



How To Install QA1's C5/C6 Corvette Coil-Over Systems

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Technical Support Line: (952) 985-5675 Email: sales@QA1.net

### INSTALLATION INSTRUCTIONS

QA1 P/N GD455-08450, GD455-08550  
'97-'13 C5/C6 Corvette Front Coil-overs

### TOOLS AND SUPPLIES REQUIRED

- Floor Jack
- Jack Stands
- Metric Wrench Set
- Metric Socket Set
- Spanner Wrench (QA1 P/N T115W)
- Permatex® Anti-Seize Lubricant
- C-Clip Pliers

### PRE-INSTALLATION NOTE:

Vehicles equipped with magnetic ride control will need to install shock simulators. These are available through many retailers including p/n 25-241303-1 from Ecklers Corvette.

### DISASSEMBLY

1. Measure and record the vehicle ride height from the ground to the fender at the center of the wheel. Determine whether 1" or 2" of lowering is desired before moving forward.
2. Raise and support the vehicle with jack stands on a stable surface. Refer to the owner's manual for proper jacking points.
3. Remove the front wheels from the car.
4. Remove the sway bar end link from the control arm. **(Figure 1)** 2002 and later cars will use an 18mm open wrench and an 18mm socket. Pre-2002 cars with plastic end links will use an 18mm wrench and T-45 torx bit.
5. Unplug the ABS sensor from the hub and remove the wire from the control arm to keep from damaging it during this installation.
6. Remove the two 13mm lower shock connections and the upper 13mm shock connection to remove the shocks from the car. The upper passenger shock connection can be accessed by removing the coolant reservoir. This connection can also be accessed from inside the wheel well just above the shock mount.
7. With a block of wood on a jack, raise one side of the leaf spring slightly off the lower control arm.
8. Mark the camber eccentrics on the lower control arm of the supported side and remove the control arm hardware.
9. Swing the removed lower control arm around the leaf spring so that the leaf spring is on the bottom side of the arm. Only one lower control arm will need to be unbolted to gain enough room to remove the leaf spring.
10. Remove the frame mounted leaf spring brackets using a 13mm socket. **(Figure 2)**



Figure 1



Figure 2

11. Slowly release the jack supporting the leaf spring.
12. Remove the leaf spring. **The factory leaf spring is NOT USED in conjunction with coil-overs.**
13. Once the leaf spring is removed, re-install the control arm and cam eccentrics and torque to 107 lb. ft.

**SHOCK ASSEMBLY**

1. Using c-clip pliers and safety glasses, install one internal c-clip into one of the two grooves in the lower shock eyelet. **(Figure 3)** Double check that the c-clip is seated in the groove.
2. Remove the external c-clips on the t-bar so it can be fit through the shock eyelet. **(Figure 4)**
3. From the opposite end of the installed c-clip, insert the bearing mounted t-bar into the shock eyelet. **(Figure 5)**
4. Install another c-clip into the shock eyelet to secure the bearing into the eyelet. **(Figure 6)** Lightly push on the c-clip with a flathead screwdriver or similar to ensure the c-clip is seated in the groove.
5. Install one external c-clip onto each side of the t-bar shaft to complete the lower shock mount. **(Figure 4 is shown out of the shock eyelet for demonstration)**



