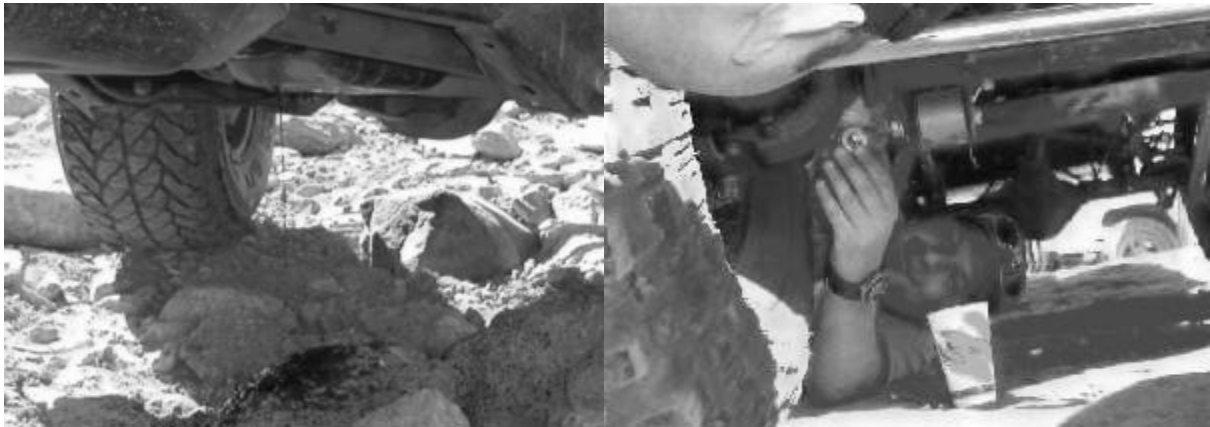


# Trail Fixes

Presented by: Arizona Backcountry 4x4 club  
<http://www.azbackcountry.com>



Sometimes you just need an idea.  
This guide provides solutions to  
situations that seem hopeless.

# Universal Quick Fixes and Cheap Tricks:

## Under the Hood:

**Dead Battery** - A cold dead battery will sometimes start the truck if you warm up the battery.

**Fuel Pump** – Use a windshield washer pump if you need a fuel pump in the woods you can fill it with fuel and reroute the press line to the carb . you will have to do some finagling to get the small line onto the carb input. Another not so pretty fix, clamp the hose on the carb, then sit on top of the cab with a gallon of gas.

**Motor Mount** - Use a ratcheting tie down strap for a temporary "mount"....wrap one end around the intake manifold and the other end to the frame, snug it down and off you go

**Heater Hose Patch** - A socket works good as a patch.

**Temporary Coolant Replacement** - Windshield washer fluid works fine as a temp coolant.

**Hose Protection** - Use an old radiator hose. Cut slits down its side, then put over the new hoses as rock/debris shields. A garden hose acts as great protection for battery cables

**Spark Plug Starter** - For changing spark plugs use fuel hose tubing attached to it to prevent dropping or cross threading plug

**Spark Plug Wire Maintenance** - Dielectric grease helps waterproof spark plugs by providing a better seal between the spark plug wire boot and the spark plug. Smear some around the insulator where the boot slides over. Works well on most electrical connections. It also prevents wire breakage, by allowing the plug wire to pull off the spark plug much easier! Only costs about \$3 at most auto parts stores.

**Timing Mark Tip** - In order to see the timing marks on the bottom pulley use Liquid Paper on the pulley.

**Distributor Cap fix** – Lost a screw or the cap is broken? use a C-clamp to hold the cap on. Other items to use: Duct Tape, Vice grips.

**Stuck Oil Filter** - take a short screw driver and punch it through the side of the filter. If it won't go through take something sharp like needle nose pliers, etc. to get the hole started. You can use a hammer or what ever to help get it through. Then use the handle of the screw driver for leverage to turn the filter

## Everywhere else

**Leaking Fluid** – A bar of soap works well for a leaky gas tank. The soap doesn't dissolve in the fuel very fast at all. This gives you plenty of time to drive home and wash it off. This trick also works on leaking oil pans and radiators. Not a fan of soap or didn't pack a bar? You can also use a small screw or nail to slow the leak down. Another method of slowing the leak would be to use a leaf from a tree and tape it over the hole, using duct tape or other strong tape.

