

# TAKEN A DIP?

TIPS & TECHNIQUES  
CLEANING A DROWNED 4WD

It might be funny at the time, but after the river in your foot well settles, how do you get your pride and joy clean again?

**W**ater inside your 4WD is just bound to happen at some time

along your 4WDing path. Whether it's in that boghole you and your mates always drive past on the way to your favourite campsite, or a river crossing with the family up the Cape, water ingress is a part of 4WDing.

In the next few pages, we will show you not only what to do after you have gone to second base with some muddy creek water, but also how to limit and diagnose water damage to those crucial electrical and mechanical systems that could leave you stranded.

## CLEANING

The interior of your 4WD isn't really designed to be submerged for a long period of time. Sure, vinyl floors and tough carpets may cope well with muddy boots or wet feet, but when you're faced with some serious water ingress, your interior finish will need some serious attention.

One of the biggest problems you will find is the carpet underlay often deteriorates once wet, and if not dried completely, it can rot and cause some nasty smells. However, if you have had some serious flooding, it is recommended to replace the underlay.

A common misconception is that a 4WD with vinyl flooring can be flooded with no problem, but what owners often don't realise is that even this vinyl has an underlay that is exactly the same as the carpet. Because the vinyl doesn't breathe at all, this underlay will start to rot much quicker and give off a real nasty odour.

## PRODUCTS REQUIRED

- Interior Spray and Wipe style cleaner
- Fish oil or wax spray
- Soapy water and sponge
- Air freshener/deodoriser
- Water dispersant (WD40 etc)

When cleaning up after the vehicle has been drowned, it's a good idea to purchase a handful of high-quality cleaning goods before you start



## NEVER TRY TO START AN ENGINE THAT HAS JUST BEEN DROWNED



## WHAT TO DO TO A WET 4WD



Remove the front and rear seats. This will allow access to the seat runners as well as the ratchet mechanisms that allow the seat to recline. Once out, clean with fresh water and place in sunlight to help dry. Using lanolin or wax sprays to coat the runners to keep them from rusting



Remove the carpet/vinyl along with the underlay. Clean the floor of the vehicle, making sure to remove the rubber floor bungs to allow all water out. Clean the carpet and then reinstall with new underlay



If the water has made its way inside the vehicle, be sure to clean the seatbelts with warm soapy water. Much like recovery gear, a dirty seatbelt will be less effective in the event of an accident. Never use any other cleaning agents for they will damage the webbing



If new underlay isn't in your budget, try placing a few plastic cups between the carpet and the floor to allow ventilation. Then leave the truck in the sunlight with the doors open or windows down for a few days



Remove the door trims and clean with a Spray and Wipe style product, then treat with a vinyl spray. Try to keep the panels as dry as possible and never blast the back of the panel with a hose (this could damage the panel). Many of these panels are made from particle board, so if they have been wet, you will need to leave them in the sunlight to dry

Remove the plastic dust shield and hose the inside of the door cavity out. Be careful not to wet the electric motors that control the windows and central locking. If the motors do get wet, allow them to dry before attempting to use them



Once the inside of the door cavity has been cleaned, you can spray the cavity with a rustproofing wax or fish oil

If water ingress is visible in the headlights, remove the lights and blinkers and thoroughly clean with warm soapy water, then flush with straight water until all residue is gone. Never use solvents inside the headlights, as doing so may cause damage to the reflectors



Check the air filter box, and if water has found its way in, remove the drain at the bottom of the box and clean with fresh water. Never use cleaning sprays, as they may travel up the air intake line and damage the airflow sensors. If muddy water has made its way past the filter, you will need to remove all intake lines and clean with fresh water. Never touch the airflow sensor with anything as they are sensitive and could easily be damaged beyond repair



If your truck has taken on water, there's a good chance you have been bogged to the diffs in horrible mud, so the underside of the vehicle will need a full clean. Take note to flush the chassis rails with a garden hose to remove any mud or sand that has found its way inside the boxed channel



