

## HOW TO DRIVE LIKE A PRO THIS WINTER

There are three key factors to keep in mind when you must adapt to driving in winter: *visibility, traction and driving style.*

Reduced visibility and traction are the primary factors that often make winter driving more difficult and challenging.

But it is the driving style you adopt in dealing with those factors that will determine how well you cope with the hazards of winter, and those provoked by other drivers.

### The many facets of visibility

Coping with winter's visibility problems must begin before you even get behind the wheel. It includes allowing enough time to clear any snow, ice, or frost from the windows - all the windows - inside and outside.

You need 360-degree visibility, and don't forget the mirrors and wipers, front and rear if your vehicle is so equipped.

Break off any accumulated ice on the blades and wipe them clean. Be sure the wiper nozzles are clean, too. A long pin works well for that purpose.

Metal-edged ice-scrappers work best, if you can find them.

If not, a paint-scraper with a short, strong blade can make an acceptable substitute. Credit-card-size pocket scrapers, or credit cards themselves, do an admirable job on interior frost.

Be sure to remove snow from all the lights and from the hood and heater air inlet slits (usually at the base of the windshield). Otherwise you might find your initially-clear windshield fully frosted

over two or three minutes after you drive away.

That phenomenon occurs because snow from the hood vaporizes as it passes through the then-warming heater core, saturating the air, and reforming as frost when that air hits the still-cold windshield.

To help get through that critical period, idle the vehicle with the heater on 'Floor' mode while you are cleaning off the exterior, thus keeping snow-laden air off the windshield. (Idling for more than a few minutes can be harmful to the engine, particularly when it is very cold.

It warms up most quickly when being driven, moderately until it is fully warm, of course.)

Do not drive with the heater in Recirculation mode. Doing so recirculates interior air that keeps increasing in humidity - from melting snow you have brought in and from your own breath. That moisture-rich air creates frost on the inside of the windows, often faster than the defroster can clear it.

### Finding traction and keeping it

All the control you exercise over the vehicle - whether input through the steering wheel, accelerator, or brake - is delivered through four palm-sized patches of rubber where the tires meet the road- (or off-road-) surface.

Consequently, all the control you exercise over the vehicle is dependent on the traction generated at those contact patches.

If traction were rated on a 0-to-10 scale, with 10 representing the traction generated by a high-performance tire on dry pavement, the traction from a typical street tire would be in the 7-to-8 range in the dry.

On snow or ice, the traction generated by the same tire would be rated from 3-to-4, at best, to less than 1 on wet ice.

That means your available traction is only from one-half to one-tenth as great as you are accustomed on dry pavement.

On pavement, most of us seldom use more than 30 to 40 percent of that available traction, so we rarely get in trouble in those conditions. There remains a substantial safety margin.

But if we continue to drive the same way in winter conditions, that safety margin will not only be diminished but in many circumstances exceeded. The result: either wheelspin, or a skid -- or both.

That's where driving style comes in.

### Finding traction

The key to maximizing vehicle control on slippery surfaces can be summed up in one word: smoothness.

Traction is just another word for friction and, as you may recall from high-school physics class, friction is greatest when there is no motion between the mating surfaces - static friction.

It is reduced when one of those surfaces is moving with respect to the other (sliding, or dynamic friction).

In the case of a tire, that means traction is greatest when it is rolling or stopped, not spinning or sliding.

A fully locked, sliding tire typically loses 20 to 25 per cent of its maximum rolling traction.

For maximum traction, therefore, it is imperative to avoid wheelspin or sliding. In deep snow, premium winter tires can generate near-maximum traction with some spinning, but that is an exceptional situation.

With the reduced traction available on snow and ice, any quick force input at the tires -- through a harsh movement of the steering wheel, or quick application of the accelerator or brake pedals -- can push the tires from a state of static to dynamic friction.

In other words, it can cause the tire to slip or slide. That's why smoothness is so important.

When steering on slippery surfaces, as with the accelerator, it is the initial movement of the steering wheel that is critically important.

Begin turning the wheel gently, then accelerate the rate of motion once the turn is initiated, if necessary.

Be aware that most people steer not only too quickly but too much. Steer just enough to follow the path you intend.

There is nothing to be gained and vital traction to be lost by over-rotating the wheel, then having to turn it back.

Keeping your vision high -- as far ahead as you can see, in most cases -- and looking where you want to go, will help smooth out your steering.

So will holding the wheel at 9 o'clock and 3 o'clock, without removing your hands unless it is necessary to cross-over.

### Easy with the pedals

When accelerating, don't kick the accelerator

pedal: always tip into it gently instead, as if there were an egg between your foot and the pedal.

The first few millimetres of pedal travel are critical, in some vehicles even more so than others.

Once the vehicle is rolling, you can increase pressure on the pedal - and thus your rate of acceleration - more quickly. Just keep it below the wheelspin threshold.

If you do sense wheelspin - usually detectable audibly, from the movement of the vehicle, or through a lack of response to accelerator pedal movement or engine speed - ease back on the pedal immediately until you feel the wheels grip again.

The suggestion that you accelerate as if there were an egg between your foot and the pedal also applies to braking - except, of course, in emergency situations.

Allow plenty of space to slow down or stop. And begin early.

You should apply the brake gently at first, then increase pedal pressure progressively as you begin to slow down.

You can brake quite hard as long as the initial application is smooth.

In low-traction conditions, it is good practice to separate your control inputs - accelerating, braking, steering - so you do only one at a time.

If you are braking or accelerating, don't steer, and vice versa.

This way, all the available traction can be used for one purpose and the chances of

inadvertently exceeding the tires' ultimate traction limit are reduced.

Brake before you turn into a corner, steer through the corner at a safe speed, and then accelerate again when you straighten out of it.

It's that simple.

Conscientiously apply those smoothness techniques and you will substantially reduce your winter driving risks.

And always keep in mind that the most effective winter driving aid is a well-trained and responsible driver.

***Be one, or become one!***