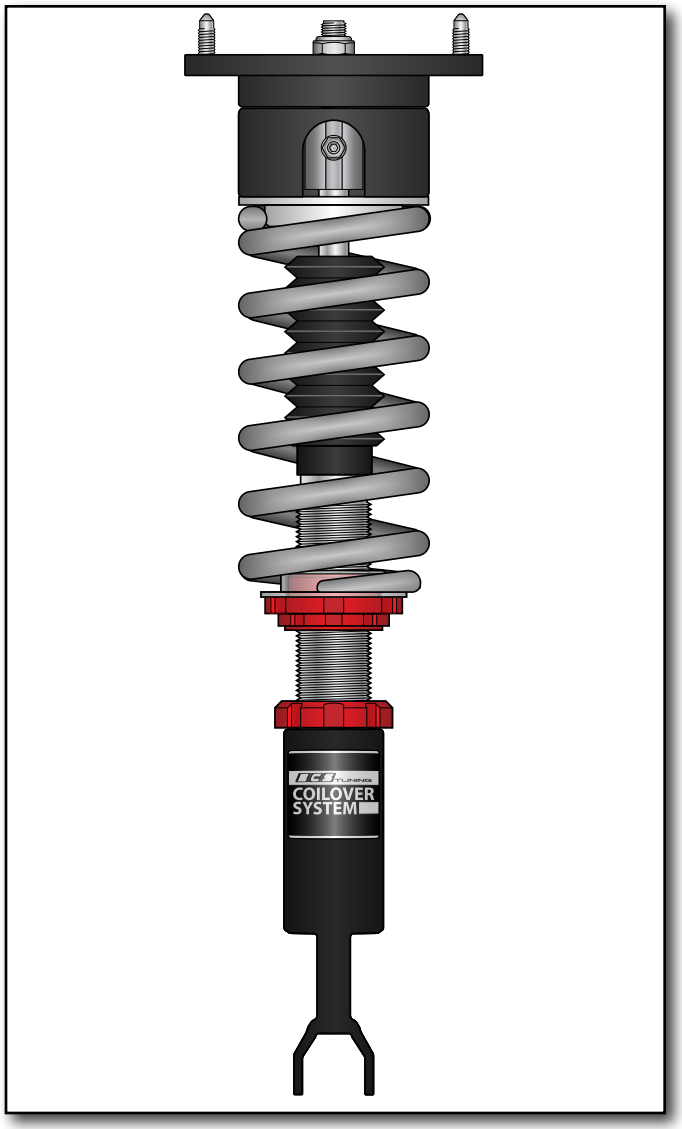
VW B5 Passat FWD Adjustable Coilover Kit Installation Instructions - Click HERE to Shop

Skill Level
2 - Moderate

Some Experience Recommended











Proper service and repair procedures are vital to the safe, reliable operation of all motor vehicles as well as the personal safety of those performing the repairs. Standard safety procedures and precautions (including use of safety goggles and proper tools and equipment) should be followed at all times to eliminate the possibility of personal injury or improper service which could damage the vehicle or compromise its safety.

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REQUIRED TOOLS

Note: The tools required for each step will be listed by the step number throughout these instructions.

Standard Automotive Tools

Required For This Install

Available On Our Website

- **Protecta-Sockets (for lug nuts)** ..... ES#2221243
- **⅜" Drive Ratchet** ..... ES#2765902
- **⅜" Drive Torque Wrench** ..... ES#2221245
- **⅜" Drive Deep and Shallow Sockets** ..... ES#2763772
- **⅜" Drive Extensions** ..... ES#2804822
- **Hydraulic Floor Jack** ..... ES#2834951
- Torx Drivers and Sockets ..... ES#11417/8
- **½" Drive Deep and Shallow Sockets** ..... ES#2839106
- **½" Drive Ratchet**
- **½" Drive Extensions**
- **½" Drive Torque Wrench** ..... ES#2221244
- **½" Drive Breaker Bar** ..... ES#2776653
- **Bench Mounted Vise**
- Crows Foot Wrenches
- Hook and Pick Tool Set ..... ES#2778980
- ¼" Drive Ratchet ..... ES#2823235
- ¼" Drive Deep and Shallow Sockets ..... ES#2823235
- ¼" Drive Extensions ..... ES#2823235
- Plier and Cutter Set ..... ES#2804496
- Flat and Phillips Screwdrivers ..... ES#2225921
- **Jack Stands** ..... ES#2763355
- **Ball Pein Hammers**
- **Pry Bar Set** ..... ES#1899378
- Electric/Cordless Drill
- Wire Strippers/Crimpers
- Drill Bits
- **Punch and Chisel Set**
- **Hex Bit (Allen) Wrenches and Sockets** ..... ES#11420
- Thread Repair Tools ..... ES#1306824
- **Open/Boxed End Wrench Set** ..... ES#2765907

INSTALLATION NOTES

- **RH** refers to the ***passenger side*** of the vehicle.
- **LH** refers to the ***driver side*** of the vehicle.
- Always use the proper torque specifications.
- If applicable to this installation, torque specifications will be listed throughout the document and at the end as well.
- Please read all of these instructions and familiarize yourself with the complete process **BEFORE** you begin.