If the water had made its way into the cabin of the 4WD, check in the owner's handbook (if it's still usable) to see if your vehicle has a pollen filter. These filters clean the air before it enters the heater box. If this has been dunked, you will need to replace it

## ELECTRICS VS WATER

Electrical systems and water are two things that just don't mix. It doesn't matter how old or new your 4WD is, a wet electrical system will cause you problems. Sure, a brand-new Discovery 4 might give you a warning saying 'Computer failure take to your Land Rover Dealer' and not start again, which can cause you plenty of problems especially if you're out bush.

But an older truck can have just as many problems: from a

dead alternator that stops charging your batteries, to ignition systems and lighting cutting in and out. No matter how you look at it, water and electrics don't mix.

So what if you do have one of those moments where you find yourself floating in your 4WD? How do you get the truck running again and make sure those problems never resurface?



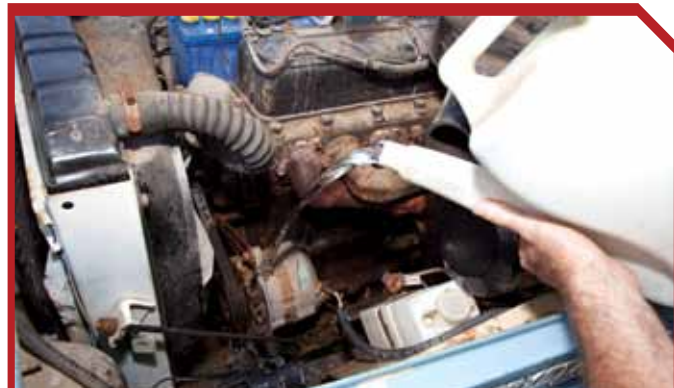
The starter motor can normally withstand a drowning as it's often mounted down quite low. If the water is muddy, it may leave a mud pack inside the casing of the starter. The only way to clean it out is to strip the unit down and clean it (recommended to take it to an auto electrician)



Every vehicle has a number of relays that if mounted correctly (vertical) will hold water out to a degree, but if mounted incorrectly (on their side) they can allow water to penetrate and cause all sorts of issues



If your 4WD is fitted with an electric winch and it has been submersed for a while, it's recommended to have it serviced. This will involve removing the winch from the bullbar and having it stripped down, cleaned, greased and reassembled. If this isn't done, you will most likely find your winch failing the next time you need it most



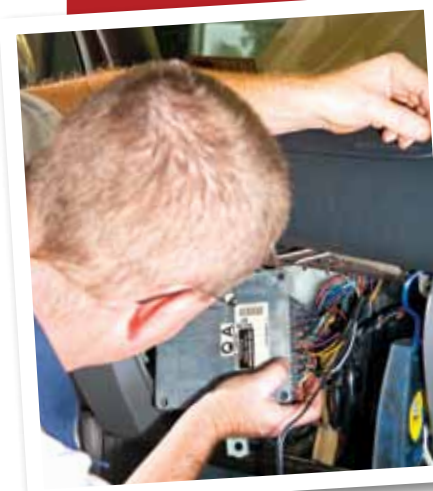
If the alternator has been submersed in muddy water, you will need to flush it with clean fresh water. This will stop the bearings and brushes from being worn out prematurely. Once flushed, you will need to allow drying time before starting the vehicle



If the fuse box has been covered in water, you will need to flush with clean fresh water, then allow to dry. One by one remove each fuse and clean the contacts (metal prongs), and always make sure that the power is disconnected before cleaning the fuse box. You can also spray a water dispersant like WD40 over the fuses and inside the fuse box to help disperse any leftover water

### HINTS TO SAVE YOUR ELECTRICAL COMPONENTS

- Before you hit the tracks, make sure all the relays are in a vertical position with the plugs at the bottom
- If attempting a deep water crossing, spray all electrical components with a WD40 spray (including the alternator)
- Once the vehicle has been recovered out of the water, check all computers and relays for water ingress. If there's a possibility that water may have penetrated the casing, allow it to dry out before attempting to use it
- Ensure your keys do not get wet. As simple as this sounds, some keys have an in-built chip that allows the vehicle security system to be deactivated. If this stops working, no matter what you do, the truck won't go anywhere
- Take your time to allow everything to dry before trying to start the truck again. There are stories of trucks being completely submersed, and then after being left in the sun for a day starting with no problems at all. What's a few hours of waiting if it means saving thousands of dollars?



