



Driving in snow and ice conditions

Purpose

The purpose of this Vehicle Standards Information (VSI) No. 57 is to provide advice to persons on driving in snow and ice conditions. It includes a summary of their legal obligations and general advice on safe driving in such conditions.

General requirements

Clause 25 of the National Parks and Wildlife Regulation 2002 (the Regulation) requires that persons travelling by motor vehicle, except four-wheel drive (4WD) vehicles, on any designated snow/ice risk road within Kosciuszko National Park (the Park), at any time during the designated snow season, which spans the period from the start of June long weekend till the end of the October long weekend in any year, must carry snow chains and fit them when directed by an authorised officer.

Two-wheel drive vehicles

GENERAL

The traction provided by all types of vehicles is greatly undermined on roads affected by snow and ice, with two-wheel drive vehicles being affected more than 4WD vehicles. These conditions reduce a vehicle's road handling and braking performance compared to dry and wet roads, and increases the risk of a vehicle crashing. To control these risks, some means must be provided to enable two-wheel drive vehicles to travel safely on snow or ice affected roads, and the Regulation requires that these vehicles are fitted with snow chains when directed. This is consistent with legislation worldwide where countries with heavy snowfalls require vehicles to be fitted with snow chains when driving in mountainous regions on roads affected by snow or ice.

The traction provided by two-wheel vehicles on cold roads can be improved by using winter tyres, see page 3. However, persons driving two-wheel drive vehicles fitted with winter tyres are not excluded from the provisions of the Regulation, and they still must carry snow chains in their vehicle and fit them when directed.

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SNOW CHAINS

There is a wide variety of snow chains available to either purchase or hire which improve traction to different degrees. To be effective, some part of the chain must be in contact with the road surface at all times to continuously generate the necessary traction. Some types of snow chains, such as certain ladder chains, should not be used as the spacing between the chain 'rungs' can be excessive and allow the bare tyre contact with the road surface; see Figure 1. The Roads and Traffic Authority (RTA) recommends that snow chains comply with the performance criteria specified in the Austrian Standard ONORM V5117 *Snow chains for vehicles classes M1, N1, O1 O2 Requirements, testing, marking of conformity* for vehicles up to 3.5 tonnes and ONORM V5119 *Snow chains for vehicles classes N2, N3, M2, M3, O3, O4, O2 – Requirements, testing, marking of conformity* for heavier vehicles.

FIGURE 1: DIFFERENT TYPES OF SNOW CHAINS FITTED TO A WHEEL

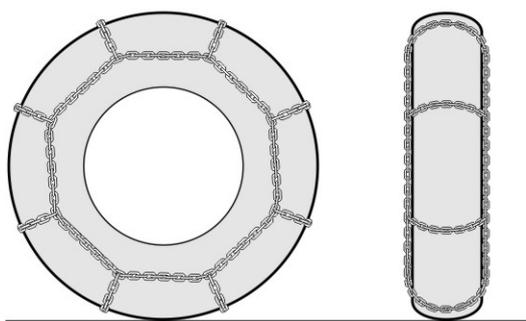


Figure 1(a) Inappropriate ladder snow chains

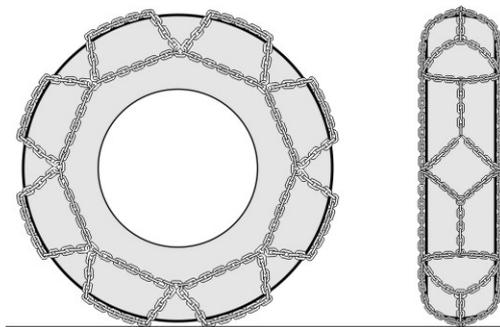


Figure 1(b) Effective diamond snow chains

To be effective, some part of the snow chain must be in contact with the road surface at all times.

Four-wheel drive vehicles

GENERAL

Four-wheel drive vehicles have better road holding performance than two-wheel drive vehicles on slippery surfaces. Although the Regulation acknowledges this by excluding persons driving 4WD vehicles from the requirements to carry and fit snow chains, statistics show that these vehicles are not excluded from crashes. Indeed, data compiled by the RTA shows that 4WD vehicles are regularly over-represented in crashes that have occurred in the Park in snow or ice conditions: for example, during the 2007 snow season, they were involved in 10 of the 20 crashes (ie 50 per cent) that occurred on the seven designated 'snow chain days'. There are many reasons for this; one reason is that the 4WD mechanism does not translate to better braking performance. Instead, this is largely a function of the traction generated by the vehicle (ie the wheels) and the road surface.

To control the risks of driving in snow and ice conditions, the RTA recommends that persons driving 4WD vehicles take measures to improve the vehicle's performance capabilities by either:

- Fitting winter tyres to the vehicle; or
- Carrying snow chains or equivalent snow traction devices, and fitting them when recommended by the RTA.

The Regulation does not define a '4WD vehicle' nor is it defined in any vehicle-related legislation. The term '4WD' originally applied to large vehicles designed to be driven on rough terrain and off-road, typified by the Land Rover. This distinction has become more and more blurred with the advent of sedans with 4WD capability (all-wheel drive or 'AWD' vehicles), smaller sports utility vehicles (SUVs), and so-called 'soft roaders'. The RTA's position is that the exclusion in the Regulation applies to all vehicles that possess the same enhanced performance capabilities to enable them drive safely on snow or ice affected roads. For these purposes, the RTA classifies '4WD vehicles' as those whose transmission can deliver torque to all four of its wheels either simultaneously or as required, including AWD vehicles.

WINTER TYRES

Winter tyres are specifically designed for driving on roads affected by snow or ice. They have specialised tread patterns which provide enhanced grip on snow or ice covered roads. In addition, they are manufactured from a rubber compound that is softer than standard all-season tyres in cold temperatures which improves their traction on clear roads. An added advantage in using winter tyres is that being already fitted to the vehicle, there is no need to stop at chain bays to put on and take off snow chains.

