With the cool winds of fall upon us, we all know that winter can't be far away. For some drivers, changing driving habits is simple because defensive driving is on their minds all the time. For others, it's a challenge. As we all know, winter driving demands special defensive driving skills and adjustments – and just plain common sense. The winter scene won't be such a grim picture if you take your time and adjust accordingly.

The first step in preventing these unnecessary winter driving problems is to make sure equipment is ready for that first unexpected freeze or storm.

Check these essential items

Radiators require proper winter coolant. Also, check to ensure there are no leaks.

Tires need to have good tread depth. Balding tires can cut traction by 30% – 50%. Tires must also be properly inflated.

Wipers must be in good condition to sweep snow and sleet off the windshield. Special winter wipers can also help prevent ice build-up.

Heaters and Defrosters functioning properly will keep your windshield clear and you and your passengers warm.

Lights are particularly important in winter weather to ensure you are clearly visible to other drivers. Be sure both headlights work on upper and lower beams, and are correctly adjusted. Check that stop, tail, clearance lights and directional signals are clean and working properly.

Brakes must be in the best of condition and balanced for uniform braking.

Muffler and Exhaust Systems should be in good condition and tightly fitted so carbon monoxide does not seep into the interior of the vehicle where it could cause serious illness or death to the driver or occupants.

Batteries – cold weather greatly lowers battery power – make sure yours is in good condition, and in case it is necessary, know the proper procedure for using a booster battery.

Windows and Mirrors – need to be clean to ensure good visibility. Mirrors also should be kept adjusted and clean for good visibility as well.

While the two major hazards in winter driving are commonly referred to as poor traction and reduced visibility, research has shown that there are other important problems which confront the commercial driver as well.

Consider these primary driving hazards;

Poor Traction

To maintain good traction we need good tires. You should always start off slow and easy. Do not spin your wheels as this only serves to dig you in deeper. In deep snow, try turning your wheels from side to side to push the snow away from your tires. Before you shut down, move your unit back & forth one to two metres (4 to 5 feet). This packs the heavy snow for easier departure. When you are pulling away, use a light foot on the accelerator, easing forward gently.

Reduced stopping ability

On ice and snow, it takes 3 to 12 times more stopping distance than required on dry roads. Studies show the heavier the vehicle, the greater the stopping distance. Maintaining a safe following distance is paramount. The recommended safe following distance under ideal conditions is one second for each three metres (10 feet) of vehicle length, i.e. for a 12 metre bus, your following distance should be four seconds, or for an 18 metre tractor-trailer, your following distance should be six seconds. Under severe winter conditions widen the gap accordingly. The poorer the weather, the wider the gap.

The effects of winter on starting and stopping

Temperature plays an important part in braking distance and traction on ice and snow. As temperature rises, ice becomes much more slippery. Your braking distance can double with a temperature variation from zero to –18 degrees Celsius. It is important, when driving in winter weather, to periodically get the feel of the road. This should be done at low speed.

Ice and snow made slippery by traffic

The action of tires spinning and sliding on snow and ice decreases traction on already hazardous road surfaces. This happens mainly at intersections, on curves and on hills. This polishing of the road surface increases braking distance; slows traffic and presents a severe hazard at intersections. It's up to the driver to understand this and compensate for it in your driving habits. ***Slow Down*** before you reach that slippery intersection, and ***slow down*** before getting into a curve or down a hill. Continually adjust to the existing road, weather and traffic conditions.

Black Ice

During winter, ice sometimes will be disguised. The road ahead may appear to be black and shiny asphalt. Don't bet your life on it. Be suspicious because it may be covered with a thin layer of ice known as BLACK ICE. Generally, in the winter, asphalt will have a grey-white colour. If you do see a glare, (BLACK ICE), slow down and brake smoothly and gently. Proceed with caution.

Reduced ability to see and be seen

Winter driving hazards can be managed more effectively if you see them and understand their potential. Simple things like clearing all your windows before starting your trip is the first step. A "Peep Hole Driver" is just asking for trouble. You should also wipe off the headlights, stoplights, taillights and turn signals so others can see you. Remember, this may be necessary several times during a heavy snowfall. A few extra minutes could save your life and the lives of others.

