HOW TO

SET UP YOUR SCALER

Improve your truck's performance with little to no money!

BY **KEVIN HETMANSKI**

SCALE TRUCKS ARE KING RIGHT NOW, and there are no signs of interest in the category slowing down. More companies are offering trucks, and their performance out of the box is improving greatly. When it comes to tackling light-duty trails, such as a hiking trail at your local park, 90 percent of the vehicles offered are going to give you enough performance to make you happy. When it comes to extreme conditions, like steep inclines, tight areas, and so on, however, you'll want your rig to have better performance. There's nothing better than hitting a crawl spot and seeing your scale truck conquer obstacles that you never thought it could. With the tips and tricks listed in this article, you can turn your grocery-getting scaler into a capable beast spending little to no money. You like that? Here's what you need to do to make that happen.

Getting your steering linkage above the axle's centerline will get it out of harm's way and keep your truck from getting hung up on obstacles. This Gmade Komodo comes with the steering link mounted below the arms on the hub (left) but if you mount it above (right) the arms will give you more clearance.

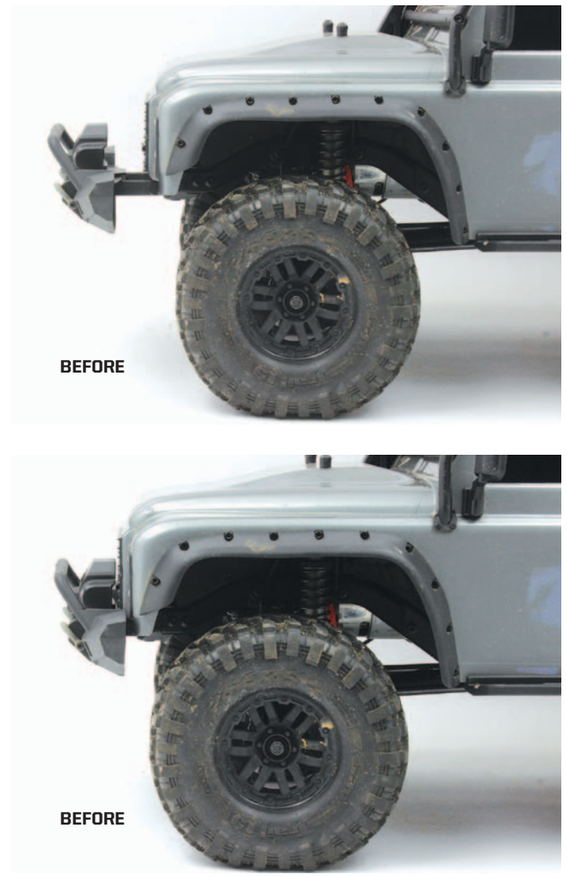
RAISE THE STEERING LINKS

Chances are that the steering links on your truck are positioned so that they are linked up just below the center of the axle. Yes, it works and the links are able to turn the tires left and right with no problem, but on the trail, the links can actually hang up the truck when you try to climb over obstacles. What you want to do is move the steering link so that it's positioned as high as possible to provide more clearance and, therefore, reduce the possibility of hanging up your truck on the trail.

Mount the battery as far forward on the chassis as you can for the best climbing and crawling performance.

MOVE THE WEIGHT FORWARD

Unlike race vehicles where a balanced weight is beneficial, a scaler/crawler does better with slightly more weight up front. What this does for your crawler is put more weight on the front tires to improve front grip when attacking steep inclines. Ever see the front end come up on your truck when trying to get up a steep rock? That will be eliminated with more weight on the front of your rig. You can easily get weight up front by moving the battery to that position. Some newer vehicles come with the battery already mounted up front, but others have the battery mounted in the rear. You'll want to get the battery mounted in the front of your chassis with an aftermarket mount (if available for your truck) or with custom-made parts. You can also get weight up front by adding weights to your truck either to the chassis or to the axle itself. Having the weight in the chassis will do the job, but getting the weight down low on the front axle will also help lower the truck's center of gravity, which will make it less likely to tip over.



By having the bumper far away from the body (top), you reduce the truck's approach angle, which can cause the bumper to hit an obstacle before the tires are able to get up and over it. Tucking in the bumper as much as you can (above) improves the approach angle and will keep the bumper from hitting something.

TWEAK YOUR BUMPERS

The bumpers are a great way to add a scale look to your truck, but they can also hang up and keep your truck from progressing through an obstacle. For the front bumper, tuck it in as much as you can to improve the truck's approach angle. You can also shave the bottom of the bumper to further improve the approach angle or purchase a front bumper that has a steeper front angle to it. For the rear bumper, you can do something similar: Tuck it in, and get the angle of it right. The best thing to do, however, is to remove the rear bumper altogether. A rear bumper can't rub on the ground if it's not there.

