



Product:

Corvette Johnny O'Connell Signature Sway Bars

Part Numbers:

440-401001-J

Applications:

Chevrolet Corvette, 1997 - 2013

Description:

Johnny O'Connell Signature sway bars.

Contents in the box:

- (1) – Front Sway bar with Decal
- (1) – Rear Sway Bar with Decal
- (1) – Bushings kit with grease.
- (1) – Hardware Kit (Note: Flange on locknut replaces washer in diagram)
- (1) – End Links (4 Male 4 Female)

Difficulty of Installation: **Beginner** |-----x-----| **Advanced**

Reason: This product is a very straight forward to install and requires only basic tools.

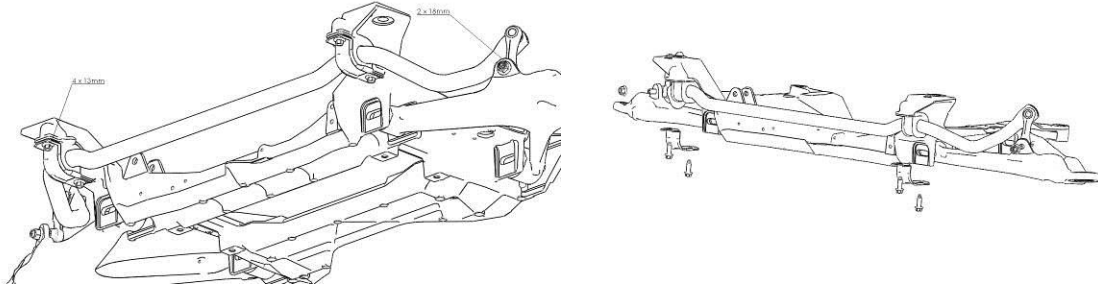
Expected Installation Time: 1 Hour and 40 Minutes

Recommended Tools:

- 18mm box end
- 6mm Allen
- 13mm socket and ratchet
- 18mm socket and ratchet
- 15mm box end
- ¾ box end wrench
- Torque Wrench

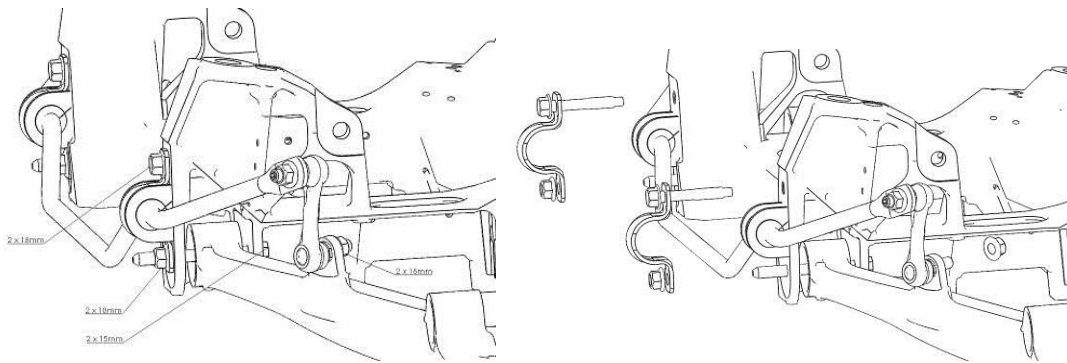
OEM Sway Bar Removal

Front



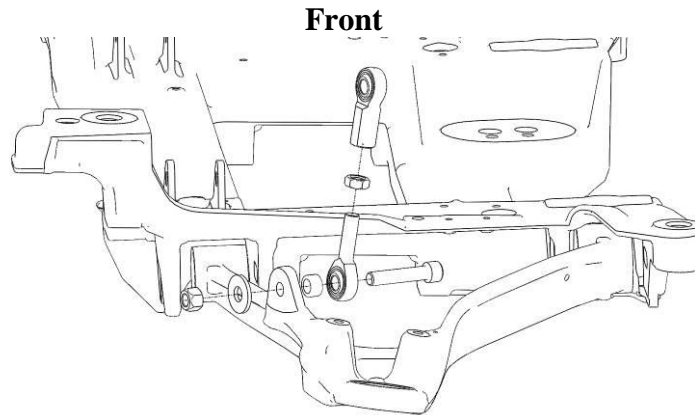
Remove the nuts attaching the end link to the lower control arm using an 18mm box end wrench and a 6mm Allen. Remove the four 18mm bolts attaching the sway bar bushing brackets to the subframe. Remove sway bar and end link assembly.

