

# Tyre Pressure

One of the simplest and most important things you can do to keep your tyres in good shape is to make sure that they are properly inflated. Failure to maintain correct tyre pressures may result in fast and uneven treadwear, improper vehicle handling, and excessive heat build-up which could result in tyre failure.

## Regular tyre pressure checks

You should check your tyres' pressures at least once a month, before each trip, and each morning you drive during a trip. Ideally, tyre pressure should be measured when tyres are **cold** - before doing any driving on the tyres. Otherwise, your tyres may have heated up, increasing the air pressure inside them by several pounds. This is normal and as a rule never reduce the air pressure from a hot tyre, since this could result in under-inflation. Only reduce air pressure from a hot tyre when you need to lower pressures to drive on particular terrain (see Tyre Pressure Guide pg 5) but remember to re-inflate your tyres when you reach your destination, or return to terrain that requires higher pressures.

## Measuring tyre pressure

It's important to be **accurate** in filling your tyres. Don't try to eyeball the pressure, a tyre can lose half its pressure without looking flat. Instead, use **a reliable tyre pressure gauge**. It's also a good idea to have your own gauge.

## Under inflation

If your vehicle's tyres are under inflated by as little as 6psi, it could lead to **tyre damage**. Additionally, the tyre's tread life could be reduced significantly with tyres wearing more on the outside shoulders. Lower inflation pressure allows the tyre to flex more as it rolls causing internal heat



to build up which could lead to tyre failure. Low pressures increase rolling resistance, causing a reduction in fuel economy. You would also find a significant loss of steering precision and cornering stability. While an under inflation of 6psi doesn't seem like much, remember, it usually **represents about 20%** of the tyre's recommended pressure. You should also be aware that the load capacity of your tyres is reduced at lower pressures.



## Over inflation

If your tyres are over-inflated by as little as 6 psi, they could be damaged more easily when driving over potholes or debris on the road. **Over inflation** also causes tyres to wear in the centre of the tyre's tread which will reduce the tread life. Over inflated tyres will also give you a much **harsher ride**.

## Important factors in selecting tyre pressures

There is no universal right pressure for all tyres. The proper inflation level is dependant on many factors such as **what tyres** you have, **type of vehicle**, **amount of load**, **how the vehicle is being driven** and the **condition of the road** to name a few.

The important thing to remember is, as load **increases**, you will need to increase pressure but never exceed the maximum pressure stamped on the sidewall of the tyre. For **harsher road surfaces**, a lower pressure with lower speed may be needed to avoid tyre damage.



# Tyre Pressure

Wear patterns of an **under inflated**, **properly inflated** and **over inflated** tyre:

## UNDER inflated

Under-inflation causes tyres to wear more on the outside than the inside.



## PROPERLY inflated

A properly inflated tyre wears evenly over the entire tread and will prolong the life of your tyres.



## OVER inflated

Over-inflation causes tyres to wear in the centre of the tyre's tread.



## The 4psi Rule

APPLIES TO BITUMEN  
ROAD USE ONLY



As a general rule, the following can be used for road use only.

- For passenger tyres, inflate your cold tyres to the **recommended** tyre pressure on your vehicle's tyre placard\*.

**psi** (*your vehicle's tyre placard*)

- Then, to determine if you have the correct pressure for a given load, you must note the **cold pressure reading**.

**psi** (*cold pressure reading*)

- Drive for at least **20-30 minutes** to ensure your tyres have reached operating temperature and then check again.

**psi** (*warm pressure reading*)

Ideally, your tyre pressure should be about **4psi above the cold pressure**. If they are not, adjust the pressure accordingly.

If the pressure is more than 4psi above the cold pressure, you should **add more air**. That is because there is too much friction, which builds up more heat than desirable.

Conversely, if they are less than 4psi above the cold pressure, the cold pressure is too high you should **release air**.

For light truck and 4x4 tyres, use 6psi as a guide, but rough and corrugated roads cause more flexing and your tyres may rise more the 4 or 6psi guide, in which case applying this rule is not recommended.

\*Beware of vehicle placards with recommendations below 30psi. Some older vehicles may still show lower pressures which were used to "enhance" ride but resulted in poor tyre life and in some circumstances can be dangerous.

# Tyre Pressure GUIDE

## Effect of adjusting tyre pressures on the size of a tyre's footprint

By reducing pressures, the size of your tyres' footprint increases and spreads the weight of your vehicle over a larger area.

**For example**, when driving on sand your tyres will drive 'over the top' of the sand. If you maintain high pressures and a small footprint, your tyres are more likely to **'dig down'** into the sand and even get you stuck!

