

# **1998 Toyota 4Runner Limited**

## **User Information for the MVZ Field Vehicle**

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2007**

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2015**

## **VERY IMPORTANT**

(even if you don't read anything else, **READ THIS**)

The MVZ intends to keep this vehicle in good condition so that it can maintain its resale value. This is because this is a temporary vehicle, and we plan on purchasing a hybrid AWD in the future. Do not treat this car like you would a rental vehicle! **Treat the vehicle with respect** -- it is here to do a job, but it's not a toy and it's not to be trashed. If you need to trash a car on your field trip, then please rent one.

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## Appendix -- (University Publications)

-BUS-46 Use of University Vehicles (pages )

-BUS-35 Vehicle Accident Reporting and Claims Procedures (pages )

-BUS-69 Vehicle Physical Damage Self-Insurance Program (pages )

### Car Usage Rules

1. Only MVZ employees, students or official volunteers may drive the vehicle. The MVZ Field Vehicle can only be used for official MVZ business (i.e. research trips, errands for the MVZ, etc.) It is not to be used for transportation to and from work. If you are unclear as to what applies, please see the Appendix, BUS-46.
  
2. You must get permission from the Theresa (Terri) Barclay before using the vehicle AND complete the necessary documents BEFORE using the vehicle.
  
3. You must have a valid driver's license to use the vehicle.
  - If you are a visitor/tourist in California, over 18, and have a valid driver license from your home state or an International Driver's License, you may drive in this state without getting a California driver license as long as your license remains valid (up to one year).
  - If you take a job here or become a resident, you must get a California driver license within 10 days. If you have a license from another country, you will be required to take a driving test. If you have a license from another state, the driving test can be waived. Students or visiting scholars must apply for a California driver's license if either employed or a student in California.
  
4. You must be enrolled in the University's Driver Program
  - Forms can be found at: <http://property.berkeley.edu/fleet-svcs/driver-programs>
  - Please submit form to Terri Barclay
  
5. All users must fill out the mileage spreadsheet that is located in the car -- please put your starting mileage and ending mileage along with any pertinent information about the condition of the car while under your care.
  
6. Do not remove the hanging parking pass from the car -- keep it on the rear view mirror at all times.

7. The vehicle registration information is in the glove compartment -- do not remove this from the car.
8. Please check the oil levels, tire pressure, and lights at least once during your use of the vehicle. If you notice anything out of the ordinary, please alert Terri Barclay (tlynnwong@berkeley.edu) when you return the vehicle.
9. Leave at least a quarter tank of gas upon returning the vehicle to its official UC parking spot.
10. Be sure to park the vehicle in its official UC parking spot when returning it to campus to avoid any parking tickets (see parking and ticket information).

#### General Information

-Car Type: 1998 Toyota 4Runner, Limited Edition

-VIN # JT3HN87R3W0177727

-Insurance Coverage: The vehicle is covered by the University's insurance while on official MVZ business

- "part time" four-wheel drive -- meaning you need to switch into 4WD (no need to get out, you can do this from the inside -- see 4WD instruction section).

- ABS (anti-lock breaking system)

-3.4 Liter V6 engine (twin cam, multi-valve)

-Gross Vehicle Weight Rating (GVWR): 5250 LBS

-Tire info:

wheel size: 16 x 7 in.

tire size: P265/70R 16

tire air pressure: 32 PSI when measured cold

-Towing: maximum trailer weight is 5,000 lbs.

-Recommended Fuel: 87 octane unleaded (fuel economy = 17city/19 hwy)

-It may seem higher, but this car only has **9 inches of clearance** (and that's pushing it), so keep that in mind when driving over or taking it into anything.

-This car is part of the third generation of 4Runners, which shares virtually nothing with the pickup truck it had originally evolved from. It has more in common with the Toyota Land Cruise and other luxury SUV vehicles in body shell and chassis. Parking the Vehicle and Parking Tickets

If there is someone parked in the official MVZ vehicle campus spot, alert a parking attendant in the garage and bring the MVZ field vehicle to the 45 minute loading dock area outside the VLSB. Alert Terri Barclay and/or the front desk about the situation. If it is during off hours, find a suitable spot off campus to park the car (beware of any potential parking fines on local streets!) and come back later to try again -- always attempt to find a parking attendant in the garage to alert.

Please alert the front office if you receive a parking ticket while using the MVZ Field Vehicle.

