

PATENT NO. US 7,513,514 B1

**TOYOTA ADJUSTABLE CAMBER/CASTER UPPER ARMS**

**Toyota Tundra, Sequoia**

This part should only be installed by personnel who have the necessary skill, training and tools to do the job correctly and safely. Incorrect installation can result in personal injury, vehicle damage and / or loss of vehicle control.

Check out how to install this part at:



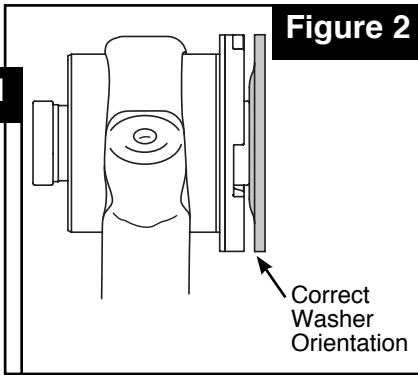
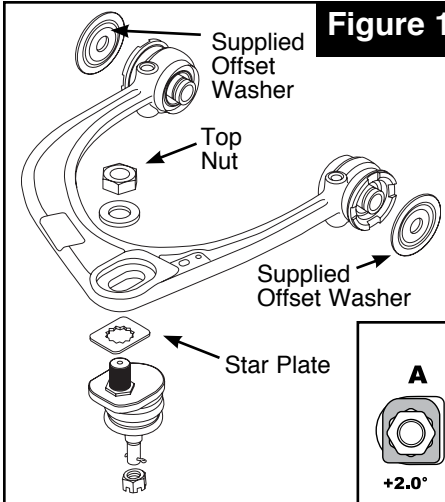
Plan Ahead - Read All Instructions **BEFORE** installing part.

Check for loose or worn parts, proper tire pressure, and odd tire wear patterns before beginning alignment.

1. If vehicle is equipped with ride height sensors, measure and record front ride height from ground to fender lip on a level surface.
2. Take initial alignment readings and determine caster change needed.
3. Raise front of vehicle by frame and securely support.
4. Remove front tire and wheel assembly.
5. Set lower control arm cam bolts to center, neutral position and lightly tighten.
6. Loosen nut on upper arm-to-frame mounting bolt and remove bolt holding ABS wiring from OE upper arm. Remove ride height sensor from arm, if equipped.
7. Remove cotter pin and nut holding OE ball joint to knuckle and discard both. Break taper between OE ball joint stud and knuckle and remove ball joint.  
**NOTE: Support knuckle so no strain is applied to ABS wiring or brake lines.**
8. Remove nut and washer from arm-to-frame mounting bolt and remove bolt and arm. Discard both OE washers. Place one supplied offset washer onto head of arm-to-frame bolt. When installed, offset washer flange should be away from bushing flange, see **Figure 2**.  
**NOTE: To provide clearance, additional components in the engine compartment may need to be removed.**
9. Install SPC control arm using OE arm-to-frame bolt. Place second supplied offset washer over protruding end of bolt. Again, be sure that the offset washer flanges are installed away from bushing flange, see **Figure 2**.
10. Torque arm-to-frame bolt to manufacturer's specification.  
**NOTE: Unlike OE rubber bushings, xAxis™ bushings pivot freely, and may be fully torqued without placing any weight on suspension.**
11. Install star plate over hex on SPC ball joint per chart below to achieve desired caster change determined in Step 2.  
**NOTE: For most trucks with 2-3" of lift, setting "D" should return caster to manufacturer's specifications, but it may be necessary to use different positions on each side to achieve desired cross-caster setting.**
12. Insert SPC ball joint up through the bottom of the arm, indexing star plate in machined slot and then install supplied top washer and nut. Position ball joint in middle of slot and snugly tighten nut.
13. Insert SPC ball joint stud into knuckle, install supplied castle nut, and torque nut to 45ft-lb [61Nm]. Tighten further, but only until cotter pin can be installed. Install supplied cotter pin.
14. Re-attach ABS wiring bracket to SPC arm using OE bolt. If equipped, re-attach ride height sensor to arm bracket.
15. Re-install tire and wheel assembly. Lower vehicle.  
**NOTE: On vehicles with ride height sensors, it may be necessary to adjust sensor linkage to achieve front ride height as measured in Step 1.**
16. Take alignment readings. If additional caster adjustment is necessary, loosen ball joint top nut and reposition star plate to rotate ball joint relative to arm. Adjust camber by loosening top nut and sliding ball joint in control arm slot.  
**NOTE: It will be necessary to raise vehicle to make camber/caster adjustments with SPC arm.**
17. With full vehicle weight on suspension, fine-tune alignment using OE lower control arm cam bolts.  
**NOTE: Camber and caster can be set with SPC upper control arm, as well as lower control arm cam bolts. In most cases, it is recommended that lower cam bolts be set to their neutral position. This way they can be used to fine-tune caster setting. Alternatively, if caster is set to max positive with lower cam bolts, and final alignment is achieved with SPC upper ball joint settings, more tire clearance may be obtained at rear of wheel opening. To do this, push rear lower adjuster outward, towards tire, and pull front lower adjuster inward, towards center of vehicle. The lower control arm adjusters are far more efficient at creating clearance. This typically requires using ball joint position "E".**
18. When final camber/ caster settings are achieved, torque top ball joint nut to 150ft-lb [203Nm]. Torque lower cams to manufacturer's specifications.
19. Adjust toe and road test vehicle.

Always check for proper clearance between suspension components and other components of the vehicle.

**Maintenance:**  
These SPC ball joints are sealed and fully greased. No additional maintenance is required. To convert to greaseable ball joints, see SPC p/n 25477.



Check out how to move tire forward in wheel well:



LEFT FRONT CASTER CHANGE							FRONT OF VEHICLE
A	B	C	D	E	F	G	
							Ball Joint Setting
+2.0°	+1.75°	+1.0°	0°	-1.0°	-1.75°	-2.0°	
<b>+3.0°</b>	<b>+2.75°</b>	<b>+2.0°</b>	<b>+1.0°</b>	<b>0.0°</b>	<b>-.75°</b>	<b>-1.0°</b>	<b>Total Arm + Ball Joint Caster Change</b>
RIGHT FRONT CASTER CHANGE							FRONT OF VEHICLE
A	B	C	D	E	F	G	
							Ball Joint Setting
+2.0°	+1.75°	+1.0°	0°	-1.0°	-1.75°	-2.0°	
<b>+3.0°</b>	<b>+2.75°</b>	<b>+2.0°</b>	<b>+1.0°</b>	<b>0.0°</b>	<b>-.75°</b>	<b>-1.0°</b>	<b>Total Arm + Ball Joint Caster Change</b>

**Note: With SPC logo facing the tire (Position D) this arm will give +1° additional caster. Using the star plate, caster change can be adjusted from -1.0° to +3.0°.**