**Figure 3**



**Figure 4**



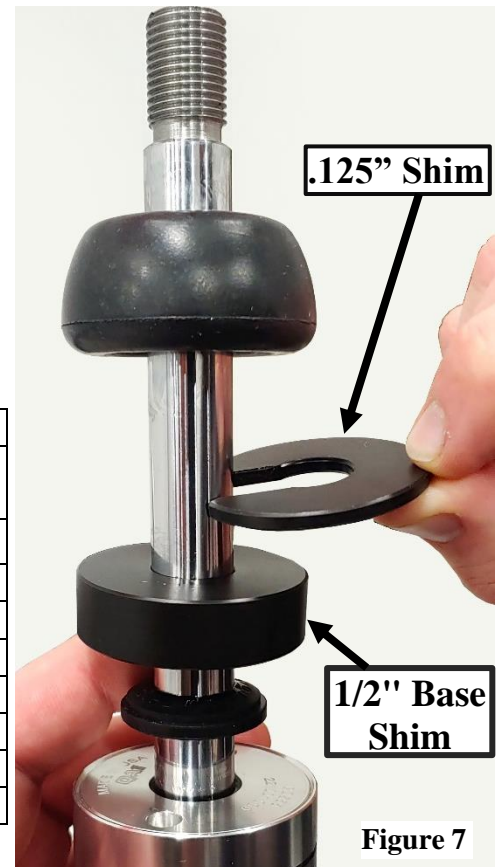
**Figure 5**



**Figure 6**

6. Pull on the shock rod to fully extend the shock and turn the compression (C) clock-wise until the knob stops. This will aid in installing the bump stop and bump stop spacers without compressing the shock rod.
7. Reference the chart below to find your desired ride height change and install the appropriate amount of bump stop shims onto the shock rod. This system comes with one 1/2" shouldered base shim and (4) thinner .125" slotted shims per shock that can be added to achieve the necessary shim thickness of the chart. The thinner slotted shims can be added or removed from the shock rod with the shocks installed on the vehicle. **(Figure 7)**

| <b>BUMP STOP SHIMS</b>    |                                  |   |
|---------------------------|----------------------------------|---|
| <b><u>SPRING RATE</u></b> | <b><u>RIDE HEIGHT CHANGE</u></b> | <b><u>SHIMS NEEDED</u></b>                    |
| 450                       | -1"                              | One .5" Shim + Three .125" Shim = .875" Total |
|                           | -2"                              | None  |
| 550                       | -1"                              | One .5" Shim + Three .125" Shim = .875" Total |
|                           | -2"                              | None  |
| 700                       | -1"                              | One .5" Shim + One .125" Shim = .625" Total   |
|                           | -2"                              | None  |
| 900                       | -1"                              | One .5" Shim + Two .125" Shim = .750" Total   |
|                           | -2"                              | None  |



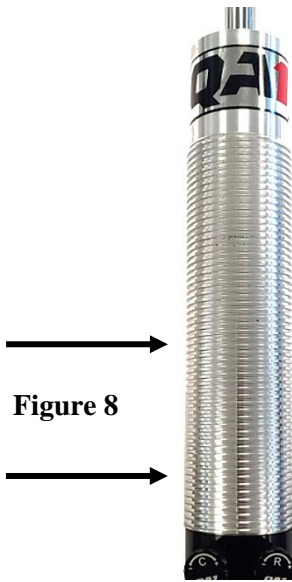
**Figure 7**

8. Apply anti-seize to the range of coil-over threads as shown. **(Figure 8)** The threading of the spring seat in the following step will adequately spread any excess anti-seize. Failure to use anti-seize on the threads will void your shocks lifetime warranty.

9. Thread the spring seat nut down the body of the coil-over to the lowest thread, followed by one stainless washer or thrust bearing kit (p/n 7888-180).

10. Next install the helper spring onto the shock followed by one stainless washer, then the spring slider, with one more stainless washer on top of the spring slider. **(Figure 9)**

