

# Bush Repairs for Minor Dramas

**One day, you'll be out in the scrub and you'll break, bend, puncture, lock-in, or lose something vital.**

The following hints may then be helpful.

You should be as self-sufficient as possible on every bush outing and that means having water, oil, reserve fuel, some important spare parts, a tyre repair kit, basic tools, a recovery kit, a GPS and compass and detailed maps of where you're going. When something does go wrong you've at least got half a chance of rectifying the situation.

We're assuming in this article that you have minimal mechanical knowledge, a limited tool kit and you're not really up to dismantling a broken CV joint or using batteries to weld.

The bush repairs we've suggested are only for emergency situations and are intended only to get you to a location where professional help is available.



## No Additional Spare Tyre

Tyre damage has caught out many of us: you don't get a flat for months of bush travel and then suddenly you pick up two in one afternoon.



Tyre plugs are the answer for tubeless tyres, unless the casings are badly torn. Split-rim wheels with tubed tyres are quickly repaired, using your tube patching kit.

Don't fit a spare wheel if you're travelling slowly on bush tracks: it makes more sense to plug or patch the punctured tyre, rather than risk damaging your spare.

Change to the spare when you need to travel on formed roads.

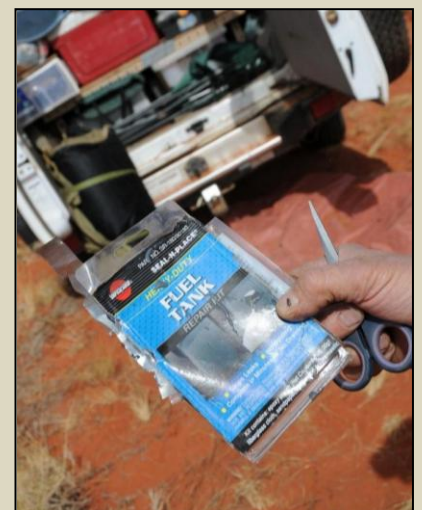
## Leaks

The most common leaks are from cooling systems, fuel tanks and axles. Cooling systems normally leak from split hoses, loose clamps, cracked radiator tanks or holes in the core.

If you're properly self-sufficient you can replace split hoses with the spares in your emergency kit. (Our spare hoses are stuffed into body panel cavities, where they take up no space and are always at hand.)

An alternative is a two-pack tape repair kit designed specifically for the job. Another bush fix is to cut the damaged section out of the hose and clamp in a metal tube made from a piece of cut-off exhaust pipe or a can.

Broken clamps can be replaced by fresh ones from your spares kit, but if that's not an option you can twist a length of wire around the hose.



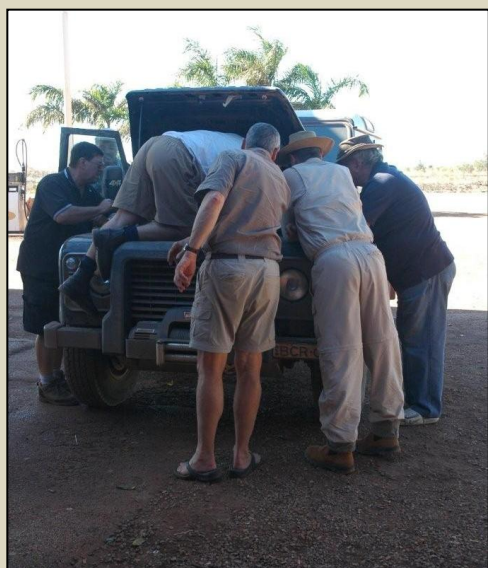
Split brass radiator tanks can be soldered, using your 12-volt iron, or patched with two-pack epoxy putty. Plastic radiator tanks can be epoxied reasonably easily, but a better repair is done with fusible plastic 'stick' - available from radiator shops. Holes in radiator cores can be plugged with two-part epoxy putty, or with solder. Another method is to pinch shut the leaking radiator tube with needle-nosed pliers.

Fuel tank leaks can be sealed with epoxy putty, under a self-tapping screw and a fat washer.

Axle leaks are tough to fix in the scrub, so you'll just have to keep the axle topped up with oil - any oil will do in an emergency.

## Water in the Engine

Engines are air compressors and they don't take kindly to having uncompressible fluid inside their combustion chambers.



