Beach driving should be fun, so why is the waterfront the most dangerous place to operate your 4WD? Why are more people killed or injured and more vehicles seriously damaged or lost on beaches than on any other off-road surface?

Watch your speed



There are several reasons why beach driving is dangerous and the most obvious one is the freedom that beach driving grants. In most other off road situations you're confined to a track or trail that restricts where you can go and at what speed. On a beach or in the dunes behind it you're unrestricted and the freedom goes to many drivers' heads.

It's exhilarating to blast along a wide stretch of beach sand and the wind-in-your-hair feeling can overcome caution. Tyres that have been deflated to maybe less than half their normal pressure are safe at only 40km/h or so and even then won't respond to braking or steering as accurately as they do at normal pressure on a high-friction surface.

A blowout or a tyre coming off a rim can send you into a roll-over that will at the very least spoil your fun.

Watch where you're going

Most of the serious accidents on beaches involve roll-over, head-on collision, or running over people. Some spectacular incidents involve all three. It's easy to roll over if you get side-on across a steep sandhill. It's easy to have a head-on collision if you speed up sandhills without checking if there's an oncoming vehicle. It's easy to run over a sunbather if you leap your vehicle off a sandhill and it's easy to run over a fisherman if you rip along a beachfront in poor light without looking where you're

going.

Sand 'blindness' is common in certain light conditions, making it difficult to see landscape features – or people.

Vehicle preparation

Salt water and 4WDs don't go together very well, so if you intend to use yours for regular beach work you should have it professionally treated underneath and in all body cavities. The occasional beach visit won't harm a 4WD, provided it isn't deliberately run into salt water. Hitting sheets of beachfront salt water sends high-speed spray into your chassis and bodywork and it's virtually impossible to get the salt out. Where there's salt residue there's always moisture - of the most corrosive sort. As well, salt water will get into axles and brakes, doing them no good at all.

Engine bays should be doused with silicone penetrant spray before a beach encounter, to keep salt water and condensation at bay.

Lighten up

The best sand vehicles are lightweights, so don't take anything you don't need on a beach excursion. Every kilogram is pushing your tyres into the sand and making the little mound of sand in front of each tyre that much taller. You have to power over those little hills all the time you're running in sand, so the heavier the vehicle the more the engine has to work.

The right pressures

There's no hard and fast rule on the correct

tyre pressures for sand running. Fishos who are on and off the beach every day usually fit very wide tyres, so they don't have to alter tyre pressures all the time. They also use lightweight or 'gutted' vehicles.



For the bulk of us, who visit beaches less regularly, adjusting pressures is a way of waterfront life.

Generally speaking, the lower your tyre pressures, the larger your tyre contact patches become and better the flotation is. You can see the difference when you compare the different depths of your tracks, with road and beach pressures.



Finding the correct pressure is largely a matter of trial and error, because different vehicles have different tyres and carry different loads. However, most tyre makers put a lower limit on pressure, to around 110kPa (16psi). Below this pressure level there's a risk of the tyre bead separating from the wheel rim and rolling the tyre off.

If you're a beach-going regular it may pay to pick up a tyre deflator, such as the Ironman Speedy unit. This device screws onto the valve stem and temporarily removes the valve, allowing faster deflation. When the desired pressure is reached the valve is easily screwed back into place.

Avoid the wet patch

Wet sand is likely to cause corrosive spray and can also be treacherous. Most wet sand is as hard as the hobs of hell, but some of it is a slurry on top of an underground water flow. Drive into one of them and you could be there for keeps.

Some beaches - notably on the east coast of Fraser Island - are crossed by tiny creeks. These little rivers cut vertically into the wet sand and create sharp-edged gutters - a driving hazard that has broken many an axle and suspension.

Wet sand near the wave line may be hard, but the odd soft patch can send you off course without warning - Stockton Beach near Newcastle in NSW is famous for it. An unwanted steering input near the wave line can send you into deep water - literally.

Watch the tide



Back in the ‘good old days', before National Parks outlawed the Beach Run from Ussher Point to Captain Billy's Landing at Cape York, we rounded a headland at sunset with the Coral Sea lapping at the tyres. Behind us was a bay that had no remaining beach at high tide, so we were committed. It was a heart-in-mouth moment we've never forgotten.