Parking tickets can be protested, if you feel you have been unfairly ticketed. Contact the office listed on the parking ticket for instructions.

**You will be held responsible for paying any ticket fines.**

#### In Case of an Accident or Accidental Damage to Car

In case of an accident, please check the glove box for an accident report envelope and the vehicle registration information. Please be sure to fill out all of the information in the envelope -- there are three forms. Accident Reports should be filled out for any accident that occurs during usage of the vehicle (i.e. collisions, breakages, dents, scrapes, break-ins, etc.)

Immediately contact the MVZ front office (510) 642-1379, and if you cannot get in contact with anyone there, call Terri Barclay's work phone (510) 642-1379.

For any accident, there is a \$500 insurance deductible. **You may be responsible for this \$500 deductible if you are determined to be at fault for a collision.**

For any damage suffered by the car (due to breakages, dents, scrapes, etc.), the university determines whether the vehicle damage is due to reckless driving. If it is determined that the vehicle damage has been caused by an individual's reckless driving, the University will not cover *any* of the damage repair costs. Repeated -- **Be aware that damage caused by reckless driving will not be covered by the University's insurance and you may be responsible for the total cost of repair!** If you have any further questions about accidents or insurance coverage, please refer to the Appendix (BUS-35 and BUS-69).

#### Supplies Included within the Vehicle

**Do not remove these items. You are free to use them, but are responsible to replace them if you use lose them or use them up.**

- Seat covers -- do not remove from car
- Tire puncture kit (car kit in back)
- Bicycle tire pump (car kit in back)
- Pressure gauge (in glove compartment)
- Flashlight (car kit in back)
- Tow strap (car kit in back)
- First aid kit (car kit in back)
- Jumper Cables (car kit in back)
- Gloves (in glove compartment)

#### 4Runner Fluid Checks

This is to be used for reference in trouble-shooting or maintenance of vehicle fluid levels.

Periodic fluid checks can save money on unnecessary repairs and give good indication of how the engine and parts are running. On average, it is recommended to check all fluid levels at least every 3 months. The 4Runner is maintained by Inca Chevron Service in Berkeley, and they can be called to find out what types of fluids were last used: (510) 843-4776.

## **Transmission Fluid Check:**

### Finding the automatic transmission fluid dipstick

Look at the engine from the passenger side of the vehicle. Down to your left you'll see a red or orange dipstick, that's for checking the transmission fluid. You'll find that the dipstick is extremely long because it has to get all the way down to the transmission, so it's not the easiest to push back down in there. Holding the top of the dipstick, push it back into the steel tube as far as you can (usually about halfway) and then grab the metal dipstick rod and force it the rest of the way. It's not easy, but persistence pays off.

### Procedure for checking the automatic transmission fluid level

- Turn the engine on
- Let it warm up to normal operating temperature
- Press and hold the brake down
- Shift through all your gears (P, R, N, D, 3, 2, 1) and put it back in Park
- Leave the engine running and open your hood.
- Pull out the dipstick for the tranny fluid
- Wipe it clean and put it back in
- Take it out again and check the fluid level compared to the markers (there are low/high markers for both "cold" and "hot"). It will most likely be in the "cold" range if you haven't driven it before doing the steps above.

It only takes about a pint of fluid to bring the level up from the "low" line to the "high" line when the fluid is hot so if you add fluid, add very little at a time.

Note #1: The transmission fluid should only be checked when it is hot (at its normal operating temperature). If the vehicle has just been driven over 10 miles (15 in frigid climate) and the temperature is 160 - 175 degrees F, the transmission is hot. However if the vehicle has just been driven for a long time at high speed or in city traffic in hot weather, or if it has been pulling a trailer, an accurate fluid level reading cannot be obtained. Allow the fluid to cool down for about 30 minutes.

Note #2: Fluid type. Your manual will refer to Dexron II, but you can pretty much only buy Dexron III these days, which is just as good. Consult your local Toyota dealer regarding fluid type before proceeding with this.

**CAUTION:** Transmission fluid level is a little tricky. If you underfill, it will not lubricate the parts correctly or cool it properly. If you overfill, it will not circulate properly, not cool properly, might cause foaming and you risk severe damage to your transmission.

***DO NOT OVERFILL OR UNDERFILL.***

BUT REALLY DON'T OVERFILL, IT'S A HUGE HASSLE AND CAN CAUSE SEVERE TRANSMISSION DAMAGE.