Rear

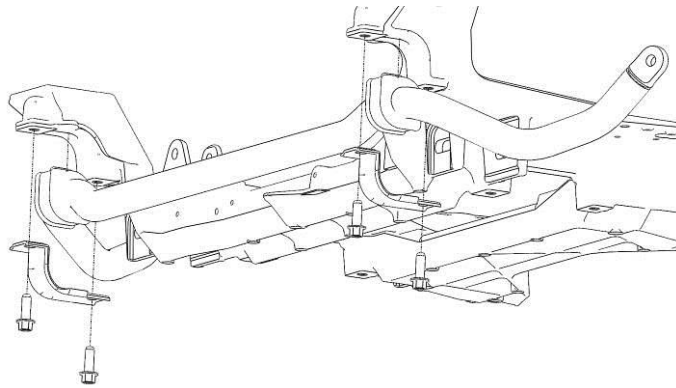


Remove the nuts attaching the end link to the lower control arm using an 18mm box end wrench and a 6mm Allen. Using a 15mm box end wrench and an 18mm socket and ratchet remove the two lower nuts and two upper bolts from the sway bar bushing bracket. Remove the sway bar and end link assembly.

Installation Procedure

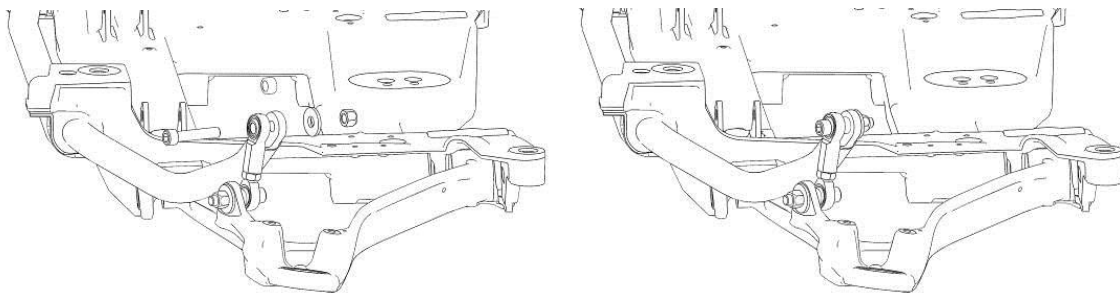


Install the front end links to the front control arms as shown. It is not necessary to tighten the jam nuts on the end links at this point. See **Initial Setup** for end link adjustment.

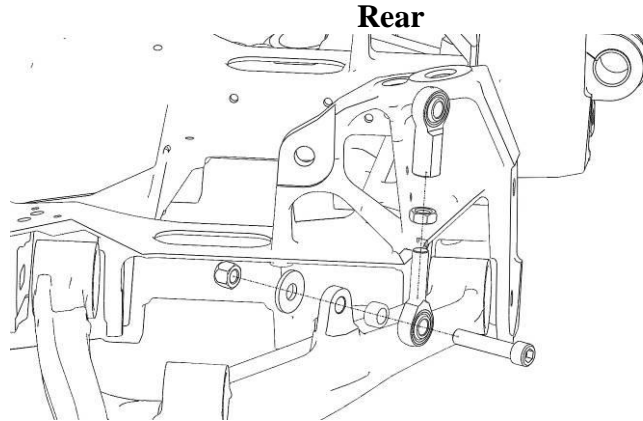


Lubricate the inside of the bushings and the outside of the sway bar where the bushings will rest with the provided grease. Note: Typical automotive grease is not recommended for use on the sway bar bushings.

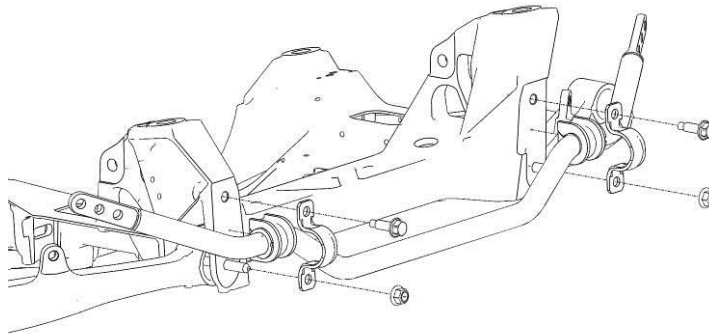
Using the factory bushing brackets and bolts, install the sway bar onto the subframe. Test the movement of the sway bar. You should be able to rotate the bar by hand with moderate force on the ends of the bar. If it's too tight, place a 1/2" or 12mm washer on the bolts between the brackets and the frame and repeat the process.



