Correcting Camber After Installing the Lift Kit

This guide will explain, briefly, the methods of correcting camber back to within factory ranges after installing the 2" lift kits. Please note that we do not sell the lift kit and camber kits together. This is because cars operating primarily off roads or in rally events will not experience uneven tire wear. If you are driving your car on road as much as or more often than off road, we STRONGLY suggest that you install the proper hardware to return the camber to normal. Otherwise you may experience adverse impacts on fuel economy, tire wear, and the life span of drivetrain components like CV joints.

CRV 1997-2001 Camber Kit Supplement

Hello, and thanks for checking out another one of our tech files! This file will briefly go over the installation of the camber kits for the 1997-2001, or GEN 1, Honda CR-V. As you may know this year range of CRV does not have a built in camber adjustment for the front or back wheels. As a result sometimes a 2" lift will produce an overly positive camber. This can cause trouble with your CV joints, especially if you have increased the tire diameter or do a lot of tough driving. The increased angle of operation can cause the grease to spit out (see our CV joint supplement). The Camber kits correct the positive camber. The kits themselves are made for a Honda civic, but can be successfully installed on the CRV using the technique discussed here. (Please note that camber bolts will not work for the front wheels because the strut is mounted in a pinch instead of bolted to the knuckle) We do not personally manufacturer these camber arms, however there is a lot of variance between different aftermarket manufacturers. We select the kits we do for durability and to ensure that our reinforcement bushings will be compatible.

These bushings were specially designed to make the civic camber kits practical for application on a CRV. Otherwise when the car hits hard bumps the upper control arm tends to de-seat itself in the chassis and rattle around. The problem is that this rattling will start to bend the upper control arm mounts. If repeatedly subjected to this stress, the cheaply pressed metal flanges that secure the upper control arm can snap off. This could allow the front wheel to flip under the car like the flying Delorean from Back to the Future, bad news going 70 MPH down a highway or in the middle of a desert.

So here is the camber kit compared to the factory control arm.
Next is a picture of the camber kit with our custom bushings. Do not install the camber kit without these bushings! It will rattle around in the chassis and could eventually break the upper control arm mounting points. NOTE: THE BUSHINGS ONLY NEED TO BE INSTALLED ON THE INBOARD MOUNTS. (This only applies to the rear camber arms, there are no outboard mounts on the front control arms).
You may notice the aftermarket arm is a bit shorter. At first we were worried that the kit would provide too much negative camber and not go into the factory range. While this would be true without the lift kit, with the kit it actually works out. We have found that after several thousand miles of driving the kit when adjusted to maximum positive camber actually aligns the wheel just right to avoid any uneven tire wear. When compared to operating without the camber kit, the CV joints were also undamaged.

The camber is adjusted by sliding the four bolts of the performance ball joint in the two grooves on the upper plate of the camber kit. The advantage is the kit can be adjusted without removing the tire. Slide the bolts that hold the ball joint along the cut groove all the way to the outside edge. This is the maximum positive camber adjustment. Again to reiterate, the arm is shorter than OE so adjusting it to maximum POSITIVE will correct the positive camber resultant from installing the lift kit. Making this kit negative or neutral will result in negative camber and move the uneven wear on your tires from the outside edge to the inside edge. We have not tested the result of negative camber on the CV joints, but if you choose to keep negative camber for improved handling please consider only doing so when you drive on dirt or snowy roads.

Returning to the install, here is the OE upper control arm installed in the chassis.
Quick note: this may be easier with the tire still on and the car sitting on the ground. We took it off for the sake of more detailed pictures. **This may be even more important if you have already installed the lift kit,** it will save you a lot of trouble if you can install the camber kits without removing the tires or lifting the car off the ground. If you have to do these things, then only install one side at a time.

Try spraying the chassis flange bolts and the ball joint castle nut with penetrating catalyst. The flange through chassis nuts are 14mm bolts on the inside of the engine compartment. You will find them on the sides of the part of the chassis that houses the strut assembly. Be sure the car us up on jack stands and the tire is removed before taking out these nuts. Also try to get the castle nut off the ball joint before you take the upper control arm out form the chassis, this will be easier.

Next take the cotter pin out of the castle nut on the ball joint. Next de-torque and remove the ball joint castle nut to get the ball joint to disconnect from the upper linking arm. Note the ball joint is integrated into the upper control arm and cannot be removed from it.
Here is the upper control arm taken away from the chassis, the ball joint is still attached to the upper linking arm.

This can make the installation of the front lift spacers easier because now the upper control arm and upper linking arm are out of the way. This will also take some of the tension off the coil spring, which sometimes you need as much tension off the spring as possible in order to get that block in there!

Once the factory arm is out, replace it with the new arm. Installation is the reverse of the removal. The special trick with these kits is to install them upside down and cross correct. So in other words the left arm is installed upside down on the passenger side (the right side). The right arm is installed upside down on the driver side (the left side).