PLASTIC AXLES ARE GOOD

Before you pick up an aluminum front axle for your truck, you may want to think twice about that. Sure, an aluminum axle housing is going to add weight (which makes the truck more stable), and having that weight down low will decrease the truck's center of gravity. But having that aluminum axle under your truck can slow you down on the rock because, unlike plastic, which slides over the rocks, aluminum galls and that makes it stick to the rocks. If you haven't broken your stock plastic housing, you may want to keep using it if you spend a lot of time on the rocks.

Aluminum axle housings look great and are a good way to get weight down low. Aluminum, however, can slow down your truck on the rocks because, unlike plastic housing, which slides across the rocks, the aluminum will gall and grab onto the rocks.

LOWER THE CENTER OF GRAVITY

Having a low center of gravity (CG) in any vehicle is a great way to improve performance. It makes for a vehicle that is less tippy, and in the case of a trail, having a lower CG will reduce the truck's ability of tipping sideways and front to back. Adding weight to the axle by way of brass tubes, brass lower links, aluminum wheels, or hub weights is the simplest way of getting the weight down low. You can also take a look at your speed control and receiver to find ways to mount them lower in the chassis; it can be done with a custom mount or an aftermarket one, if it's available for your truck. If you are going to make your own mount, make sure you cycle the suspension to ensure that the new mount will clear the suspension links, axles, and driveshafts.

Adding weight to the front axles is the best way to go when trying to lower your truck's center of gravity. The aluminum hubs and brass faux disc brakes on this truck do a great job of getting weight low.

A loaded roof rack looks cool but isn't ideal to achieve the best performance on the trail.

GET A LIGHTER BODY

Another area where you can lower your truck's CG is by taking a look at your body. If you have a lot of scale accessories in a rack on your roof, you may want to take a look at removing some or all of those items. Instead of using a metal high-lift jack, switch over to a plastic one. Less is more when it comes to scale accessories on your body. The body itself can also help you lower the CG. A Lexan body is always going to be lighter than a hard-plastic body, which makes it a better choice here. If you want to get hard-core about your rig, find the lightest Lexan body you can. A pickup truck body, for example, is possibly going to be lighter than a SUV type body, and no matter how you look at it, a pickup truck body is going to have its weight lower, therefore making it a better choice.

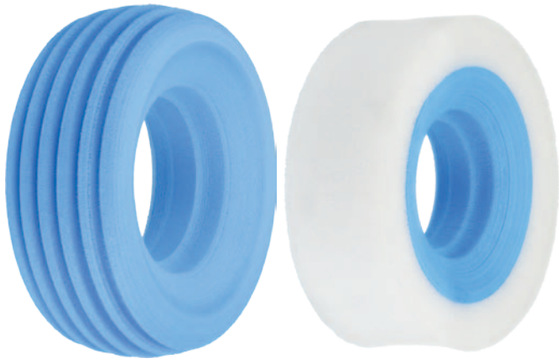
More articulation is better—to a point. Too much articulation can reduce crawling performance.

REDUCE AXLE ARTICULATION

If you're a part of any scaler or crawler group on the Internet, chances are that people have posted a picture of their rig with the axles twisted like a pretzel and proud that they were able to accomplish that. When it comes to axle articulation, too much is actually bad for performance. Limiting axle articulation allows the suspension to apply pressure to the tires and, therefore, gain traction when the axles become twisted on an obstacle. Stock trail trucks generally have just the right amount of articulation, so there's really no need to modify your rig to get more. A trick to get better performance is to allow slightly more axle articulation up front then you have in the rear; this reduces torque twist and rear steer.

TUNING WITH FOAMS

If you're running bead-lock wheels on your scaler, then you can experiment with foam inserts; they're fairly inexpensive, and a few different types are available. For those who are using glue-up-style rims, take this information and make an educated guess on what foams to use based on what you learn here. There are basically four types of foams available: open cell, closed cell, dual stage, and memory. Open-cell foams are usually what comes stock with your vehicle. Open-cell foams are going to offer medium support, closed-cell foams offer stiff support, while memory foams are the softest that you can get. Open-cell foams are good for conforming to variations in the earth's surface, and they do a good job of supporting the tire during sidehilling. Closed-cell foams don't conform as easily but offer great support when sidehilling. Memory foams have the best conformability, but when it comes to sidehilling, they don't do as good of a job supporting the tire. Dual-stage foams give the tire great conformability and, at the same time, give plenty of support for sidehilling. You can further improve the performance of your vehicle slightly by setting up the tires to have softer support in the front than in the rear. This reduces rear traction slightly, which will keep the rear tires from twisting due to too much traction, and, at the same time, reduces torque twist and stress on the truck's drivetrain. So if you have an open-cell foam up front, you can use a closed-cell foam in the rear, or if you have a memory-foam insert in the front, switch to an open-cell foam in the rear. Like the stock foams? You can "soften" the front foams by cutting them into a star pattern. This will give the front tires a little less support, which will make them feel softer.



You can tune your tires by using different types of foam inserts. The Pro-Line closed-cell insert (left) will provide plenty of support for sidehilling, while its dual-stage foam (right) is going to provide softness for rocks and enough stiffness for sidehilling.

