Tire debate

Tire traction, placement affect driver control

BY DON CROSBY

FOR THE POST

HANOVER – Harvey McFadden disagrees with the conventional wisdom that loss of vehicle control is due to driver error. He says it has more to do with tire traction and where the tires are placed on a vehicle.

In Ontario 33 per cent of all highway traffic fatalities are due to loss of control and 90 per cent of loss of control is due to the loss of traction of the rear wheels, said McFadden, a Hanover mechanic who has spent years studying tires and traction.

While there are more accidents in the urban centres, there are more deaths in rural accidents. Many happen on gravel roads and on curves. In 1998 there were 1,642 rural driving fatalities a year in Ontario, compared to 962 urban driving fatalities.

Sports cars and racing cars which are almost perfectly balanced because of the location of the engine in the centre of the vehicle have very predictable behaviour.

If they start to go out of control that movement will be felt first in the front end. Braking or slowing down will bring the car back under control.

All other vehicles are more heavily weighted on the front axle because of the location of the engine, which makes the rear end lighter than the front. Loss of control will take place at the back as the car fish tails or slides around, but that won't felt in the front end and slowing down or breaking doesn't always work.

Don Crosby/

Harvey McFadden measures the amount of tread left on a tire on one of his cars.

Rear tires require the best traction since it's the rear wheels that will lose control first.

McFadden says the rear tires must have more traction than front tires, whether it's summer or winter driving.

New tires on all vehicles, whether front or rear drive, should go on the rear wheels to give the vehicle more traction, where it's most needed.

Rear tires are more important than the front tires in adverse weather conditions such as ice, show, rain or loose gravel, said McFadden.

"Rotating the best tires to the front of the vehicle for winter driving is not a good idea," he said.

McFadden has done his own research and has the videotaped evidence to show with the better traction on the back the driver will always produce excellent control, even on black ice conditions.

Better traction on the front axle leads to loss of control at speeds as low as 20 kilometres an hour in poor driving conditions.

If purchasing two new tires it's recommended you install them on the back of the car, McFadden explained. Installing a high traction tire on the front drive axle leaves the lighter end of the vehicle (the rear) with no traction improvement.

More traction on the front gives drivers a false sense of security as they transfer the traction capabilities from the rear to the front, making the vehicle susceptible to over-steering, even at very low speeds.

In this case the rear of the vehicle will fishtail and swing out in fast cornering or emergency situations, said McFadden.

In winter driving McFadden recommends a set of snow tires on the back and all season tires on the front. The only time he recommends four snow tires is if the set on the front are worn or have less traction than those on the rear wheels.

He says when front tires need to be replaced the new tires are to be mounted on the back, and the rear tires are moved to the front. Only two tires are replaced at a time.

Even in the summer McFadden keeps his snow tires on the rear and puts all season radials on the front.

If someone has four all season radials and it's time to rotate them, they should put the new ones on the rear and rotate the rear tires to the front, he advised.

McFadden said vehicle manufacturers don't list the weight of the vehicles they sell.

He's interested in knowing the ratio of weight of the front of vehicles to their rear weight because that determines how much traction there is in the back or the front.

He's also interested in hearing from anyone who knows the weights of the front half and back half of different makes and models.

You can have your vehicle weighed anywhere there are large scales, such as gravel pits where aggregate is sold, some landfills, or feed mills.

You can get the front and rear halves of your vehicle weighed and send the make, model and year of your vehicle with the two weights to: tires404@yahoo.ca.