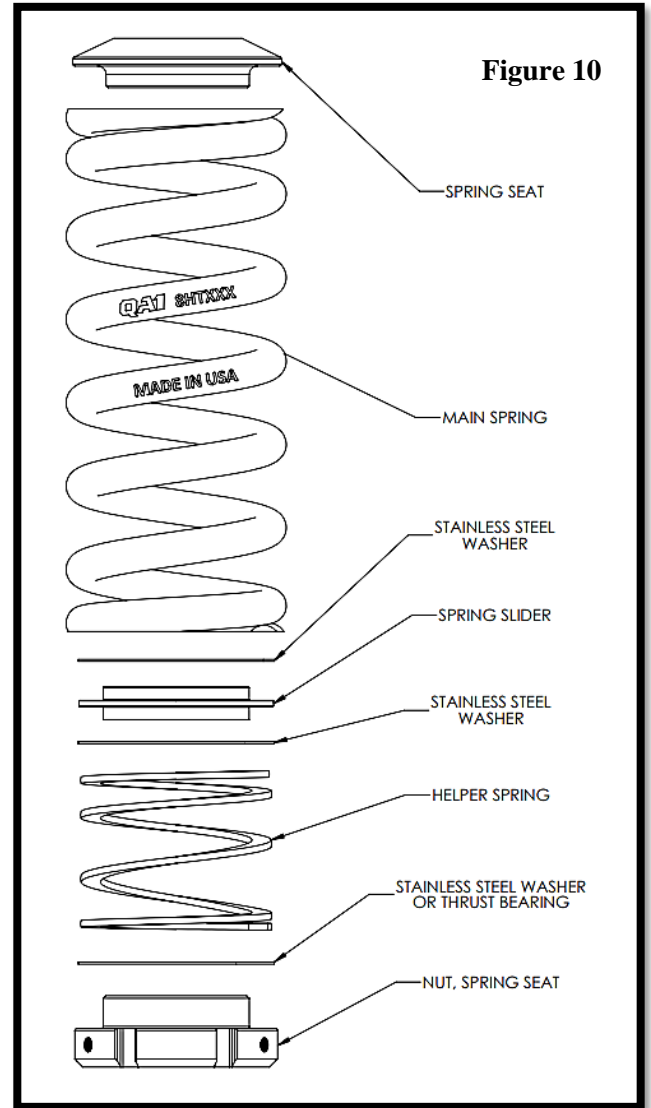
11. Install the coil spring onto the shock. **(Figure 10)**



**Figure 8**



**Figure 9**



**Figure 10**

**NOTE:**

The upper shock connection consists of five pieces which include a lower spherical race, upper spherical race, internal sleeve, and two half-sphere bushings.

12. With the jam nut on the shock threaded all the way down, thread the lower spherical race onto the shock rod until it contacts the jam nut. **(Figure 11)** Torque the jam nut to the lower spherical race to 31 lb. ft.

13. Install one half-sphere bushing into the cup. **(Figure 12)**

14. Install the included metal bushing into the factory upper shock mounting hole. **(Figure 13)** This bushing is designed to be a tight fit in the factory shock hole. The hole may need to be enlarged using a file to fit the bushing. Be careful not to file too much as this bushing should not have any play in the hole.



