

2005+ Tacoma Rear Spring Under Kit Install Guide

Step One-

Place the rear of the truck on jack stands. We like to put the jack stands under the frame rails in front of the factory spring hangers so you have room to work. Make sure you block the front tires as the entire rear suspension will be removed and there will be nothing to prevent the truck from rolling away.

Step Two-

You will need to remove the bed from the truck so you have room to work. Start with removing the tail gate and then remove the taillights so you can disconnect the taillight wiring harness. You will also need to disconnect all the clips from the underside of the bed that secure the taillight wire harness. Next you will remove the gas cap so you can push the fuel filler hose through the bed before removal. Once you have the wiring and fuel filler disconnected you can remove the 6 bed bolts and pull the bed off. The bed itself isn't that heavy and two people can lift it off the truck. Remove the bed slowly in case there are any wire harness clips that you missed.

Step Three-

With the bed removed you can begin to strip the rear suspension off the truck. Start by first removing the soft rear brake lines completely and let the fluid drain. You will also need to disconnect the rear wheel speed sensors from the axle housing and carefully tie them up out of the way. Remove the rear drive shaft from the 3rd member and tie it out of the way. Next you will remove the rear shocks and leaf springs, for now you can let the axle sit on the ground. Once the axle is on the ground you can remove the rear drive shaft and tie it up out of the way. You can keep the rear E brake cables attached as they have plenty of slack in them.

Step Four-

Once the rear suspension is removed and you have everything tied up and out of the way you can start the process of removing the factory spring hangers and shock mounts. The factory spring hangers are riveted to the frame and removing them is not fun. The easiest method to do so is by drilling them out. Toyota uses a double flare rivet so even if you cut the head of the rivet off you can't simply pound them out of the frame. Through trial and error we have found the simplest way is to completely drill the center of them out. When doing the driver side front spring hanger you need to be especially careful of the factory gas tank. The job can be performed without removing the gas tank however if you choose to it will make the process easier and safer. The OE shock mounts are welded to the frame and will need to be cut off. This can be done with a plasma cutter or a cut off wheel on a grinder works. It's important to

be careful when doing this as the OE frame is thin and you do not want to sand or cut into the frame.

Step Five-

While you have the tools out for cutting the factory shock mounts off now is a good time to prep the frame for the shock tower install. On the short bed trucks the factory bed mount will prevent the shock tower from sitting flat against the frame. You will need to trim the factory bed mount flush with the side of the frame and this is easiest to do with a cut off wheel. Take your time to make sure you do not cut more material than you need. When done correctly the shock tower will sit flush against the frame and the cut portion of the factory bed mount. When its time to weld the shock towers in place they will be welded directly to the frame and to the portion of the bed mount where the notch has been cut out.

Step Six-

The rear axle will also need to be prepped for the kit. To do so you will need to cut the factory shock mounts off and sand all the paint off of the axle on the bottom side so the new spring perches can be welded on. We recommend leaving the factory spring perches on the axle as they provide a great location to mount the bump stops.

Step Seven-

Once all the removal and prep has been done to the frame and axle you can start with the installation of the kit. Start by installing the leaf spring bushings in the springs. Make sure you use LOTS of grease when doing so as the bushings will squeak otherwise. We like using Maxima waterproof grease but any quality waterproof grease will work.

Step Eight-

You can now start installing the spring hangers on the frame. Start with the rear spring hangers and bolt them into the location where the factor hangers were held on by rivets. Our rear shackle hangers have three mounting positions which allows the hanger to be slid forward or rearward on the frame. The different positions will change the ride height of the truck as well as the spring rate. Sliding the hanger to the most rearward position will raise the back end of the truck and increase the spring rate while the most forward position will lower the truck and the spring rate. We recommend starting in the middle position and once the truck is 100% done and driving should you go back and adjust forward or backwards depending on the desired result.

