

PATENT NO. US 7,513,514 B1

TOYOTA/LEXUS ADJUSTABLE CAMBER/CASTER UPPER ARMS (With SpecRide™ Bushings)

Tacoma/Tacoma PreRunner, 4-Runner, FJ, GX

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

1. Raise vehicle by frame and support with jack stands. Remove front tire and wheel assemblies.
2. Loosen the nut on the upper arm-to-frame mounting bolt and remove bolt holding ABS wiring from upper arm.
3. Remove cotter pin and nut holding OEM balljoint to spindle. Break the taper between the balljoint stud and spindle and remove the balljoint from the spindle. Support the spindle so no strain is applied to ABS wiring or brake lines.
4. Remove the nut and washer from the long arm-to-frame mounting bolt and remove the bolt and arm.

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

5. Using **SUPPLIED GREASE ONLY**, liberally coat the inside of all four SpecRide control arm bushings, making sure all small voids are filled with grease. Press a pivot sleeve (**#B-Figure 1**) into each bushing until it is flush with the outside of the bushing. This will push some grease out, which is normal. Use this grease to lightly coat the outboard ends of the SpecRide bushings where they will contact the included large washers. (**#A-Figure 1**).
6. Install the SPC control arm to the vehicle. Note washer arrangement in the illustration – place one large washer on the bolt before insertion, and the second large washer just before the nut - then torque to manufacturer's specifications.

NOTES: 1) The stock 'dished' washers are not re-used.**2) Unlike OE rubber bushings, SpecRide bushings pivot freely and can be torqued without applying vehicle weight.**

7. Install the star plate over the hex on the balljoint per the chart below to achieve the desired caster change relative to the stock arm. (For most trucks with 2-3" of lift, setting "D" should return caster to factory specifications, but it may be necessary to use different positions on each side to achieve desired cross-caster setting.) Insert the balljoint up through the bottom of the arm, indexing the star plate in the machined slot, and then install the top washer and nut. Position in the middle of the slot and tighten nut for initial alignment readings.
8. Insert the balljoint stud into the spindle, install the supplied castle nut and torque to 45 ft-lb [61Nm]. Tighten further until the supplied cotter can be installed.
9. Re-attach the ABS wiring bracket to the SPC arm using factory bolt.
10. Grease ball joint with an **NLG#2, Grade LB with 3%-5% Molybdenum Disulfide grease**. 5 to 10 pumps of grease is sufficient at each lubrication.

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

11. Re-install the tire and wheel assembly. Lower the vehicle and take alignment readings. Adjust camber by loosening the top nut and sliding the balljoint in the control arm slot. Adjust caster by loosening the top nut and repositioning the star plate to rotate the balljoint relative to the arm. (It will be necessary to raise the vehicle to make these adjustments.)

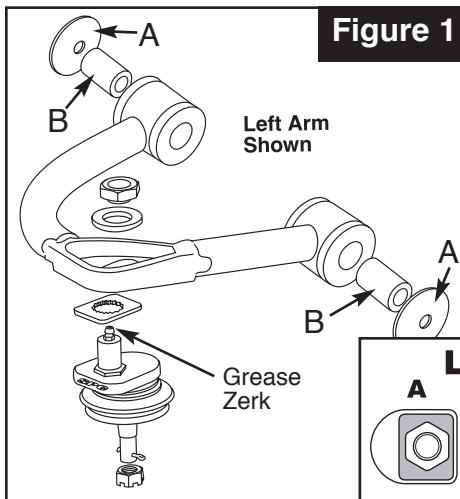
12. When final caster/camber settings are achieved, torque the top balljoint nut to 150 ft-lb [203Nm]. Adjust toe, road test the vehicle.

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

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°	Ball Joint Setting
+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°	Ball Joint Setting
+4.0°	+3.75°	+3.0°	+2.0°	+1.0°	+.25°	0.0°	Total Arm + Ball Joint Caster Change

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