It's a closed reservoir so in order to fill it you have to get a funnel with hose and fill it in the same place you pull the dipstick out of. If you overfill it and have to bleed some out there is a drain plug at the bottom of the transmission right around the pan. Get underneath (with a bucket and towels handy) and take off the drain plug to release some fluid.

### **Brake Fluid Check:**

#### Brake fluid reservoir

You can see the brake fluid reservoir in the picture above. On the side it has high/low markings and your fluid level should be within these lines at all times. In the photo, the car is parked at a bit of an angle so it looks a little bit over the full line.

If you need to add some, do so. Usually it's DOT3 in there but it might be DOT4 depending what you or your mechanic has done. There is DOT5 but it's primarily for race cars and won't likely be in the 4Runner.

When you're done adding fluid, make sure you put the rubber seal back on firmly.

### **Coolant Fluid Check:**

#### Coolant fluid reservoir

The yellow arrows in the picture above indicate the high/low markings for coolant. Check to make sure the level is in between the lines and make sure you don't overfill it. Check coolant fluid level when the engine is cool. When the engine temperature rises, the coolant and water expand and it will dump the excess fluid to this reservoir. If it's too full there won't be anywhere for the coolant to get pumped out too when it gets hot.

If you need to add some, snap open the black cover at the top of the clear plastic reservoir (it has a hose connected to it that goes to the radiator). Make sure you snap the top back on firmly.

**CAUTION:** DO NOT open the radiator cap when the engine is still hot. It will come shooting and probably burn and/or blind you.

Don't mix coolant fluids. Now this is a tricky one, and I won't tell you which to use because it will depend a lot on who did your last radiator flush as well as who you ask. You will generally find four types of coolant:

**Red:** Mainly used by Toyota. Good for a life of 100,000 miles I believe.

**Orange:** Generally referred to as Dexcool, used primarily by GM. Good for a life of 100,000 - 150,000 miles I believe.

**Green:** Probably the most common one you'll find. Good for a life of 50,000 miles I believe.

**Yellow:** No information available.

## **Engine Oil Check:**

### Engine Oil Dipstick

If you have just changed the oil yourself, it's a good idea to start the car up and let it run for a couple minutes and wait a bit before checking. If you don't, you won't allow the oil to get into the filter and lubricate the engine. In this case you won't get a proper reading.

If you simply want to check the oil level, and haven't just changed the oil it's a good idea to check before the engine has been running, or 15 minutes after the engine is off (if you've been driving).

- Pull out the dipstick indicated in the picture above.
- Wipe off the oil with a clean rag or paper towel and insert it back in the steel pipe.
- Pull it out again and check the oil level.
- The oil should be between the lines, closer to the full line but not over.

At this time it's also a good idea to visually inspect the oil you see on the dipstick. It should be almost clear with a tinge of gold color. If it's black, has particles in it or has a burnt smell you'd better get the engine checked (or alert Monica Albe).

Add oil if you need some. It's not a good idea to mix engine oil types either.

- In the picture if you look 2 o'clock from the yellow dipstick you will see the black engine oil cap.
- Simply unscrew it and use a funnel to pour the oil into the engine.
- Pour a little at a time and check the fluid level again using the dipstick.

Try not to spill any oil in the engine area as it gives off a horrid smell when it's burning off the hot engine components.

Make sure you screw the engine oil cap firmly back on. If ever you forget to do this and drive away you will need an engine compartment cleaning from the oil that will come bursting out all over the place.

## **Power Steering Fluid Check:**

### Power Steering Fluid Cylinder

To check your power steering fluid level:

- Simply unscrew the top of the fluid cylinder shown above.
- Wipe it with a clean rag or paper towel and insert it back in.
- Screw it in, unscrew it and take it out to check the fluid level.
- One side of the dipstick will show "HOT" and the other side "COLD".
- It should be within the appropriate levels depending on whether you've been driving the vehicle or not in the past hour or so.

Add some if you need it. Check with your Toyota dealer to be sure but this is normally Dexron II or III and is most likely the same as your Automatic Transmission Fluid.

You add the fluid straight into the cylinder that you took the cap off of. Pour the power steering fluid in there. Use only a very little at a time, it's easy to overfill it.

