

PATENT NO. US 7,513,514 B1

TACOMA 4X4 AND PRE-RUNNER/FJ CRUISER/4-RUNNER ADJUSTABLE CAMBER/CASTER UPPER ARMS (With SpecRide™ Bushings)

Check out how to install this part at:
<http://www.spc-tv.com>



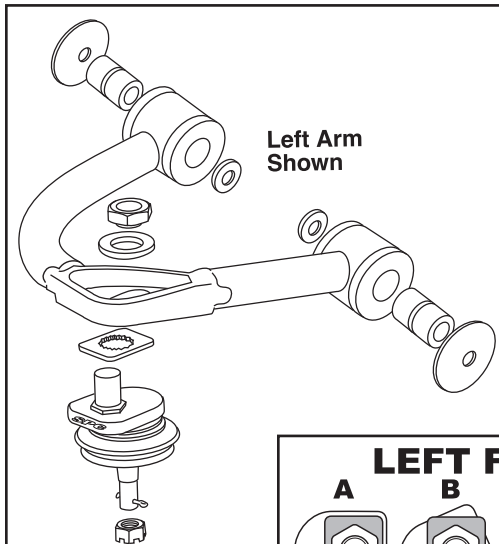
This part should only be installed by personnel who have the necessary skill, training and tools to do the job correctly and safely. Incorrect installation can result in personal injury, vehicle damage and / or loss of vehicle control.

1. Before beginning any alignment work, always check for loose or worn parts, proper tire pressures, and odd tire wear patterns. Replace any loose or worn parts before setting alignment.
2. Raise vehicle by frame and support with jack stands. Remove front tire and wheel assemblies.
3. Loosen the nut on the upper arm-to-frame mounting bolt and remove bolt holding ABS wiring from upper arm.
4. 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.
5. 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.

6. 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 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 ends of the bushings.
7. Install the SPC control arm to the vehicle. Note washer arrangement in the illustration – place one large washer on the bolt before insertion, then add small washers to the inboard side of each bushing as shown, and finally the second large washer just before the nut - then torque to 85 lb-ft [115 N-m]. NOTES: 1) The stock 'dished' washers are not re-used. 2) Unlike OE rubber bushings, SpecRide pivot freely and so can be torqued without applying vehicle weight.
8. 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.

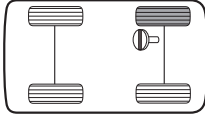
NOTE: If the nut has a machined ring on one side, that ring should index in the washer when installed properly.

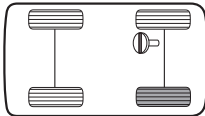


9. Insert the balljoint stud into the spindle, install the supplied castle nut and torque to 45ftlb [61Nm]. Tighten further until the supplied cotter can be installed.
10. Re-attach the ABS wiring bracket to the SPC arm using factory bolt.
11. Re-install the tire and wheel assembly. Lower the vehicle 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 ftlb [162Nm]. Adjust toe, road test 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.

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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