

# Safe Winching

Winching a vehicle out of a bogging can be a satisfying experience, confirming your bush self-sufficiency, or it can be a disaster. Having the right gear and using it correctly are vital to safe winching. Firstly, let's cover the essentials.



## Winching Points

Every 4WD must have front and rear recovery points capable of withstanding winching and snatch strap forces. The small eyes and hooks that are used to anchor vehicles during their sea voyage Down Under are not strong enough for this task.

If you're relying on the eyes that are part of a 'roo bar construction it's essential that the bar itself is correctly mounted to the chassis - remember the scene where Russell Coight rips the bar off a 4WD!

Many 4WD owners rely on their towbars for recovery purposes. That's fine, if the bar is rated for the vehicle's weight and if it's bolted correctly to the chassis, but lightweight tow bars may not be strong enough for recovery work. If you want to use the tongue socket as a recovery point, use the locking pin or buy a special recovery fitting that slides into the socket.

## Perfect Cable

Winch cable, be it wire or synthetic rope, must be in as-new condition, with no frayed, badly kinked, separated or broken strands.

If you're relying on a powered winch in your recovery kit you should ideally carry a spare cable. If space is a problem, the minimum is some cable clamps, so that you can effect a temporary repair of a broken cable. Reserve winch cable can often be stowed in the well of a spare wheel, getting it out of the way. Broken synthetic rope cable can be joined by a reef knot, but remember that the rope has already been stressed and the strength of knotted rope is around half that of unjoined rope.

The alternative to joining broken wire with a pair of cable clamps is to splice the broken ends together, but this needs practice, strong fingers and skill.

Hand winches rarely snap cables, because the shear pins in the lever mechanism break well before the cable reaches its load limit. Spare shear pins are obvious inclusions in your kit.

Damaged cable or rope must be junked after your trip.

## Extension Strap

An easy way to increase winch reach is to use a webbing winch extension strap. You can halve or quarter the strap length by using it as a two- or four-strand strap.

Winch extension straps can be easily damaged by rough or sharp surfaces, so it's essential that the strap is protected where it passes over obstacles. A second winch cable damper works well, as do special tough fabric sleeves that are designed for just this job.



## Shackles

Shackles are essential recovery kit items and, within reason, you can't have too many. Big, fat, Working Load Limit rated ones are strong and are easily handled. They're also highly visible, so they're less likely to get left behind at the recovery site than small shackles. However, there is a limit to the size of the shackles you should carry, because there's no point taking shackles with pins that won't fit through your recovery point eyes.

It's also wise to carry a pair of smaller shackles - provided they're rated for recovery work - because the recovery vehicle that's pulling you out of a bog may have smaller eyes than your machine.

Never load a shackle across its width, because the load is then imposed on the threads: the pull must be at right angles to the pin.

Keep shackles clean, dry and with lubricated threads and you won't have trouble doing and undoing them. Finger tight is fine, provided the pin thread is fully 'home' in the shackle eye.

## Tree Trunk Protector

Trees are the most commonly used recovery points when winching and a purpose-designed tree sling is a necessary attachment point. A winch cable should never be wrapped around a tree : this practice ring-barks the tree and stresses the winch cable at the point where the hook grabs onto the cable.



If the only available trees are small it's possible to connect two or more of them together, using a winch extension strap or a snatch strap that's lost its elasticity.

Use a tree as a last resort: connect your winch hook to another vehicle where you're able to do so.

## Gloves

Don't keep your gloves in the recovery bag: put them in a door pocket, where they're easily found when refuelling at a messy diesel pump, clearing grass build-up from around the exhaust system, changing a wheel or breaking up kindling for a campfire.

Many off-roaders consider gloves for 'sissies' but you don't need damaged hands when you're driving long distances. It takes more time to bandage cuts and dig out splinters and burr spikes than it does to slide on a pair of gloves.

## Snatch Block



A snatch block can halve the work load on your power winch and is almost mandatory when you're using a hand winch. It's not possible to move a bogged, heavy 4x4 with a single-line-pull hand winch.

Keep your snatch block lubricated, because a sticking pulley increases friction and makes your winch work harder.

## Winch Maintenance

Many power winches serve mainly to decorate the fronts of 4WDs and get used rarely. It's not uncommon to find that winches don't work properly - or at all - when they're needed, because they haven't had any maintenance. You need to have a preventive maintenance program for your winch, to ensure that it will work at 100 percent efficiency when you need it to. The job starts with the battery and ends at the hook attachment to the cable. Any winch supplier will tell you the steps to follow.