Driving in failing light on a rising tide is a recipe for vehicle loss and you can ask bedraggled Fraser Island refugees for more evidence if you like.

If you're driving on a beach you must carry a current tide chart - they're readily available from fishing shops and servos in waterfront areas. Failing that, look in the local paper or consult your smart phone or iPad.

If you do get caught out by a rising tide, camp until it falls - even overnight - rather than risk a severe dunking.

Know your vehicle

We wouldn't take a 'softroader' 4WD - one without low-range gearing - onto a beach, unless there were more capable vehicles around, to provide assistance. This story will explain why.

Years ago, a Land Rover test team took a prototype Freelander to Stockton Beach for some sand driving evaluation. This manual-transmission machine got stuck in one of

Stockton's infamous soft patches and the boys burnt the clutch out trying to extricate it. The sun was going down, the tide was coming in and they were alone. They walked out for help, after leaving the parking lights on, so they could see the vehicle when they returned with a recovery truck. Some hours and several passes of the beach later the crew had to face the fact that their beloved test machine had gone swimming. The 'happy' ending is that the local Volunteer Rescue boat found the floating Freelander at sea some days later – the parkers will still on!.

You may squeak out of a sand bogging with an automatic 'softroader', because the torque converter will 'slip' without the risk of clutch failure, but it's a gamble we wouldn't take.

Carry a 'we're stuck' kit

Don't even think about venturing onto a beach without a shovel - a long-handled shovel is best, but that's an unrealistic fit in many wagons - an as-new snatch strap; a pair of shackles that actually fit your front and rear recovery points; a sturdy jacking plate (to prevent your jack heading to the centre of the earth); a tyre pump (electric or manual); an accurate pressure gauge; emergency water and food; and some warm clothing. It sounds like a lot of gear, but it packs into a box or a couple of overnight bags.

Use correct driving and recovery techniques

Sand driving should be a pleasant experience for everyone. That means



keeping up momentum without excessive speed or engine revs.

The right gear ratio is one that lets the engine work in the middle of its operating range - too many revs and you tend to 'dig in' and too few will see the engine 'lugging'. In soft sand, low range is a better option than high range.

When driving in soft sand it's important to keep engine revs and the water pump spinning in the mid range, or you risk overheating the engine.

If you cease moving forward, get off the gas pedal, don't sit in one spot spinning your wheels, or you'll just dig yourself in deeper.

Keep it straight when climbing or descending sand hills – side sloping hurts. Don't brake when running down sandhills, or you'll end up on your lid. Don't 'gun it' too hard up steep sand hills or you'll roll over backwards.

When you do get stuck - we all get bogged sometimes - don't panic. Alight from the vehicle with as much dignity as you can muster and survey the scene. Even if you plan to get pulled out with a tow rope or snatch strap, use your shovel to make gradual ramps in front of each tyre.

If you've been stubborn about tyre pressures, drop them to 110kPa (16psi) and try driving out.(16psi) and try driving out.



Sand 'ladders' such as Ironman Total Traction by Treds units can be very helpful if you have to get out of a sand bogging by yourself. The Ironman designs have inbuilt shovel action at one end, to help make a smooth ramp in front of each tyre.

Snatch straps work well at very low speed and with very little slack - you don't need a racing start from a point where the two vehicles are bumper to bumper. The vehicles

should be spaced so that there's an 'S' shape on the ground in the middle of the snatch strap about one metre in length. The towing vehicle should move off at normal pace in the highest low-range gear it can use and the bogged vehicle should do the same. Get people clear of the recovery area, in case the strap or an anchor point lets go.



It's safest if the snatch strap is hooked on to both vehicles without shackle attachment, but some recovery points are too small for that method. Use the biggest shackle that can fit into your recovery point. Don't hook a snatch strap over a tow ball: loop it around the towbar; or to the pin that locks a tongue trailer coupling in place.

Sandy towing



Beach launching is fraught with danger, to boat, 4WD and people, but it can be done safely.

It’s a general principle that towing anything through soft sand isn’t a very good idea and that’s why we’re opposed to inexperienced people hauling camper trailers across the Simpson Desert. The same goes for towing heavy boat trailers across beaches; if there’s a hard-surface beach ramp available, use it.