If the truck has been under a whole lot of water, you may need to remove the computer unit (power should be disconnected first), shake it and listen for water sloshing around inside. If there is evidence of water ingress, hang it up in the sun with the plugs facing down and allow water to drain out. Once dry, reinstall and test. If the vehicle still doesn't start, you may need to take it to an auto electrician

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# WHAT'S A FEW HOURS OF WAITING IF IT MEANS SAVING THOUSANDS OF DOLLARS?



## ENGINES

There are some major differences between petrol and diesel engines when it comes to water crossings and the possibility of water ingress. Older diesel engines have been known to run virtually underwater as long as they have a clean dry air intake, such as a snorkel.

The best insurance policy you can fit to any 4WD would have to be a snorkel. If you don't have one fitted, it is recommended to stay clear of any deep water crossings.

Petrol engines, however, are not so happy when it comes to water. This is generally due to the amount of electronics required to run them. The first victim of a drowning would be the distributor cap. Once water gets in there, the spark plugs will begin to fail to spark, leaving you with a dead truck.

On both a petrol and diesel engine, the worst-case scenario unfolds when you get stuck in deep water and the engine has ingested water. If you experience this, the first thing to do is turn it off. This will stop the motor from hydraulic locking (Filling the piston chamber with water that could cause terminal damage to the engine). If the engine does stop due to water ingress into the cylinders, under no circumstances should you attempt to restart it without clearing the water out first.

If your engine is running normally and has a supply of fresh dry air, leave it running until you are recovered. Turning it off may cause cold water to rush up your exhaust and into the engine, causing similar problems to water ingestion. *4WD*

## WHAT TO DO IF YOUR ENGINE STOPS IN THE WATER

### DIESEL

- Don't try to start an engine that has just been drowned
- Check the airbox and filter for signs of water ingress
- If water has reached the engine, remove all glow plugs and injectors (don't remove the injectors if it's a common rail, as they are under extreme pressure)
- Turn the engine over by hand (use a spanner on the harmonic balance pulley) to remove the water out of the cylinder area. Once most of the water has come out, turn the engine over by the starter motor
- If the water was muddy, spray WD40 through the glow/spark plug holes, and then turn the engine over by the starter. Repeat this a couple of times and this will help remove any dirt contaminants. Replace the glow plugs and injectors once cleared
- Check the engine oil for water contamination. If it is a milky colour, drain and refill with fresh oil
- Check the fuel filter for signs of water contamination. If there is, drain the fuel tank and refill
- Clean out the air filter box, then dry and replace the air filter with a new one
- Start the vehicle; however, if there are any signs of knocking or unusual noises, turn straight off and have the 4WD towed to a mechanic

### PETROL

- Don't ever straightaway try to start an engine that has just been drowned
- Check the airbox to see if the engine has ingested water
- If it has, you will need to remove the spark plugs and turn the engine over by hand or with the starter to remove water from the cylinders
- As with diesels, use some WD40 or other water dispersant to assist with completely removing all water
- Remove the distributor cap and clean. A quick spray with WD40 will help here too. If your truck has an electronic distributor, do not spray with WD40, just give it a wipe out.
- Check the engine oil for water contamination. If it is a milky colour, drain and refill with fresh oil
- Start the vehicle; however, if there are any signs of knocking or unusual noises, turn it straight off and have the 4WD towed to a mechanic



### THANKS

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