Step Nine-

Repeat the same process as step eight for the front spring hangers. The front spring hangers will bolt into the factory holes where the rivets were removed. You will then need to match drill the underside of the spring hanger into the factory frame using a 7/16" drill bit. Please keep in mind installing the hardware on the driver side is more challenging with the gas tank but it can be done.

Step Ten-

With the front and rear spring hangers/shackles installed you can then bolt the leaf springs on. Once the springs are bolted up you can then place the new spring perches on top of the springs making sure to have them centered on the spring center pins. Next you will lift the axle up onto the new spring perches. You will need to make sure the axle is centered left to right, take your time making multiple measurements! Once you have the axle centered on the spring perches you can then install the U bolts and spring plates. You will then snug the U bolts up to prevent the axle from rolling around on the leaf spring perches.

Step Eleven-

In order to set the correct pinion angle you will want to simulate the truck at ride height. Put the tires back on the truck, remove the jack stands and set the truck on the ground. You will then want to place additional weight on top of the frame to simulate the amount of weight the truck will have with the bed on so you can get an accurate ride height. Once you have weighted the truck down to the appropriate ride height you can then set the pinion. You will need a digital angle finder or you can download an angle finder app for your iPhone. With the truck at ride height you will want to start by placing the pinion at zero degrees or perpendicular to the ground assuming the truck is on a level surface. Once you are able to find zero you will then want to roll the pinion down 2-3 degrees. The pinion is rolled down because when the truck is under load the power of the driveline will force the pinion to roll back up a few degrees. Following this procedure is important to ensure you achieve the correct driveline angles when the truck is under load to prevent driveline vibrations. Once you are confident you have set the correct pinion angle and have the axle centered over the leaf springs you can tack weld the spring perches to the axle housing.

Step Twelve-

Next you will need to install the upper shock towers. The towers will work for both long and short bed trucks. Please reference the pictures for the location of the towers. You can also verify the position of the towers with a tape measure. On both long and short bed trucks the center line of the upper shock mount bolt will be between 16-17" in front of the center line of the axle housing at full compression. The height of the shock towers is also very important. Our towers require you to notch the side of the bed tub (see pictures) and the top of the shock tower needs to be flush with the top of the beds wheel tubs for the top cover plates to sit flush. If the tower is too high or too low then the cover plate will get pulled at a weird angle and won't look right. Place the bed back on the truck and position the towers against the bed at correct distance from the rear cab mount. You can then trace the shock mount onto the wheel well tub so you know where to start cutting. Please note that this process takes time and for the best results start by cutting less than you need and keep fitting the shock mount until it fits with nice tight gaps. Once you have the desired amount notched out of the wheel tub double check to make sure the shock mount sits flush with the top of the bed's wheel tub. You can then tack the shock towers into position. If you are too high or low you will need to cut the tack welds and adjust the tower accordingly. When you are 100% satisfied with the fit of the shock towers you can remove the bed for a final time and fully weld the shock towers to the frame.

The short bed shock towers are 4" behind the rear cab mount as seen below on the left and 16.6" as seen on the right



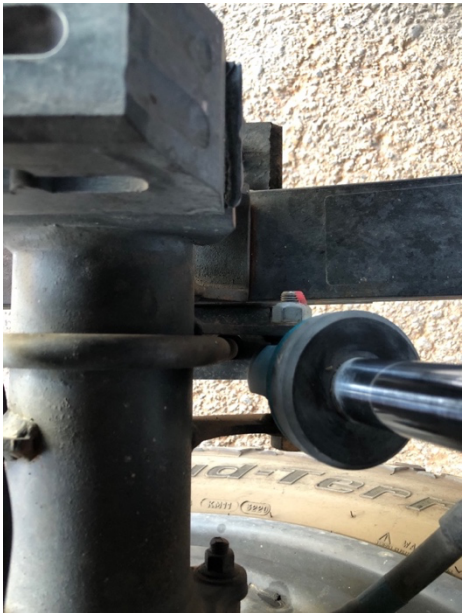


Above is a picture of the shock tower installed with the top cover plate in the correct position