GENERAL PREPARATION AND SAFETY INFORMATION

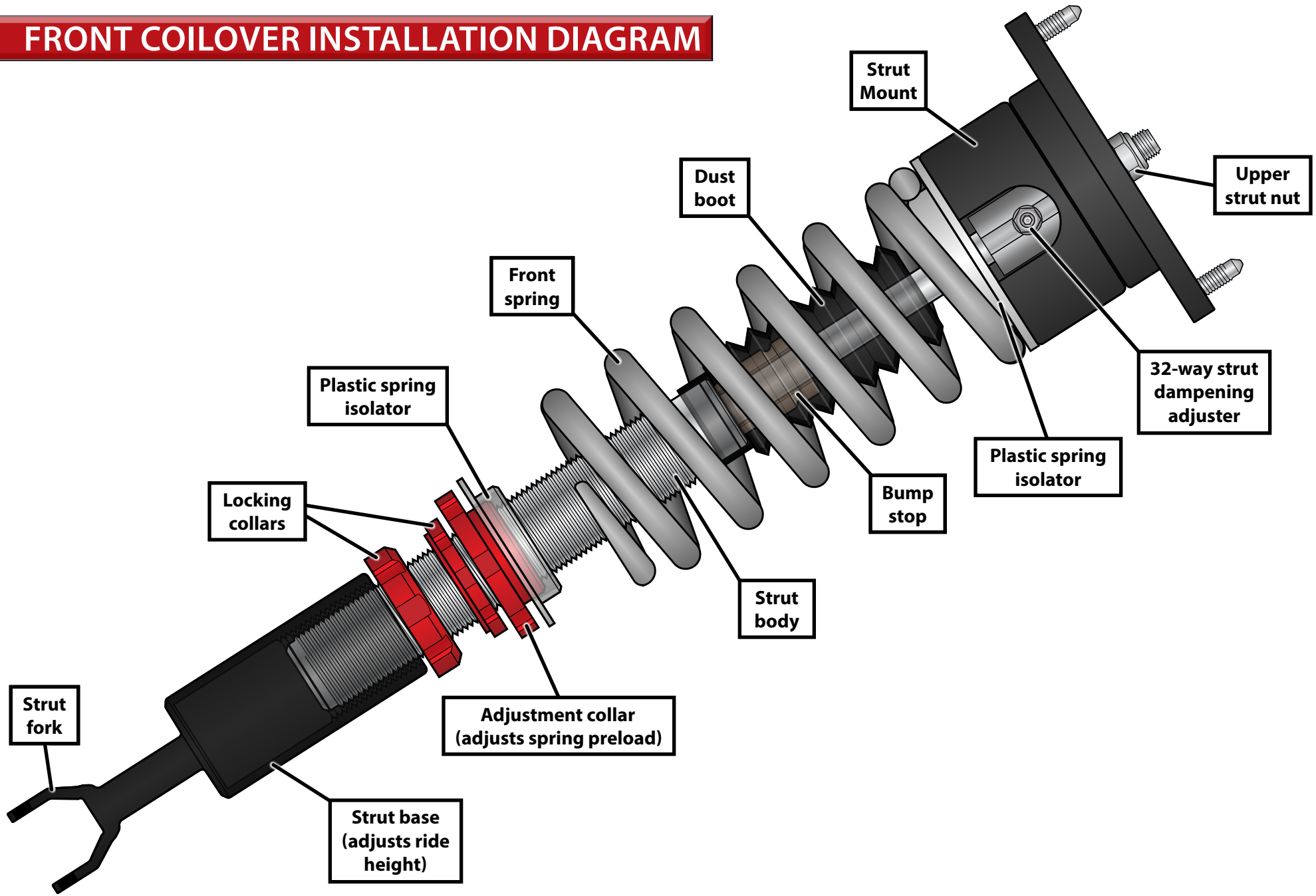
ECS Tuning cares about your health and safety, please read the following safety information. This information pertains to automotive service in general, and while it may not pertain to every job you do, please remember and share these important safety tips.

- Park your car in a safe, well lit, level area.
- Shut the engine off and remove the key from the ignition switch.
- Make sure any remote start devices are properly disabled.
- **ALWAYS** wear safety glasses.
- Make sure the parking brake is applied until the vehicle is safely lifted and supported.
- Whether lifting a vehicle using an automotive lift or a hydraulic jack, be sure and utilize the factory specified lift points.
- Lifting a vehicle in an incorrect location can cause damage to the suspension/running gear.
- **ALWAYS** support the vehicle with jack stands.
- **ALWAYS** read and follow all safety information and warnings for the equipment you are using.



NEVER get underneath a vehicle that is supported only by a jack, and ALWAYS make sure that the vehicle is securely supported on jack stands.

FRONT COILOVER INSTALLATION DIAGRAM



REMOVING THE ORIGINAL FRONT STRUTS

Step 1: Protecta-Sockets & Breaker Bar

Safely lift and support the vehicle and remove all four wheels.



TECH TIP

Before you begin your install take a moment to take some baseline measurements. Measure your fender to ground clearance at all four wheels and write it down. This will come in handy later on once you go to adjust the ride height.

Step 2: 18mm Wrench, 18mm Socket & Ratchet

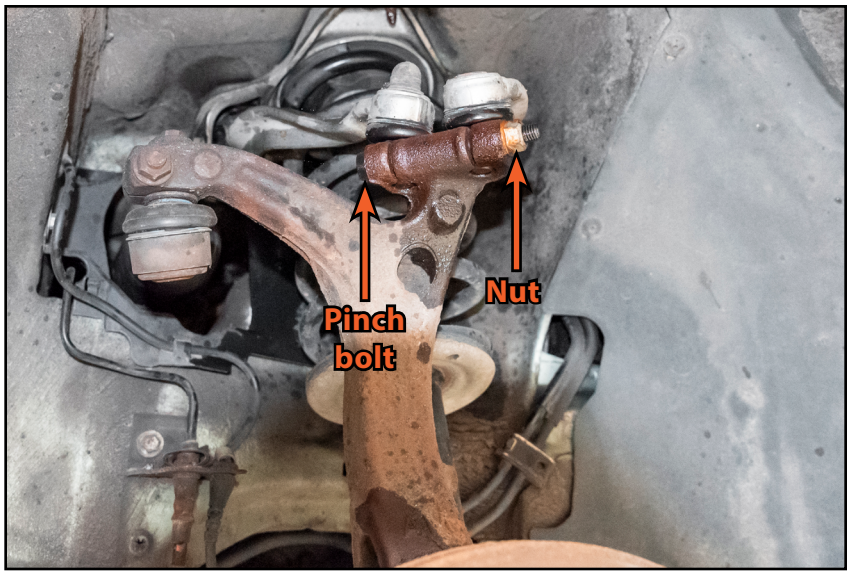
Counter-hold the nut while you remove the strut fork bolt (arrow). If equipped, disconnect the headlight leveling sensor arm from the LH lower control arm.



REMOVING THE ORIGINAL FRONT STRUTS

Step 3: 16mm Wrench, 16mm Socket & Ratchet

Counter-hold the nut while you remove the upper control arm pinch bolt.