### Using the Four Wheel Drive

This vehicle has Four-wheel drive, which requires the driver to manually switch between a two-wheel drive mode for streets and a four-wheel drive mode for low traction conditions such as ice, mud, or loose gravel.

-If the road is paved (maintained), and has either rain or light snow, then four wheel drive is not necessary. **DO NOT** use four-wheel drive at speeds higher than 30 mph. **DO NOT** forget to switch out of four-wheel drive once you have gotten back onto paved road -- you can cause very expensive damage to the car (over \$1000 dollars) if you drive at higher speeds while the 4WD is engaged.

-Four-wheel drive should be used when the road is dirt, heavily pitted, bumpy, muddy, sandy, icy, or with deep snow. Always use caution and low speeds when driving with the four-wheel drive. Drive slow and avoid abrupt turns, it is a proactive measure to maintain traction in all conditions. Always keep your rpm low. Around 1000 to 1500 is good for an automatic. Never rev faster than 2000 in an off-road situation. There are three levels of using four-wheel drive:

1. unpaved road -- use the four-wheel drive (high) and drive **under** 30 mph. 4WD will do you no good in wet situations on pavement. In cases of deep snow or ice, also use snow chains (have two pair -- one set on front tires, one on rear) -- and 4WD high and drive under 15 mph.
2. bad dirt roads with obstructions, steep hills -- use four-wheel drive (low), drive under 10 miles per hour, approach any rocks that are football sized at 1mph, and **stop** driving if road becomes littered with rocks or bushes that make the road too narrow -- better to go by foot or rental car. Do not use the 4WD low in extremely slippery situations (too much torque, not enough traction).
3. unmaintained trails, roads with deep pits, crossing rivers, beaches or sand dunes -- **DO NOT** use the MVZ vehicle on these situations!! It is not a toy. Think rental car.

Tips for not getting stuck in sand: **This is very important for you to remember:** When you notice that one or more tires start spinning (if necessary have someone monitor the tires for you) get off the gas immediately!

Spinning tires will dig deep into the sand and make going back to safe ground very hard. A speedy recovery is almost impossible.

Forget momentum to carry you through soft sand. Using momentum means to be out of control. You'll have almost no steering control. You could hit obstacles hidden in the sand or might smash into trees and bushes.

Remember... avoid getting stuck in the first place.

I wrote earlier that if the sand stops you, to **get off the gas immediately**. The only safe and controlled procedure to drive on soft sand is with substantially deflated tires. Depending on your tire size and vehicle weight drop from your regular tire pressure down to at least 20 psi - if necessary down to 10 psi. Any pointy object pressed into the valve will release the air for you. You should carry a pressure gauge - of course. Soft sand puts up so much resistance that you may have to use 4WD low range. If you must deflate the tires to get across a bit of very sandy road, be extra careful with rocks that might drift in the sand like an iceberg showing only the top. Hit it and you risk severe tire damage.

Tips for Offroading:

tire failure is the #1 cause for trouble when off-road, proper tire care and safe driving techniques are covered here first. In 80% of all cases it is the right rear tire. Reason for that is that the right rear is the farthest away from the driver and its position is most often misjudged.

(remember, bushes in the desert grow very slowly and develop an incredibly hard wood - as hard as nails)

**These accidents happen because it is not easy for novice off-road drivers to spot rocks that could endanger the tires. Rocks like the ones you see below are "icebergs" - only 10% of their body shows. The only warning sign is that they are somewhat blackened on the edges - blackened from other people's tires. Don't try to avoid them. You might fail. Drive slowly with the center of your tire(s) over them to avoid compression cuts. See how**

The rock below might cause a compression cut as described above but when you try to avoid the rock you might not succeed completely (usually your front tire will clear the rock but the left rear might scrape with the sidewall). That will eventually kill the tire.



Notice how the inside (right) of the rock is all black - black from sidewalls scraping alongside the rock. The rock does not really care, but your tire(s) will suffer - and it might even blow out.

**tire safety**  
**watch out for rocks on dirt roads**

**The #1 trouble** back country travelers encounter is tire failure. In 80% of all cases it is the right rear tire. Reason for that is that the right rear is the farthest away from the driver and its position is most often misjudged. As a side note: 85% of the failing Firestone tires on Ford Explorers some years back were right rear tires! Indicating that the drivers may have weakened the tire by probably hitting the curb many times while entering the driveway.