Periodically spool out your winch cable and, as you relay it on the drum, give it a dose of cable lube and look for kinking, abrasion and broken strands. Check the hook and pin and the action of the fairlead rollers. Inspect the winch housing for damage and check the tightness of the attachment bolts.



## Safe Winching

Winching is a last-resort means of extracting a bogged vehicle, if it can't be pushed, towed or pulled out with a snatch strap.

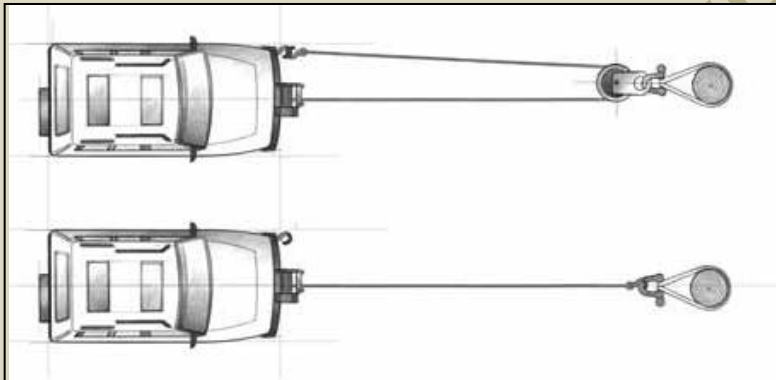
Winching recoveries are of two types: solo vehicle efforts, where your vehicle is stuck and there's no-one around to help; and those situations where one vehicle in a convoy is stuck. In both cases, the winching operation must begin with a calm assessment of the situation. The safety of all concerned is the main consideration.



Before you start paying out the winch cable and looking for a suitable anchor point, make sure you've taken all steps to extract vehicle under its own power: lowered tyre pressures; cleared obstacles from the under-body and tyres; checked that it hasn't 'jumped' out of 4WD, diff lock or low range; and given the traction control system time to build up power after prolonged use.

## Solo Winching

If there's a suitable large tree directly in front of the vehicle, winching should be a relatively simple exercise. Get your recovery kit bag out of the vehicle and put on your rigger's gloves. Make sure the winch drum is declutched and 'free spool' the hook and cable as far as the tree. Come back to your kit bag and take your snatch block, large shackle and tree trunk protector to the tree.



Wrap your tree trunk protector around the trunk, as low down as possible, with the loops led towards the vehicle, then open the snatch block side plate, run the cable through the pulley, close the side plate with the cable inside and secure the snatch block to both protector loops with the shackle.

Make sure the protector loops are snugly positioned on the shackle pin and the snatch block eye is free to move along the curve of the shackle. Lead the winch cable hook back to the front recovery point on your vehicle and make sure it's securely clipped in place.

Lock the winch clutch lever and plug in the hand controller. Check that the winch operates in and out, by briefly pushing the controller switch. Place a heavy 'damper' over the winch cables (a folded tarpaulin will do, but a 'saddle bag' with weight in each pocket is best). Make sure any spectators are well clear and to the side, should the cable break and flail around.

Move to the driver's side of the vehicle and then tension the winch cable, so that it's tight, but not moving the vehicle. Look along the cable length to see if it's fouling on anything, or being stretched over sharp rocks. You'll need to wedge some sacrificial material between the abrasive surface and the cable.

As an extra safety precaution you can raise the bonnet, so that it acts as a barrier between the winching gear and the windscreen. If you've ever seen a broken shackle fly through a screen and out the back window of a 4WD, you know why this is an additional form of protection! You don't need to

see ahead, because the winching action will 'steer' the vehicle.

Take the controller with you into the driver's seat and start the engine, to charge the battery while you're winching.

Operate the winch, to pull the vehicle clear, with the transmission in neutral. Once it's unstuck, or after 15 seconds, stop winching, pull on the handbrake, ease tension in the winch cable by paying out a little and, if it's safe to do so, get out of the vehicle to check progress.



Never, ever step over a loaded winch cable!

In soft sand it may be necessary to drive and winch at the same time. Select low range, first or second gear and accelerate gently as you operate the winch.

When the vehicle is unstuck, de-rig the recovery kit and stow it, and close the bonnet. Keep your gloves on and leave the engine running. Although you've been running the engine while winching, the winch motor power demand is up to 40 times the alternator's charging rate. Don't turn the engine off after winching, because there may not be enough charge left in the battery to restart it!

De-clutch the winch drum and free-spool out all the cable but the first layer, then re-clutch it and power the cable back onto the winch drum, layering it under hand tension so that it sits neatly. As it slides through your hands, check the cable for damage.