Attach the end links to the sway bar.

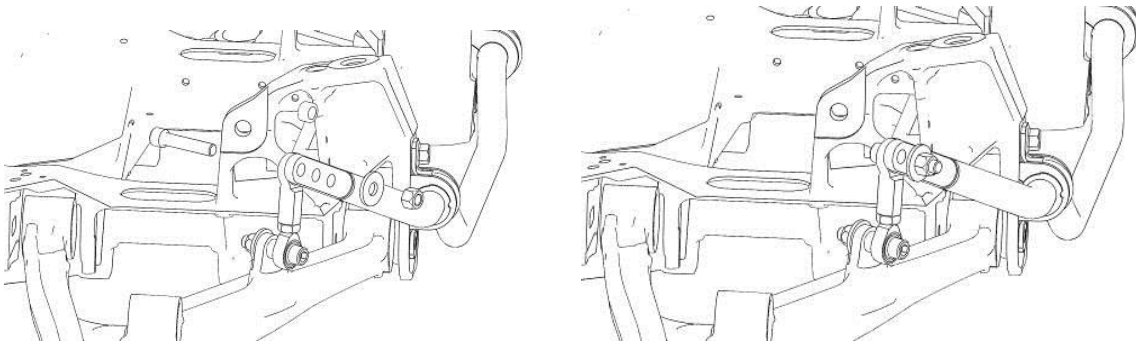


Install the front end links to the rear control arms as shown. It is not necessary to tighten the jam nuts on the end links at this point. See Initial Setup for end link adjustment.



Lubricate the inside of the bushings and the outside of the sway bar where the bushings will rest with the provided grease. Note: Typical automotive grease is not recommended for use on the sway bar bushings.

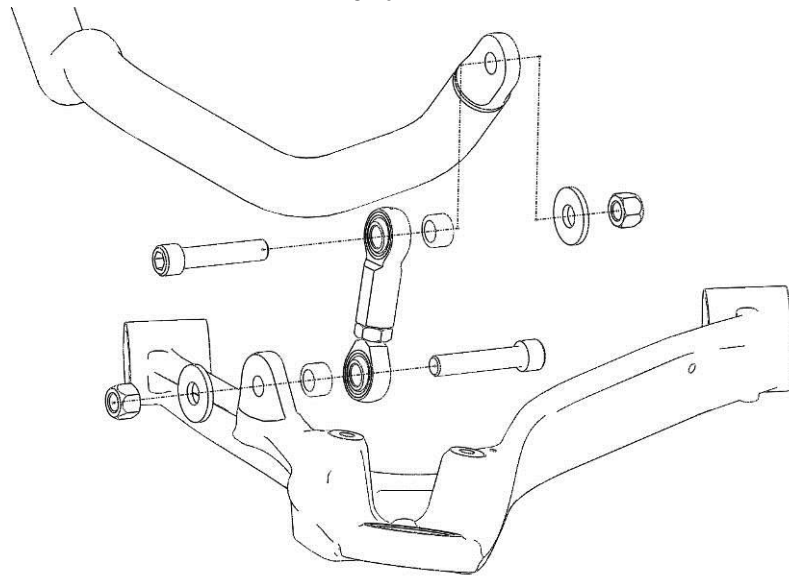
Using the factory bushing brackets, bolts, and nuts, install the sway bar onto the subframe. Test the movement of the sway bar. You should be able to rotate the bar by hand with moderate force on the ends of the bar. If it's too tight, place a 1/2" or 12mm washer on the bolts between the brackets and the frame and repeat the process.