The picture above shows the most common problem for dirt road travelers - rocks sticking out of the ground. Notice the entirely blackened left side of the rock - blackened by tires hitting and grazing it. Hit by right tires - as you may have noticed. An off center hit will most definitely destroy your tire.

So, watch out! - Even better, learn how to deal with rocks on the road



This image demonstrates the severe compression when a tire hits a rock off center.



- For possible tire punctures I highly recommend to carry a puncture kit (I personally do not like "spare tires in a can". They will only seal punctures in the tread area and leave sidewalls untreated. Unlike the self sealing strips (which create a semi permanent fix) the stuff in the can needs to be removed as soon as possible. By the way, tire shops hate that gunk in the tire.) **The kit (available in most auto parts stores for about \$8) consists of extremely sticky self sealing strips (X), vulcanizer (no picture) one tool (1) to enlarge very small holes (cactus punctures) and a second tool (2) that is used to stuff the plugging strip into the hole.**

A pressure gauge is helpful but not essential, A regular bicycle pump (about \$10) will do a beautiful job. It's fast and gets you valuable exercise. Plug in compressors have a tendency of failing.

### **How to use the "Puncture Repair Kit"**

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Even if you treat your tires very well you might one day find one of your tires deflated by a hole like this.



In off-road situations your tires will most likely develop a hole in the lower sidewall area. This is where steel belted tires are the softest and most vulnerable. The steel belted tread area is well protected from punctures.



Simply place the 4 inch long strip into the cut out at the tip of the inserting tool (if necessary use the abrasive tool to enlarge hole) and push the assembly firmly into the hole. Click on image to view detail.



With about 1/2 inch of the material sticking out - jerk back the inserting tool with one swift move. The strip will stay in the hole. Most kits also include a vulcanizing solution which I found not much effective at all - therefore I do not use it for my repairs.

To keep your SUV new and shiny, driving tips to save your paint are included as well.

**Not only are dirt roads less maintained than paved roads - rarely ever are bushes cut back. Since everything grows very slowly in the desert the wood of any bush is extremely hard and produces nasty scratches on your paint - see image below. Folding back your mirror is a good first step.**

**As a general rule, it is best to stay as close to the road limitations on the driver's side.**



[Tips for Offroading from http://www.toyotaoffroad.com](http://www.toyotaoffroad.com)

**4X4 TIPS:**

**GO SLOW:** Many times newbies think hitting the gas hard will get you out of trouble. While gas can help in some situations, it can also get you into a lot of trouble fast. It is also easier on your truck to go slow and take your time. When you go slow it helps to keep traction. Traction is your friend. When you're spinning your tires, you have decreased traction. Let the tires work for you and go slow.

**ALONG WITH THAT IS MOMENTUM:** Momentum will help you get up some ledges, hills, and mud holes. This means starting farther back from an obstacle. This comes with experience. Knowing how much momentum you need without going too fast depends on the obstacle. When in doubt watch someone else and learn from their mistakes or experience. Try hitting it with a little momentum and then decide if you need a little more if that doesn't work.

**KNOW YOUR LIMITS:** Especially when alone and/or you decide to do some hardcore wheeling before you are due at work! Best to only test your limits when wheeling with another rig or more. If your truck won't clear an obstacle, hitting it harder is just going to damage the truck and give other people something to laugh about. Don't try to bite off more than you can chew. It could just coast you your rig.

**MUD:** Test the mud first if you have never crossed the hole. Get a stick or something to see if the bottom is 2' down or 6' down, or if the bottom feels soft or hard. Mud holes can be deceiving. A soft base can swallow your truck. When entering a mud hole get a little momentum. As you enter the hole if you feel yourself getting stuck, start turning the front wheel left to right. This can help gain you some traction. Go as far as you can forward if you can't get out. Once forward momentum is stopped try reverse, also moving the front tires left to right. Sometimes you can back out of a hole. Of course your friends will still want to see you hit it again...

**NOTE:** Keep your windows up when mud boggin'. Its sucks getting sprayed in the face or having to clean the inside of your windshield, dash etc.

**HILLS:** After guessing on how much momentum you need, try to hit a hill straight on as much as possible. Keeping all wheels on the ground will increase traction. Keep on the gas and keep forward momentum unless you sense your truck getting sideways or going over backwards. If so, let off the gas and regain some control. If you ever feel you are going over backwards, let off the brakes to allow the front end to come down and the truck to slowly roll down till you can stop again. Sometimes putting the truck in reverse and letting out the clutch can help keep things under control. I have only done this while on snow and a steep hill when sliding backwards. Might come in handy on a longer hill.

