

## AIR PRESSURE AND TYRE PRESSURE MONITORING SYSTEM (TPMS)

### AIR PRESSURE



Are your tyres set at the optimum inflation? Chances are they are anywhere from 8psi to 18psi less than recommended. The most common way of damaging tyres is improper inflation. Low air pressure causes tyres to experience irregular treadwear as well as poor vehicle handling and traction. Under inflated tyres can build up excessive heat and blow out without warning.

Keeping your tyres set at the manufacturer's recommended pressure is one of the easiest ways of saving gasoline, increasing tyre tread life, and ensuring safety. An Arizona Energy Office Report notes if your tyres are inflated to 24psi, and you increase the air pressure to 32psi, your fuel mileage should increase by 3 miles per gallon (an average increase of 10%!).

Always check your air pressure and make adjustments when the tyres are cold (tyres have not been driven for 2 hours). Air pressure should be checked bi-weekly at the very least. This is important because as outside temperatures change, so does tyre air pressure. A 10 degree drop in temperature can reduce tyre pressure by 1psi. That means if you set your pressures in the July and don't check them again until December, you could have lost several psi, decreasing fuel mileage and causing pre-mature tyre wear. Also remember to check your spare tyre for loss of air.

If you are unsure how to use an air pressure gauge and hose, your local tyre shop should be willing to show you the correct procedure. Always use a good quality tyre pressure gauge that is not on a hose. The tyre gauges built into the air hoses at your local garage have generally not been maintained and can not be trusted to be accurate.

**\*Note:** air pressures can be "tuned", however you should NEVER exceed the maximum pressure branded on the tyre's sidewall, and NEVER set pressures lower than recommended in the vehicle's owners manual.

Also, if you have altered your tyre size from original, then the minimum pressure may need to be adjusted. Consult a rim/tyre professional for correct pressures.

## TYRE PRESSURE MONITORING SYSTEM (TPMS)

There are two types of TPMS technologies available in the market: **Direct** and **Indirect**.



### **DIRECT TPMS**

Direct TPMS type involves the use of pressure sensors attached to each tyre and wheel assembly which measure the tyre pressure and transmit the data through low frequency signals to the vehicle's computer system. This information is displayed on the vehicle's instrument cluster usually in the form of a simple pictogram (low pressure warning light) or readings for each tyre. There are two types of direct TPMS sensors – Banded sensors and Valve Sensors. Banded sensors attach to the barrel of the rim by a metallic strap.

Valve sensors attach to the rim just like a regular valve stem would, either rubber or aluminium.

### **INDIRECT TPMS**

Indirect TPMS uses the vehicle's Antilock Braking System (ABS) to monitor the diameter of each tyre through wheels' rotational speeds. The under-inflated tyre is determined because of a higher angular velocity of its slightly smaller diameter.



## **CHECKING TYRE AIR PRESSURE**

Here are a few easy steps to follow when checking your tyres air pressure:

- Inflate to vehicle's recommended tyre pressure
- Use a dependable and accurate air gauge
- Check the air pressure before driving
- Inspect the valve cap
- Recheck air pressure during adjustment

## **VEHICLE'S RECOMMENDED TYRE PRESSURE**

The tyre sticker (placard) will be on the inside edge of your driver side doorframe. The sticker may list different values or pressures for front and rear tyres, which means that each pair of tyres requires a different air pressure. Remember not to inflate to the maximum inflation pressure listed on the tyre sidewall, since it may provide a different pressure than what is recommended in the owner's manual or vehicle sticker.

## **DEPENDABLE AND ACCURATE AIR GAUGE**

Get a quality air gauge that will consistently provide correct readings. Your gauge will give better readings than those at gas stations, car washes, and other public locations, which can be inaccurate due to age, exposure, or abuse. You can choose a traditional gauge with a meter, a pencil-type gauge, or a battery-powered digital gauge. Any of these options can provide you with reliable readings.

## **CHECK THE AIR PRESSURE BEFORE DRIVING**

Be sure to check the air pressure when the tyre is cool, or when they are the same temperature as the outside air and have not been driven on. Driving heats up the air inside the tyre, which causes the air to expand and gives a higher reading. If you do need to check your pressure after driving, subtract 3 PSI from each reading to account for the temperature difference, and then compare this value to the recommended cold inflation.

## **INSPECT THE VALVE CAP**

Unscrew the valve cap and check for cracking. Most valve caps will have a rubber grommet inside the cap to create a tight seal. If this rubber seal is cracked or missing, replacing the valve cap can help prevent air loss. After removing the cap, it reveals the opening of the valve stem, the brass or aluminium tube extending out from the wheel. This tube controls airflow in and out of the tyre.

## **RECHECK AIR PRESSURE DURING ADJUSTMENT**

You may need to recheck the air pressure during adjustment for increased accuracy. Firmly place the gauge's exposed end onto the valve stem. If the gauge hisses after you place it on the valve stem, it is not centered correctly. Readjust your gauge to stop the hissing sound and get an accurate reading. Press the small brass needle in the valve stem to deflate overinflated tyres back to the correct level. Always replace the valve cap after you have finished checking or adjusting pressure.