



Transport  
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# Riding on Air

**Critical safety** and  
**environmental** information  
for **you** and **your tires**

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Canada 

# *Riding on Air*

## **Critical safety and environmental information for you and your tires**

Your vehicle's tires are engineered to perform safely, day in and day out. But to do their job right, tires need regular maintenance. This pamphlet provides the information you need to maintain your tires properly.

**Proper tire maintenance is not only critical to the safe operation of your vehicle, but will also:**

- Improve fuel economy;
- Extend tire life;
- Provide better vehicle handling;
- Help to prevent avoidable breakdowns and collisions; and
- Reduce exhaust emissions that contribute to environmental and health problems.

*Without proper maintenance, such as correct inflation pressure, tires could suddenly fail, causing you to lose control of your vehicle.*

### **When was the last time you checked your tires?**

Tires are often the most neglected part of a vehicle. They should be checked regularly – **at least once a month**. Tires are your only contact with the pavement. Without good tires that are properly inflated, your vehicle won't accelerate, brake or steer properly. Other safety devices such as antilock braking systems, traction control systems and stability control systems may not function correctly with tires that are not properly inflated. By following a few simple steps, you will increase your own safety. You will also improve on fuel economy and prolong the life of your tires, both of which will help to save energy and therefore reduce your vehicle's impact on the environment.

## Inflating your tires

The tire and rim assembly is an air chamber that, when inflated to the proper pressure, supports the weight of the vehicle. Since the air pressure supports 95% of the weight, inflation is a critical part of a tire's ability to perform.

You can't tell if your tires have enough air just by looking at them. Even though they may look fine, they may be underinflated by as much as 20%. According to a recent study, about 50% of the vehicles on the road in Canada have at least one tire that is either over or underinflated by more than 10%. In fact, 10% of all vehicles surveyed had at least one tire underinflated by 20%. This represents a real safety issue.

Underinflation increases rolling resistance, which reduces tread life and increases fuel consumption. It can also lead to sudden tire failure. Without enough air, the sides of a tire bend and flex too much. This builds up heat, which can cause serious damage. Operating a vehicle with just one tire underinflated by 56 kPa (8 psi) can reduce the life of the tire by 15,000 km and can increase the vehicle's fuel consumption by 4%.



*Underinflation is the number one enemy of a tire. Operating an underinflated or overloaded tire at highway speeds on a warm summer day is a recipe for tire failure.*

- *Be sure to measure the inflation pressure of your tires, including your spare, at least once a month. While doing so, take a moment to ensure that the tire is securely fastened to the vehicle.*
- *Don't overload your vehicle.*

- Find the vehicle manufacturer's recommended pressures for your front, rear and spare tires. The recommended pressures are printed on the vehicle's tire information label, which is usually attached to the edge of the driver's door, the door post, the glove box or the fuel door. If you can't find the label, check your owner's manual.
- Use a good-quality gauge to measure the pressure of each tire. The pocket gauges sold by automotive supply stores are generally more accurate than those on gas station air pumps.
- Measure the pressure when your tires are cold, and don't forget the spare. Tires will be cold if the vehicle has been stationary for at least three hours or has not been driven more than 2 km.

**Warning:** Avoid driving on a seriously underinflated tire for your own safety and to prevent damage to the tire.

- Remember that tires lose pressure when the air temperature gets colder (about 7 kPa or 1 psi for every 5°C drop in temperature). Tires may also lose a certain amount of pressure due to their permeability (about 14 kPa or 2 psi per month).
- Overinflation can be a problem too. An overinflated tire rides on just the centre portion of the tread. The smaller contact area means reduced grip on the road, leading to a harsh ride, handling issues (such as steering and stopping problems) and increased wear on tires and suspension components.

***Be sure to add air to your tires during the winter months. Make certain that both the air pump hose valve and the tire valve are free of snow and other debris that could cause a leak in the tire valve. Don't forget to put the cap back on the tire valve when you're done.***





TIRE AND LOADING INFORMATION				
SEATING CAPACITY		TOTAL S.	FRONT S.	REAR S.
The maximum weight of occupants and cargo should never exceed 500 kg or 1100 lbs.*				
TIRE	SIZE	COLD TIRE PRESSURE		SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION
FRONT	P185/75R14	300 kPa, 26 psi		
REAR	P185/75R14	300 kPa, 26 psi		
SPARE	T125/70D15	420 kPa, 60 psi		

The tire information label is usually located on the driver's door or inside the driver's door frame.