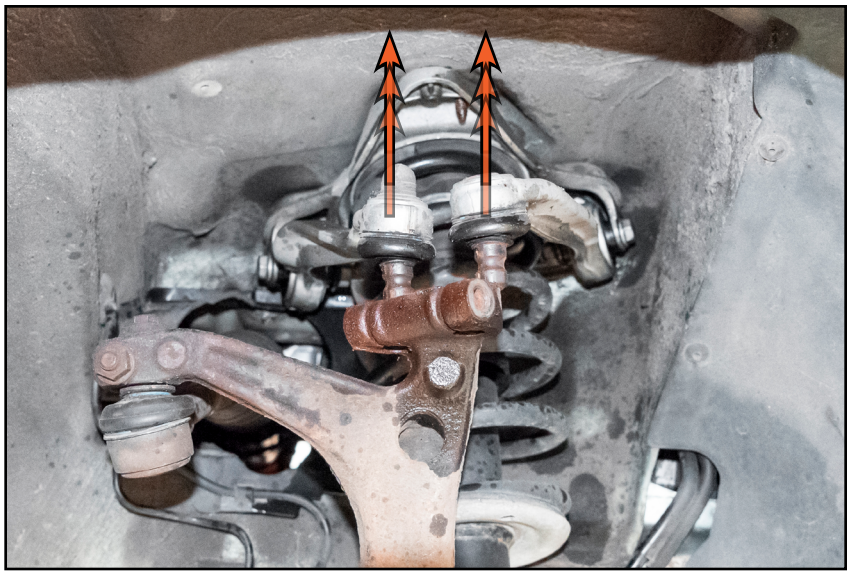


TECH TIP

These pinch bolts are notoriously difficult to remove as they can become fused in the knuckle and often the head will shear off if you attempt to back it out. To give yourself the best chance at removing it first try, remove the nut and spray the bolt with penetrating oil and allow the oil to soak in before attempting to remove it. A torch can also be used for particularly stubborn bolts. If the bolt ***still*** does not budge, we offer several options of tools HERE which will help get the job done.

Step 4: Punch, Hammer

Once you have removed the pinch bolt, drive the upper control arms out of the steering knuckle from the bottom.



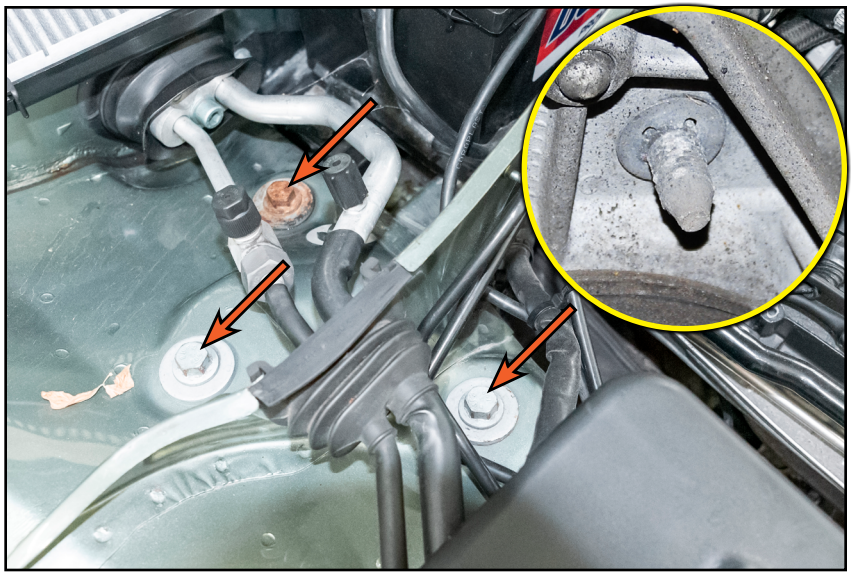
TECH TIP

Our Schwaben ball joint separator tool (available HERE) can be used with a short 1/4" socket to help drive the control arms out of the steering knuckle without damaging them.

REMOVING THE ORIGINAL FRONT STRUTS

Step 5: 16mm Socket & Ratchet

Remove the three bolts (arrows) which secure the strut mounting bracket to the body. Carefully guide the strut assembly out of the fenderwell.

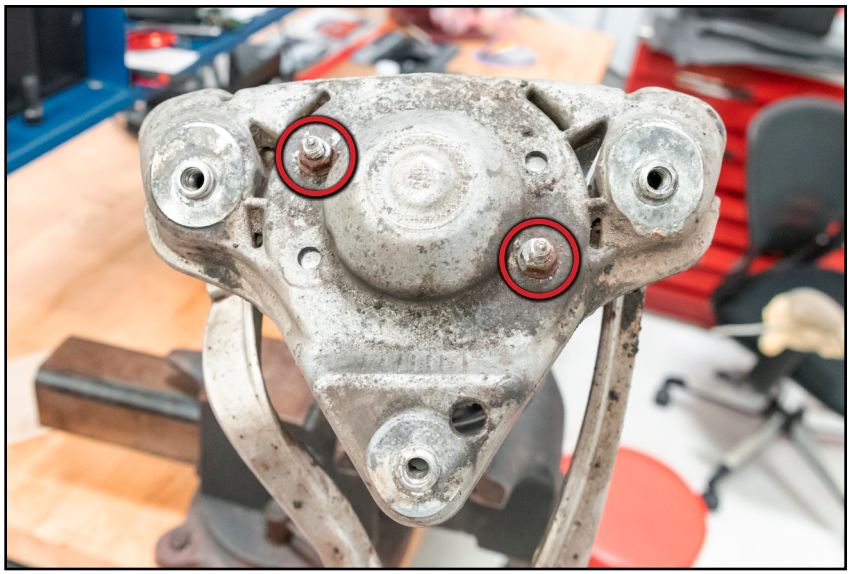


NOTE

There is a small retaining clip (**YELLOW** inset photo) on the underside of the strut mounting bracket which must be pried off and discarded prior to removal of the strut assembly.

Step 6: 13mm Socket & Ratchet

Remove the two nuts (circled in **RED**) and pull the mounting bracket off of the strut.



INSTALLING THE FRONT COILOVERS

Step 1: 19mm Strut Nut Socket & Torque Wrench, 5mm Hex (Allen)

Before installing the coilovers, ensure the upper strut nut is torqued to 50 Nm (37 Ft-lbs).