**STUCK:** When you get stuck try letting your tire pressure down. This will give your tires more surface area for better traction and will help make the ride more smoothly over bumps. But don't let them down to much. And don't drive fast with them deflated you could break a bead. When you return to the pavement air them back up so your tires don't wear abnormally.

**NOTE:** About 10lbs. min. Some tires require different pressure to get the tire to bulge. You can air down by holding the bleed pin down but it can take a while. I use a small needle nose pliers to unscrew the valve and take it out. There are also air valves that let out air automatically. They take the guesswork out and keep you from messing up taking out an air valve. Also nice cuz you can keep driving as your tires air down (cost about \$50.00)

**STALLED WHEN DIVING:** If you stall with your tailpipe under water, don't crank it. Get a tug out of the water and pull the spark plugs before turning the engine over. Unlike air, water doesn't compress very well and a cylinder full will result in a destroyed engine if you try to crank it back up. With the plugs out, turn the engine over a few times and the water will be ejected without bending rods and pistons.

**GOING SLOW WITHOUT GEARS:** When going over obstacles when you want to go slow and you don't have crawler gears and can't go slow enough without burning the clutch and stalling a lot. So I pull the parking brake a bit to put some tension on the driveline. This helps slow the vehicle a bit and gives you better ability to work the gas.

**STALLED IN A SITUATION:** If you have the clutch start cancel button it can be handy. When

you're going over big obstacles you don't want to roll back if you stall. So leave the truck in gear and hit the "clutch start cancel" button. Turn the key and allow the starter gear to move the truck a bit while the engine starts again. Then you're off again moving over the obstacle without having to engage the clutch.

**WINCHING:** When using a power winch, or a come-along, throw an old jacket, towel, or other loose object over the line. This way, if the cable breaks, the object on the line will help slow the loose end so it does not whip back and hurt someone.

**NOTE:** When buying your winch make sure it has a min. of 6000 lb. lift capability. This should have close to 10,000 lb. pulling weight. Winches usually have twice the pulling capability than lifting.

**TOW STRAPS:** Go to Walmart, tractor supply, or other and pick up a good tow strap that is rated for at least twice the weight of your vehicle. Chains can break and when they do it is very dangerous. Straps work really well. I would recommend buying one with loops on both ends and not the hooks. The hooks are nice but they can come loose if given any slack. Besides I haven't encountered a time when I couldn't use my loop end straps.

**NEVER USE CHAINS:** Chains can be a huge no-no! If it's the only thing you've got at the moment don't hit the end of it hard when pulling out a stuck rig. Never use any type of recovery strap with hard parts such as hooks, which can become projectiles.

**STEERING:** When wheeling, hold the steering wheel with your THUMBS OUT. That is, do not grab the wheel like a baseball bat. Why? If you rig hits a rut, rock, or other obstacle just the right way, your wheel could spin too fast for you to react, possibly hurting your thumbs. By keeping them on the outside of the wheel, you reduce the risk of injury from the steering wheel spokes.

**KEEP YOUR HANDS IN THE TRUCK!** Don't try pushing off to keep your truck from touching a rock or dirt wall. I've done it and I've seen people do it. Its dumb and you could loose an arm.

**LEAVE THE TRAILS CLEAN:** What you pack in, make sure you pack out. When you leave a trail, take out more than you brought in. If you see trash, pick it up. It only takes a few seconds. A clean trail is an open trail. Don't give wheeling a bad name by trashing the trails.

**TOOLS:** Keep a small tool set on hand that has all the essentials. Something like a 42 or 60 pc. set. I always leave it in my truck just incase.

- A Hi-lift jack is a very good tool and not just for lifting your rig when needed. They can be attached to the front or back of a rig and used like a com-a-long. Also when I still had the old stock steering setup I bent the U-arm down about 1 1/2"-2". I used the Hi-lift to re-bend it so I could get home.
- Steel wire is also a good thing to have. You never know when use need to tie something up. Back to the old steering setup.....I used the wire to tie the drag link to the U-arm. It looked pretty iffy, but it worked.
- Always carry wd-40 for dispersing water from distributor, etc. \$2.00 spent can mean the difference between walking and driving.
- A good use of imagination when fixing something. If you need a lead tester and don't have one, take out one of your taillights and some speaker wire and rig up one of your own. A buddy of mine and me had to do this to test a starter.