**Figure 11**



**Figure 12**

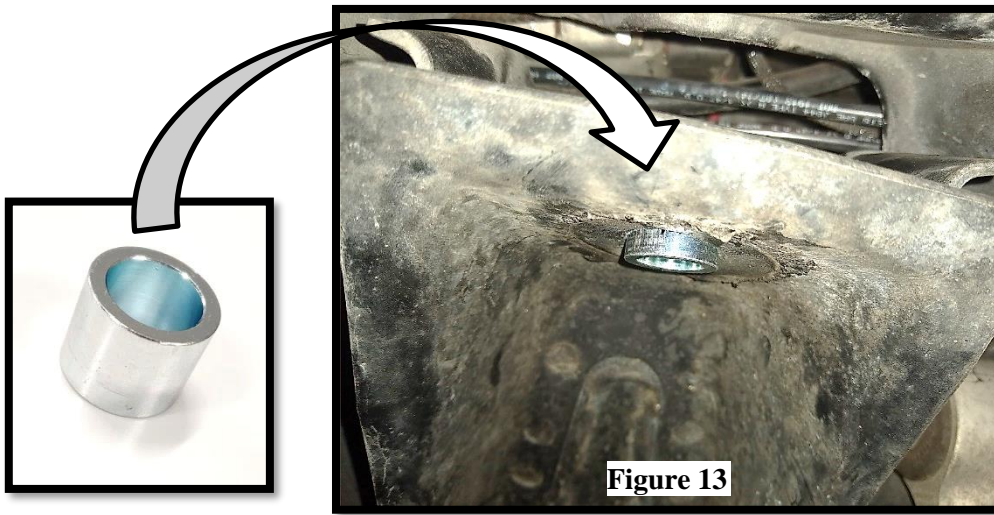


Figure 13

15. The coil-over will be easiest to install in its shortest possible length. Turn the compression knob counter-clockwise until the knob stops (softest setting) and the Rebound knob clockwise until the knob stops (firmest setting). **(Figure 14)** The shock can now be compressed against a hard surface (ground) to its shortest possible length. The rebound valving will help keep the shock compressed while it is installed in the car.

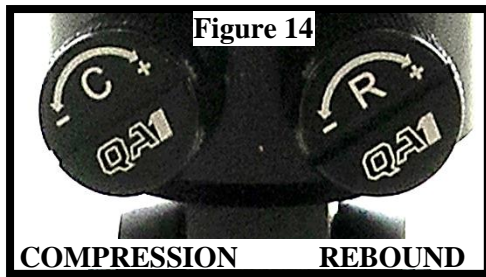


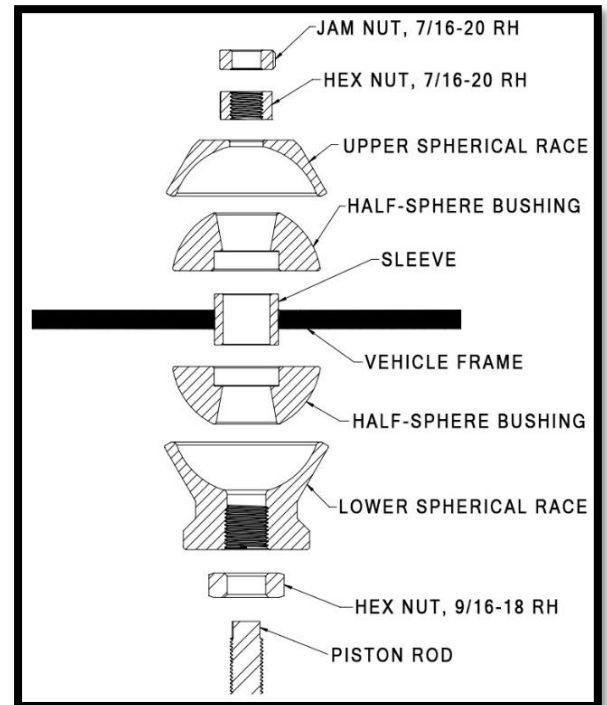
Figure 14

16. Insert the upper shock stud through the bushing in the chassis followed by the upper half-sphere bushing and the upper spherical race. **(Figure 15)**



Figure 15

17. Secure the top mount using one 7/16" hex nut. Snug the hex nut lightly to take any play out of the mount then back the nut off 1/4 turn. **DO NOT OVER-TIGHTEN.** Use a 7/16" jam nut tightened to the hex nut to 31 lb. ft.



18. With the adjustment knobs inboard (towards the engine), attach the lower shock mount with **two washers between the t-bar and the control arm** using the included 5/16" x 2.5 hardware. Torque to 25 lb. ft. **(Figure 16)**