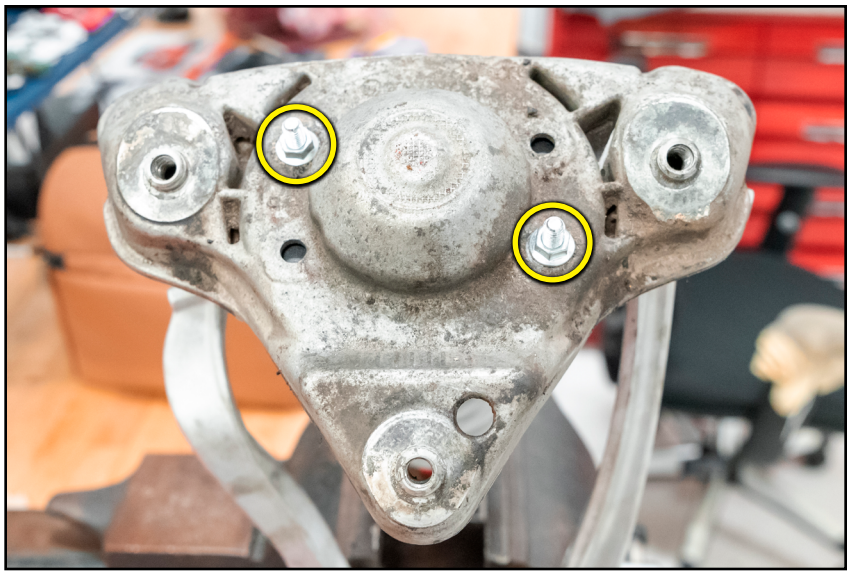


TECH TIP

We recommend applying a good quality wax-based lubricant to ***ALL*** the adjustment threads in this kit to protect them from the elements and help the adjustment collars easily spin up or down without resistance.

Step 2: 12mm Socket & Torque Wrench

Transfer the strut mounting bracket to the coilover and secure it in place with the provided nuts (circled in **YELLOW**) torquing them to 22 Nm (16 Ft-lbs).



INSTALLING THE FRONT COILOVERS

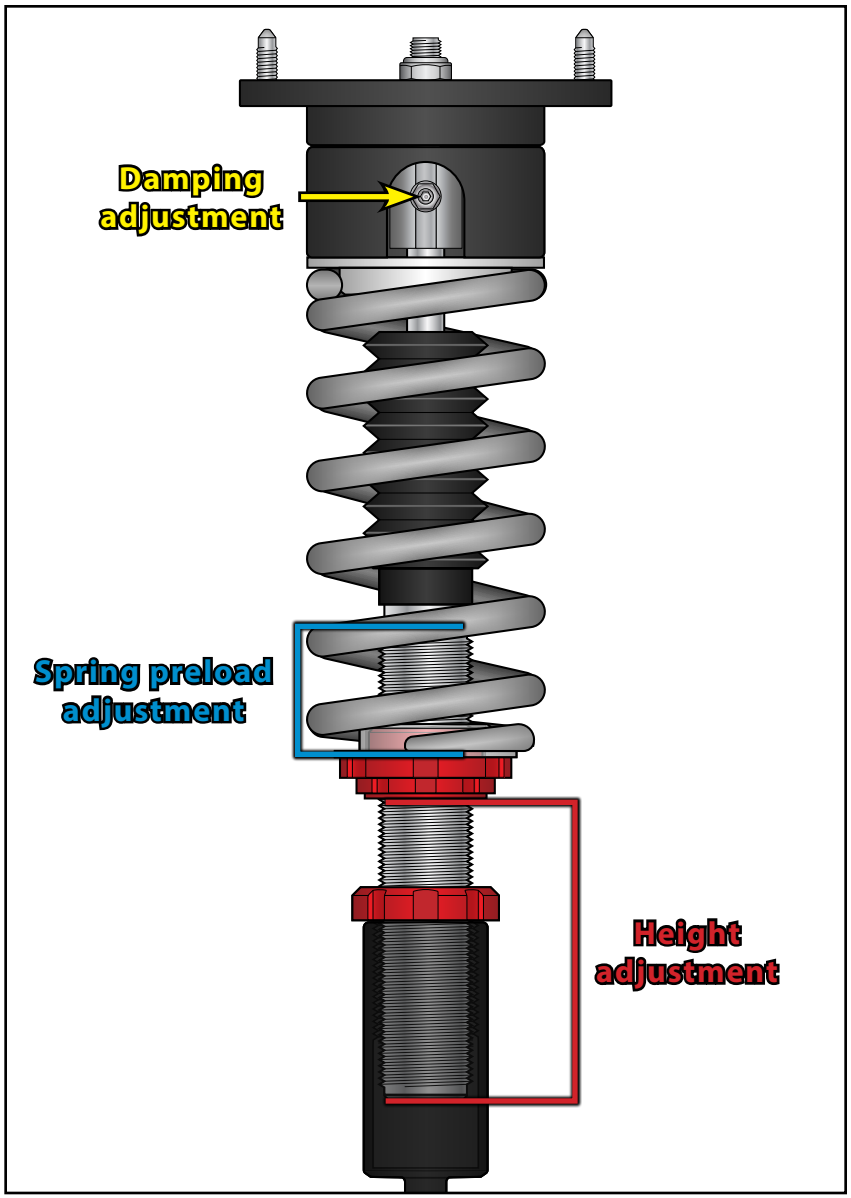
Step 3: Coilover Adjustment Wrenches

Before we install the front coilovers onto the vehicle, it's time to set our baseline adjustment. Once all the coilovers are fully installed we will come back and fine-tune them. Our front coilovers are three way adjustable, meaning you can adjust the damping, height, and spring preload all independently.

To adjust the damping, insert the provided allen key into the adjuster at the top of the strut and rotate it until your desired setting is achieved. We settled on a damping setting of 16 on our vehicle, however this number may need adjusted on your vehicle depending on your suspension setup.