Here is a picture of the kit installed.
This is what the kit looks like when installed upside down. This is the CORRECT way to install these kits.

This is a picture of the kit installed right side up. This is NOT THE CORRECT way to install these kits.
Be sure that everything is torqued up to spec! Check the torque specs in the installation guide or under the “tech” tab on our website.

For the rear camber kits, there is no special technique or modification required. Simply replace the upper control arm on the back with the camber kit. Here is a picture of the installed camber kit. Everything you need to install this kit can be found in the installation guide for the rear axle. The kits we provide are made of metal, be advised that if you find cheaper kits for the rear they may be made from composite plastic. That’s probably fine for a civic on the road but for a CRV off road we highly recommend a higher quality kit. These kits can also be adjusted without removing the wheel. For a baseline installation try putting them all the way negative (as short as they can become) then rotate the center hex piece five full turns to extend it a bit. Keep a close eye on your tread wear and adjust your camber as needed, or simply take it to have it aligned professionally and be done with it. If you received an extra 4 camber bushings, you can place these on the inboard joint for the rear arms (they are not necessary for the outboard joint). This helps protect the chassis from bending.
CRV 2002-2006 Camber Supplement

Front camber can be adjusted using the camber adjustment bolts where the lower strut connects to the hub/ knuckle assembly. There are two bolts here, both will need to be de torqued but only one will adjust camber (it will usually have some kind of markings). Once the desired camber is found torque the lower bolt first, then the camber adjustment bolt. You will need to obtain the exact torque specs from Honda. The OE adjustment can create roughly +/- 1.25 degrees of negative camber, however that is not always enough to prevent unnecessary wear on the CV drive shafts. After installing the camber kits available on our website, the camber can be adjusted +/- 2.75 degrees of camber. Please view supplemental diagram A for more information on using twin offset camber bolts to adjust front wheel camber.

Honda does NOT equip these cars from the factory with adjustable camber in the rear. However, they list the camber as adjustable because adjustable OE arms can be bought and installed. Camber CANNOT be adjusted without these arms. If you find the 2002-2006 CRV camber kit on our products page, you will find links to this product. These are direct fit, OE quality arms.
2006-2012 RAV4 Camber Supplement

Adjust the camber on the front using the same procedure as for the 2002-2006 CRV.

7. ADJUST CAMBER AND CASTER

   NOTE: After the camber has been adjusted, inspect the toe-in.
   
   a. Remove the front wheel.
   b. Remove the 2 nuts on the lower side of the shock absorber.

   Fig. 7: Removing 2 Nuts On Lower Side Of Shock Absorber
   Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.
   
   c. Coat the threads of the nuts with engine oil.
   d. Temporarily install the 2 nuts.
   e. Adjust the camber by pushing or pulling the lower side of the shock absorber in the direction where the camber adjustment is required.
   f. Tighten the 2 nuts.

   Torque: 240 N•m (2,447 kgf•cm, 177 ft•lbf)

Rear Camber on the RAV4 is not adjustable, nor is there any existing OE or aftermarket adjustable upper control arm. The only other feasible solution is to use camber bolts. Toyota does make a camber bolt for this application however it is not installed as original
equipment. The available OE bolts will create roughly +/- 1.25 degrees of camber, which as stated earlier may not be enough to return the wheel to a factory specified range. Our camber kits will provide a pair of camber bolts for each upper control arm. To replace the OE bolts with new camber bolts, locate the rear upper control arm (its bent like the letter L) and follow the procedure to remove the inboard through bolts. If you choose to keep the car stock then replace only the bolt indicated by the yellow arrow (This will be the bolt in towards the chassis, not out toward the tire.), otherwise replace both bolts. See the illustration with the yellow arrow.

![Image of rear upper control arm components]

**Fig. 74: Identifying Rear Upper Control Arm Components With Torque Specifications**

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.
Replace this/ these bolt(s) with the provided camber bolts (see colored diagram). Your camber bolts will come with two special washers, one will install underneath the hex cap head and the other will install underneath the nut on the other side of the control arm. Install the camber bolt with both washers and hand tighten the nut (so that it’s still kind of loose).

If you do not get two washers per camber bolt, a split lock washer can be used to supplement the camber washer. The split lock washer will need to be installed between the CHASSIS and the NUT (technically a flange nut) that comes with the camber bolt; install the washer that comes with the camber bolts between the CHASSIS and the HEX HEAD of the bolt. Notice the supplied washers in aftermarket kits have little teeth. That will help secure the washer to the chassis on the head side while the split lock washer helps secure the nut to the other side. The location of the split lock washer is important to prevent the camber bolt from rotating. The edge of the lock washer will dig into the chassis and the other side of that edge will dig into the nut. Under torque, this will create two biting edges that will prevent the bolt from coming de-torqued and keep the camber bolt from rotating. Again this is to supplement the teeth on the camber washer, given the assumption that the car will be operated under extra bumpy conditions. As noted earlier, if your camber bolt does come with two toothed washers, this is preferable to using the split lock washer.