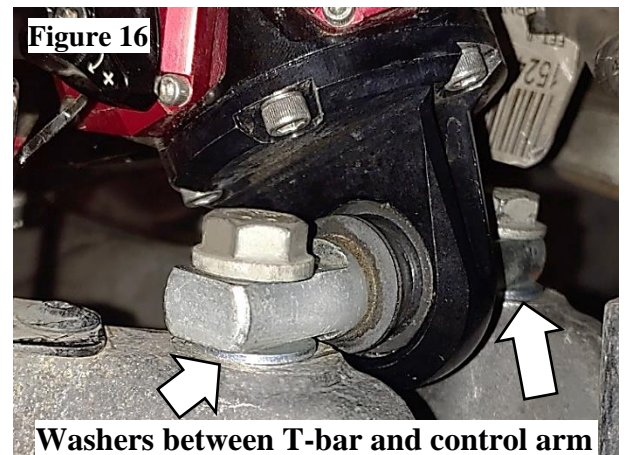


Figure 16

Washers between T-bar and control arm

19. Turn all shock adjustment knobs counter-clockwise to the softest position as to prevent the valving from showing inaccurate ride height adjustments.

20. Using the T115W spanner wrench set, adjust the spring seat collar up the shock body until the helper spring is compressed to 2" tall. This is the minimum ride height that can be safely run.

21. Install the wheels and check ride height. Adjust the spring seat collar to desired ride height.

**NOTE:**

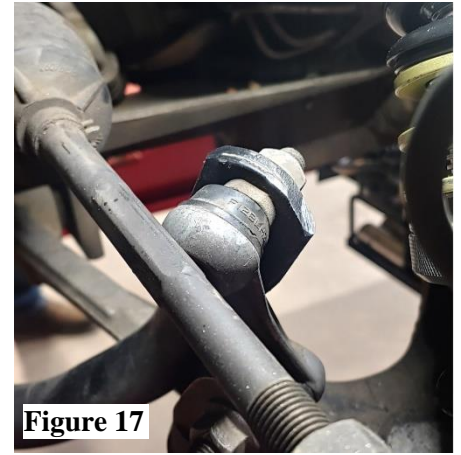
Roll the vehicle 2-3 feet forward and back to un-scrub the tires before measuring each ride height adjustment. Un-scrubbing the tires will usually show an additional 3/8" of drop vs. without un-scrubbing the tires.

22. Once final ride height is achieved, install the nylon tipped, stainless set screw into the threaded hole of the spring seat collar to secure. The set screw should be no tighter than finger tight.

23. Reinstall the sway bar.

24. Check the clearance of the front sway bar and coil spring at full droop. If necessary, clearance the flat portion of the sway bar to allow a minimum of 1/8" with the coil-over throughout the suspension cycle. **(Figure 17)**

25. A professional four-wheel alignment is required before driving the vehicle.



**Shock Valving Adjustments**

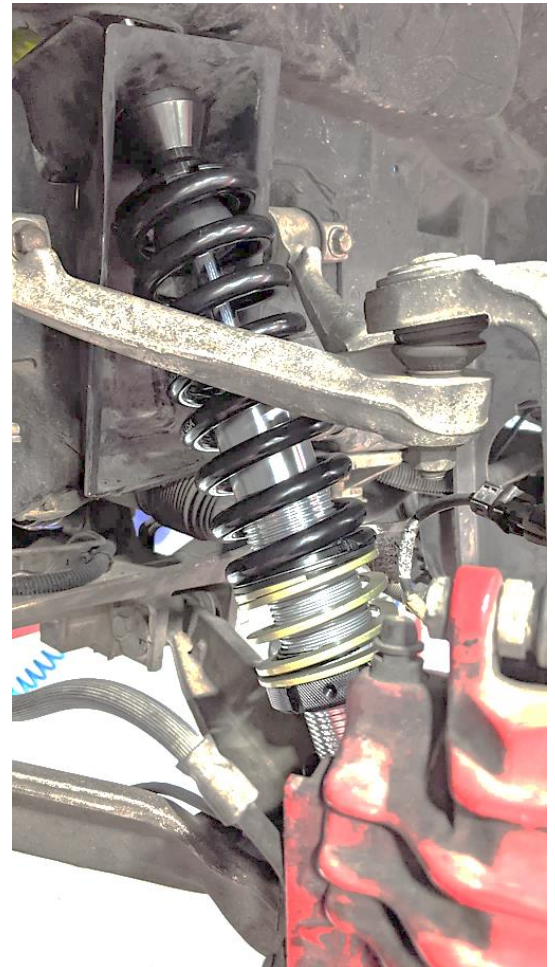
QA1 shocks have 18 damping settings per knob. There are 6 clicks per revolution of each knob, and each knob has 3 complete revolutions. The knob set fully counter-clockwise is the softest setting - start your adjustments from that point. The following are recommended base settings to begin testing with. Do not be afraid to adjust the shocks to find the best settings for your vehicle/driving style.

