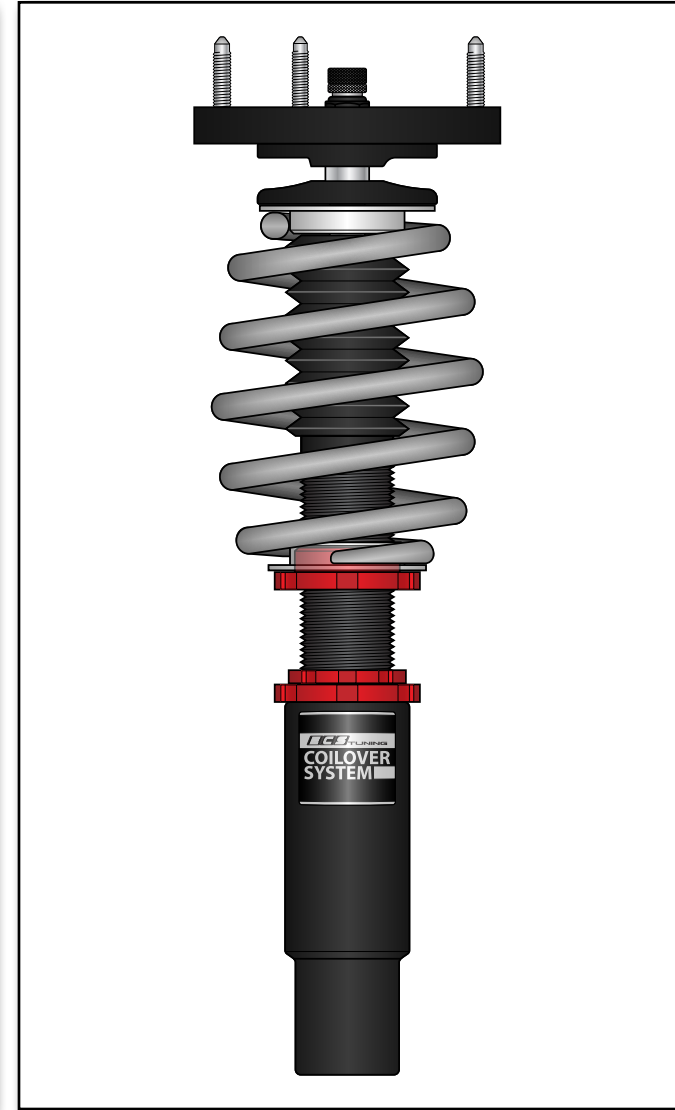




**BMW E8x/E9x Adjustable Coilover Kit**  
**Installation Instructions - [Click HERE to Shop](#)**



**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

- **Protecta-Sockets (for lug nuts)** ..... [ES#2221243](#)
- **3/8" Drive Ratchet** ..... [ES#2765902](#)
- **3/8" Drive Torque Wrench** ..... [ES#2221245](#)
- **3/8" Drive Deep and Shallow Sockets** ..... [ES#2763772](#)
- **3/8" Drive Extensions** ..... [ES#2804822](#)
- **Hydraulic Floor Jack** ..... [ES#2834951](#)
- Torx Drivers and Sockets ..... [ES#11417/8](#)
- **1/2" Drive Deep and Shallow Sockets** ..... [ES#2839106](#)
- **1/2" Drive Ratchet**
- **1/2" Drive Extensions**
- **1/2" Drive Torque Wrench** ..... [ES#2221244](#)
- **1/2" Drive Breaker Bar** ..... [ES#2776653](#)
- **Bench Mounted Vice**
- Crows Foot Wrenches
- Hook and Pick Tool Set ..... [ES#2778980](#)

### Required For This Install

- 1/4" Drive Ratchet ..... [ES#2823235](#)
- 1/4" Drive Deep and Shallow Sockets ..... [ES#2823235](#)
- 1/4" 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](#)

### Available On Our Website

### Specialty Tools

- **Protecta-Sockets (for lug nuts)** ..... [ES#2221243](#)
- **External Torx Socket Set** ..... [ES#2777804](#)
- **Spindle Housing Spreader Tool** ..... [ES#3894](#)