Step Thirteen-

With the upper shock mounts done its time to install the lower tabs to the axle. If you are running a 14" King or Fox 2.5" shock, then the center line of the lower shock bolt will be flush with the bottom of the axle housing. If you are running a 3.0 or "race series" shocks then we strongly recommend cycling the rear springs to make sure the shocks don't bottom out prematurely. The best method for cycling the rear suspension is to take the leaf spring pack apart down to just the main leaf spring. With just the single spring bolted on you will be able to easily bottom out the suspension. With the suspension bottomed out you can then collapse the rear shocks and find the lower mounting tab location. Once you have located the desired location for the lower shock mount you can weld everything up. Please note that the "shock to tire" clearance is limited on the Tacoma and you need to have the shock as far away from the tire as possible. The lower shock tabs will straddle the u bolts when the shock is in the

correct location. Please take your time during this process and make sure you have the necessary clearances especially during articulation.



Step Fourteen-

Finish welding the lower spring perches, lower shock mounts and upper shock mounts. You can then add the rear bump stops. We recommend purchasing the “thin” energy bump stops and modify them to be welded on to the factory spring perch so they strike the factory upper bump stop pad. With everything fully welded you can then paint the exposed surfaces and assemble the rear suspension. Next you will put the bed back on the truck but do not put the shocks on as they will be in the way for the crossbar installation.

Step Fifteen-

With the truck all back together you will bolt the supplied crossbar plates to the sides of the shock towers. From there you can source your choice of cross bar material. We prefer to use 1.5” x .120 round DOM tube but you can also use square stock or tubing of different diameters. Feel free to weld on tie down points, jack mounts or whatever you would like to the crossbar. You will weld the cross bar to the plates you have bolted to the shock towers so it can be removed if you need to pull the bed off again. We also supply you with cover plates for the top of the shock towers. These plates bolt to the shock towers with the supplied hardware and then the additional holes are match drilled into the bed tub and bolted. Once you have completed the cross bar and top plate install you can then bolt the shocks into position.



Step Sixteen-

Next install the new brake lines, reattach the wheel speed sensors and mount the emergency brake cables. The emergency brake cables are bolted to the side of the front spring hangers using the supplied hardware which attaches the factory steel cable loops.



Step Seventeen-

You will need to reroute the gas filler and vent lines around the new shock tower. On the short bed things are very tight. The factory fuel filler needs to be unbolted and the factory filler mounting tab can be bent to accommodate the necessary reroute. Both breather lines will be too short and you will need to extend them with the supplied hoses and hose clamps. We recommend using zip ties and bundling everything together to secure it up and out of the way.



Rear Drive Shaft Modifications-

In our experience we have been able to install the spring under kits on the short bed trucks without driveshaft modification. On the long bed trucks we have had to shorten the rear drive shaft $\frac{3}{4}$ " of an inch. We recommend that you cycle the rear suspension regardless to make sure you do not need any driveshaft modifications. The easiest way to do this is to drop the rear suspension all the way out with the drive shaft disconnected. When the truck is all the way dropped out see if you can bolt the rear driveshaft flange to the pinion flange. If the drive shaft is too long you will not be able to get it to mate up to the pinion flange. If the drive shaft can be bolted to the flange you do not need any modifications.

Wheel Offset And Tire Clearance-

Depending on your rim offset and tire choice wheel spacers may be required. For reference a truck with King 2.5" shocks, 35"x 12.5" tires on a 17"x 8.5" with 0mm offset wheels will require a 1.25" wheel spacer to prevent the tires from hitting the shocks during articulation.

IMPORTANT!

The U bolts need to be torqued to 90 ft/lbs and re torqued after 150 miles as they will stretch. Make sure to check the new brake line fittings for leaks as well.