Once the bolt is hand tightened, turn it and you will notice that the oblong bump on that bolt will either move the control arm away from the chassis or in toward the chassis. If you are not using an alignment rack (strongly recommended to have a professional use an alignment rack), turn the bolt so that the control arm moves as far in toward the chassis as possible. Moving in toward the chassis will be negative camber and out from the chassis will be positive camber. Once the adjustment is made be sure to torque the NUT, do NOT torque from the hex head and washer side as this may make the bolt rotate and you will lose the adjustment. We also recommend that the bolt head faces the front of the car. That way the bolt is less likely to get bent, something that can make future adjustments very difficult.

Please note the factory torque spec for the original bolt is 65 ft-lbs. We suggest tightening the camber bolt to 70 ft-lbs but do not exceed 76 ft-lbs.

Once installed the adjustment range should be +/- 1.5 degrees, which should be enough to correct positive camber resulting from the lift kit. Any lift exceeding 2” is not likely to be corrected using this method. As a last resort, you may try installing additional camber bolts on the outboard control arm bolt as well. We do not suggest doing this; it would be more of a last resort at your own risk type of thing.
SUPPLEMENTAL DIAGRAM A

REPLACE OE BOLTS WITH:
Pair of Double Offset Camber Bolts

STEERING KNUCKLE/ SPINDLE

PUSH

BRAKE ROTOR AND WHEEL HUB ASSEMBLY

PUSH
Supplemental Diagram A: Using Twin Double Offset Camber Bolts for Front Wheel Camber Correction.

1- Remove the two OE bolts that connect the top of the spindle to the bottom of the strut assembly by detorquing the NUTS, not the hex heads (which may need to be held in place with a flat wrench while detorquing).

2- Replace the OE bolts with the pair of double offset camber bolts (pictured in Supplemental Diagram A). Be sure that the accompanying washers are correctly installed per manufacture specifications. Hand tighten the nuts on the other side, this means the bolts can still rotate freely in the holes.

3- Push downward and inward at the base of the strut while simultaneously pushing upward and inward from the bottom of the brake rotor. If the nuts were not over tightened in step 2, there will be a noticeable inward shift at the bottom of the strut assembly.

4- Once sure the adjustment has reached its full range or is within factory specified range as measured by an alignment rack (which may require rattling, manipulation, etc.) hold all the parts in place and tighten the NUTS on the new camber bolts so that it will hold the adjustment securely in place.

5- Use a torque wrench to tighten the NUTS to the OE specified torque.
SUPPLEMENTAL DIAGRAM B

INBOARD CAMBER BOLT
Adjust and Torque FIRST

OFFSET POINTS IN

REPLACE OE BOLTS WITH:

Single Offset Camber Bolt

REAR UPPER CONTROL ARM

OFFSET POINTS OUT

OUTBOARD CAMBER BOLT
Adjust and Torque SECOND
Supplemental Diagram B: Using Twin Single Offset Camber Bolts for Rear Wheel Camber Correction (When Rear Upper Control Arm Cannot Be Replaced with Adjustable Components)

1- Remove the two OE bolts that connect the top of the rear upper control arm to a socket on the chassis and connecting the bottom of the rear upper control arm to the top of the rear wheel spindle/trailing arm by detorquing the NUTS, not the hex heads (which may need to be held in place with a flat wrench while detorquing).

2- Replace the OE bolts with the pair of single offset camber bolts (pictured in Supplemental Diagram B). Be sure that the accompanying washers are correctly installed per manufacture specifications. Hand tighten the nuts on the other side, this means the bolts can still rotate freely in the holes.

3- Using a flat wrench, turn the HEX HEAD on the inboard camber bolt so that the bump on the camber bolt points in toward the chassis. This will be visible as the rear upper control arm moving inward to the chassis. Continue to rotate the HEX HEAD until the rear upper control arm starts to move away from the chassis. Once the range has been identified rotate the HEX HEAD until the rear upper control arm is at the furthest inward position. Hold the HEX HEAD in place at that position and tighten the NUT to the factory specified torque.

4- Using a flat wrench, turn the HEX HEAD on the outboard camber bolt so that the bump on the camber bolts points out from the chassis. Because the inboard bolt was already torqued, the range on the rear upper control arm is now fixed at that adjustment. It is now the rear spindle/trailing arm that is the moveable part and will move in visibly when the offset of the camber bolt points outward. Continue to rotate the HEX HEAD until both the furthest inward and furthest outward position are identified. Once the wheel camber is within factory specified range as indicated by an alignment rack, or at the furthest inward position, hold the HEX HEAD in place at that position and tighten the NUT to the factory specified torque.

Best of Luck,

Rally On!

Colorado Mountain Rally