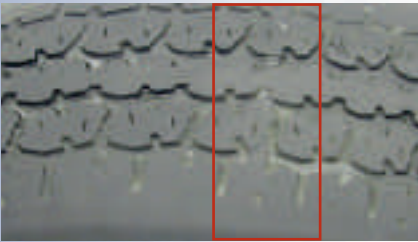
Tire pressure gauges sold by automotive supply stores are generally more accurate than those on gas station air pumps.



*Tires with deep cuts, slits, cracks, blisters or bulges are potentially dangerous and should be replaced. Tires with treads worn down to the same level as the tread wear indicator (1.5 mm or  $\frac{2}{32}$  of an inch in depth) must be replaced.*



*Uneven tread wear can be caused by improper wheel alignment or a tire imbalance.*



*A tire must be replaced when the tread wears even with the tread wear indicator.*



*Tires with cuts, cracks or bulges in the sidewall or tread should be replaced.*

## Inspecting tires for damage and wear

Inspect your tires regularly for damage and for signs of excessive or uneven wear. Catching a problem early could save you money and prevent a sudden tire failure. Check for embedded stones, glass or other foreign objects that could work into the tread and cause a leak.

### Wheel alignment and balancing

It's a good idea to have your wheel alignment checked once a year or if you notice uneven or rapid wear on the inside or outside edges of the tire. If the wheels are misaligned, they may drag instead of rolling freely. This could increase fuel consumption, reduce tire life and cause problems with the vehicle's handling and ride.

Wheels should also be balanced. If they are out of balance, you may feel a pounding or shaking through the steering wheel or your seat. This pounding could shorten the life of suspension components, lead to uneven tire wear (bald spots) and increase fuel consumption.

If you suspect any problem with your tires, have them inspected by an expert who can recommend the best corrective action.

## Rotating your tires

Front and back tires usually wear differently, especially on front wheel drive vehicles. They'll last longer if you rotate them.

- Rotate your tires according to the vehicle manufacturer's recommendation, found in the owner's manual. Or talk to your tire professional to find out how – and how often – the tires on your vehicle should be rotated. Common practice is to rotate tires approximately every 10,000 km.
- When mounting the wheels on your vehicle, make sure the wheel nuts are tightened to the manufacturer's specifications. The correct wheel nut tightness can be found in your owner's manual.

## Replacing tires

As a tire wears, traction is reduced. A tire must be replaced when the tread has worn even with the tread wear indicator. The tread wear indicator is a small raised bar that runs across the grooves of the tire tread, marking the minimum allowable tread depth. Normally, there are six tread wear indicators spaced evenly around the tire. For optimum traction in wet or snow conditions, replace your tires before they reach the minimum tread depth.

- New tires should be the same size, and have the same load capacity and speed rating as the original tires, which will have this information printed on them. The size also appears on the tire information label, which is usually located on the driver's door or inside the driver's door frame.
- To ensure proper vehicle handling, install the same type of tire on all wheel positions.

*The tread wear indicator is a small raised bar that runs across the grooves of the tire tread, marking the minimum allowable tread depth.*



*There are usually six tread wear indicators spaced evenly around the tire*

- Getting the best value and performance from new tires depends on clearly understanding your vehicle and your own driving needs and being able to communicate your needs to a tire professional who can assist with the final decision. Automotive publications and manufacturers' website provide consumer information that may be useful. You can also visit the Buying Tires section of the *Be Tire Smart* Web site at [www.betiresmart.ca](http://www.betiresmart.ca).

**Register your tires!** When you buy new tires, ask your dealer for a copy of the tire registration form. Fill it out and send it in. Alternately, most manufacturers have online tire registration on their websites. If there is a recall, the manufacturer will be able to contact you directly.



## Winter tires

Look for the peaked mountain with snowflake symbol when shopping for winter tires. Tires marked with this symbol meet specific snow traction performance requirements and have been designed specifically for use in severe snow conditions. The Rubber Association of Canada website ([www.rubberassociation.ca](http://www.rubberassociation.ca)) contains a list of tires that display the symbol.