## 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

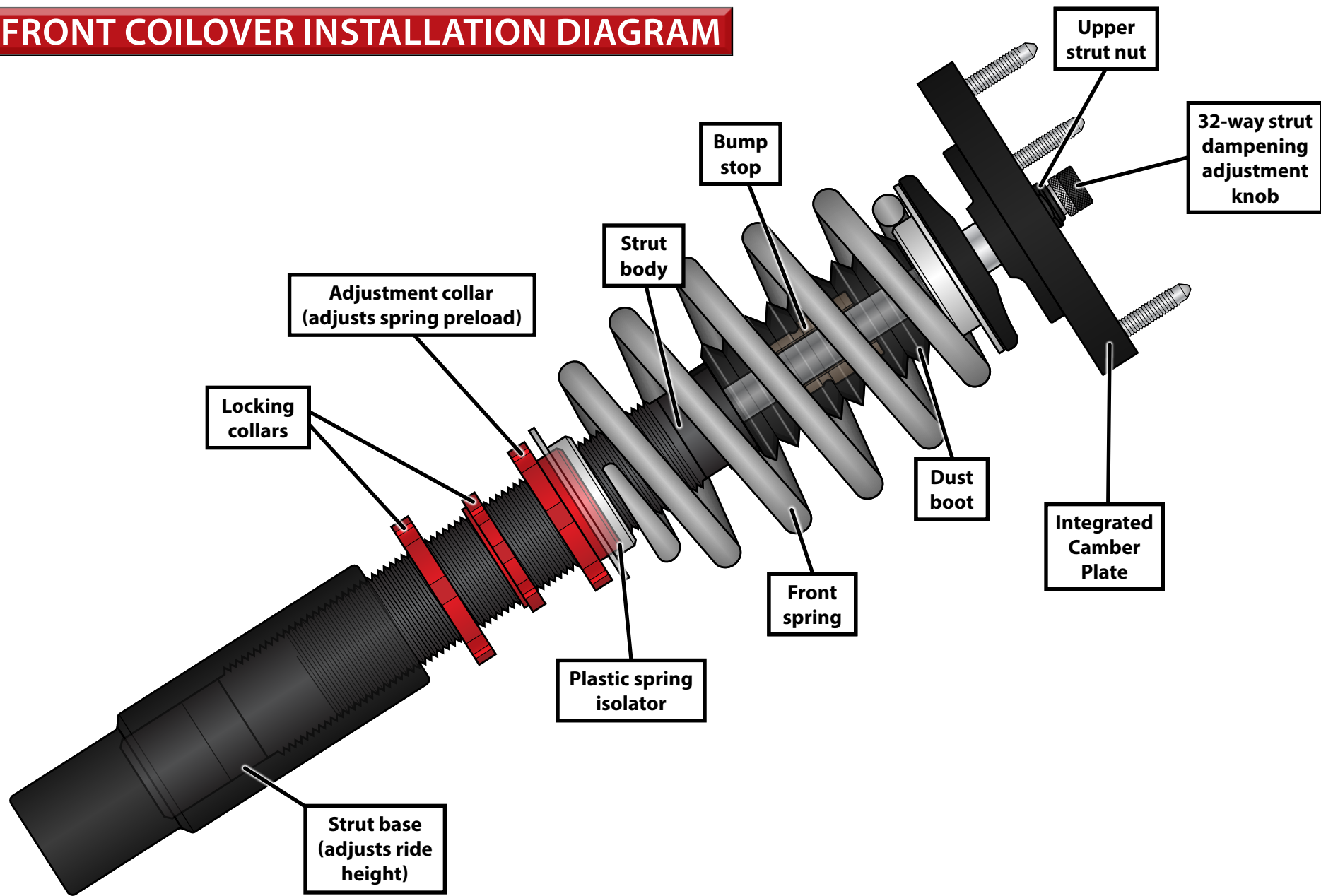
ECS Tuning cares about your health and safety, please read the following safety information. This information pertains to automotive service in general, and while it may not pertain to every job you do, please remember and share these important safety tips.

- 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.