**Broken Front Axle or U-joint** - Remove the whole shaft and drive home in 3wheel drive.

**Flat Tire – Sidewall damage:** Try dismounting the tire and layering on strip after strip of duct tape on the inside of the tire. Remount it on the wheel and air up with just enough pressure to seat the bead. then Stitching it together with tie wire helps also. **Non-sidewall flat:** Twigs, screws or other hard round objects can be pushed into the hole. Again, a max of about 10 psi with this..

**Flush Fit Tire Valves** - \$20 at the tire store, about \$6 a pair from a 4x4 store. No more ripped-out valves. Installed, they're about as thick as a pair of dimes stacked on the outside surface of the wheel.

**Free Articulation** - On many vehicles, you can simply disable or remove the sway bar to increase articulation for off road use.

**Shifter Knob loose** - Take a piece of gum and wrap it around the top of the stick it self and take the foil wrapper your gum came in and wrap it around the outside of the gum and then shove your shifter knob back over it. Other items to use would be Duct Tape, Hot glue, or super glue.

**Starter solenoid fried** - tired of having to pop the hood and using a screwdriver/knife/wrench whatever? Connect a wire to either bolt and run it into the cab. Then put a little toggle switch it on it. Just remember to turn off the switch once it starts. Not the best fix, but it'll get you by for awhile.

**Sealing Steel Wheels** - On steel spoke/wagon style wheels use RV silicon to seal area where spokes are welded to rim to prevent rust. Painting the wheel black and using black silicon makes the wheel look almost like it is one piece.

**Plunger Body Work** - Often, a toilet plunger can be used on body panels to pull out small dents and trail scars without damaging the paint or metal any worse that it already is.

**Emergency Brake Locker** - Partially applying the emergency brake will often help regain traction by slowing the slipping wheel allowing both rear tires better traction, acting similar to a "locker".

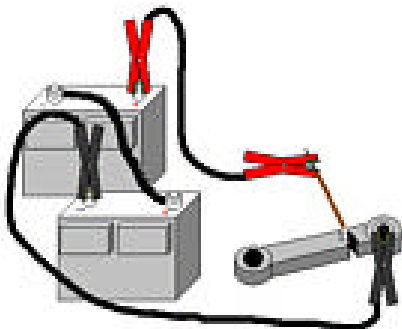
**Lockout Hub Tool** - A "T" junction piece of PVC pipe with a notch cut to fit the dial of your lock out hubs makes a great tool for turning stubborn or just plain muddy hubs.

**Clean Mirrors & Plates** - Use plastic wrap (Saran Wrap) to cover your license plate and side view mirrors before you go mudding. Just peel them off at the end of the day, and Whamo! You can see out your mirrors, and Johnny Law won't pull you over for a mud-covered license plate.

**Valve Stem Protection** - Weld a 1.5" diameter by 1" tall piece of steel tube around your valve stems to prevent them from being sheared off by rocks, etc.

**Tow Strap Protector** - Old motorcycle inner tubes can be cut up to provide protection from abrasion, etc. for your tug-em strap! Rags will also work! You can also make rubber straps for wrapping up tow straps, jumper cables, etc.

**Trail Welder** – You can use two batteries as a trail welder. Once you've got your batteries, goggles, sticks, and cables, you're ready to weld. Just remove the two batteries from the vehicles, and hook the **positive** terminal on the first battery to the **negative** terminal on the second battery. This will hook up the two batteries in series, yielding 24 Volts of power.



Once you've got the juice flowing from one battery to the next, you need to harness all those cold cranking amps and put them to work for you as a welder. For this you'll need another set of jumper cables (or a first set if you've used a battery cable to hook the two batteries in series). Hook up the negative lead of the cables to the empty negative terminal, with the other end attached to the work piece. Hook the positive cable to the empty positive terminal, with the other end clamping the electrode. At this point (after protecting your eyes, of course) you can go ahead and stike the arc to

begin welding.

You could use this same theory to get even more juice by using three batteries. It works the same way -- hook the positive on the first to the negative on the second. Then hook the positive on the second to the negative on the third. In fact, you could do this with an unlimited number of batteries -- but there comes a point where you'd be vaporizing the metal instead of welding it together. Try it with two batteries first, and if you still feel you need some more juice, give it a go with three batteries if another is available.

Believe it or not, this setup actually works, and has been used successfully countless times to get people out of the woods and back to civilization where more suitable repairs could be made. You already probably have access to two batteries, and the rest of the materials can be picked up at the local hardware store for under \$20. Chances are even if you've never welded before, you've got just about everything you need already -- the only things you'll have to buy are welding rods and goggles, which can be found for as little as \$5 total. The downfall of this

setup is that there's no way to regulate it -- you get the full cold cranking amps the battery or batteries are putting out, nothing less. This can lead to welds that are too hot if you're not careful, and instead of melting the metals together, you could wind up putting holes in the work.