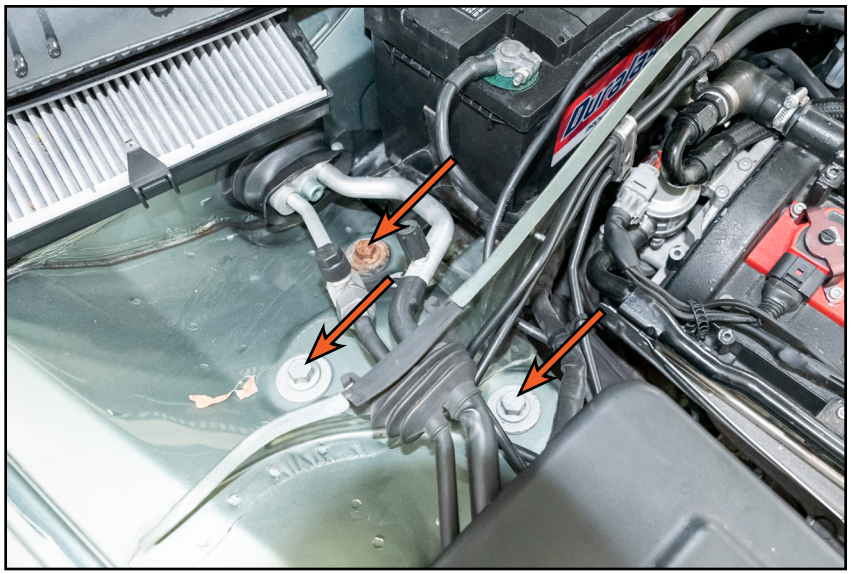
The spring preload can be adjusted by rotating the adjustment collar up until it compresses the spring the desired amount, then tightening the locking collar up against the adjustment collar to lock it in place. We found that a minimal amount of preload was ideal for our vehicle, so we spun the adjustment collar up until it was tight against the bottom of the spring then rotated it up one additional complete turn before locking it in place.

The strut itself can be rotated up or down inside the body to raise or lower the vehicle without affecting the spring preload or damping. We recommend setting the height higher than you want the vehicle to sit, this will leave some room for the suspension to settle, or for you to fine-tune once the coilovers are installed. Once you are happy with the overall height, tighten the locking collar against the strut body to lock it in. We settled on a final ride height that was 1 inch lower than stock ride height in the front.



16mm Socket & Torque Wrench

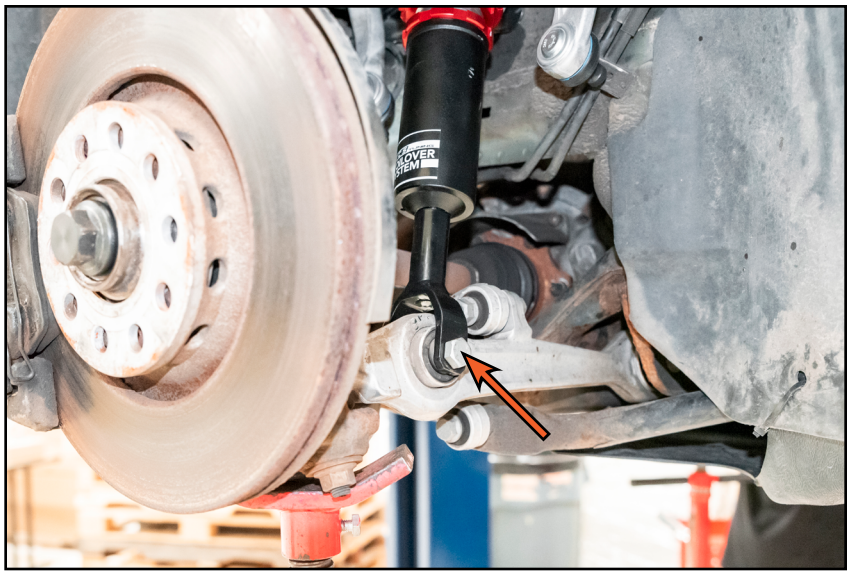
Lift the coilover assembly up into the strut tower and install the three bolts (arrows) torquing them to 75 Nm (55 Ft-lbs).



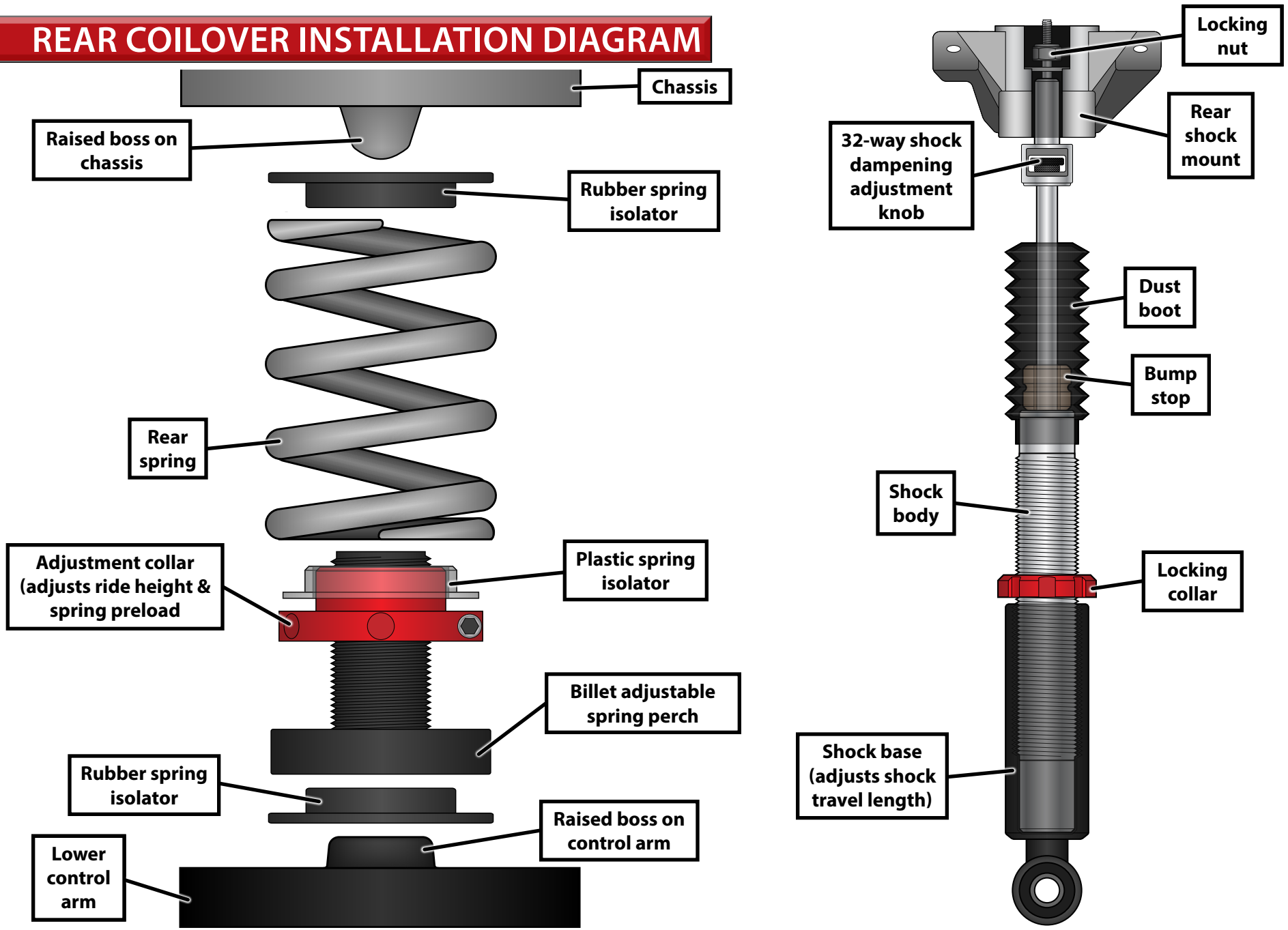
18mm Wrench, 18mm Socket & Torque Wrench