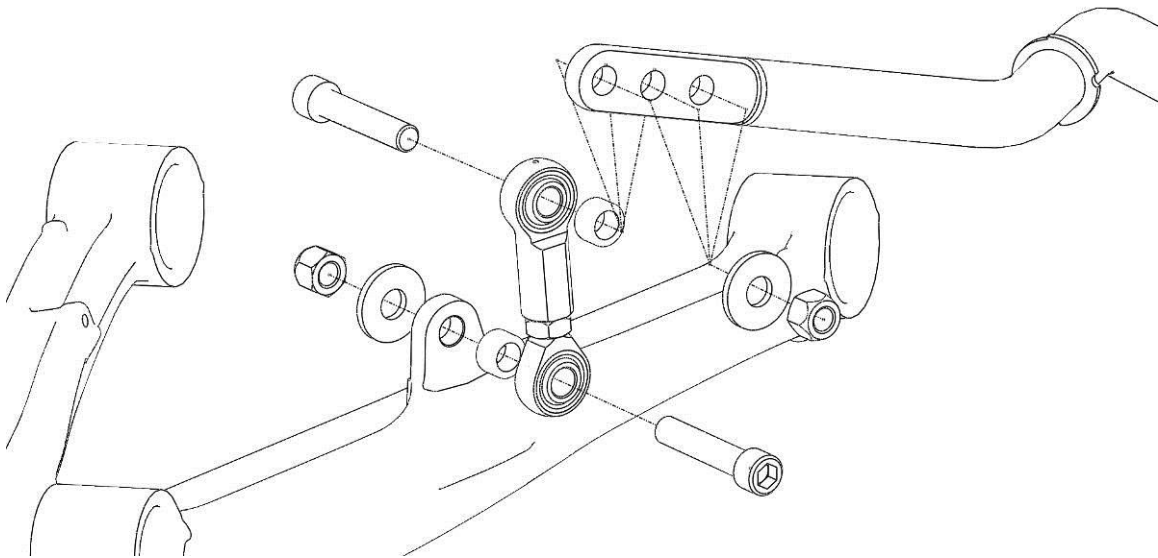
Attach the end links to the sway bar.

End Link Assembly Diagrams

Front



Rear



Initial setup

For the initial setting of the sway bars we recommend the middle position on the rear sway bar. For most applications this will be a satisfactory setting and is a good starting point for all cars.

For best performance remove any pre-load in the sway bar while the suspension is loaded by adjusting the end link length. This is best done on a four post lift. It is also possible to set the car down on blocks or ramps so that the end links can be accessed while the suspension is loaded.

After the end link length is adjusted to remove any preload lock down the length by tightening the jam nuts.

Fastener Torque

End Link Bolts and Nuts	68 N-m (50 ft-lbs)
Bushing Bracket Bolts, C6 Z06	46 N-m (34 ft-lbs)
Bushing Bracket Bolts, Non C6 Z06	65 N-m (48 ft-lbs)

Please contact aFe Control Customer Support with any questions!

Sway Bar Tuning Guidelines

The sway bars are your largest tuning tool and are capable of affecting the balance of the car during each phase of a corner; corner-entry, mid-corner and corner-exit. However, the mid corner section is especially useful for sway bar tuning. Corner-entry and corner-exit are considered transition periods. During these transition periods the shocks are capable of modify the balance of the car. During mid-corner shock setting has no affect on the balance and adjustments are done with the sway bar. In other words, sway bars could correct a corner-entry or corner-exit balance problem but, shocks can not correct a mid-corner balance problem. This is the reason that sway bar tuning should ideally be done during mid-corner.

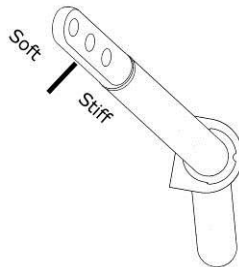
When tuning sway bars it is best to find a long constant radius turn at which you can incrementally increase speed until the limit of traction is found. There are three possible scenarios at the limit of traction.

1. The front tires exceed their limit of traction first. This condition is commonly called under-steer, push or tight.
2. The rear tires exceed their limit of traction first. This condition is commonly called over-steer, tail-happy or loose.
3. The front and rear tires exceed their limit of traction at the same moment. This condition is commonly called a four-wheel-drift or neutral balance.

After you have determined the behavior of the car it is possible to change this balance by changing the sway bar settings.

Let's take a look at case one for a moment. The front tires are being asked to carry a cornering load higher then they are capable of. However, the rear tires are not being asked to carry as high of a cornering load as they are capable of. By either moving the front sway bar to a softer setting or the rear sway bar to a stiffer setting you will remove some of the cornering responsibility from the front tires and add it to the rear tires.

The general rule of sway bar tuning is to soften the end that needs additional traction. It is also equally as effective to stiffen the end that needs less traction. Typically in the Corvette we generally tune with the rear sway bar because track adjustments on the rear sway bar are easier.





