

# CRASH TALK

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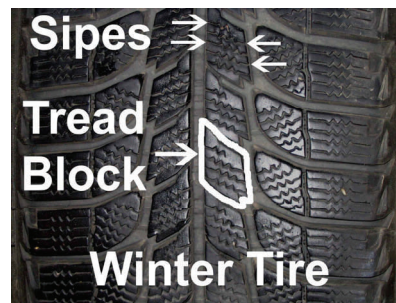
NEXT ISSUE: New High Tech Safety Features

## Winter Tires: Are They Worth It?

By Donald K. Pohl, P.Eng.

Winter will soon be upon us and with the cold weather will come the snowy and icy roads that are a part of driving in Alberta. Ads will appear on television and in newspapers promoting winter tires for your car. The question is: Are they worth it? The short answer is: YES.

Winter tire compounds are designed to remain more flexible in cold weather. In addition, winter tires have many more sipes (channels in the tread surface) than all-season or summer tires. These flexible sipes help provide better traction on ice and snow. Even on dry roads, "softer" winter tires adhere to the roadway better than all-season tires, which get very stiff and hard in cold temperatures. The "mountain and snowflake" symbol on the sidewall of a winter tire indicates it provides at least 10% better traction on snowy surfaces compared to all-season tires. Winter tires significantly shorten stopping distance, increase cornering ability, and simply provide better traction in cold weather.




Graham Ryan Consulting Ltd. has conducted numerous tests comparing winter tires to all-season tires. The results were conclusive. Our tests showed that winter tires on average provided over 50% better traction than all-season tires on icy roadways. At 50 km/h, it took over three car lengths longer for the all-season tire car to stop compared to the winter tire car. At 100 km/h, the difference would be much more drastic. Although we did not perform tests from this high speed,

theoretically, a winter tire car would stop 15 car lengths shorter than an all-season tire car. In addition, it is our experience that cornering and accelerating is greatly improved with winter tire use on snow and ice.

Many people choose to drive a 4x4 or all-wheel drive (AWD) vehicle instead of using winter tires. A 4x4 vehicle will not stop any shorter than a two-wheel drive vehicle with the same tires. A 4x4 will accelerate more quickly than a two-wheel drive vehicle simply because it has more tires "pulling" and providing traction. However, stopping, turning and accelerating maneuvers are all dependent on your tires. Therefore, it is just as important to put winter tires on a 4x4 vehicle as a two-wheel drive vehicle.

A lot of people steer away from winter tires because of the perceived higher cost. Remember, by using a full set of winter tires, your summer or all-season tires are not being used in wintertime and thus, will last longer. It is also important to remember, four winter tires should be used, not simply two winter tires. Good handling and control requires equal traction on all four tires to ensure stability of the vehicle.

So, seriously consider a set of good winter tires for your vehicle. You won't be disappointed. 

*Don Pohl, P. Eng. has been a Collision Reconstruction Engineer with Graham Ryan Consulting Ltd. for seven years. He has been involved in local ice racing events as well as in-house vehicle crash tests, skid tests and acceleration tests.*

# Investigating Street Racing Collisions

By Chris T. Yip, P. Eng.

Recently there have been incidents in which vehicles reported to be “street racing” collided with innocent motorists and pedestrians resulting in horrific injuries or fatalities. As car and motorsports enthusiasts, it concerns us when these collisions occur. As Collision Reconstruction Engineers, we find these investigations interesting as the racing element often adds another dimension.

When we investigate an alleged street racing-related collision, there are two tasks we are often asked to perform. First, determine if there is any evidence to indicate whether or not there actually was a race or speed contest (acceleration scuffs, etc). Second, determine if the involved vehicles were equipped with any performance modifications, and whether these changes contributed to the collision. Answers to these questions can be very important to the client because a race or speed test is a “prohibited use” of a vehicle and modifications to a vehicle may be deemed a “material change in risk”.



Vehicle factors to consider investigating during a “street racing” incident can include:

**Engine:** Modifications can increase the power of the car, allowing the vehicle to accelerate faster. Depending on the increase in power, controllability of the car can be reduced.

**Suspension:** The most common modification is lowering the vehicle. Negative consequences of lowering can include reduced ground clearance, less suspension travel and poor bump absorption characteristics which may result in loss of control.


**Tires:** Some performance modified vehicles use tires which are specifically designed for racing. Although some race tires are safe for street use, others have extremely poor traction on wet roads and relatively weak sidewall construction. Some race tires are street legal; others are not permitted for street use.

**Air Bags:** Factory air bags (an important safety feature) are sometimes removed when an aftermarket steering wheel is installed.

**Roll Cage:** This metal tubing “jungle gym” is installed in the vehicle interior and is designed to add strength to the vehicle structure in a severe collision or rollover.

Unfortunately, they can be extremely dangerous to an occupant who is not wearing a helmet and whose unprotected head can strike the rigid metal cage.

It should be noted that not all performance modifications negatively affect the safety of a vehicle. Some modifications can improve the ability of a car to perform avoidance maneuvers.

As long as there are cars and roads, there will be street racing incidents. As Collision Reconstruction Engineers and regular users of our roads, we can only hope motorists will choose to keep their racing on the track and not on our streets and highways. 

*Chris Yip P. Eng. has been with Graham Ryan Consulting Ltd. for four years. He has participated in various forms of motorsports, such as drag racing, autocross, rallycross, and ice racing.*

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## Recalls



**2002 to 2006 Jeep Liberty: A ball joint may separate, causing loss of steering.**



**2001 to 2002 Toyota Echo and Prius: a faulty sensor may cause the engine to stall and not restart.**

## Crash Corner



**Nitrous Oxide injection, an engine modification commonly referred to as NOS, typically adds 50 to 150 horsepower to a stock vehicle.**



**By 2008, all cars must have low tire pressure monitoring systems (TPMS).**