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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. using an 18mm wrench. 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)**

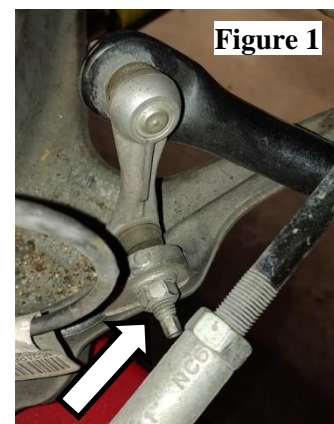


Figure 1

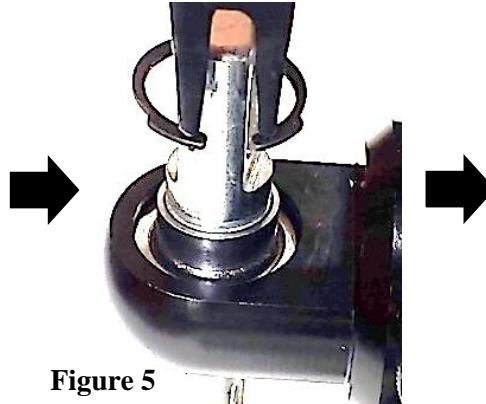
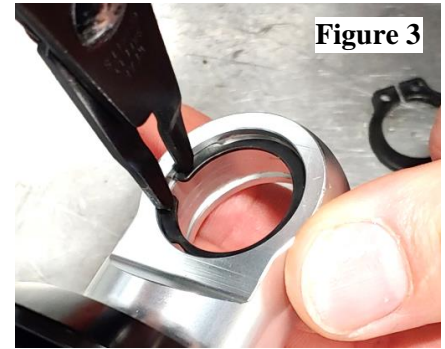


Figure 2

11. Slowly release the jack supporting the control arm.
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.

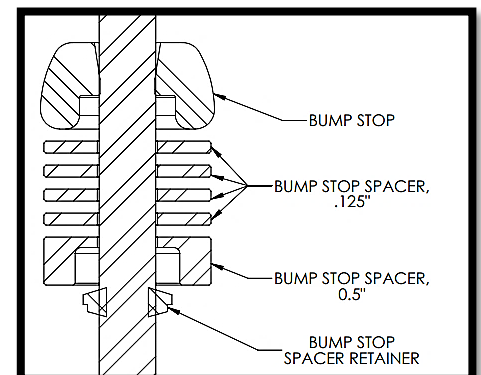
SHOCK ASSEMBLY

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)**
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 thinner .125" shims that can be added to achieve the necessary shim thickness of the chart.

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



8. Apply anti-seize to the range of coil-over threads as shown. **(Figure 7)** 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 8)**