Johnny O'Connell Signature Corvette Shocks
Part # 420-401001-J



Tools Needed:

- 3/8" drive ratchet
- 24" long 3/8" extension
- Torque wrench
- 10mm deep socket
- 13mm socket
- 13mm deep socket
- 15mm socket
- 18mm deep socket
- 22mm socket
- Lug nut socket (stock 19mm)
- 15mm flex head ratchet wrench
- 6mm open end wrench
- 13mm combination wrench
- 22mm combination wrench
- Vice grips
- 1/2" drive breaker bar
- 1/2" drive torque wrench
- Floor jack
- Jack stands

This procedure is best performed on a vehicle lift, however it is possible to install these mounts using a floor jack and jack stands.

Front Shocks

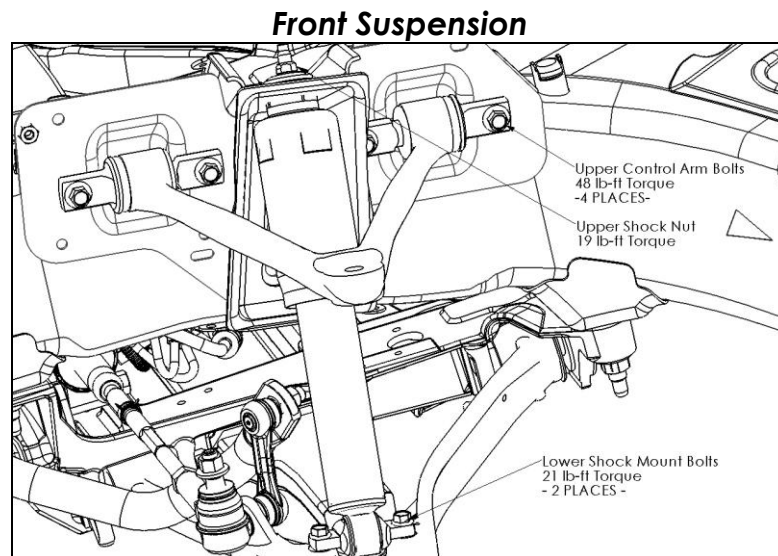
Using proper jacking points, lift and support the front of the car on jack stands. Open the hood and remove any components in the way of the upper front shock mounts.

C5 Note: The windshield washer bottle and the coolant reservoir must be moved. Neither component need be disconnected completely, just moved out of the way to facilitate the removal of the upper shock nut.

C6 Note: The coolant reservoir must be moved on to the driver's side of the engine bay, it is held in with 2 10mm flange nuts. It does not need to be disconnected from the hose's, just moved out of the way to facilitate the removal of the upper shock nut.

The upper shock nut is 15mm. Remove the nut from both shocks by holding the flats on the end of the shaft with a 6mm wrench. Vice grips can be used as an alternative if the nut is difficult.

Remove the front wheels. Remove the two bolts holding the lower shock mount to the lower control arm. Support the lower ball joint with a floor jack. Remove the 4 bolts the hold the upper control arm to the frame.



Caution: Note the position of any washers between the upper control arm mounts and the frame for use in re-assembly

Pivot upper control arm out of the way. Lower the floor jack and remove the shock.

Install the new shock in place. Place the bolts in the lower mount to locate the shock correctly. With the floor jack, raise the lower control arm until the shock is in the correct position. Install the upper bushing, upper washer and start the upper nut.

Pivot the upper control arm back in place and replace the washers and bolts. Torque the upper control arm mounting bolts to 48 lb-ft torque.

Install the nuts on the lower shock mounting bolts and torque to 21 lb-ft.

Torque upper nut on shock to 19 lb-ft. It may be necessary to keep the shaft from turning with a 6mm open end wrench.

Repeat shock R&R procedure for other side. Replace components in engine compartment and re-install wheels. Lower the car to the ground.