Jack up the steering knuckle until you can slide the bolt (arrow) through the strut fork and loosely install the nut, then:

- [ ] Install the upper control arms into the steering knuckle.
- [ ] Install the upper control arms pinch bolt and torque it to 40 Nm (29 Ft-lbs).
- [ ] Clip the headlight leveling sensor arm to the lower control arm.
- [ ] With the vehicle at ride height, tighten the nut on the strut fork bolt to 90 Nm (66 Ft-lbs).
- [ ] Reinstall the wheels and torque the bolts to 120 Nm (89 Ft-lbs).



REAR COILOVER INSTALLATION DIAGRAM



REMOVING THE ORIGINAL SHOCKS AND SPRINGS

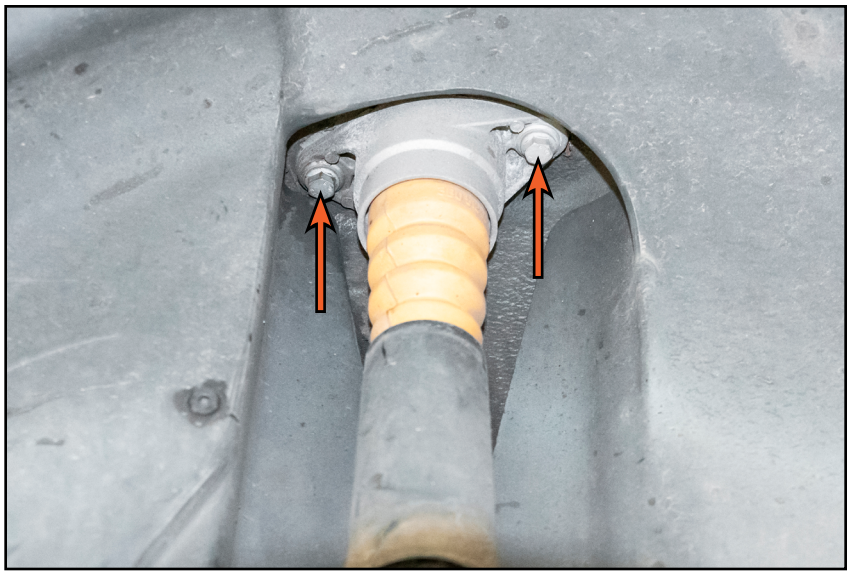
Step 1: 18mm Wrench, 18mm Socket & Ratchet

Support the trailing arm from below with a jack as shown, then remove the nut and bolt (arrows) which secure the shock to the trailing arm.



Step 2: 16mm Socket & Ratchet

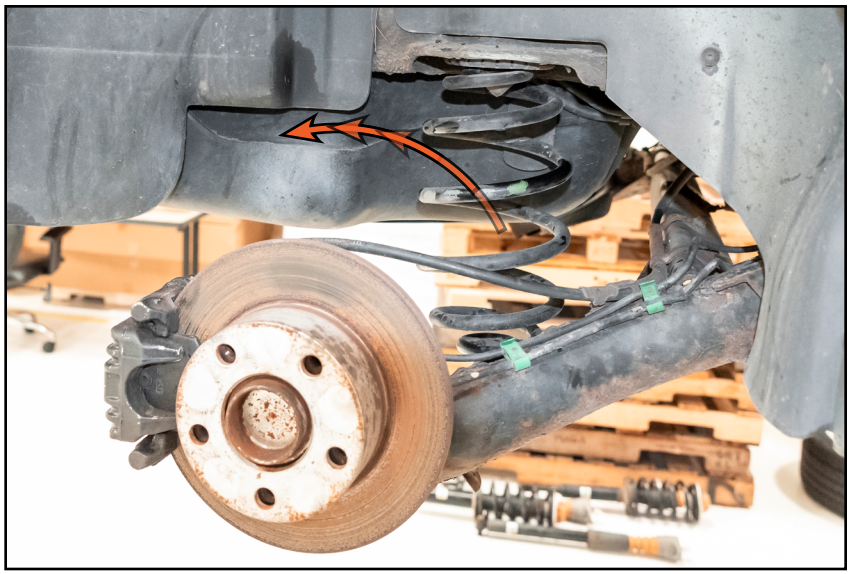
Loosen and remove the two bolts (arrows) which secure the rear shock to the body then carefully guide the shock out from the fenderwell.



REMOVING THE ORIGINAL SHOCKS AND SPRINGS

Step 3:

Slowly lower the jack and pull the spring free from the trailing arm.



Step 4: 16mm Wrench, Vice Grips

If you plan to re-use your rear shock mounts, you will need to counter-hold the shaft while you loosen the top shock nut (arrow).



TECH TIP

Our Schwaben shock and strut removal set (available HERE) helps make removal of these nuts a breeze.