Reducing pressures and increasing the size of your tyres' footprint will also **increase traction** in off-road conditions. Remember, whenever you reduce your pressures re-inflate to the proper levels as soon as you drive back onto bitumen.

This diagram illustrates the effect of reducing tyre pressures on the size of the footprint of tyres.



## Tyre pressure guide for different terrain

**SAFETY NOTICE:** This is just a guide based on an average range of sizes, not a specific size. Narrow commercial-style tyres require higher pressures. You must consult your Authorised Cooper Tyres Retailer to get the right pressure for your specific vehicle's weight and tyre size.

Lowering pressures may be necessary to get your vehicle through an extreme section of terrain, or reduce tyre damage in off-road conditions. However, lowering tyre pressures below the manufacturer's recommended pressure for your vehicle is at your own risk and judgement, and doing so could cause over-heating and long term tyre damage. So, you must drive slowly over obstacles and re-inflate your tyres to proper levels once your vehicle is returned to normal road applications and conditions.

## Bitumen

32-38 psi\*

For standard size tyres, use pressures specified on your vehicle's placard. Higher pressures will be required when carrying heavy loads.



## Sand

18-26 psi\*

This depends on the depth and coarseness of the sand and also the grade. **Lower pressure** improves your longitudinal footprint and flotation.



You want enough momentum to **stay on top**.

Higher pressures will be required when carrying heavy loads. Sudden or heavy movements of the steering can be dangerous and speed needs to be appropriately reduced depending on the depth of the sand.

**Sand can vary rapidly** in patches. Sand can also build up a lot of heat in your tyres because you are running lower pressures for flotation, so you may need to rest your vehicle regularly. Out of all terrains and applications, sand creates the most constant resistance to tyres, gearboxes and motors.

## Fast/Smooth Gravel

32-36 psi\*

Too low tyre pressures on this surface and you lose good steering response and stability, especially if you are driving fast. Higher pressures will be required when carrying heavy loads. When driving over corrugated roads you should reduce your speed as heat builds up quickly on these roads.



\*Refer to Safety Notice on pg 9.

# Tyre Pressure GUIDE

## Slow/Rough Gravel

26-32 psi\*

This depends on how slow, how rough and with what load.

Keep in mind that the higher the speed, the **more heat generated** in the tyre according to your **load** and the **terrain** being covered. High temperature in the belts of the tyre is not something you can always feel by hand either.

Chipping of the tyres is minimised by **lower speeds and lower pressures** to improve the tyres resistance to objects and also heat build up. Higher pressures will be required when carrying heavy loads.



## Rocky Gravel/Rocks

22-28 psi\*

This is assuming that the driving pace is very slow, driving in low range, and not generating a lot of heat in the tyre.

**Lower pressures** allows the tyre to improve its traction and flexibility over the obstacles without impact fracturing damage.

**Higher pressures** can be used, but the trade off is more wheel spin and less grip. **Very low pressures**, around 20psi and below can create the risk of pushing the tyre off the bead of the rim. Therefore 22psi is generally an acceptable minimum low pressure limit for most sizes. Higher pressures will be required when carrying heavy loads.

**Malleability or flexibility at low speed** is what you want to achieve to improve traction without spinning your tyres (spinning causes shredding and chipping). Lowering tyre pressures will increase the size of your tyres' footprint which spreads longitudinally along the tyre, for maximum traction.

While lowering pressures reduces the risk of overall damage, it could increase the risk of sidewall damage. Sidewall damage can be reduced by careful wheel placement and **slowing down**.

Ever noticed how the **more inflated a balloon**, the easier it is to pop? It's the same with tyres on rocks in most slow situations. If you visit off-road competition events featuring slow rock-crawling, ask the drivers what pressures they run on their tyres.



## Mud

22-28 psi\*

This depends on how slow, how rough, with what load, what sort of mud, the steepness of slope and what sort of base you have under the mud. You may not even need to lower your pressures.



If the mud is **thick** and has a loose deep base, lower tyre pressures, avoid wheel spinning and maintain momentum.

If the mud is **watery** and has a solid base, you can maintain higher pressures, also maintain momentum, but never drive fast, as you can lose control of the steering and damage engine components or the track.

If the mud is **medium** consistency, you want enough momentum while maintaining traction, without losing steering control and causing minimal damage to the track for others behind you or in the future. Higher pressures will be required when carrying heavy loads.

**SAFETY NOTICE:** All pressures stated are based on an average range of sizes, not a specific size. Tyres must be re-inflated to proper levels once your vehicle is returned to normal road applications and conditions. All pressures stated are suggested for light truck construction tyres only, and should not be advised to any person driving on passenger or light duty construction tyres. Consult the manufacturer for recommended tyre pressures relevant to that brand.