<i>Item</i>	<i>Torque</i>
Upper Shock Nut	19 lb-ft
Lower Shock Mounting Nuts	21 lb-ft
Front Upper Control Arm Bolts	48 lb-ft

Rear Shocks

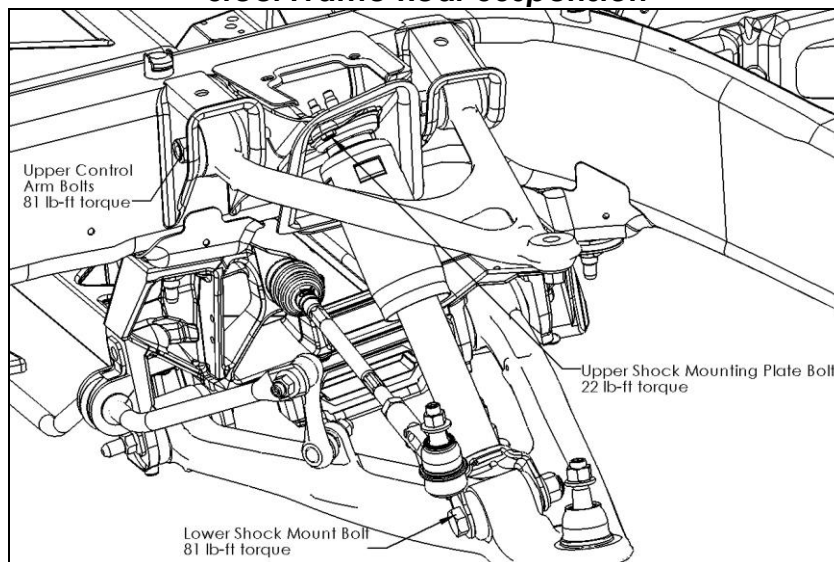
Using Proper jacking points, lift and support the rear of the car on jack stands.

Remove the rear wheels. Support the lower ball joint with a floor jack. Remove the two bolts holding the upper shock mount plate to the frame. Remove the large bolt that holds the lower shock mount to the control arm.

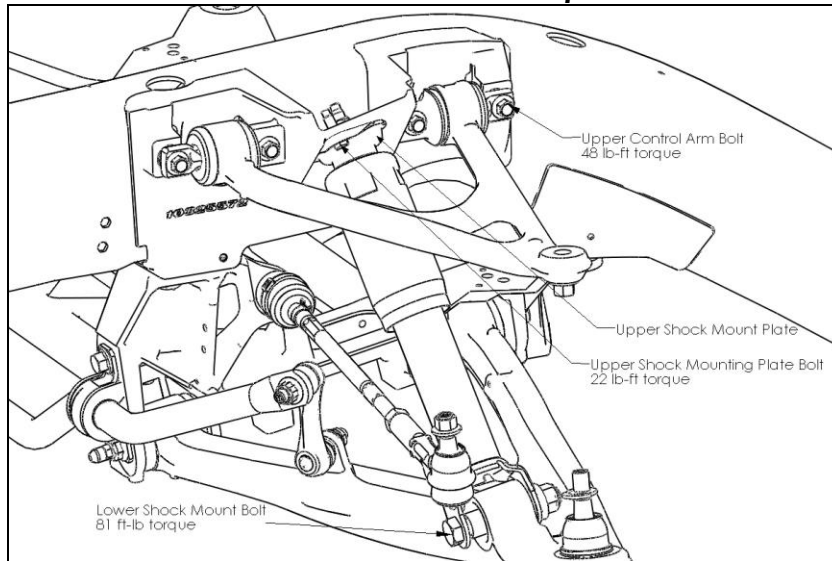
Remove the fasteners that hold the upper control arm to the frame. On aluminum frame cars there may be washers between the control arm mounts and the frame. Note their position for re-assembly.

Caution: Note the position of any washers between the upper control arm mounts and Pivot upper control arm out of the way. Lower the floor jack and remove the shock.

Steel Frame Rear Suspension



Aluminum Frame Rear Suspension



Install the new shock in place. Place the bolt in the lower mount to locate the shock correctly. With the floor jack, raise the lower control arm until the shock is in the correct position. **The upper plate mounts with the white dot facing the front of the car.** Install the upper mount bolts and torque to 22 lb-ft.

Pivot the upper control arm back in place and replace the bolts (and washers on aluminum frame cars). Torque the upper control arm mounting bolts. 48 lb-ft torque on C6 Z06 and ZR1 aluminum frame cars, 81 lb-ft on all C5 and steel frame cars. See Diagrams for proper frame identification.

Torque the lower shock mounting nut to 81 lb-ft.

Repeat shock R&R procedure for other side. Re-install wheels and lower the car to the ground.

Item	Torque
Upper Shock Mounting Plate Bolts	22 lb-ft
Lower Shock Mounting Nut	81 lb-ft
Upper Control Arm Bolts (steel frame)	81 lb-ft
Upper Control Arm Bolts (Z06/ZR1 2006+)	48 lb-ft