

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 - that is, 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 "bleed" or reduce the air pressure from a hot tyre, since this could result in under-inflation. Only "bleed" or reduce air pressure from a hot tyre when you need to lower pressures to drive on particular terrain (see "Tyre Pressure Guide page 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.



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UNDER-INFLATION

If your vehicle's tyres are under-inflated by as little as 6 psi, 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 failures. Low pressures increase rolling resistance and cause a reduction in fuel economy. You would also find a significant loss of steering precision and cornering stability. While 6 psi doesn't seem excessively low, 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. Higher 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.



TYRE PRESSURE

THE "4 PSI" 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*. Then to determine if you have the correct pressure for a given load, note the cold pressure reading. Drive for at least 20-30 minutes to ensure they have reached operating temperature and then check again. Ideally, they should be about 4psi above the cold pressure. 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 cold pressure, the cold pressure is too high. Adjust your pressures accordingly. 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. 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 are dangerous.



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50psi 45psi 40psi 35psi 30psi 25psi 20psi 15psi



EFFECT OF ADJUSTING TYRE PRESSURES ON THE SIZE OF A TYRE'S 'FOOTPRINT'

This diagram illustrates the effect of reducing your tyre pressures on the size of the footprint of your tyres. Reducing pressures and increasing the size of your tyres' footprint spreads the weight of your vehicle over a larger area so when driving on sand, for example, 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 offroad conditions. Remember, whenever you reduce your pressures, re-inflate to the proper levels as soon as you drive back on to the bitumen.

TYRE PRESSURE GUIDE FOR DIFFERENT TERRAIN

WARNING: *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 dealer 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 offroad 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 overheating 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.

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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. Sand creates the most constant resistance to tyres, gearboxes and motors out of all mediums and applications.



FAST/SMOOTH GRAVEL 32-36 psi*

Too low 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 Precautionary Notice on Page 9.

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SLOW/ROUGH GRAVEL 26-32 psi*

However 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 really assuming that the going is very slow, driving in low range, and not generating a lot of heat in the tyre. The low pressure allows the tyre to improve its traction and flexibility over the obstacles without impact fracturing. Higher pressures can be used but the trade off is more wheel spin and less grip. Very low pressures, around 20 psi and below, can create the risk of pushing the tyre off the bead of the rim and therefore 22 psi 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 and improve traction without spinning your tyres and often shredding or chipping them up. Lowering tyre pressures will increase the size of your tyres' footprint which spreads longitudinally along the tyre, which is what you are trying to achieve for maximum traction. While lowering pressures does reduce the risk of overall damage, it could increase the risk of sidewall damage.

*Refer to Precautionary Notice on Page 9.

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Ever noticed how easy a balloon pops at higher pressures when it hits something, but when the balloon has low pressures its harder to damage or pop? Same with tyres on rocks in most slow situations. If you go to any offroad competition event where slow rock-crawling is involved, ask the drivers what pressures they run. Sidewall damage can be reduced by careful wheel placement and again, slowing down. Obviously, there are tyres better suited to rock work than others by design.

MUD 22-28psi*

This depends very much on 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 it's thick mud, with a loose, deep base, lower pressures and less wheel spin is best but maintain momentum. If the mud is watery and has a solid base, you can maintain higher pressures, again maintain momentum but never drive fast as you can lose control of the steering, damage engine components and the environment. Mud is the medium where 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.



PRECAUTIONARY NOTICE

***Disclaimer:** 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 construction tyres. Consult the manufacturer for recommended tyre pressures relevant to that brand.