peripheral vision. Stop the fixed habit stare.

4. Leave Yourself an Out:

Monitor the space cushion around you and your vehicle.

PBL's Real Cars

Milwaukee, Wi

<http://www.pblsrealcars.com>