

FUEL SYSTEM CHECK

Around town the most common cause of breakdown is the electrical system, but out in the bush fuel problems are likely. You need to know how to trouble-shoot your 4x4's fuel system.

Contrary to most people's opinions Australian petrol and diesel fuel isn't of a poor standard. Unfortunately the oil companies have a public approval rating ranked only slightly above that earned by politicians, lawyers and banks, so it's fashionable to believe that Aussie fuel is lousy. The truth is that Australian-produced fuel leaves the refineries' outlets in excellent condition, in compliance with Australian Standards. The same is true of most imported product.

Nearly all fuel problems start at the points of distribution, storage and sale. Lazy or unscrupulous transporters and service station proprietors are responsible for passing on contaminated fuel or sourcing 'cocktails' of illegal brew.

The vast majority of servo owners do their best to ensure the fuel we buy is clean, so your best protection is to buy fuel from branded stations that have good turnover, but inevitably in a bush-touring lifetime you'll come across dodgy fuel. It's not uncommon for bush travellers to pick up a load of water-contaminated fuel Outback - particularly from above-ground storage tanks or drums.



When filling your tank in unfamiliar locations it's a good idea to take a look and a sniff at what's coming out the servo pump nozzle. Diesel filler necks are usually large enough to let you smell what's flowing in, but the 'throttled' necks of unleaded-petrol 4x4s aren't. Make sure you have a funnel that will open the flap in the filler neck, so you can check the fuel quality. Another option is a small glass jar, into which you can squirt some fuel before you fill the tank.

If you do pick up contaminated fuel it will hopefully be trapped in the fuel filter, so the indication will be a rough-running or stalled engine.

Blocked fuel filters are fairly common in the bush, so you need to know how to replace the element, but there's no point fitting a new filter until you're sure that the source of the contamination has been eradicated. You'll need to be able to drain water and sediment from your tank, so practise unscrewing the drain plug, before the time comes. The practice will show you that you'll need to carry a container of some description that fits in the restricted space between the tank and ground.

While you're down there you'll also be able to check the condition of your fuel tank - look out for small rust holes 'weeping' water or fuel, because many tanks have carried a layer of water for years and rust out as a result.

Most fuel filters spin-off by hand, but if it's been over-tightened you may need to use a strap spanner. Naturally, you'll have at least one spare filter in your travel kit.

Lube the new O-ring that comes with the replacement element with clean fuel and fill the element with clean fuel as well, to reduce the amount of hand-pumping you'll have to do. Most injection systems are self-priming, but check with your service manual to see if you must 'crack' injectors to aid priming.

Many filter-mounted priming pumps don't work, so now's the time to find out, or you'll risk flattening your battery in the bush by having to rely on the lift pump to refill the system.

Each vehicle has a unique filter - it's good for parts sales - but you may be able to replace a standard one with an after-market filter if you're sure that it meets your vehicle's filtration requirements. Reputable after-market filters are much cheaper and more readily available than originals in the bush. Another advantage is that most kits come with a clear bowl that allows you to check the colour of the fuel that's passing through.

Contrary to the water-stopping claims made by some after-market filter makers, water can pass through their elements in some circumstances. The best protection against water entry into injection system components is a water-stop unit - a float in a clear bowl - between the tank and the filter. The float sinks in fuel but rises in water, blocking the outlet to the fuel filter. A water-stop will also block some illegal fuel 'cocktails' if their density is different from normal fuel.

Protect the Under-Mounted Fuel Filter



It may seem logical to position the fuel filter close to the fuel tank, so if you do pick up contaminated fuel it doesn't fill the line that runs to an engine-bay-mounted filter. Some 4x4s have under-frame filters.

However, there is a possibility of these fuel filters being damaged by flying stones, so if you have an under-frame filter make sure you protect it with some stone deflection. Thick rubber sheet, zip-clipped in place, works well.

Fungal Infections

Automotive fuels are organic and can, in the presence of water and oxygen, be hosts to fungal growth. If you detect slime when you examine the filter element or when you drain the tank you need to get rid of all the fungus from your tank.

Biocides and fungicides are worth a go, but the safest eradication procedure is to remove the tank, flush it with a hose, fill it with swimming pool cleaner, flush it again with water, rinse it out with diesel, dry it completely, then refit it. Naturally, you need to do the job in a place that has a waste oil trap, so that the flushed fuel doesn't pollute the ground.

Jerry Can Check

There's not much point in having a clean, checked fuel system if you don't do the job on your reserve cans. You should be carrying at least one jerry can on any major excursion, but it's vital that the can is clean and its contents are fresh.

Be suspicious of old steel jerry cans. Steel cans suffer from condensation as the temperature changes and a layer of fuel inside won't prevent water droplets forming and sinking to the bottom of the can, where they'll rust it in no time. The water and rust flakes won't do your fuel system any good at all.

Zinc-lined cans don't rust as readily, but zinc can encourage oxidation of the fuel and promote fungal growth.

A steel jerry can must comply with Australian Standards, or it's likely to cause more trouble than it's worth.

Fuel doesn't store well and it certainly doesn't improve with age - unlike your wine collection. If you've got fuel left over from a previous trip use it by blending it with a near-full tank - better still, use it as soon as you get home from a trip. Old fuel - more than six months of age - should be viewed with suspicion.

Don't fill jerries without checking them for cleanliness. Fungus can form during storage and it's the last thing you want to put into your fuel tank. The same goes for any funnels you intend using.

The old rule of 'when in doubt, chuck it out' applies to any suspect fuel or fuel system components.