

SNOW DRIVING

Snow driving falls into two categories: getting to the snowfields on plough-patrolled bitumen roads; and dirt road and trail driving. Both pursuits have their hazards.



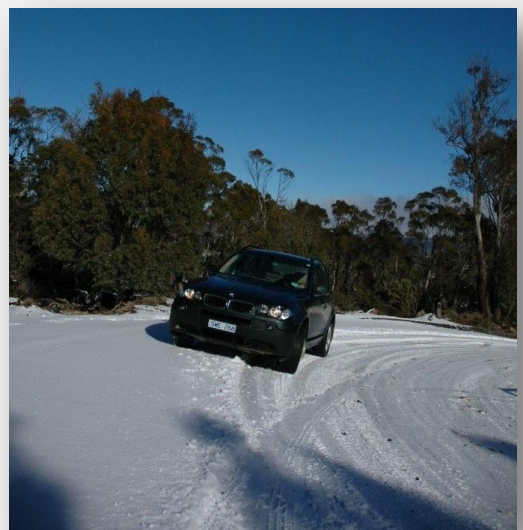
Driving a well-maintained 4x4 on patrolled roads above the snow line shouldn't be a hazardous occupation, if you follow some simple procedures. 'Take it easy' is the overriding rule.

We know it's expensive going skiing and to get your money's worth you want to power into the powder as soon as you can, but once there's snow, slush and black ice around it's time to get off the loud pedal and plan every manoeuvre carefully. Minimise braking and avoid sharp acceleration, because even a traction and stability controlled 4x4 can get out of shape if its tyres can't grip properly.

Black ice is the principal hazard on bitumen roads. Black ice forms after sun-melted snow flows across a road and freezes when the temperature drops overnight. It's called 'black' because it looks like a flow of melted bitumen.

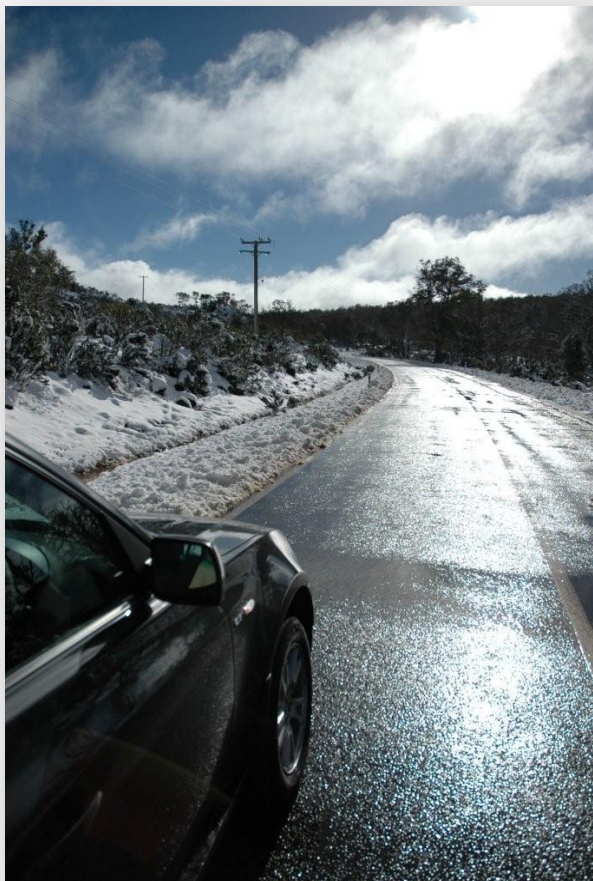
Black ice has about the same co-efficient of friction as glass, so when your tyres run across it they have no grip at all and you're temporarily out of control, regardless of what traction aids you have on board.

Thankfully, most such ice patches are short, but sometimes they're long enough to send vehicles into the shrubbery or worse.



Black ice is an obvious night hazard, but is a daytime risk on shady stretches of road that haven't had any warming, melting sun.

On plough-patrolled roads be very careful where you park your 4x4. Don't stop in positions where your vehicle can be struck by an out of control machine. Also, don't park on the road edge where snow ploughs are likely to be working, because if your vehicle is buried by a heavy snow fall the plough driver won't be able to see it. Plough blades are uncompromising.



Don't turn the heater up full blast and strip down to a T-shirt when you're snow driving. If you have to get out of the car you'll get cold as you scramble into winter-weights and maybe fall over as you hop around trying to pull on your boots. It's a better proposition to have mild heating inside the 4x4 and keep your boots and woollies on. That way, if you have to get out it's only a matter of pulling on a hat and a parka and you're comfy.

Dirt road and trail driving above the snow line is usually limited by road closures, but some private roads remain open.

Never drive on closed roads: firstly, because they've been closed for a good reason and, secondly, no-one will look for you there, if you become stuck and your tracks are blanketed by fresh snow.

In good weather conditions unsealed surfaces provide less tyre traction than bitumen roads, but have even less grip when they're snow or ice covered. Any climb or descent is fraught with danger.

You should judge carefully the need for off-road driving in the snow.

Vehicle Preparation

If you're heading for the snow you need tyres with better than one-third original tread depth. Barely legal ones that just pass the match-head depth gauge test are best kept for next summer's beach forays.