Tires marked with this symbol meet specific snow traction performance requirements and have been designed specifically for use in severe snow conditions.

At temperatures below 7°C, all-season and summer tires begin to lose elasticity, resulting in reduced traction. Winter tires retain their elasticity to grip at much lower temperatures.

Wide, high-performance tires, other than those specifically designed as winter tires, are not suitable for use on snow-covered roads.

As a tire wears, traction is reduced. Tires that are worn close to 4 mm (5/32) should not be used on snow-covered roads.

***To assist you in controlling your vehicle in winter conditions, always install your winter tires on all wheel positions.***



*Tires designed for use in snowy weather are marked with the peaked mountain with snowflake symbol.*

# How to read a tire sidewall

*P stands for passenger tire (or you may find LT for Light Truck Tire).*

*205 is the width of the tire in millimetres.*

*55 is the "aspect ratio" – the ratio of the height of the sidewall to the width, expressed as a percentage.*

*R means the tire has radial construction.*

*16 represents the wheel diameter in inches.*

*89 is the load index.*

*V is the speed rating.*



The maple leaf symbol is the national tire safety mark of Canada. It means the manufacturer certifies that the tire meets Transport Canada requirements.

The identification number is the reference number used by the manufacturer to identify specific tires.



The four digit code identifies the date of fabrication.

## ***Recommended tire pressure***

The maximum tire pressure marked on the tire sidewall refers to the pressure required to carry the maximum load of the tire, and is generally not the same as the manufacturer's recommended tire pressure for your vehicle. To find the recommended tire pressure for your vehicle's tires, refer to the information label, which is usually located on the edge of the driver's door, or the door post or other conspicuous location. If you can't find the information label, check your owner's manual.



Maximum tire pressure

## Tire pressure monitoring systems (TPMS)

Some new vehicles are equipped with these systems, which indicate when a tire becomes underinflated.

Some tire pressure monitoring systems provide a warning only when a tire is significantly underinflated. The tire may then be close to failure. When a monitoring system warns that pressure is low, measure your tire pressure as soon as possible.

Make sure you understand the tire pressure monitoring system installed in your vehicle. Check your owner's manual.

Tire pressure monitoring systems do not replace the maintenance procedures recommended here.

Don't Forget: whether your tires are inflated with air or Nitrogen, you should continue to measure your tire pressure monthly. For further information concerning Nitrogen and Tire pressure Monitoring Systems visit [www.betiresmart.ca](http://www.betiresmart.ca)

## Seasonal tire storage

Tires should be stored upright in a clean indoor location, free from exposure to sunlight or strong artificial light, heat, ozone (electrical motors) and hydrocarbons. If tires are stored on their rims, the tire pressure should be reduced to approximately 103 kPa (15 psi) to avoid possible cracking and deformation.

## Inflating your tires with Nitrogen

Nitrogen offers potential benefits over air inflated tires. Nitrogen is an inert gas which reduces the deterioration of the tire and rim due to oxidation. Nitrogen reduces the changes in tire pressure due to changes in temperature. Nitrogen comes from commercial tanks or systems which normally do not contain moisture which can deteriorate tires, tire valves, and rims. Further details concerning Nitrogen can be found at [betiresmart.ca](http://betiresmart.ca)



# The impact of tires on the environment and our health

Your tire inflation and tire maintenance practices can play an important role in reducing the impact of personal vehicles on the environment and health.

- How? Underinflated tires increase fuel consumption.

Driving your vehicle with just one tire underinflated by 56 kPa (8 psi) will increase your fuel consumption by 4%, costing you money and releasing extra emissions into the atmosphere.

- Collectively, this means that improper tire maintenance practices waste over 500 million litres of fuel and cause an additional 1.2 million tonnes of CO<sub>2</sub> to be emitted into the atmosphere.
- Improper tire maintenance also shortens the life of your tires. Replacing your tires more often means that more tires go to landfills or recycling, and more energy is then used to produce new tires or to recycle them. Again, this has an impact on the environment and our health.
- In fact, every additional litre of fuel your vehicle uses, will release 2.4 kilograms of carbon dioxide (CO<sub>2</sub>) – a major greenhouse gas.