Overdriving you're Headlights

There is a tendency by many drivers to "overdrive" their headlights. If the distance you would need to come to a complete stop exceeds the distance to which you can clearly see, you are over driving you're headlights. Remember, a loaded bus traveling at 90km/h requires approximately 126 metres (390 feet) of stopping distance in ideal conditions. A loaded tractor-trailer at 90 km/h will need approximately 171 metres (520 feet) of stopping distance in ideal conditions. When driving at night or during adverse weather conditions, your first step is to simply slow down. Also, properly aimed and clean headlights – not parking lights, increase your ability to see and be seen.

Ensure your windshield washer system is working properly and the fluid level is topped

up. Be sure the antifreeze solution is right for area's temperature. Before using washer fluid you should heat your windshield with a full blast of warm air from your defroster. This will help prevent sudden fogging of the windshield. At night, stop regularly to clean off headlights. In fog or heavy snow use your low beam headlights and adjust your speed accordingly.

Brake before turning

A skid often develops while braking for a curve or turn. Do your braking well before the turn. Remember to keep all wheels rolling during your turn. A skidding wheel will cause a loss of control. Brakes on an empty vehicle still have all the power necessary for a full load. When your bus is empty, it's easy to over brake. Use extra caution when braking on slippery roads.

Speed control; it's up to you

The key to safe and skillful driving is a safe speed at all times and avoiding sudden starts and stops. A driver behind the wheel of any vehicle is the sole controller of speed. Excessive speed and slippery roads is a lethal combination. Slippery roads do not cause collisions. They are one of many contributing factors. Driving too fast for conditions is a real problem for some drivers.

Stopping safely

For vehicles without anti-lock braking systems, a rapid light pumping of the brakes is a good way to stop on ice. By pumping or jabbing the brakes, steering control can be maintained. Apply brakes for an instant, and as quickly, release them for an instant. Repeat this action – on and off, on and off, to complete the stop. This effect is to give alternate short intervals of maximum braking effort and effective steering control of all wheels when the brakes are released and the wheels roll. This technique can be used indefinitely with hydraulic or mechanical brakes. With air brakes be careful to avoid reducing the air pressure to a dangerous low level. Remember, when your air pressure is too low the brakes will automatically lock.

Anti-Lock Brake Systems (ABS) automatically pump the brakes for you if your vehicle wheels begin to lock up. This allows the vehicle to maintain effective steering control and reduces the risk of skidding. The brake pedal will pulse but this is normal. Check your operator's manual for more details on ABS.

Combination Vehicle Jack Knife

There are two types of jack knifes:

a/ A tractor jack knife in which the rear of the tractor skids sideways.

b/ A trailer jack knife in which the rear of the trailer slides and comes around.

Repeat tests have shown that if a jack knife develops beyond 15 degrees it is almost impossible to recover. The faster this 15-degree angle develops the greater the severity and potential damage from the jack knife. Since a jack knife can go to 15 degrees in as little as 1½ seconds, any attempt to recover must be fast in order to take preventative action.

How to Prevent a Jack Knife

First, recognize the road and weather conditions and constantly monitor these conditions. Be prepared for the unexpected. Identifying a white out or a patch of fog and adjusting your speed before you get into it is just common sense. You'll never go wrong by slowing down.

A little caution and alertness will prevent running into trouble. When going up a hill, visualize what could be happening just over the hill. Maintaining directional control means keeping all wheels rolling. It's when the drive wheels of the tractor are locked and the front and trailer wheels are rolling that the tractor is most likely to jack knife.

Patience is a virtue when it comes to driving in winter conditions. Continually being alert and courteous as well as using good defensive driving skills will help you survive winter driving. The Transportation Health & Safety Association has a Defensive Driving Program and a Winter Driving Program for bus drivers. Give us a call and one of our qualified representatives would be more than happy to discuss these programs with you. We also have a booklet entitled, **"Your Guide to Safe, Efficient, Winter Driving",** available by calling our office or by checking out our web-site at www.thsao.on.ca

The Transportation Health & Safety Association of Ontario is your Health and Safety Association and has been in the health and safety business assisting firms like yours for over 60 years.

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