11. Install the coil spring onto the shock. **(Figure 9)**

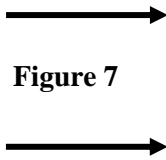


Figure 7



Figure 8

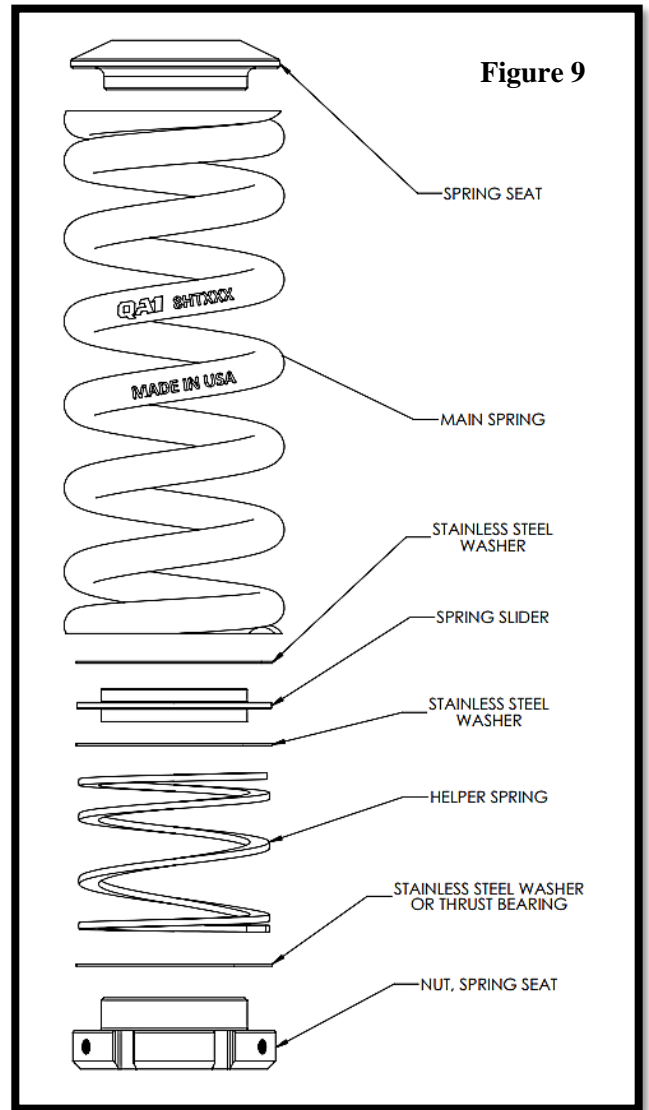


Figure 9

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 10)** Torque the jam nut to the lower spherical race to 31 lb. ft.

13. Install one half-sphere bushing into the cup. **(Figure 11)**

14. Install the included metal bushing into the factory upper shock mounting hole. **(Figure 12)** 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 10

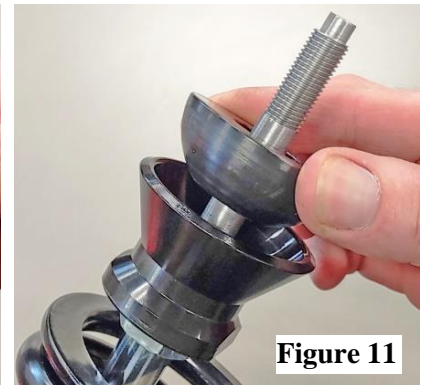


Figure 11

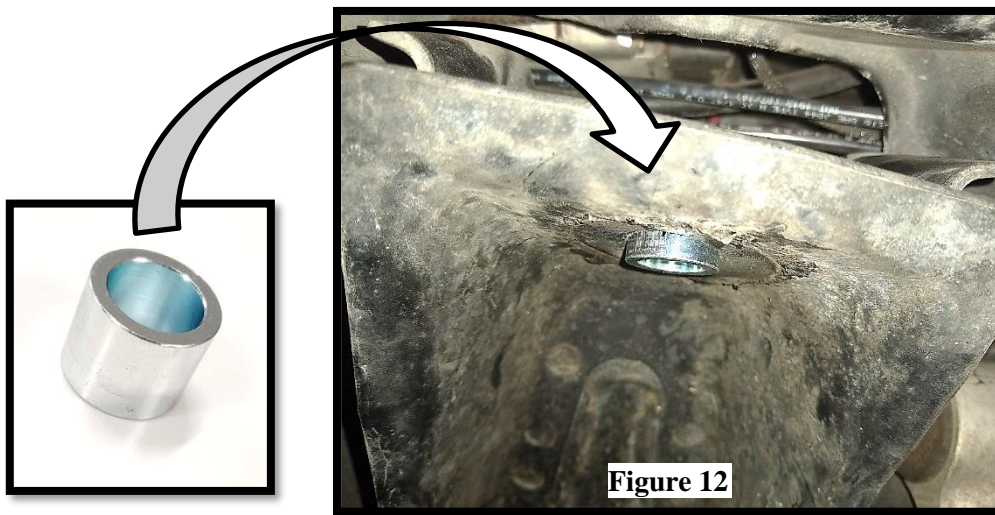


Figure 12

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 13)** 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.

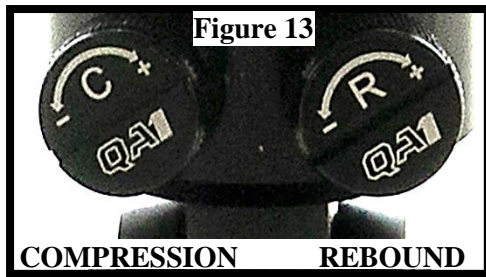
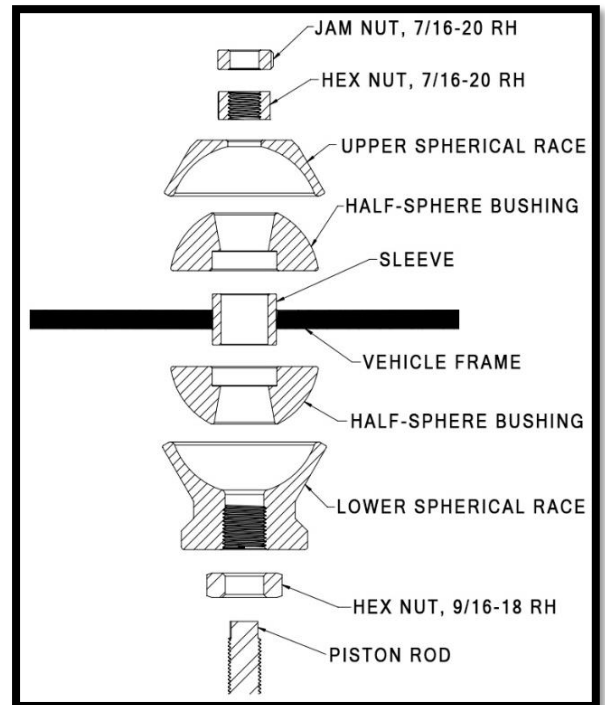