INSTALLING THE REAR COILOVERS

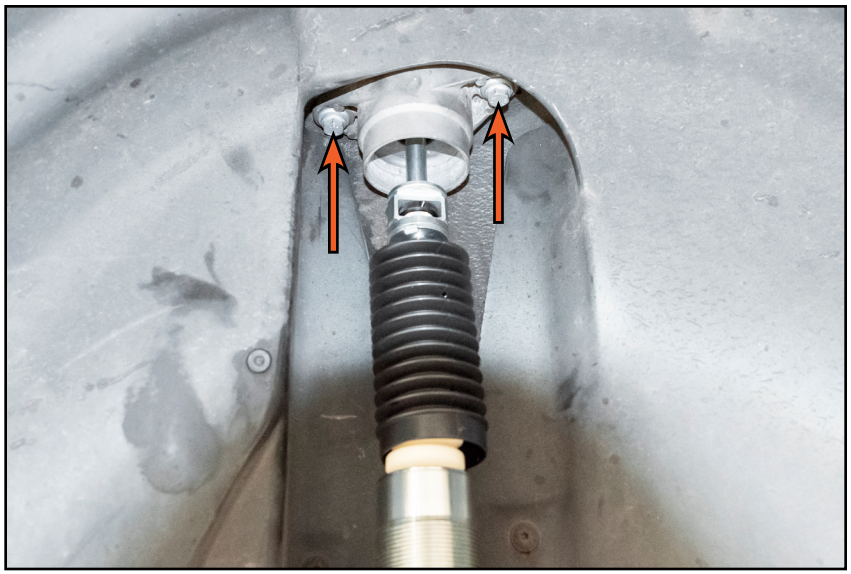
Step 1: 5mm Hex (Allen), 16mm Strut Nut Socket & Torque Wrench

Slide the shock mount onto the new shock shaft, then install the provided nut and torque it to 25 Nm (18 Ft-lbs).



Step 2: 16mm Socket & Torque Wrench

Carefully guide the new shock into the fenderwell, then install the bolts (arrows) and torque them to 45 Nm (33 Ft-lbs).



INSTALLING THE REAR COILOVERS

Step 3:

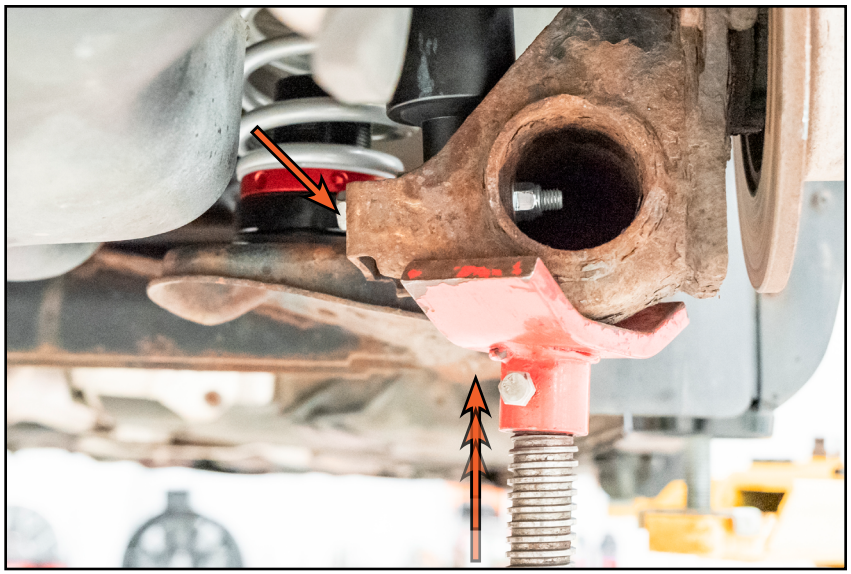
Using the diagram on the page 12 for reference, slide the spring assembly into place.



Step 4:

18mm Wrench, 18mm Socket & Torque Wrench

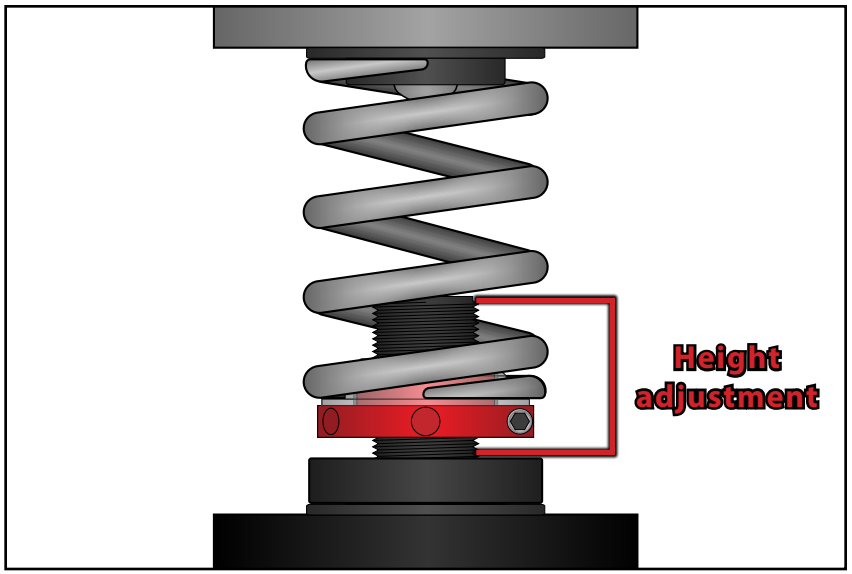
Jack up the trailing arm until you can slide the lower shock bolt (arrow) into place, then install the nut. Remove the jack. With the suspension at its final ride height, counterhold the nut while you torque the bolt to 50 Nm (37 Ft-lbs) + 90 degrees.