However, like all generalisations there are places where beach launching is safe. The tell-tale signs of safe beach launching are ‘local’ 4WDs parked on hard-packed sand

with their trailers.

When we talk about beach launching we're not considering a small, roof-top 'tinny' on a lightweight trailer that tips the scales at 200kg all up; we're referring to a sizeable runabout with a 50+hp outboard on the back. Small boats can be hand-launched using fat beach tyres on an axle that clips onto the boat transom, or walked down the beach on inflatable rollers.

Before you drive onto any beach you need to consult a tide chart. Plan your beach launch with the tides in mind and aim to retrieve at high water, so that your 4WD remains above sea level. Most 'drowned' 4WDs we've seen have been stuck below mean high water. If the sand is too soft for boat trailer towing above the high water mark it's not a safe place to attempt a beach launching.

Beach launching is almost always easier than retrieval, because beaches by their nature slope down towards the water. This means that an easy trundle down to the water's edge can become a real slog uphill afterwards.

Why beach launch in the first place? Because in remote areas there aren't many boat ramps and some of the best fishing spots are well away from the madding crowd.

At first sight a flattish beach with firm-packed sand shallows may look like an ideal launching proposition, but that will be so only if your boat draws very little water. If you need the best part of a metre to float it off the trailer and get the prop spinning clear of the sand you may well have your 4WD and trailer in deep water.

A beach can look fine for launching at high tide, but when you get back to the beach at low tide you may discover that the shallows go on for many metres, making it impossible to back your 4WD and trailer into the water far enough for retrieval.

Another beach may be ideal in the calm of the early morning, but have metre-high, wind-driven surf in the afternoon, when it's time to retrieve the boat.

If you're optimistic that you can manage a safe beach launch and retrieval you need to prepare the 4WD, trailer and boat before you drive onto the sand. As with any foray on soft sand you need to drop pressures in the 4WD and trailer tyres. Since your driving will be at low speed, we'd suggest dropping to 16psi straight away. The trailer

tyres can be lowered even further, provided they're not tiny little donuts.

You need to put the 4WD in low range and lock the centre differential and across-axle diff locks if you have them. Drive down the beach and swing up the slope near your proposed launch site. If the 4WD looks like getting stuck keep the momentum up and head for higher ground, and then choose a firmer site. When you find a spot that allows you to drive up the beach without getting stuck you've found a likely launching place.

Get the boat and the crew ready for smart boarding, because the less time you spend with your trailer wheels sinking gently into the watery sand the better.

Never back the vehicle wheels into the water on a beach, because wave action will very quickly erode around the tyres and you'll be stuck in a few minutes. It's tricky enough if only the trailer wheels start to 'bury', but it's almost impossible to extract a wet-bogged 4WD and trailer combination.

Have the crew ready to turn the boat's bow into the wind and waves as soon as it's off the trailer and then high-tail it off the beach in the 4WD and trailer.



Retrieving the boat is the reverse procedure, with the crew holding the boat into the wind and waves until the trailer is positioned at the correct depth beside the boat. The boat then needs to be lined up quickly with the trailer and the winch cable clipped on smartly. When the boat is hauled up to the trailer winch post it's time to drive up the beach. There's no need to bother about tie downs and gear transfer until the 4WD and trailer are safely on firm ground.

If you start to bog down on the water's edge, don't panic and bury the driving wheels. It's absolutely essential that the 4WD remains mobile, or it's at risk of being flooded. Get off the 'loud pedal' and hop out for a look at the situation.

The retrieval priorities are now in this order: the 4WD, the boat and, lastly, the trailer. Uncouple the trailer and drive the solo 4WD to higher ground, above the high-

tide mark. From this position you may be able to skull-drag the boat and trailer to firm ground also, using a tow rope or a winch. The trailer jockey wheel is no use in this manoeuvre, but some form of a skid under the trailer drawbar will stop it digging in – an old piece of carpet tied in place works well.

In the worst case scenario, you may have to relaunch the boat and beach it, while you recover the empty trailer. Then it's time to use the boat to find a firmer retrieval spot.

If we've painted a rather gloomy picture of beach launching that's because we've seen quite a few go expensively wrong.

What's that tell you about the price of fish?