# Tire safety checklist

- ✓ *Measure your tire pressure at least once a month, using a good-quality tire pressure gauge. Measure the pressure when the tires are cold. Don't forget the spare.*
- ✓ *Before inflating your tires, check the recommended tire pressure for your vehicle. This information is usually on the tire information label – normally located on the edge of the driver's door, the door post, the glove box or the fuel door. This information can also be found in your owner's manual. **Don't use the pressure indicated on the tire.** It's the maximum pressure, not necessarily the recommended one.*
- ✓ *When inflating your tires, make sure the air pump hose valve and tire valves are free of dirt and other obstructions. Make sure the tire valves have caps.*
- ✓ *Always measure tire pressure before going on a long trip.*
- ✓ ***Once a month**, inspect tires for uneven tread wear, cuts or cracks, bulges, foreign objects or other signs of wear or trauma.*
- ✓ ***Rotate your tires on a regular basis.** Check your owner's manual to find out how – and how often – tires should be rotated.*
- ✓ *Buy the most appropriate tires for your vehicle and your driving needs.*
- ✓ *When installing new tires, always make sure tires of the same type, size, speed rating and load index are on all wheel positions.*
- ✓ *Register your new tires with the manufacturer upon purchase.*
- ✓ *Don't overload your vehicle. The tire information label indicates the maximum recommended load.*

# Tire safety and Transport Canada

All new tires sold in Canada must meet safety standards set under the Motor Vehicle Tire Safety Regulations. Transport Canada administers these regulations and tests tires to ensure they conform to the safety standards. These tests confirm that tires purchased in Canada are designed and manufactured to function safely on your vehicle.

## How to reach Transport Canada

If you think you have a tire problem that is safety related, please contact us at:  
1-800-333-0371 or 613-998-8616 in the Ottawa area or by e-mail at  
[roadsafetywebmail@tc.gc.ca](mailto:roadsafetywebmail@tc.gc.ca)

Or write to us at:  
Road Safety and Motor Vehicle Regulation Directorate  
Transport Canada  
Tower C, Place de Ville  
330 Sparks Street  
Ottawa, Ontario K1A 0N5

Visit our Web site at [www.tc.gc.ca/roadsafety](http://www.tc.gc.ca/roadsafety) to find out more about our road safety programs and initiatives.



Making Canada's Roads the Safest in the World.

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**be tire smart**



**play your PART**  
PRESSURE • ALIGNMENT • ROTATION • TREAD

"Be Tire Smart – Play Your P.A.R.T." is a national public education campaign designed to encourage Canadian motorists to adopt good tire maintenance practices. Properly inflated tires increase safety and reduce fuel consumption. This translates into fewer emissions that pollute the environment in the form of greenhouse gases and affect human health.

Proper tire care is simple and easy. Measure tire pressure monthly, including the spare, with a good quality pressure gauge. You can't tell if your tires are properly inflated just by inspecting them visually.

**P**

Pressure

**Underinflation is a tire's #1 enemy.**

Underinflation leads to unnecessary tire stress, uneven wear, increased fuel consumption, loss of control and collisions. A tire can lose up to half its air pressure and not appear to be flat. Overinflation is also a problem, leading to a harsh ride, handling problems and increased wear on tires and suspension components.

**A**

Alignment

**Is your vehicle pulling to one side, or shaking?**

A bad jolt from hitting a curb or pothole can throw your front end out of alignment and damage your tires. Have a tire professional check the alignment periodically.

**R**

Rotation

**Promotes uniform tire wear.**

Regularly rotating your vehicle's tires will help you achieve more uniform wear. Rotate your tires according to the vehicle manufacturer's recommendation found in the owner's manual. In general, common practice is to rotate tires approximately every 10,000 km.

**T**

Tread

**Measure it — and inspect it.**

Advanced and unusual wear can reduce the ability of tread to grip the road in adverse conditions. Visually check your tires for uneven wear, looking for high and low areas or unusually smooth areas. Also check for signs of damage.

The Be Tire Smart Campaign is sponsored by the tire company members of The Rubber Association of Canada.

Visit [www.betiresmart.ca](http://www.betiresmart.ca) to find out about this campaign and how you can get involved.



THE RUBBER ASSOCIATION OF CANADA  
ASSOCIATION CANADIENNE DE  
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