The Basics

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Put on your seatbelt, and instruct passengers to put them on as well. A good belt will help restrain you when driving difficult terrain, and can save your life in case of a rollover or other accident. Some people want to jump clear if a vehicle rolls, but it usually rolls on you and kills you. Don't try it.

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Since this is primarily a 4x4 magazine, the first thing to do when you get in the dirt is to put the transfer case in four-wheel drive and lock the hubs—if your vehicle is so equipped. With all four wheels hooked together, your control is increased, braking is improved, and you won't get stuck as fast when you make a mistake. This also spreads the tractive force over four tires instead of two, minimizing breakage of drivetrain parts. However, with practice, flipping back and forth between 2WD and 4WD can be advantageous for turning, sliding, and other advanced maneuvers, but it's best to learn while in four-wheel drive.

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Using low range in the transfer case is another asset that many beginners forget. In low range the available power is greater, and the speed with which you can drive is diminished. By driving slowly over obstacles rather than pretending you're in a SUV commercial and flying over them, you're more likely to make it to the other side instead of breaking your rig or yourself. Going downhill is also easier in low range, as compression braking from the engine is increased. This allows you to stay off the brake more often for optimum control.

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Watch the driver in front of you and see how he makes it through. You can learn a lot on what to do and what not to do. Get out and walk the trail or examine the obstacle before you drive through. This allows you to get a mental picture of where you will place your tires before you go. Just as a golfer examines the green before that game-winning putt, you need to know what's ahead of you so you don't get into trouble. Walk ahead and look back; the view is different from the other direction, and other features of the terrain become apparent.

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While gripping the steering wheel, make sure that your thumbs aren't wrapped around it. If the wheel should suddenly whip around from a tire hitting a rock, your thumbs won't get broken or mangled. Believe us, we've seen it happen, even with power steering.

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Turn your stereo off, so you can hear what your vehicle is telling you. The sounds of slipping tires, scraping metal, and engine rpm can all help you be a better driver, but not if you can't hear them. Just like drinking and driving, distractions from what is happening with your vehicle can distract you at the wrong time.

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Know your rig inside and out. This means being familiar with all of the controls in the cab, as well as how to use them for what purpose. On the outside, make a mental note of what hangs down underneath, and what side the front differential is on so you won't bang the underside on obstacles.

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Staying off the clutch unless you need it is important in many situations. While automatic-equipped 4x4s can have an easier time crawling over things, a manual transmission rig is capable of outdoing an auto as long as the clutch isn't always used. Try driving with your feet on the floor for practice, and see what your rig can do. Once you push in the clutch you've unhooked the drivetrain, and only your brakes will be holding you on a hill.

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Consider lowering your tire pressure according to the terrain and speed. Tire pressure lower than the manufacturer's recommendations can provide greater tire traction, flexibility, flotation, and smoother ride. Because the tire will tend to spread out at lower pressures, a bigger footprint is formed, but the tire is more susceptible to sidewall damage. Never air down farther than what you are comfortable with, and remember to air back up to specs when you hit the pavement.

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If you're unsure of what you're doing while driving an obstacle, ask someone to spot you over the tough areas. An experienced spotter can be your best ally and can make you look like a pro. Remember, though, that you as the driver are the one in command, and it's your decision to trust the spotter or not.

Dirt Roads

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Known as fire roads, two tracks, or graded highways, these can be as difficult to drive as a good boulder patch. What looks like a smooth road where you can get some speed up can get you into trouble at a moment's notice. It only takes one washout, pothole, or rock in the road to cause you to lose control or damage your ride. Airing down your tires can help soften the ride and absorb some of these rough encounters, but too low a pressure can cause a tire to come off the rim or allow a rock or root to smack the rim and ruin it.

Washboard roads pack a violent punch if your suspension or wheelbase isn't tuned to the harmonics of the ruts, and can leave you without directional control as you hop over the bumpy surface. As always, slow down to the most comfortable speed you and your rig can handle, which also allows the dust from other vehicles to subside. You can't avoid what you can' t see, and dust can be a serious hazard.

Hills and Dirt

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Climbing hills and going back down them is older even than four-wheeling. Usually a steady speed with momentum is adequate, depending on the surface. An occasional blip of the throttle can bump you over some ledges, but rarely will a full-throttle attack do much more than break stuff.

When climbing or descending a hill, keep straight up or down, and don't turn around on the side of a hill. The propensity to roll is far greater, and any stored inertia can send the rig tumbling. Know when to quit and how to back down in a straight line.

The steering seems much more sensitive (and backwards) when you are backing down a hill, and miscues and rolls are common. If you traverse a side hill and are off camber, you need to go slowly to prevent sudden shift of vehicle or cargo weight. A rock on the high side or a hole on the low side can tend to tip you in the wrong direction, as in downhill.

Likewise, spinning the tires on a loose surface when on a side hill breaks traction, causing gravity to pull you off the trail and possibly over the edge. Descending a hill is best done in the lowest gear, for maximum compression braking. Even auto trannies will have some compression braking, and a light foot on the brakes is better than locking them up and sliding.