If your engine 'dies' in a creek and you suspect that it breathed in water, don't try to restart it. Get it dragged out, or winch it out, and pull the spark plugs or the injectors out before kicking it over, to 'spit out' the water. If the engine won't spin freely on the starter motor it means Big Trouble.

Petrol engines and direct-injection diesels can tolerate a little 'drink' but an indirect-injection diesel has no chamber space between the piston top and the cylinder head. 'Hydraulicking' a diesel usually means severe valve, conrod, piston and crankshaft damage. You'll need a tow, with the transmission in neutral.

Towing in steep country is easy enough going uphill, but downgrades can be tricky, especially without vacuum boost for the braking system.

You'll need to shove hard on the brake pedal and use the handbrake as backup. If the hill is really steep, untie the tow rope and reconnect it with the towing vehicle behind, as an anchor.

## Busted Shockers

Shock absorbers can give up the ghost for many reasons, but the most common is travelling fast over severely corrugated roads. A shocker can get hot enough to boil its fluid and rupture its shaft seal.

When all the fluid has squirted out the shocker is no better than a bicycle pump.

You can't repair a leaking shocker in the bush, so if you don't have a spare you'll have to drive slowly.

Leaf springs have inherent self-damping, due to the friction between the leaves, so they rely less on their shockers than do coil springs and torsion bars.

If the shocker has separated - the shaft has pulled out or an eye has broken - it no longer controls suspension extension, so you'll need to rig up a restraining strap or risk 'spitting out' a coil spring if the suspension over-extends.



A length of stout rope or cargo strap wrapped around the axle and the top shocker mounting will do the trick.

Shockers sometimes 'flog out' bushes. If you don't have replacements you can cut down any solid lump of rubber you can find. A hot tent peg bores a nice hole.

We always carry a few two-piece tapered shocker bushes - they're standard Toyota parts - because they can be made to fit most shocker eyes or spigots.



## Dead Electrics



Batteries can die without warning, which is why we trade-in our starting battery every two years. If you've got a dual-battery system you can use the deep-cycle battery as a starting volt box. It doesn't like it, but it'll do to get you home.

Jumper leads can get your starting battery going - sometimes even if you're on your own. Doubling the jumpers with your battery cables to earth and to the starter can sometimes get enough current through to kick the engine over. If you've got a donor battery in another vehicle that's not necessary.

Once started, your engine should run for some time, if you don't use any electrical accessories.

A dead battery is sometimes an indication of a dead alternator - particularly if the red light is on!

Alternators don't work too well if the drive belt is missing - fit your spare belt. Some people carry adjustable substitute belts, but the genuine article is much better. If you can't get your alternator to work, swap batteries from other vehicles in the convoy, in turn.

## Busted Windscreen

Most windscreens are laminated, so the total disappearance of your front window is unlikely. However, we've seen laminated screens so badly cracked that they started to implode. Gaffer tape on the outside helps stabilise the glass, but you may need to brace the inside surface with some wood or wire struts.

A hole in the screen can be patched by shoving a rolled-up plastic bag through the opening. If vision is obscured by this method try several layers of Glad Wrap inside and out.

## Exhaust System

Exhaust systems are vulnerable to stone damage and they also deteriorate from the inside, so it's not uncommon to find one falling to bits during an off-road trip. Diesel exhaust doesn't contain much carbon monoxide and neither does petrol exhaust from engines fitted with catalytic converters, but it's undesirable to have exhaust gas filtering into the cabin, even if you do have all the windows open.

Wire does a reasonable job of tying up an exhaust pipe that's broken its welded brackets. Make a cuppa and the let the system cool down before you crawl underneath. Catalytic converters get very hot.

Pipes that have pulled out of other pipes can usually be forced back into union, but a pipe that's broken away from a muffler can't, unless you take it off, cut longitudinal slots in the pipe to allow the pipe to be tapered and then stuff it in the hole in muffler. The pipe will need to be tied to the muffler with wire.

## **Self-locking 4x4**

Some 4x4s have a nasty habit of locking themselves when the keys are left in the ignition and the doors are closed. Don't leave the keys in the ignition of these vehicles, or if you do, never shut the doors before opening at least one of the power windows.

A spare emergency key – not one of the remote key fobs, but a straight-metal key - packed securely in a weather-tight container and hidden somewhere underneath the vehicle, is a good backup in case your key does get locked in.