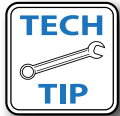
# FRONT COILOVER INSTALLATION DIAGRAM



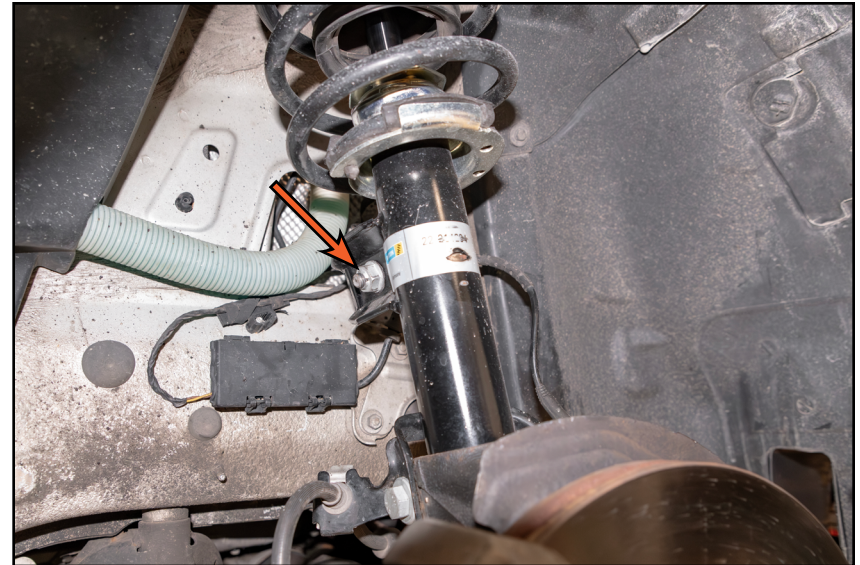
## REMOVING THE ORIGINAL FRONT STRUTS

### Step 1: 15mm Socket & Ratchet

Safely lift and support the vehicle and remove all four wheels. Counterhold the sway bar end link and remove the nut (arrow), then pull the end link free from the strut.



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

Remove the nut (arrow in **Photo #1**) and remove the strut pinch bolt and move the brake hose bracket out of the way. Insert the spindle housing spreader tool into the slot in the back of the steering knuckle and spread it apart, freeing the strut body (as shown in **Photo #2**).



## REMOVING THE ORIGINAL FRONT STRUTS

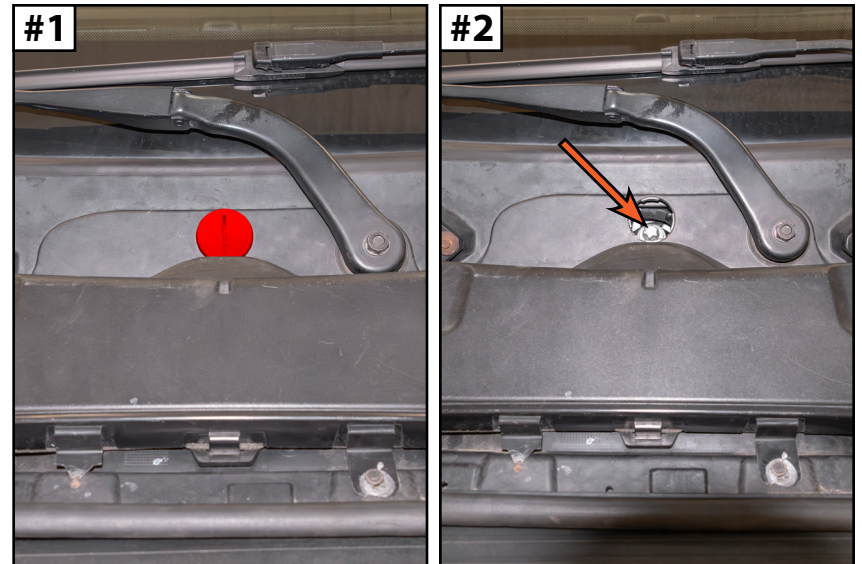
### Step 3:

Support the knuckle from below and maneuver it downward until the strut slides free as shown. Carefully support the knuckle so that it does not hang and damage the brake lines.



### Step 4: E14 Torx Socket & Ratchet

Remove the plastic cover (highlighted in **RED** in **Photo #1**) from the rain tray and remove the center strut brace screw (arrow in **Photo #2**).



## REMOVING THE ORIGINAL FRONT STRUTS

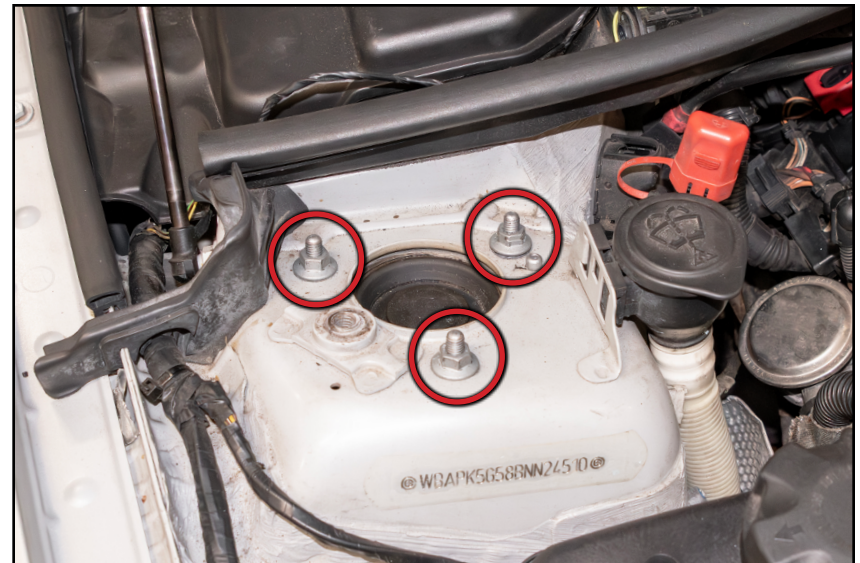
### Step 4: E12 Torx Socket & Ratchet

Remove the screw (arrow) that secures each strut brace to the strut tower and remove the braces.