**Broken Frame** – Jack the two pieces together, use your trusty trail welder to reconnect the frame.

**Temporary Seat Covers** - Stretching and taping plastic garbage bags over your bucket seats can temporarily protect them from mud and water.

**Quiet Leaf Springs** - A little grease between each leaf spring can get rid of annoying "squeaks". Pry each leaf apart with a pry bar to apply the grease.

**Door Seal Tip** - Silicone spray on rubber door seals keeps them from cracking and sticking.

**Valve Stem Caps** - Always use caps on your valve stems! Dirt, etc can get inside and cause the valve to leak!

**Brake Line Clamp** - Vise Grips can pinch off a leaky brake line, as a temporary fix.

**Vacuum Diff Trail Fix** - On my S15 pickup, the vacuum actuated front differential wouldn't engage (it turned out that the problem was the vacuum line that went from the top of the transfer case to the vacuum actuator was rotted out. Rather than crawling under the truck if it goes out when you're off roading, you can hook the vacuum actuator into a source of engine vacuum and it'll keep it engaged until you can fix the problem.

**Differential Fluid Fill** - Putting gear oil in differential. (front or rear)? I always remove the axle vent to clean it at the same time. So I decided, why not but the gear oil in thru that hole? Cut the top of your 1 quart "bottle", stick it in the hole and squeeze. Make sure the filler plug is out or the air has no where to go. This also lets you know when you're full.

**Cheap Fluid Pump** - Hate to squeeze the gear lube into your tranny or differential? Go to Walmart and buy a hanging plant waterer. It is a quart bottle with a long hard plastic hook that extends from the top. Take a drill, put a small hole (1/16" or so) in the bottle next to the lid. Cut the "J" to more easily go into the transmission or transfer case, be sure to clean the little plastic fuzz off carefully. Fill the bottle with your favorite gear lube. Take a foot pump or bicycle pump or old fashioned bend over and pump type, put the needle valve on it (the one you use to pump up footballs, basketballs etc.) Push the needle through the hole you drilled and in two or three pumps, the gear lube is screaming into the transmission. To do the differentials, cut the other end of the "J" to shorten the tube and repeat pumping to easily fill the diffs.

**Flat Tire Changing Trick** - Stuck with a flat tire and hydraulic bottle jack only (no Hi-Lift)- rather than digging down, place your spare in front(or behind)the flat and CAREFULLY drive your flat tire up onto the spare (onto tire only - not rim) - thus raising the vehicle high enough to

place extended screw on bottle jack to an almost changeable height. It saves a hell of a lot of pumping and skin left on knuckles. Make sure all passengers well clear during drive-up.

**Broken bead** - spray starting fluid (ether) around the inside. Then while trying to keep as little as a gap as possible between the tire and rim, and having a good amount of fumes built up, throw a match at the separation and the ignition will seat the tire to the rim. This will give you a few pounds of pressure. Now air it up the rest of the way.

Forgot the starter fluid? Well, on most tires you can get them to reseal by hand with a little help from a compressor. If the tire is wide (like a 12.50 or wider) you might have to use a ratchet strap to help push the beads out. You can also rub a little soapy water around the inner rim to help you pull the tire back n forth while airing up the tire.

**Broken Shock mount/shock** – Remove the shock, you can drive home without one.

**Wedged between two rocks** – Wow how do you do that? Turn the wheel uphill and pour water on all the tires. Have a couple friends push sideways on the rear end of the vehicle and gun it. Your rear end should slide around and un-wedge you. If your not on a surface that will allow this type of method. Use your jack, preferably a hi-lift jack, jack up the ass end and push it off the jack. You may have to do this a couple times and stack rocks on the tires to gain traction.

## Specific Vehicles:

### *Toyota*

**Extended Diff Breathers** - 8" toy differential extended breathers can be made by getting two 10-12" Lubrimatic grease gun flexible hoses and a coupler. The thread on the little Lubrimatic grease guns is the same as the fitting going into the top of the differential. Hook the two together with a coupler from ACE, and hang upside down from your floor or bed floor. Attach another coupler to the extender and put the original breather vent on it.