**Front shocks**

|                      | <b>Compression</b> | <b>Rebound</b> |
|----------------------|--------------------|----------------|
| Drag Racing          | 13-18 Clicks       | 0-4 Clicks     |
| Nice Ride & Handling | 3-6 Clicks         | 8-12 Clicks    |
| Improved Handling    | 8-12 Clicks        | 12-18 Clicks   |
| Aggressive Handling  | 12-14 Clicks       | 14-18 Clicks   |

**Rear shocks**

|                        | <b>Compression</b> | <b>Rebound</b> |
|------------------------|--------------------|----------------|
| Drag Racing            | 10-16 Clicks       | 8-12 Clicks    |
| Nice Ride and Handling | 3-6 Clicks         | 8-12 Clicks    |
| Improved Handling      | 8-12 Clicks        | 12-18 Clicks   |
| Aggressive Handling    | 12-14 Clicks       | 14-18 Clicks   |



## Drag Racing Tuning

|  |  |
|--|--|
| Excessive front-end rise               | Stiffen front rebound                                      |
| Too little front-end rise              | Soften front rebound                                       |
| Front-end bounce after launch          | Soften front compression, stiffen front rebound            |
| Rear of vehicle squats                 | Stiffen rear compression                                   |
| Rear tires unload about 60 ft. mark    | Stiffen front compression                                  |
| Too much separation in rear            | Stiffen rear rebound                                       |
| Tires hook and unload at starting line | Stiffen rear compression                                   |
| Tire shake                             | Stiffen rear rebound                                       |
| Immediate loss of traction             | Stiffen front rebound, soften rear compression and rebound |

## Street Tuning

|  |  |
|--|--|
| Excessive Body Roll                        | Stiffen front and rear rebound               |
| Excessive Front-End Dive                   | Stiffen front compression                    |
| Excessive Rear-End Squat                   | Stiffen rear compression                     |
| Too Firm Front                             | Soften front compression and rebound equally |
| Too Firm Rear                              | Soften rear compression and rebound equally  |
| Doesn't Weight Transfer under Acceleration | Soften front rebound and rear compression    |
| Doesn't Weight Transfer under Braking      | Soften rear rebound and front compression    |

## Handling Tuning

|                     |   |
|---------------------|---|
| <b>Corner Entry</b> |   |
| Oversteer           | <ul style="list-style-type: none"><li>• Stiffen rear rebound</li><li>• Stiffen front compression</li></ul>  |
| Understeer          | <ul style="list-style-type: none"><li>• Soften front compression</li><li>• Soften rear rebound</li></ul>  |
| <b>Mid-Corner</b>   |   |
| Oversteer           | <ul style="list-style-type: none"><li>• Stiffen rear rebound if rear suspension is unstable or has excessive body roll</li><li>• Soften rear rebound if rear tires chatter and don't have enough lateral grip</li></ul> |
| Understeer          | <ul style="list-style-type: none"><li>• Stiffen front rebound if front suspension is unstable or has excessive body roll</li></ul>  |
| <b>Corner Exit</b>  |   |
| Oversteer           | <ul style="list-style-type: none"><li>• Soften rear compression, stiffen rear rebound, and soften front rebound</li></ul>   |
| Understeer          | <ul style="list-style-type: none"><li>• Stiffen front rebound and rear compression</li></ul>  |



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