

# Tire smart

The different types of tires, construction layers etc.

Prepared By

(Name of the student)

Enrol Number: (     )

Date: (     )

(Name of the school)

Be Tire Smart is a national public education campaign designed to encourage Canadian motorists to adopt good tire maintenance practices. Be Tire Smart Week, held every May, raises awareness about proper tire maintenance and reminds motorists how they can Be Tire Smart by Playing Their P.A.R.T.

The tire inflation pressure for your vehicle is very important in providing you with safe driving and a fuel efficient vehicle. Proper tire pressure is critical for safe driving and fuel efficiency, but many passenger and light truck vehicles operate with under or over-inflated tires. Ninety-five per cent (95%) of a vehicle's weight is supported by the tire air pressure, with the tire supporting just 5%, making inflation a critical part of a tire's ability to perform. Tire inflation also has a strong impact on tread life.

Relying on a sight inspection alone is not an accurate way to measure tire pressure. Tires may be significantly under or over-inflated, yet you may not be able to tell just by looking at them. The only accurate way to know if your tires need to be inflated is by measuring their pressure with a reliable tire gauge. Tire gauges are available at most automotive supply and hardware stores.

### **Correct Tire Pressure**

Correct tire pressure varies from vehicle to vehicle and wheel to wheel. In fact, the recommended pressure for personal vehicles ranges from 20 to over 50 psi.

The correct tire pressure for your vehicle is listed on [the information placard](#). This placard is normally located on the edge of one of the doors, the inside post of one of vehicle's doors or inside the glove compartment, trunk, or fuel door. Your owner's manual should include the correct tire pressure or direct you to the placard's location on your vehicle.

The pressure listed on the tire sidewall is the maximum tire pressure - or the tire pressure that is required to carry the maximum load of the tire. It is not the manufacturer's recommended tire pressure, which is a common misperception.

### **Under-inflation**

Under-inflation is the leading cause of tire failure. Twenty-three per cent (23%) of vehicles have at least one tire under-inflated by more than 20%. Under-inflated tires on your vehicle lead to poor or delayed braking, steering and acceleration. Under-inflated tires may squeal when stopping or cornering even at moderate speeds, particularly on warm pavement.

The Effects of Under Inflation on Tire Wear and Fuel Use		
Percentage of Under Inflation	Percentage Wear Increase	Fuel Use Increase
10%	5%	2%
20%	16%	4%

30%	33%	6%
40%	57%	8%
50%	78%	10%

Operating a vehicle with just one tire under-inflated by 20% (8psi) can reduce the life of the tire by 15,000 km and can increase the vehicle's fuel consumption by 4%. Without enough air, the sides of a tire bend and flex too much. This builds up heat, which can cause serious damage and leads to sudden tire failure. It will also increase rolling resistance, which reduces tread life and increases fuel consumption.

### **Over-inflation**

Over-inflation can be a problem too. An over-inflated tire rides on just the center 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. Seventeen per cent (17%) of vehicles in Canada have at least one tire that is over-inflated by 20%.

Poor alignment will cause your tires to wear unevenly and you may experience handling problems, such as "pulling" or vibration.

### **Simple Tire Maintenance**

Tires are often the most neglected parts of a vehicle. And yet, they are among the most important and easily cared for. By adopting these few simple tire maintenance practices, you can increase your vehicle's fuel efficiency, reduce harmful emissions, save money and make your vehicle safer.

- Measure your tire pressure monthly using a good quality tire gauge. A visual inspection is not sufficient to detect under or over-inflation problems.
- Have your tires aligned annually.
- Tires should be balanced approximately every 20 000 km, or when drivers feel a vibration.
- Rotate your tires regularly.
- Monitor tread wear and replace tires when your tire tread is worn out.
- Conduct a visual check for embedded stones, glass and other foreign objects that could work their way into the tire and cause a leak.

### **Alignment**

Proper alignment is an important part of tire maintenance. Poor alignment will cause your tires to wear unevenly and you may experience handling problems, such as "pulling" or vibration. Poor alignment will also increase your fuel consumption. Common practice is to have your alignment checked annually, or every 25,000 km.

### **Balancing**

Wheels need to 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.

### **Rotation**

Regular rotation will minimize wear and prolong the life of your tires. Rotation will also reduce the risk of sudden tire failure.

Front tires work harder than rear tires as they must bear the scrubbing action of steering as well as rolling wear. You can prolong the life of your tires by rotating them. Full size spares should be part of the rotation pattern. 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.

### **Tread**

Tires are designed to grip the road, allowing your vehicle to start, stop and go around corners safely in any weather. The treads that accomplishes this wear out over time, but drivers can take precautionary steps to prolong the life of their tires.

Properly maintaining your tires will increase their life. It is extremely important to check your tire treads for signs of wear. Proper treads allow for normal handling of your vehicle and help prevent skidding and hydroplaning. Tires are manufactured with a "wear bar" that tells you when there is less than 1.6 mm (2/32 inch) of tread depth remaining - when you see this wear bar, the tire must be replaced. You could also try the penny test: place a penny in the tire's groove with the Queen's crown facing down. If you can see the top of the Queen's crown, the tire needs replacing.

### **Damage**

It is important to perform regular visual inspections of your tires for signs of damage and excessive wear. Look for embedded objects, such as rocks, nails or glass. Catching problems early can save you money and prevent a sudden tire failure.

### **Storage**

When not in use, tires should be stored upright in an indoor location, out of direct sunlight or exposure to strong artificial light, heat, ozone (electrical motors) and hydrocarbons. If tires are stored on their rims, the pressure should be reduced to approximately 15 psi to avoid cracking or deformation.

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### **Choosing Tires**

There are countless varieties of tires available. Choosing the best one for your vehicle can be difficult. First, determine whether you require a passenger or light truck tire. Passenger tires are sufficient for most car owners and many pick-up and SUV owners. However, some pick-up and SUV vehicles require more robust light truck tires for hauling heavy loads and driving on rough road conditions.

The second step is to determine your own driving needs and what benefits you hope to get from the tires, such as long mileage, wet traction, winter/snow traction, superior handling, ride comfort, fuel efficiency, and noise levels. This will help you narrow your focus.

New tires should be the same size, and have the same load capacity and speed rating as the original tires. This information is printed on the tire. If it is too difficult to read what is written on the tire, check the tire information placard which is usually attached to the edge of the driver's door. Install the same type of tire on all four wheels to ensure proper handling.

### **Bibliography**

<http://www.betiresmart.ca/en/index.html>