

PATENT NO. US 7,513,514 B1

TOYOTA/LEXUS ADJUSTABLE CAMBER/CASTER UPPER ARMS

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:

<http://www.spc-tv.com>

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. Raise vehicle and support by frame so suspension hangs free.
2. Remove front tire and wheel assembly.
3. Set lower cam bolts to center, neutral position and lightly tighten.
4. Loosen nut on long arm-to-frame mounting bolt, remove bolt holding ABS wiring to control arm.
5. Remove cotter pin and nut holding OE ball joint to steering knuckle. Break taper between ball joint stud and knuckle. Be sure to support steering knuckle to avoid strain to brake lines or ABS wires.
6. Remove nut and OE washer from long arm-to-frame mounting bolt and remove bolt from arm.

NOTE: To provide clearance, additional components in engine compartment may need to be removed.

7. Remove second OE washer from head of long arm-to-frame mounting bolt and discard both OE washers. Replace with a supplied offset washer. When installed, offset washer flange should be away from bushing flange. See **Figure #2**.

8. Install SPC control arm, using OE long arm-to-frame bolt. Place second supplied offset washer over protruding end of bolt. Again, be sure that offset washer flanges are installed away from bushing flange.
9. Torque long 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.

10. Install star plate over hex on ball joint per chart below to achieve desired caster change relative to stock arm.

NOTE: For most trucks with 2"-3" of lift setting "D" should return caster to OE specifications, but it may be necessary to use different positions on each side to

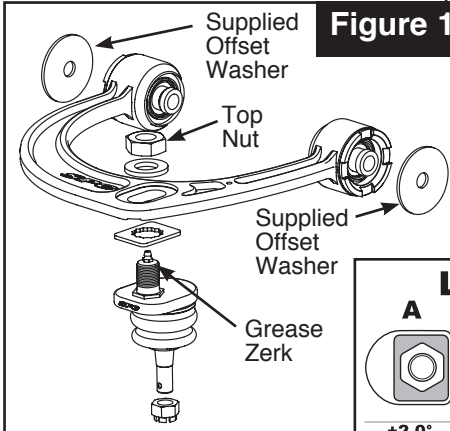
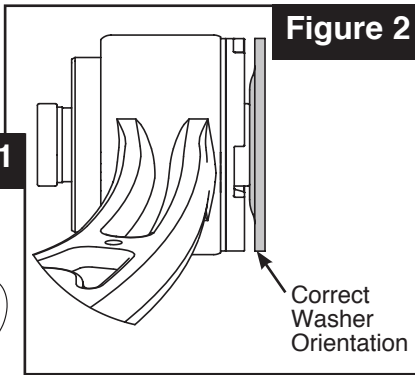


Figure 1



achieve desired cross caster settings.

11. Insert ball joint up through bottom of arm, indexing start plate in machined slot, and then install top washer and nut. Position ball joint approximately in middle of slot and lightly tighten nut for initial alignment readings.
12. Insert ball joint into steering knuckle, install supplied castle nut and torque to 45 lb-ft [61Nm]. Tighten further only until supplied cotter pin can be installed.
13. Re-attach ABS wiring bracket to SPC arm using OE bolt.
14. Grease ball joint with **NLGi #2, Grade LB with 3%-5% Molybdenum Disulfide grease**. 5-10 pumps is sufficient at each lubrication.

WARNING: FAILURE TO GREASE AND MAINTAIN THIS BALL JOINT MAY RESULT IN PREMATURE FAILURE.

15. Re-install tire and wheel assembly. Lower vehicle and take alignment readings. Adjust camber with SPC arm by loosening top nut and sliding ball joint in control arm slot. Adjust caster with SPC arm by loosening top nut and repositioning star plate to rotate ball joint relative to arm. (It will be necessary to raise vehicle to make camber/caster adjustments with SPC arm). Alignment can be fine-tuned with vehicle weight on suspension using lower control arm cam bolts.
16. When final camber/caster settings are achieved, torque top ball joint nut to 150 lb-ft [203Nm]. Torque lower cams to manufacturer's specifications. Adjust toe and road test vehicle.

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

Camber and caster can be set with the SPC upper control arm, as well as the lower control arm cam bolts. In most cases, it is recommended that the lower cam bolts be set to their neutral position. This way they can be used to fine-tune caster. Alternately, if caster is set for max positive with the lower cam bolts, and final alignment achieved with the SPC upper balljoint setting, more tire clearance may be obtained at the rear of the wheel opening.

Check out how to move tire forward in wheel well at <http://www.spc-tv.com>



Maintenance:

Lubrication Interval - SPC recommends adding 5 to 10 pumps of grease to ball joint at each oil change, or after operating vehicle in wet or dusty conditions.

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 | | | | | | | FRONT OF VEHICLE |
|--|--------|-------|----|-------|--------|-------|---|
| A | B | C | D | E | F | G | |
| | | | | | | | |
| +2.0° | +1.75° | +1.0° | 0° | -1.0° | -1.75° | -2.0° | |
| +4.0° +3.75° +3.0° +2.0° +1.0° +.25° 0.0° | | | | | | | Total Arm + Ball Joint Caster Change |
| RIGHT FRONT CASTER CHANGE | | | | | | | FRONT OF VEHICLE |
| A | B | C | D | E | F | G | |
| | | | | | | | |
| +2.0° | +1.75° | +1.0° | 0° | -1.0° | -1.75° | -2.0° | |
| +4.0° +3.75° +3.0° +2.0° +1.0° +.25° 0.0° | | | | | | | Total Arm + Ball Joint Caster Change |



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