

Driving on Sand

Understanding the Medium

There are two main areas where off road enthusiasts are destined to encounter sand driving in our forever-inquisitive approach to discovering new tracks to 'out of the way' places.

By far the most probable area the 4WD owner is drawn to will be the coastal regions with large sand masses popular for swimming, fishing or boating. Of all the people who own 4WD's the majority would venture to the beach for that all-important initial encounter with the elements with little or no concept of the serious confrontational experience that may unfold. On the other hand, with the correct use of technique and skill it can be the beginning of many exciting adventurous experiences taking them far beyond the coastal confines.

The other area that we encounter sand driving is in the desert or bush.

Why is it so difficult?

Sand is made up of fine granules of rock, which has moved about this great land mass by wind and water. It can be so fine that it flows on its own. The finer and dryer the sand the more your 4WD tyre will travel below the surface that you can see. As the tyre pushes through the sand it forms a small wave effect in front of each tyre.

This does two things: in sand the rolling resistance increases (on soft sand 10 adults could not push the vehicle, on bitumen one teenager can push the vehicle). As the wheels dig into the sand the ground clearance is eliminated and we find the bottom of the differentials and the cross members touch the sand that has formed up between the wheels.

It is about then that we begin to realise that 4WD's have their limitations.

It's a bit like trying to (on a hard surface) push your vehicle forward, up a 10% gradient, while pushing a large log along in front of the vehicle, or perhaps your vehicle with four flat tyres. This is rolling resistance.

What to do?

If stuck in dry sand the best trick is to back up along the same path as you had entered, while avoiding wheel spin. If the section has to be traversed have a look at the length and if there could be traffic, have your friend or partner walk to the point where oncoming vehicles could be warned so you have a clear run. Take off in 4WD low range 2nd gear and maintain the revs and avoid stopping.

The Solution

The solution to prevent being stuck in sand is to acquire the skill to be able to read the terrain. We call this technique terrain appreciation. This skill does not come to everyone over night. However, if the techniques are understood and practiced then you as a driver will be able to assess the track and make adjustments to the speed, gear, and the position and safely traverse an obstacle without having to demonstrate your skill in recovery.

The point here is that appreciating the terrain is a skill that begins with a basic technique. Practice makes the technique into a skill and the mastered skill makes driving over various terrain appear to be easy.

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By first reducing the tyre pressures before entering the sand to around twenty-two pound (use a gauge, I still have trouble being able to tell the pressure of a tyre by the look of it) and modify your driving accordingly. Remember to re-inflate as soon as you are out of that obstacle. If you have 2/3 the tyre pressure recommended for that vehicle then you could expect your vehicle would perform well below its capabilities so drive as though you have four near flat tyres.

Carefully select low range before entering soft sand and use 2nd or 3rd. Your revs should be approx. 2,500rpm. First gear is often too low, making the application of power difficult to control causing the wheels to spin and digging out more sand, which is the last thing you want.

Travelling over hard packed sand formed either from vehicle travel or from out going tide feels like you are travelling on a made road. With practice you will learn to pick this surface easily, but there are other variations of wet sand that can be deceiving, and this is the high tide area that doesn't have much traffic and is effected by wind more than water. This may not be so enjoyable to drive on but needs to be recognised and handled accordingly.

Soft wet sand below the water line can be the most difficult material after black soil and clay. The reason sand of this type is such a problem is that this is usually a soft surface, caused from a spring, water under the surface, currents or mud deposits. Once the wheels cut down through the surface the wet sand forms an attachment to the differentials, cross members, transfer case and steering links making the extraction of a bogged vehicle beyond the power of a snatch strap and even a winch. Unless of course you know how to use an exhaust jack and a winch at the same time. Remember the reason the sand was wet was because the tide comes up and over this area. The stakes are somewhat higher in this situation since the longer you take to extract the vehicle the less likely you will be to successfully retrieve your valued possession.

* * * * * Now how far back were those cars that you saw earlier?

About here is the right time to remind you about what you should have done before leaving on this trip!

Plan the trip, tides, barges etc. Leave early and carry maps of the area. Travelling on a beach should only be 2hrs before and after low tide. Carry provisions for one more day than you plan to be away (always carry water).

Take snatch straps, Bow shackles, extension strap, hand winch, shovel, and exhaust jack (make sure you know how to use the gear, no fun learning on this job). Make sure your other mates with their 4WD will be going with you as well. The cost of a recovery vehicle coming to get you out of trouble can be in the thousands of dollars so until you are aware of the techniques, do not take sand driving lightly.

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