**EXTRA PARTS:** Any spare parts that you can bring along are always good to have. Not just for what your rig either. A lot of wheelers are also willing to help out others. If you help someone with parts that your rig doesn't need they're more likely to remember that when they see you need help with something on or off the trail.

**DEAD TIRE:** It's always good to carry a spare tire and tire plug kit when out on the trails. You may never need it, but that time that you don't take you probably will.

**RESPECT:** Whether it's the ground you're on, your rig, buddy's rig, wives, children, pets...It's all about RESPECT on the trail. We're all out there for one goal: to HAVE FUN!! To me, brand names...don't matter on the trail. It's all about the wheelin'!!!! (Great words of 4xfred. A few of us touched base on the word REPECT, but I thought these words were well put and very important that they needed recognition to who they come from.)

**WHEN DRIVING ON FOREST OR PRIVATE LAND:**

**GENERAL RULE:** There are five basic principles in the words TREAD lightly!

- T ravel only where permitted.
- R espect the rights of others.
- E ducate yourself.
- A void streams, meadows, and wildlife, etc.
- D rive and travel responsible.

Tread lightly also means leaving no trace of your visit.

- Pack it in... pack it out! Leave only your tracks.
- Leave what you find - Picture and trash are the only things you should take.

**STAY ON THE TRAIL:** Don't drive off through "untracked" wilderness trying to be the first one to ever drive your rig "where no man has gone before." Don't make your own short cuts on the trail.

**REPECT WHAT ISN'T YOURS:**

- If you go through a gate, leave it as you found it. Nothing makes a landowner more upset than when a gate's position is changed, cutting off livestock from food or water, or allowing them to escape.
- If you are about to enter or need to enter private land, be sure to get permission first.
- Take a track down the middle of the trail if you can. Avoid widening the trail.
- Cross streams only at fording points.

**KEEP THE NOISE AND DUST DOWN:** Both are a form of pollution and you should respect others who are on the trail with you.

**COURTESY:** Yield the right of way to bikers, hikers, and people on horseback. Be especially careful when around animals. Pull to the side of the trail; turn off your engine and be quiet, not making any sudden movements until they pass. Also yield the right of way to drivers on the up hill grade or those who are overtaking you.

**SAFETY:**

- Buckle up! In some places this isn't a suggestion...it is mandatory that everyone be

properly secured in the rig.

- Travel with a group and preferably with someone who has been on the trail before.
- Have a citizen's band radio. Establish the "tactical net" you will be using as a group. Having a cellular phone can also be helpful, but the coverage may be very limited.
- Don't drink and drive. The correlation between consumption and damage or injury is significant. Besides, it's against the law.
- Build plenty of time into your schedule so that you don't have to drive after dark.
- Keep a reasonable distance between rigs. Give those around you plenty of room to maneuver.
- Do not speed or use the trail as a racetrack.
- Minimize the use of fire. A wildfire can change an area for hundreds of years. Use fire wisely and safely.

#### IMPORTANT ITEMS:

- A 4x4 rig that is equipped to handle the challenges of the trail.
- Sleeping bag
- Tent or tarp
- Personal items
- Prescriptions
- Flashlight
- Towel
- Toilet paper
- Aspirin, etc.
- Camera and film
- Extra clothes
- Jacket
- Rain gear
- Extra rig keys
- First aid kit
- Shovel
- Hachette
- Tools
- Fire extinguisher
- Heavy-duty jack
- Tow strap
- Duct and electrical tape
- Snatch block
- Extra parts

**MOST IMPORTANTLY:** Have fun, enjoy and respect the land, and get to know some of the other offroaders. Most people are really glad to lend a hand and help out with advice or trail repair. Beer and driving don't mix even on trails. Some would disagree but I don't believe in drinking if I'm going to drive. Wait for the campfire festivities to open the beer.

**NEED MORE:** I suggest you go and buy the Toyota Truck and Land Cruiser owners bible. It is a real nice book and will cover pretty much everything you need to know and even taught me some tricks. It can be found at any book store and I think it costs like \$20. While all this advise

given on this board is good advice, you should still read the book. It has other stuff in it as well like maintenance tips, performance upgrades, history of the Toyota, and so much more. (From: I luvdr)