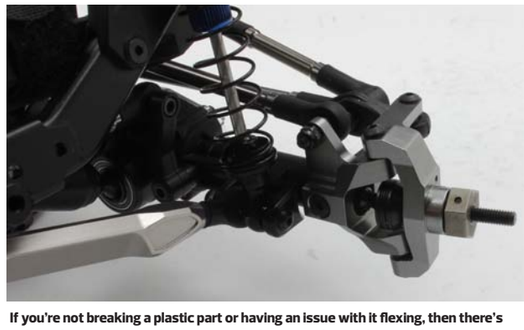
Pro-Line's Super Swamper (left) has a great scale look and wide-spaced lugs, which make it perfect for loose dirt and mud, while the Flat Iron (right) will do much better on rocks. The conditions that you drive in the most will determine what tire is best for your rig.

UPGRADE YOUR TIRES

Just as in racing, tires are the quickest and best way to improve the performance of any vehicle. There are many tire choices in the scale scene these days, and picking the right ones for your rig will require you to spend some time on the trails. Take into consideration the conditions in which you'll be running, and make your tire choice based on that. If, for example, you are going to be on the rocks a lot, then look for a tire that has tighter lug spacing and a soft compound. Running more in the mud and soft dirt? Then look for a tire that has wider spacing on the lugs, and maybe go with a firm compound to get the tread into the dirt. Luckily, most scale rigs have bead-lock rims, so you will be able to experiment with tire treads and compounds to find the best possible setup for your truck.

Should I Upgrade to Aluminum Parts?

There are a lot of aluminum accessories available for scale trucks these days. They add durability, and in some cases, their weight can be beneficial. There are a lot of people online who join a group and, before they even get their truck, will ask what parts they should get for their truck. Of course, there are a lot of people who will instantly say that you need to get this specific part or that one. The truth is that you don't need to drop all kinds of hard-earned cash on your truck before you even drive it. Don't forget that the people suggesting aftermarket parts may have a different driving style, drive in a different location, be harder on their truck than they should be, and so on. You should take the time to run your vehicle and make a decision based on your experience. You may find that a stock truck holds up just fine, so aluminum parts aren't necessary. Or if you break a hub, then take into consideration what made the hub break. If it was an unusual situation that the truck will probably never be in again, then you can save yourself some cash and get a stock replacement part. If you are going to be running into the situation that broke your hub over and over again, then an aluminum replacement piece is something to look into. Of course, there are also aluminum accessories out there that you'll want to install simply because they look cool. But remember that the majority of the vehicles out there were designed to be run with the parts they come with, so adding an aluminum part may cause others to break.



If you're not breaking a plastic part or having an issue with it flexing, then there's nothing to gain by going to aluminum. But if you just want it 'cause it looks cool, go for it.

INCREASE STEERING THROW

Today's trucks are coming with 45 degrees of steering throw, which is about the maximum throw you can get out of today's axles. Having that amount of throw is going to make it easier for your scale rig to get out of and around tight spots with ease. But not all trucks have that much throw, and even though you may not be able to get 45 degrees of throw, you can certainly increase throw with some minor modifications to your front axle. You can start by grinding off any stops that are molded into the hub or hub mount; this will allow the hub to travel farther than before. For those who have dogbones, you may find binding in your front axle when the hubs are turned all the way. You can fix that by installing universal driveshafts, if they are available for your rig. The universal driveshafts are much smoother than dogbones and won't bind. If you have a plastic servo arm, look into picking up an aluminum one. The aluminum one will have less flex, and you'll never strip out the spline, as you can do on a plastic unit.

More trucks are coming with 45 degrees of steering throw, which will get you out of any tight spot with ease. You can modify axles on other trucks to improve their steering angle and, therefore, their performance.

STIFFEN SHOCK DAMPING

With most off-road vehicles in RC, we are programmed to expect a suspension that is fairly soft and reacts quickly to bumps and jumps, but when it comes to trail trucks, a thicker oil—in the 40 to 50wt range—is best. In general, scale trucks aren't fast, and their tires are pretty much always in contact with the ground. So there's no need for a soft suspension to soak up bumps and allow the truck to track straight and so on. If you're planning on running on light-duty trails, then the stock oil that came in your truck's shocks is going to be just fine. For more extreme crawling, bump up the thickness of oil. This will provide better control of the axle when the suspension unloads. If the shock oil is thin, the weight of the axle and tires can pull on the chassis when it bottoms out, causing the truck to roll over. If you have a thicker oil in your shocks, it will allow the axle to drop slowly and not jerk the chassis.

Thicker damping will cause the suspension to lower the wheels more slowly for improved control.

FINAL WORD

That should do it. With these simple tricks, you should be able to increase the performance of your scale rig no matter what you're driving. While you're out on the trail, why not snap a few pics and send them to Readers' Rides? Hit us up at readersrides@airage.com.

SOURCE
Pro-Line
prolineracing.com