



Toyota IFS Ball Joint Spacers

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For your convenience, an [Adobe PDF](#) copy of these instructions is [available for easy download here](#).

Ball Joint Spacer Installation Instructions:

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4WD Ball Joint Spacer Installation:

- Block the rear wheels and place the front end of the truck on jack stands and remove the front wheels.
- Remove the original ball joint hardware.
 - Knock the studs out of the ball joint with a small hammer.
 - This is done most easily if the joint is pressed against the arm supported with a floor jack, as shown below.
- Unbolt the upper shock hardware.



Trimming around upper ball joint

- Trim the lip as depicted in the above picture.
 - An angle grinder with a cut-off wheel or a small reciprocating saw works well for this task.
 - How much to trim?
 - Just enough to allow installation of the spacer.



Ball Joint Spacer Installation

- Put the spacer in place, NOTCH FACING DOWNWARD and, using a floor jack to control arm height, align the ball joint and install the hardware.
 - The notch acts as a weep hole to let any water that gets in from above drain out to prevent the ball joint from rusting out.
- Tighten ball joint hardware to 30 ft.lb. or 40 N.m.
 - Note: Apply this torque to the allen head bolt and the Grade 10.9 nut only, then install the 2nd nylon lock nut and tighten it down snugly in order to lock the first nut in place. No need to torque the nylon lock nut to 30 ft.lb. as well, it may strip.
- Extend the shock to see if it needs shimming. (it likely will)
 - Place the appropriate number of washers to ensure the shock does not limit down travel.
- Tighten shock hardware.
- Repeat for other side.
- Re-install the wheels.
 - If the end of the upper control arm is too close to the tire at this point, there are several options:
 - You can try and grind off part of the outer lip of the control arm (area at the left edge of the red circle in the photo above)
 - You can add a 1/4" wheel spacer to move the wheel/tire away from the suspension.
 - You can swap to a narrower tire, for example changing from a 33x12.50 to a 33x10.50 tire will move the inner edge of the tire away from the control arm since it'll have less sidewall bulge on the same wheel.
 - You can swap to a wheel with less back side spacing, for example going from a 4.75" to a 4.5" backspaced wheel will move the inner edge of the wheel and tire 1/4" away from the control arm (stock wheels are ~4.75" backspacing).
- Put the vehicle back on the ground.
- For low profile bump stops only:
 - Shim them approx. 1/2" with some washers or use stock bump stops.
 - Failure to do so could result in damage to CV joints, shocks, or other components.



Shimming for low profile bump stops

- Even with stock bump stops, you may experience some CV axle binding.
 - To check, let the suspension hang at full droop.
 - Rotate each CV axle shaft by hand and check for any binding at the CV joints.
 - If felt, several options to fix it are available:
 - Add some shims as shown above for the low profile bump stops.
 - Or install a [front differential drop kit](#) to lower the differential and thus lessen the CV joint angles.
- **Re-adjust torsion bars, if needed**
 - If the ride height is what you want it to be after installing the ball joint spacers, there is no need to make any adjustments.
 - There are good instructions [on the 4x4Wire.com Toyota page](#), and a [separate write up on the OffRoad.com Toyota page](#):
In short:
 - Spray the torsion bar hardware with a penetrating lubricant.
 - Wipe all debris off of the threads.
 - Spray them again.
 - Jack up the front to unload the bars.
 - Adjust them with a 22mm wrench.
 - Lower the truck.
 - Bounce the front end and roll the truck back and forth at least 10 feet.
 - Repeat until the front is level and at desired height.
 - The measurement between the fender lip and edge of rim should be about 15 - 15.5".

- This would be the case for 1.5" lift, stock height is 13.5" - 14".

. **Get an alignment!**

- It has been observed that some driveway alignment adjusting is beneficial and easy to do.
- Following these simple steps will make life easier for the alignment tech who, to be honest, might not be prepared for a vehicle that is any other than bone stock and only slightly out of alignment.
- First make sure the ride height is set to where you want it.
 - If not, adjust it with the torsion bar adjusters
- Loosen the adjustment cams on the lower a-arms making a note of each bolt's orientation.
- Move the lower arms outward until two things happen.
 - (It will likely be necessary to lift the front end while adjusting and roll the truck forward and backward after each adjustment.) One, the tires appear vertical.
 - Two, all cams are adjusted to mirror those on the opposing arm and in a position *closely* relative to where they started. (It is more important that the tires be vertical than the hardware be exactly relative to it's originating position)
 - For example, if the driver's side front cam is pointing straight up and the driver's side rear cam is pointing outward, the passenger side front cam should be straight up and rear outward.
 - If, before adjustment, say the rears were angles outward 30 degrees more than the front, after adjustment the rears should still be outward about 30 degrees. Again this is not as critical as trying to get the tires vertical.
- Adjust the toe by loosening the adjusters and rotating.
 - It is a good idea to lock the steering wheel in a straight position.
 - What you adjust to one side, do to the other. Typically about .5-.25" of toe is fine.
 - If you have trouble measuring, simply attempt to get them straight or angling in slightly.
- You'd be surprised how close one can get these measurements with just the eye.
 - However, perfection is not necessary, this will simply get you in the ball part and help to avoid the "blank stare" when an alignment tech sees his numbers are out and doesn't know which nut to turn which way. (you'd be surprised how often this happens with 4X4s)
- You should recheck the height after this.
 - If you find you adjust the height severely, which is unlikely, and the tires are clearly off (by the eye), repeat these steps.
- [Here is a link to a description of a driveway alignment procedure](#)
 - [And another link with the same information and photos](#)
- A visit to an alignment shop is definitely recommended!
- Re-check hardware torque in 2 weeks.
- If you find problems with your CV joints binding due to the steeper angles or find the CV joint boots rubbing and wearing out faster, you might consider adding a [front differential drop kit](#).

Easier CV axle replacement modification:

While not really related to ball joint spacers (or a front differential drop kit), many owners find that replacing front CV axle half shafts is a difficult process. Maily this is due to the tight location in which the axles are installed. Often, you can loosen the lower ball joint clamp and swing the lower control arm out of the way (disconnect the front sway bar if installed) and then swing the spindle/hub up out of the way for more clearance when removing or installing the CV axle. Here is a writeup on a simple modification that can help in future replacement that involves replacing the differential output flange studs with bolts:

- [Quick Change CV Axles](#)

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2WD Ball Joint Spacer Installation:

- Block the rear wheels and place the front end of the truck on jack stands and remove the front wheels.
 - Let the front suspension fully droop, tire should spin freely.
- Loosen ball joint hardware, ball joint will drop off of the arm (photo A below)
- Remove old ball joint hardware
- Place spacer on top of the ball joint, slowly lower the jack to assist in lining up bolts with the hole (photo B below)
- Tighten bolts in an X pattern to assure proper tightening torque.
- Do the other side.
- Lower vehicle.
- If you decide to crank the torsion bars, do so now.
- If you decide to shim the shocks, do so now.
- [Get an alignment.](#)
- Check tightness of bolts after a week.

**A: Upper Ball Joint removed****B: Spacer and Ball Joint Reinstalled**

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The latest version of this document may be found at:
http://www.4crawler.com/4x4/ForSale/Docs/BallJointSpacer_HowTo.shtml