

**ADJUSTABLE CAMBER / CASTER UPPER CONTROL ARMS  
TACOMA RWD W/6 LUG AXLES / TACOMA 4WD / 4-RUNNER RWD & 4WD**

PATENT NO. US 7,513,514 B1

**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.**



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

**How to install this part:**

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

1. Take initial alignment readings and determine caster change needed.
2. Raise vehicle by frame and securely support.
3. Remove front tire and wheel assembly.
4. Set lower control arm cam bolts to center, neutral positions and lightly tighten.
5. Loosen nut on OE upper arm-to-frame mounting bolt. Remove bolt holding ABS wiring to OE upper control arm.
6. Remove cotter pin and nut holding OE ball joint to upper control arm. Break taper between ball joint stud and arm, then separate ball joint from arm.  
**NOTE: Support steering knuckle to avoid strain to brake lines or ABS wires.**
7. Remove nut and washer from long arm-to-frame mounting bolt. Remove bolt and OE upper control arm. Discard OE washers.  
**NOTE: To provide clearance, additional components in engine compartment may need to be removed.**
8. Remove snap ring retaining OE upper ball joint into knuckle. Press out ball joint using SPC #72509 ball joint press or equivalent.
9. Press supplied steering knuckle insert into knuckle with flange on bottom, see Figure 1.
10. Install supplied snap ring on top side to retain insert. Verify snap ring is fully seated in groove.

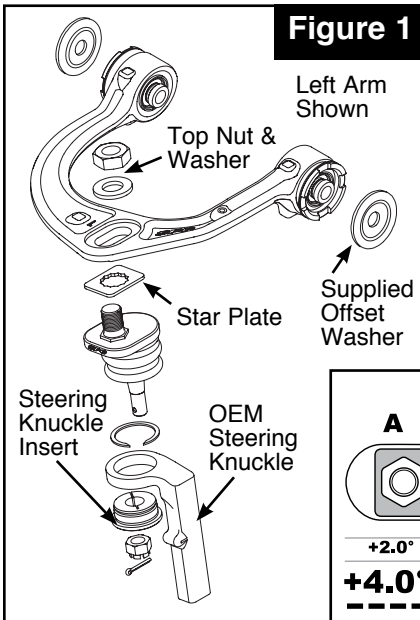
11. Install one supplied offset washer on OE arm-to-frame bolt. When installed, offset washer flange should be away from bushing flange, see Figure 2.
12. Install SPC control arm into vehicle using OE bolt. Place second supplied washer over protruding end of bolt. Again, be sure that offset washer flanges are installed away from bushing flange, see Figure 2. Install OE nut.
13. Torque OE arm-to-frame bolt to manufacturer's specifications.  
**NOTE: Unlike OE rubber bushings, xAxis™ bushings pivot freely, and may be fully torqued without placing any weight on suspension.**
14. Install star plate over hex on SPC ball joint per chart below to achieve desired caster change determined in Step 1 above.  
**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.**
15. Insert SPC ball joint up through bottom of SPC arm, indexing star plate in machined slot, and then install supplied top washer and nut. Position ball joint approximately in middle of slot and snugly tighten top nut.
16. Insert SPC ball joint stud into knuckle insert, install supplied castle nut, and torque nut to 45 ft-lb [61 Nm]. Tighten nut further, but only until cotter pin can be installed. Install supplied cotter pin.
17. Re-attach OE ABS wiring bracket to SPC arm using OE bolt. Torque to manufacturer's specifications.
18. Re-install tire and wheel assembly. Lower vehicle and take alignment readings. If additional caster adjustment is necessary, loosen top nut and reposition star plate to rotate ball joint relative to arm. Adjust camber with SPC arm 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.**
19. With full vehicle weight on suspension, fine-tune alignment using 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. Alternately, if caster is set to max positive with lower cam bolts, and final alignment achieved with SPC upper ball joint setting, 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".**

20. When final caster/camber settings are achieved, torque top ball joint nut to 150 ft-lb [203Nm]. Torque OE lower cams to manufacturer's specifications. Adjust toe and road test vehicle.

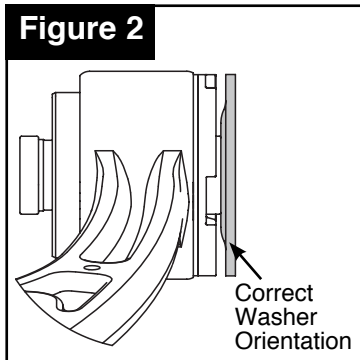
**Always check for proper clearance between suspension components and other components of vehicle.**

**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.



**Figure 1**



**Figure 2**

**Note: With SPC logo facing the tire (Position D) this arm will give +2° additional caster. Using the star plate, caster change can be adjusted from +0.0° to +4.0°.**

LEFT FRONT CASTER CHANGE							
A	B	C	D	E	F	G	FRONT OF VEHICLE
+2.0°	+1.75°	+1.0°	0°	-1.0°	-1.75°	-2.0°	Ball Joint Setting
<b>+4.0°</b>	<b>+3.75°</b>	<b>+3.0°</b>	<b>+2.0°</b>	<b>+1.0°</b>	<b>+0.25°</b>	<b>0.0°</b>	<b>Total Arm + Ball Joint Caster Change</b>

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RIGHT FRONT CASTER CHANGE							
A	B	C	D	E	F	G	FRONT OF VEHICLE
+2.0°	+1.75°	+1.0°	0°	-1.0°	-1.75°	-2.0°	Ball Joint Setting
<b>+4.0°</b>	<b>+3.75°</b>	<b>+3.0°</b>	<b>+2.0°</b>	<b>+1.0°</b>	<b>+0.25°</b>	<b>0.0°</b>	<b>Total Arm + Ball Joint Caster Change</b>



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