Take great care when the hook nears the fairlead and hold the fabric tab, not the hook, as you tension on the final centimetres of cable. Secure the hook to the roo bar and then de-clutch the winch drum, so that in the event of an electrical dead short the winch motor might run, but the drum won't rotate and cause winch and/or vehicle damage.

## Complications



Complications can make the foregoing procedure a more difficult one.

A convenient tree, for example, isn't always on offer and you'll need to use a webbing extension strap – ours is 30 metres long. On flat ground you may not need to double your winch cable via your snatch block, so you can use the full cable length. A further extension is possible, by using your spare winch cable, forming an eye in the winch-drum end with a pair of cable clamps. The proper way to connect the eye to a hook or shackle is use a 'thimble' in the eye so that the cable strands aren't crushed.

Two offset trees can be joined by a strap, with the hook or snatch block shackled mid-strap, to provide a straight pull.

If there are no trees at all, you may need to dig a trench and bury your spare wheel in it, as a sand anchor.

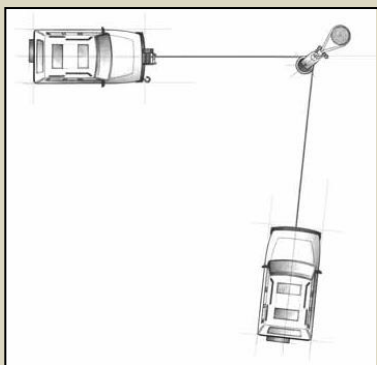
If you're stranded in a creek, don't turn the engine off when setting up for winching, because water may flood the exhaust system and prevent a restart. Get everyone out of the vehicle before you winch.

On very soft ground, winching may just drag the vehicle along, without lifting it up on to the surface material. In this situation, you need to make 'ramps' in front of the tyres, to stop the vehicle just digging ruts. Ramps can be improvised from branches, rocks, bits of roofing iron or planks.

Don't try to winch a vehicle that's coupled to a trailer. Disconnect the trailer and the 4WD can often be driven out. Then you can tow the trailer out.

Winching in situations where the vehicle is at a steep angle – up, down or sideways - is fraught with danger. If you're in doubt about the safety of a winching manoeuvre, get on the sat phone and ask for help.

## Convoy Winching



In theory, winching with helpers around is easier, because there are mobile 'anchors'- other 4WDs – and more winches. However, too many cooks can spoil the broth.

As with a solo winching operation, convoy winching should be a last resort recovery job. We've seen many winching jobs that should really have been simple tow-outs.

A 4WD has much more torque than a winch!

For example, winching over a sand dune is a waste of time and energy. If other vehicles have 'made it', one of them can pull the stuck vehicle over, using a long winch extension strap as a tow rope. If one towing vehicle can't do the job, it can be aided by another vehicle, tied in front.

Having several vehicle anchors and winches on hand makes winching in steep country much safer. You may need to 'belay' the stranded vehicle from one side to prevent it rolling over, by passing a tree sling around the B-pillar and door frames and keeping winch tension on the sling as the vehicle is dragged free from the front or rear.



It's absolutely vital that the most experienced recovery person in the convoy is in charge of operations. He or she should be open to suggestions before winching begins and receptive to warnings during the task, but ultimately the directions should come from this one person.

The designated winch 'boss' can signal the stranded vehicle driver during winching. Warn suggests arm raised, finger twirling for winching in and arm lowered, finger twirling for winching out.



## Winching Jargon



**Belay** - using a second winch or line from the side of a 4x4, to steady it while winching.

**Buried anchor** - any winching anchor which is dug into the ground.

**Cable clamp** - a small cast clamp with U-bolt, for joining cables.

**Cable damper** - a 'saddle bag', tarpaulin or blanket laid over a winch cable to prevent cable whip in the event of breakage.

**Free spooling** - running out winch cable with the winch clutch disengaged.

**Grubscrew** - connects the winch cable end to the drum, but cannot handle winching loads.

**Hook to hook** - using 4x4s nose to nose with both winches operating simultaneously.

**Land or earth anchor** - stakes hammered in a line into the ground and connected together, a plough-anchor, or a screw-in device.

**PTO winch** - a mechanical winch, driven from a transmission power take off (PTO) - rare these days.

**Rear recovery** - using a winch to pull a 4WD backwards.

**Safety hook** - a hook with a spring-loaded clip that closes the hook opening.

**Shackle** - a bow- or U-shaped connector with a threaded pin.

**Sling** - usually, a length of synthetic strap, with eyes at each end, to accept shackles.

**Slingshot** - 4WDs side by side with one or both winches operating through a snatch block on a forward anchor.

**Snatch block** - a pulley with opening side (cheek) plate, allowing cable to be fed on.

**Solenoid** - electro/magnetic switch.