**Seal Saver for Pulling Axles** - I did my 1st rear diff swap and came up with this one. I didn't want to pull the axles all the way out. I had just had new seals put in and had no reason to replace them again. But I was told NOT TO LET THE AXLES REST ON THE SEALS. So once I jacked up the rear end and supported the axle housing on jack stands I removed the tires/wheels. I had been told as a youth to slide the tire under the frame when changing a tire. In case the jack slips the vehicle won't end up on the ground. This got me to thinking. I slid the tire under the end of the axle shaft. Then I put a short (2 ft) 2x4 across the tire. Put one end on the rim lip and the other on the rubber of the tire. This way the 2x4 sits at a slight upward angle away from the axle. When I unbolted the axle and slid the axle out I simply slid the axle out until it contacted the wood. The 2x4 held the axle off the seal. Worked great.

**Vacuum Lock Axle Trick** - If your front I.F.S./A.D.D. vacuum operated diff lock won't lock and you think it's the vacuum hose, remove the hose from the diff. (the one closest to the front of the truck) and a simple mouth suck on the tube should lock the sleeve in place. It takes vacuum on the other hose to unlock the sleeve. So it should stay locked.

**Front Brake Line Extension** - Need extended brake lines but don't want to pay for them? Simply remove the clips that hold the hard line to the frame bracket and push the hard line through the bracket a couple inches. Sleeve the hard line with rubber fuel line and zip tie it in place to prevent chaffing in the bracket and you have an easy few inches extra brake line travel.

**Extended Brake Lines** - On Toyota mini trucks you can use two factory rubber brake lines and put them together, giving you a flexible brake line that is twice as long as stock.

**Tacoma Lock Trickery** - Take the two wires coming out of the blue connector on the passenger side of the truck and cross them with a blue connector, or if you have an auto do the same but use a switch in-between them to the cab.

**Crank Bolt Trick** - When trying to break loose crank bolt, attach breaker bar to nut and have handle braced on frame(drivers side), tap starter to loosen.

**Shifter Options** - Toyota Supra shifter knob fits on the truck/4runner shifter.

**Option for longer front brake lines** - I moved the mounts for my front brake lines lower on the frame so that I could use the stock ones.

**Custom Torque Rod** - You can buy the Rancho one or do this low buck fix. Cut one end off the stock one. Place a single bend in the stock solid rod as needed to clear the sway bar. Weld on a piece of tube (~5/8" i.d.) to lengthen the torque rod. Weld a 5/8" UNF nut to the end of this tube. Add a 5/8" rod end and second nut as a jam nut. For about \$10-15 and some welding you have an adjustable torque rod that will clear the sway bar.

## *JEEP (CJ)*

**Steering Fix** - I just put a wrangler pitman arm on my CJ with 2.5" suspension lift. It leveled the steering geometry perfectly. You only need to take a hacksaw and file grooves were there are none (3 places). These are normally throw aways from your friends!

**Lighted Rearview Mirror** - I wanted more light inside but did not want a roll bar mount. I found a lighted rear view mirror at a junk yard for \$10. I needed a new mirror anyway. I routed the wiring around the windshield moulding. It is not hooked up to the dome light switch, just the switches on the mirror. Works great and plenty of light where you need it.

**Rearview Mirror Relocation** - My rear view mirror kept falling off, so I mounted it to the top of the frame where the footman loop is (I never lower the windshield anyway). I had to mount the bracket and spin the stem upsided down so I could get it to move into the correct position. Now I can see lots more out of my front window and still see a good rear-view.

**Rocker Panel Protection** - Rocker protection: 2"x3"x3/16" mild steel angle iron. Works like a charm and is cheap. The angle iron I used measures 7/16" at the angle.

**Underbody Off-road Lights** - Rock lights. If you have some old lights kicking around, you could mount them to the steel body mount brackets on the frame for undercarriage lighting.

No extra lights and you want a cheapo method? Use white christmas lights or even better, use a ropelight so that the bulbs are sealed. Then using a power inverter, just plug into your cigarette lighter.

**Underhood Storage** - On my 66 CJ-5 I wanted underhood storage for misc tools (other than my tool box in the back) that would be convenient, waterproof and lockable. I went to the surplus store, spent \$5 for an ammo can, welded 2 1/4"x1" plates under my heatercore and welded the ammo can to them.

**Rockcrawler bumper** - I turned my stock front bumper into a rock crawler bumper by cutting 5" off each end so it won't interfere with approach angle.