The tires must be rolling to have control, so if you start to slide you need to give it a little gas and be easy on the brake pedal. Easy movements of the steering wheel can help you keep directional control, while whipping the wheel can cause the tires to slide sideways, right into what you are trying to avoid.

Mud

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Mud is a way of life in many portions of the country, and your local mud matrix may be different than that of the next county over. Different consistencies of mud call for different styles of driving. Some mud responds to fast driving with a lot of wheelspin, while others may do better with a slower gate with just enough spin to clean out the tires.

Like in snow, skinny tires can dig down to the hard stuff, while wide flotation tires can keep you on top of the goo. Regardless of what the mud is like, a steady forward progress is needed. In other words, keep your momentum up. If you get off the gas, you can risk losing the momentum needed to traverse the slop. Be aware that spinning the tires while stopped may get you going, but quite often you'll simply dig down and get stuck to the gills.

It's always easier to extricate your 4x4 from deep mud before it's resting on the framerails. So if the rig's not moving forward as you spin tires, it's probably going down. Don't be afraid to back out of a sticky situation either; the ruts are already there and you may escape without getting stuck.

Rocks

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Lowering the air pressure and going slowly is the best recommendation for rocky trails or hard-core rockcrawling. Tires should be placed on top of the rocks, which allows the axle and undercarriage to avoid hitting the boulders. On IFS rigs or Hummers, for example, the available clearance in the center of the undercarriage is sometimes better, but straddling rocks can still get you stuck in any case.

Your lowest speed that keeps your momentum going is usually the best. If you go too fast you end up bashing and crashing while hurting your rig and generally getting stuck. Rockcrawling is truly the home of elegant driving as coined by the late great Granville King. By making this activity a true art form of fluid motion like a mechanical ballet, a greater amount of obstacles can be scaled with less damage to yourself and the vehicle.

Likewise, raw power and speed can jet you over the boulders, but the hopping and flopping action of bashing and crashing your way through a canyon of boulders is in no sense of the word elegant, and it'll cost you more in the long run. One way to stay in control with an auto tranny is to use one foot on the brake and one on the gas. On a stick-equipped rig the engine compression braking gives you greater control, but using the two-foot method on an auto will mimic this action.

Sand

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Higher gears are great for sand, as speed and momentum keeps you flying on top rather than sinking in. Depending on the type of sand—from fine to coarse and from wet to dry—different speeds and gears may need to be used. Usually, spinning the tires is needed since wheel speed is a factor to keep on top of the sand. Lowering air pressure and running wide tires help in the flotation department as well.

Sand dunes can have steep drop-offs and other obstacles, so being alert is extremely important. If you're climbing a sand hill and realize you've run out of engine poop, downshift quickly, and floor it without losing momentum. This is where automatic transmissions excel—virtually instant downshifts with no loss of momentum. Shifting a manual truck usually means the momentum is gone before the clutch is ever let back out. Side hilling in the sand or running a bowl is great if you have enough speed and power, but turn downhill as soon as you start to bog down. Point your ride straight down, and if the nose starts to go sideways give it a little gas to straighten it out.

Snow

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Speed and momentum can help to bust through snow, and spinning tires can also keep you going forward. Remember that the amount of traction available is reduced, so stopping may be a problem if your momentum is too high. Watch out for off-camber side hills as well as going downhill…spinning the tires in these situations can cause a slide which gravity will want to reinforce. Go easy on the brakes to minimize sliding, as a rolling tire can give more steering and braking control than those that are locked up by a heavy foot on the brake.

Driving in snow and ice can be extremely dangerous. Check the snow-belt news during the winter months. However, those situations usually entail speed and highway driving, while we're concerned with trail-type driving. Our number one rule for snow: Pay attention. Out on the trail the snow-covered ruts can be treacherous to traverse since the trail may look smooth with a fresh white blanket on it. Underneath the snow deep ruts, holes, logs, and rocks may snag your underside, so going slow is a benefit here.

Plus a snow/icy mix gets slippery, especially when traversing rocky terrain. Fresh powder snow that isn't too deep can often be plowed through, while the wet crusty stuff requires traction and some momentum. Two schools of thought exist on tires and pressure for snow. One theory is to have skinny tires at max pressure which can break through the snow to get traction on the ground, while the other theory is to have flotation tires at low pressure which allows you to stay on top of the snow.

Water Crossings

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Driving through water can be as hazardous as any other terrain. The swift current, unknown bottom conditions, and possibility of engine damage can ruin a nice 4x4 outing. Check the depth and bottom conditions before you attempt to drive across a stream. Look to see where others have made it, and imagine what happens if your rig floats or gets washed downstream.

Cross streams and rivers at an angle upstream to prevent the force of the water from pushing the vehicle downstream. This helps you keep going in a more controlled manner without getting moved downstream. Know where your engine air intake is, and be sure that it is not lower than the deepest part of the stream you are crossing. Many new vehicles have the air intake lower than the front bumper or in the fender. If water gets into the cylinders of a running engine it will hydrolock the engine, stopping it cold, and probably bending a rod.

Avoid spinning tires when they are wet, as wet rubber cuts as easy as butter on sharp rocks. If you don't believe us, take a piece of tire tread and try to cut it with a knife. Next, stick the knife and rubber under water and keep cutting. You'll be amazed.