Don't have warm-climate diesel in your tank, because it's likely to plug your filter with wax crystals. Fill up with winter-grade fuel near the snow fields – it'll be more expensive than city fuel, but it's formulated to reduce waxing.

It may seem odd to be worried about your cooling system when you're headed for the snow line, but water occupies its maximum volume just before it freezes. This expansion is powerful enough to crack engine blocks and cylinder heads. The cure for frozen cooling systems is the correct coolant mixture specified by the engine maker. However, coolant mixes have finite lives and some types lose their anti-freeze properties in year or so. You may need to have the system drained and replenished before winter sets in.

Some vehicle makers specify a different oil grade for winter and summer, but this is usually intended for vehicles that are stationed through the entire winter in cold regions. It's unlikely your vehicle needs a different oil grade for occasional visits above the snow line during winter. It's the same situation with transmission oils.

Oil won't freeze in Australian winter temperatures, but it does become sluggish.

An oil change before heading to the alps means that your oil isn't full of contaminants and will flow more freely when cold. Anything you can do to lessen the chill factor - parking under cover, for example - will help.

If you're spending a lot of time in freezing conditions you can make your engine's life easier by using a heater - either the type that warms from under the sump, or one that fits into the cooling system or slides down the dipstick hole.



Motorist assistance organisations are always busy in winter with vehicles that won't start. Cold weather often sounds the death knell for aged batteries and wet conditions test faulty connections.

You don't need a dud battery or dodgy electricals in the snow, because it's not just inconvenient when your 4x4 won't start - it may be life-threatening. Any battery that's three or more years old is suspect.

Electrical connectors and wiring looms, from the battery posts right through to the tail lights, are worth a check, before you venture into the icy bush.

Lights are vital, for seeing and being seen, in foggy conditions.

Make sure yours are functioning properly and that you have spare globes on board.

Snow Gear

It's fun heading for the snow, but to keep it fun you need the right equipment with you.

The bits and pieces you're likely to need when snow driving depend on where you're headed, but for the normal commute to and from the ski fields the starting point is the mandatory pair of tyre chains.

Most 4x4s get through compulsory 'chain-up' stations without having to fit chains, but you still need to carry at least one pair that actually fit your tyres. If you are instructed by police or park rangers to fit chains, you should fit them to your front tyres, in almost all situations.

However, the arrival of electronic traction control has complicated the issue somewhat, so that's no longer a firm rule. Some 4x4s need chains to be fitted to all four wheels and cannot be driven with only one pair without the risk of transmission damage. Other 4x4s must be fitted with brand-specific chains.

Look in your vehicle handbook for directions.

If you've fitted slightly oversize tyres to a 4x4 that has variable-height air suspension you may need to run the vehicle at enhanced height to provide adequate chain-fitting clearance under the mudguards.

The debate about the relative merits of ladder-pattern - across-tread - and diamond-pattern chains is ongoing, but the best compromise chain for the occasional icy-road driver is the diamond-pattern type. This design lacks the sheer driving grip of the ladder-pattern type, but offers better steering direction response in most conditions. The easiest ones to fit have a stiff 'ring' that fits against the inner wall of the tyre and external tensioners that are easily adjusted without the need to roll the vehicle forward or backward.

Regardless of the type you buy the trick with chains is to practise at home, before you get to a freezing roadside bay.

On icy or snow-covered roads the amount of available grip varies almost constantly and it's common to have the front wheels with good traction and the rears with none. In these conditions you need your centre differential locked. After

After fitting chains, stop where safe after a few minutes' driving and make sure that they're adjusted properly.

Snow Tools and Other Essentials

A **windscreen scraper** - preferably one with a squeegee rubber on one side - is essential. Don't try the bucket of hot water on the windscreen ice-removal trick, because you risk a cracked screen.

You should have a **shovel** or two - folding ones are fine - and pair of waterproof, **insulated gloves** to go with each shovel.

Warning triangles are necessary, in case you break down and need to signal oncoming vehicles - especially snow ploughs! An alternative is one of those free-standing lanterns that emits a white light to the front and a red light to the rear. Some of these lights have a flashing mode.

A **torch** with spare batteries is another essential.

A **tow-strap** with shackles attached is good insurance. (Make sure the shackles fit your recovery points).

Spare fuel is handy to have on board, because it may allow you to run the engine for hours and keep the interior warm. In any case, never travel in snow areas with a near-empty tank - pay the higher price of local fuel and keep your tank topped up.

De-icing spray is handy for unplugging door locks and freeing frozen winch components.

Some form of **communication** is necessary. Mobile GSM phones work only near towns and resorts, although 3G coverage is wider. A CB radio doesn't have much range, but it will reach passing traffic if you're stuck in a snow drift. A **satellite phone** is a luxury for main-road travellers, but good insurance for those heading off-bitumen.

A **GPS unit** is a must if you're leaving the main road and track driving. Teamed with maps and a compass you'll know where you are at any time.

An **EPIRB or PLB** will guarantee an aircraft can pinpoint your position, but it's also important if someone knows your travel plans and can inform the authorities when you're overdue.

If you're planning to leave the main road above the snow line an **emergency V-sheet** is no great load to carry. Pegged out on a white landscape it's much more likely to be spotted by search crews than a half-buried vehicle.

Food, water and warm clothing are essential items on board any vehicle that travels above the snow line. You never know when you're going to be marooned by a blizzard, so make sure you can survive for a few hours at least.