**U bolt Flip Kit** - U-bolt inversion using the rear spring hangers from an '82 1/2 ton 2WD Dodge.

**Tailgate Spare Tire Mount Combo** - I got tired of swinging open the rear tire carrier, then dropping the tailgate to get in the back of my Scrambler. So I removed the tailgate hinges, drilled two holes thru the swing arm and mounted the tailgate to that - one easy-open maneuver. To look at it, it looks like nothing was done, but it is quicker to open/close the tailgate.

**Cheap Idle Increase** - Lot's of AMC carbureted cars and Jeeps that have AC have a small electric solenoid on the carb that has one wire running into it. For the V-8's, almost all Wagoner's have it. Anyway, its purpose is to bump up the idle when the AC is on. So get one, and just wire it to a toggle switch on the dash, and voila, instant high idle. I use this everyday until the Jeep is warmed up, when on steep hills, and when running the on-board air. Most junkyards will say you can just have it.

**Shackle Substitute (Jeep CJ,YJ)** - If a spring shackle is broken on the trail, 2 long bolts and one of your generic bolt on tow hooks can be used in place of a shackle to get you back to camp. Or use pair of muffler clamps to hold the main leaf to the other leaf springs. Add a wrench if one of the muffler clamps is too tall and can't be tightened down onto the springs without some sort of spacer. If the shackle breaks off the frame, towards the front end. You can use a ratcheting strap to bind the spring to the frame. Not the best fix, but drivable.



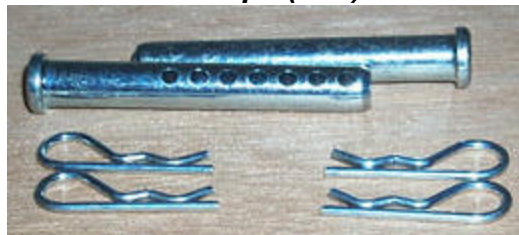
## *Jeep (YJ)*

**Waterproof CD Changer Mount** - 12 Disk Changer: I mounted the changer inside a 50 cal ammo can (available at surplus stores for under 10 bucks) and mounted the can to the floor behind the back seat on the left side. The lid can't be opened when the tailgate is closed due to overhang of the tailgate latch mechanism - just lock the tailgate and you automatically lock the ammo box. The can also has a rubber gasket seal to protect from moisture. Easy waterproof and theft-resistant mount!

**3rd Brake Light Lift Kit** - take two hockey pucks and some new bolts, drill the pucks where needed. Now you have a one inch lift.

**Extra Articulation** - you can simply remove the front sway bar to increase articulation for off road use.

## *Jeep (TJ)*



**Cheap Sway bar disconnects** – Buy a set of 2 ½” 5/8 keyed pins and two stainless steel cotter keys. Be sure to buy stainless steel or else the pins will pull through the connector.



**Bent Tie Rod** – using a Short section of chain and a Hi-Lift jack or other object that can be used as a lever. wrap the chain around the tie-rod and attach the links (in this case the chain had some hooks on each end). Place the jack through the chain and under the axle, next carefully push down. You may need to bend the tie rod past straight and level a few times. One thing to remember is the more you bend the tie rod the weaker it gets due to metal fatigue. At some point you will want to consider replacing it, but keep the old one as a spare.

**Cheap Body lift** – Buy longer bolts and hockey pucks from a sports store. Drill the pucks in the center and slip them over the factory mounts.

**Drag Link** - take a H-Lift jack handle and cut it to length so it could slide over the two ends of the now broken drag link rod. Remove the adjuster from the end that was still attached to the pitman arm. Hacksaw the other end of the rod because of the knuckle where the steering stabilizer connects. Once the H-Lift jack handle is in place,



take a couple of ratchet straps and wrap them around the drag link and the junction where the tie rod and drag link join.

## Tools

**Punches & Drivers** - Cut off shock rods also make great punches. Some shocks from big trucks have almost 3/4" shock rods by about 12" long. They are hard, and don't tend to mushroom. Heavy truck shops will give these to you.

**Socket Tip for Stubborn Bolts** - When removing rusted bolts that can't be heated, put a chunk of foam soaked in brake fluid, ATF, etc into the socket. A little lube goes a long way. Then use Never-Seize upon reassembly.

**Preventative Measures** - Use Never-Seize on everything. Even cotter pins, and cone washers.

**Seal Drivers** - I save all the old bearing races that I remove to make into cheap seal and bearing drivers.

**Fix all sealant** – Keep a tube of JB weld with you. This substance will patch almost anything and lasts a very long time.

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