Figure 13



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 14)**



Figure 14

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 15)**

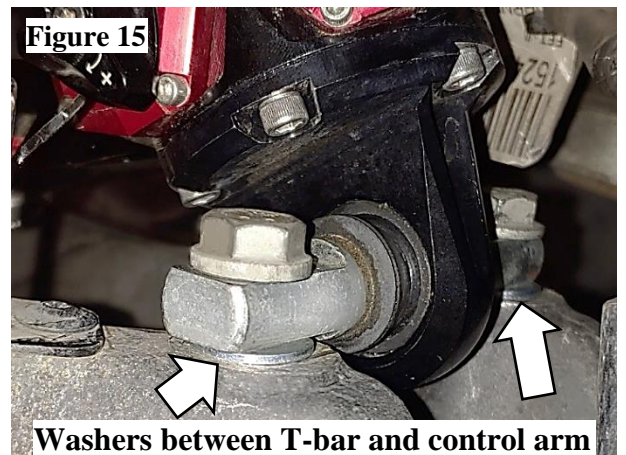


Figure 15

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. Continue adjusting the spring seat collar and measuring ride height to the desired ride height.

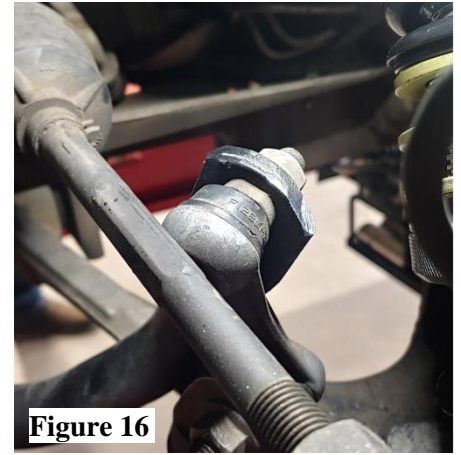
NOTE:

Roll the vehicle 2-3 feet 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. 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 16)**

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



Shock Valving Adjustments

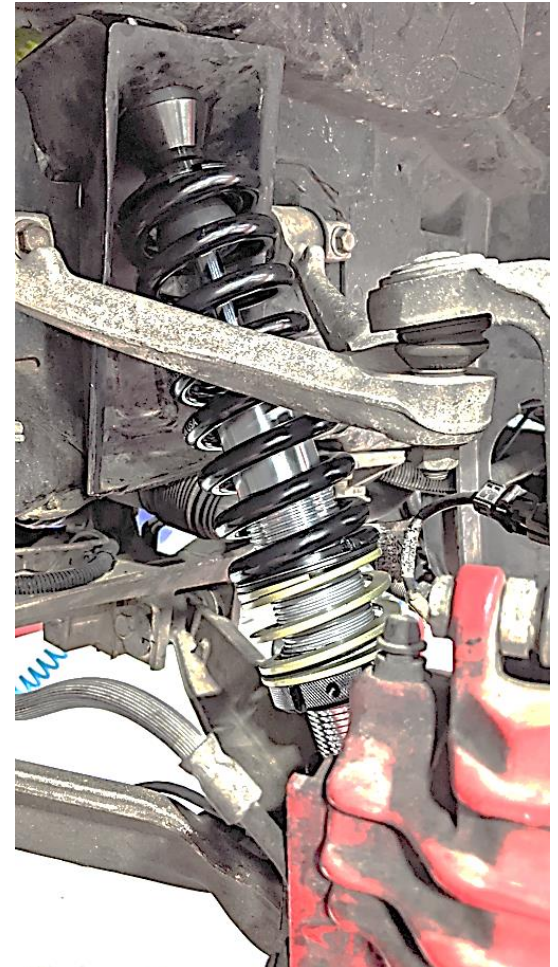
QA1 shocks have 18 damping settings per knob. There are 6 clicks per revolution of each knob, and each knob has 3 complete revolutions. The knob set fully counter-clockwise is the softest setting - start your adjustments from that point. The following are recommended base settings to begin testing with.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

Front shocks

	Compression	Rebound
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

	Compression	Rebound
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

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



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