INSTALLING THE REAR COILOVERS

Step 5: 5mm Hex (Allen), Coilover Adjustment Wrenches

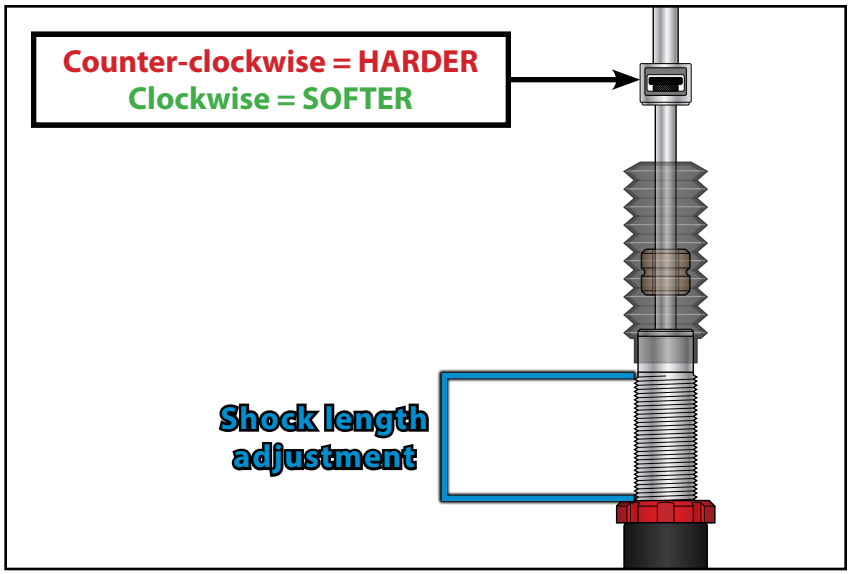
The adjustment collar on the rear spring perch can be used to adjust the height and spring preload simultaneously. Rotate the adjustment collar upward to preload the spring, raising the rear of the vehicle. Once your desired height has been achieved, tighten the allen screw to lock it in place. We settled on a final ride height that was 1.5 inches lower than stock ride height in the rear.



Step 6: Coilover Adjustment Wrenches

The knurled knob on the shock shaft can be rotated to adjust the damping. We settled on a damping setting of 22 on our vehicle, however this number may need adjusted on your vehicle depending on your suspension setup.

The shock itself can be rotated up or down inside the body to adjust the shock length. If your shock length is too short, you will sacrifice ride quality, too long and you will reduce shock travel and the spring may rattle when the suspension unloads. To adjust, grab the threads of the shock by hand and shorten or lengthen the shock length until the spring is fully seated and the rubber isolators begins to compress just slightly, then tighten the locking collar against the strut body to lock it in.



FINAL INSTALLATION STEPS

Step 1: Coilover Adjustment Wrenches

Set the vehicle on the ground and allow the suspension to settle, give it a few jounces for good measure, then ensure clearance for surrounding suspension components and fenders. Remove the wheels and re-adjust the height as needed until you are happy with the final ride height then tighten the locking collars.



Step 2:

Immediately perform a four-wheel alignment on your vehicle and take the car for a spin! Keep an eye (and ear) out for any rubbing or otherwise unusual noises before giving your vehicle the green light. Remember, at any time you can remove the wheels and fine-tune your coilovers to match your vehicle equipment, driving environment and style of driving, so keep those adjustment wrenches handy!



Congratulations, your installation is complete!

TORQUING TIPS

Torque to Yield or "Stretch" Bolts

Many bolts will have a torque specification listed in the format - xx Nm (xx Ft-lbs) + xx degrees. These bolts are torque to yield bolts, commonly referred to as "stretch" bolts. The correct procedure for torquing these bolts is:

Stage One - Torque the bolt(s) to the initial Nm or Ft-lb specification. If there is more than one, be sure to torque them in the correct sequence.
Stage Two - Tighten or "stretch" the bolt(s) the additional specified number of degrees. If there is more than one, be sure to follow the correct sequence.

Note - Some bolts may have two or more stages of torquing before the final stage of "stretching" the bolts.

When tightening more than one bolt in a specified sequence, be sure to mark each fastener with paint ***immediately*** after performing the final stage or "stretching" of the bolts. This will ensure that you keep track of which bolts have already been "stretched".

All Torque to Yield bolts should only be used once and should be replaced each time they are removed. If they are reused, they will not be able to achieve the proper clamping force with the specified torque.

Lubrication

Torque specifications are always listed for a dry fastener (***no*** lubrication) unless specified otherwise.

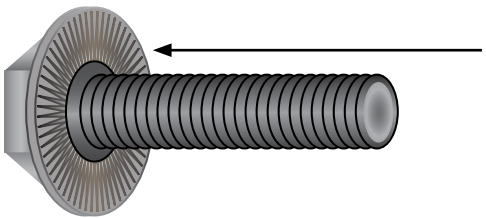
Some fasteners require lubrication on the threads -or- on the contact surface while torquing. These fasteners will be listed with the specific location and type of lubrication required. Always follow manufacturers recommendations exactly.

Lubricating a fastener that is intended to be installed dry and then torquing it to factory specifications will increase the clamping force and stress on the fastener and components, which can result in damage or failure.

Do not lubricate the threads of any fastener unless it is specifically recommended by the manufacturer.

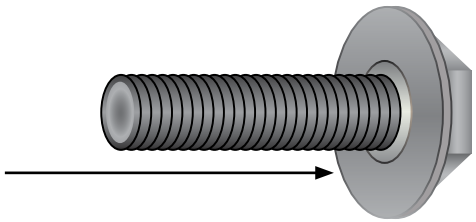
Ribbed vs. Non-Ribbed Bolts

Ribbed and Non-Ribbed bolts in the same location generally require a different torque specification.



A ribbed bolt is identified by the ribs on the contact surface

A non-ribbed bolt is identified by the smooth contact surface



TORQUE SPECIFICATIONS

Front Upper Strut Nut	50 Nm (37 Ft-lbs)	(Page 9)
Front Upper Strut Mounting Bracket Nuts	22 Nm (16 Ft-lbs)	(Page 9)
Front Upper Strut Mounting Bracket Bolts	75 Nm (55 Ft-lbs)	(Page 11)
Front Upper Control Arms Pinch Bolt	40 Nm (29 Ft-lbs)	(Page 11)
Front Strut Fork Bolt	90 Nm (66 Ft-lbs)	(Page 11)
Rear Upper Shock Nut	25 Nm (18 Ft-lbs)	(Page 15)
Rear Upper Shock Mount Bolts	45 Nm (33 Ft-lbs)	(Page 15)
Rear Lower Shock Bolt	50 Nm (37 Ft-lbs) + 90°	(Page 17)

Your Adjustable Coilover Kit installation is complete!



These instructions are provided as a courtesy by ECS Tuning

Proper service and repair procedures are vital to the safe, reliable operation of all motor vehicles as well as the personal safety of those performing the repairs. Standard safety procedures and precautions (including use of safety goggles and proper tools and equipment) should be followed at all times to eliminate the possibility of personal injury or improper service which could damage the vehicle or compromise its safety.

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