Although winter tyres are also known as 'snow tyres', they should not be confused with 'snow and mud tyres' that are commonly fitted to off-road vehicles. The latter are intended for general use both on-road and off-road. Whereas they may provide better traction than dedicated all-season road tyres on loose or rough ground, their performance in snow and ice conditions is not sufficient to allow them be used instead of snow chains or other snow traction device.

Winter tyres can be distinguished from other tyres, including snow and mud tyres, as they are marked with a standard logo showing a snowflake and a mountain, which is shown in Figure 2.

FIGURE 2: STANDARD WINTER TYRE IDENTIFICATION LOGO



A potential drawback with using winter tyres is that their soft compound results in a greater rate of wear when used on normal roads than all-season tyres, especially in warmer weather. If using winter tyres, particular care is required to ensure they have not been worn to such an extent that their performance on snowbound roads is affected.

SNOW CHAINS OR EQUIVALENT SNOW TRACTION DEVICES

The RTA recommends that persons driving 4WD vehicles that are not fitted with winter tyres carry and fit snow chains (see page 2) or an alternative snow traction device that provides an equivalent performance as snow chains. Such snow traction devices, such as items made from textiles, should comply with the Austrian Standard ONORM V5121.1 *Wheel slide protection control devices for vehicles classes M1, N1, O1, O2 – Requirements, testing, marking of conformity*.

In acknowledgment of the different performance capabilities between different types of vehicles, the RTA has established a hierarchy for fitting snow chains. This recommends 4WD vehicles to be fitted with snow chains (or other traction device) only in more severe weather conditions than the current threshold for two-wheel drive vehicles.

General safety

Driving in mountainous areas can be hazardous, especially in the snow season. It is important that you fully plan your trip to and from the snow fields – ensure that you allow plenty of time for your journey, your vehicle is properly prepared and you drive to the road and ambient conditions. Observing the following will help keep you, your passengers and other road users safe:

- Ensure you allow enough time for the trip. Weather can change quickly in mountainous areas, with a corresponding effect on the roads and travel speed. In addition, if the RTA declares a 'snow chain day', there can be delays in accessing snow chain bays to fit and remove chains, and the process itself can take a considerable amount of time for persons inexperienced in it.
- The roads are typically narrow with limited scope for establishing a detour should there be a crash. So, even a minor crash can block a road for a significant period and add to your journey time.
- You should carry a blanket and dry clothes in the vehicle to reduce the risk from the cold should you have to wait for help in the event of a break down or minor crash in cold weather, particularly after skiing.

- Most people have to travel a considerable distance to get to the snow fields. Ensure you have regular breaks to 'stop, revive and survive'.
- Even allowing for delays and distance to travel, driving to and from the snow fields can be more tiring than normal driving given the possible difficult conditions encountered – adverse weather, darkness and narrow, winding roads. In addition, many people are more susceptible to driver fatigue when going to and from the snow fields as they try and pack so much activity into a short period of time, especially at weekends. Again, it is important to stop and rest as soon as you feel tired even if you have not scheduled a break.
- Temperature fluctuations between night and day produces dew which settles on cold surfaces such as vehicles and freezes as frost or ice. Also, snow can settle and freeze on a vehicle if it is parked for even a short time. You should not drive if your windows are frozen as it can be very difficult to see through them. It can take a considerable amount of time for a vehicle's heating system to thaw frost or ice from them. Keep an ice scraper in your vehicle for removing snow, frost and ice from your windows before commencing a journey. Additionally, you should add anti-freeze to your windscreen washing fluid otherwise it could freeze instantly on a cold windscreen while driving.
- Ensure your radiator fluid and your windscreen washing fluid can withstand temperatures below freezing points by adding anti-freeze additives to them if necessary.
- Diesel 'waxes' at low temperature which blocks the fuel system and immobilises the vehicle. If you drive a diesel vehicle, ensure you use fuel formulated for use in cold conditions, such as 'Alpine Diesel'. This is only usually available close to the snow fields, so plan your journey to arrive with plenty of room in your fuel tank for this fuel.
- Take particular care when driving at night or at dawn or dusk as surface moisture and dew freeze and may become black ice, which is very difficult to detect on the road. Indeed, black ice can remain in shaded or low-lying areas even during fine days.
Note: An advantage in fitting winter tyres to your vehicle is that they provide superior grip on cold roads and on black ice.
- To be effective, snow chains must be fitted to the driving wheels on two-wheel drive vehicles or on the wheels designated by the manufacturer of 4WD vehicles. The appropriate wheels should be specified in the owner's manual. If in doubt, check with the vehicle's manufacturer.
- Obey all instructions and observe all information provided by the RTA, NSW Police, National Parks and Wildlife Services and other authorities. Be aware of variable message signs as these provide up-to-date information about the weather and road conditions and if snow chains have to be fitted.
- Snow chains come in different sizes to suit different wheels. You should know the size of the wheels on your vehicle to ensure you buy or rent the appropriate snow chains.
Note: Some types of wheel and tyre configurations may not be able to have snow chains fitted to them, such as low profile wheels on performance cars. Refer to the manufacturer's instructions to see whether snow chains can be fitted to these vehicles.
- If you intend using textile traction devices on a 4WD vehicle, check their condition before departure to ensure that they are free of defects that could affect their performance.
- Driving in cold weather on slippery or dry roads require more distance to brake and reduces the cornering performance of your vehicle. Adjust your speed and following distance accordingly.
- Ambient light in the mountains can be poor, especially in wintertime. You should drive with your headlights on low beam even during daytime to improve your visibility to other road users.