### Step 5: 13mm Socket & Ratchet

Support the strut from below and remove the three nuts (circled in **RED**) to free it from the vehicle. Carefully guide the strut assembly out of the fender well.



## INSTALLING THE FRONT COILOVERS

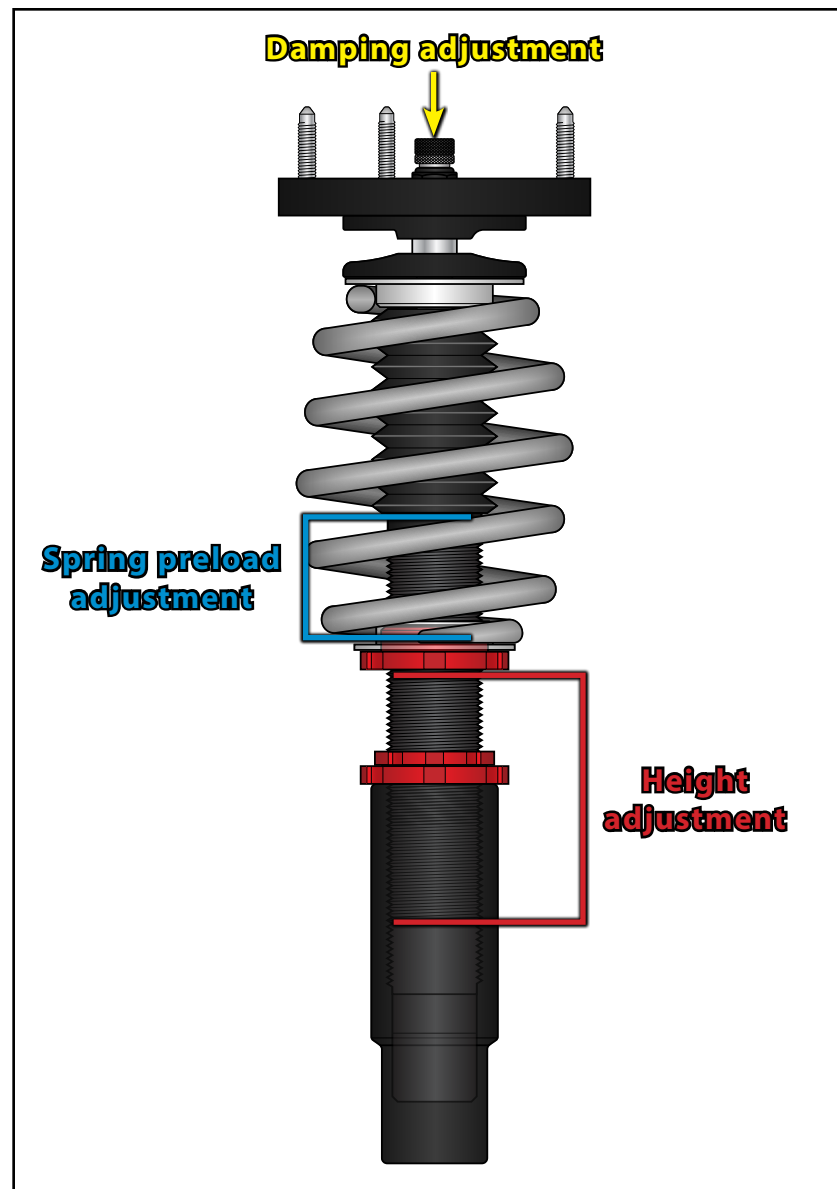
### Step 1: Coilover Adjustment Wrenches

Before we install the front coilovers into the vehicle, it's time to set our baseline adjustment. Once the coilovers are all installed onto the vehicle 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 and rotate the adjustment knob until your desired setting is achieved. If unsure, set the damping to the middle setting (16 clicks), you can always go back and adjust it later as needed.

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. Typically preload should be set to a minimum, with just enough compression to prevent the spring from shifting or rattling. Spin the adjustment collar up until it is tight against the bottom of the spring then rotate it up one additional full turn before locking it in place.

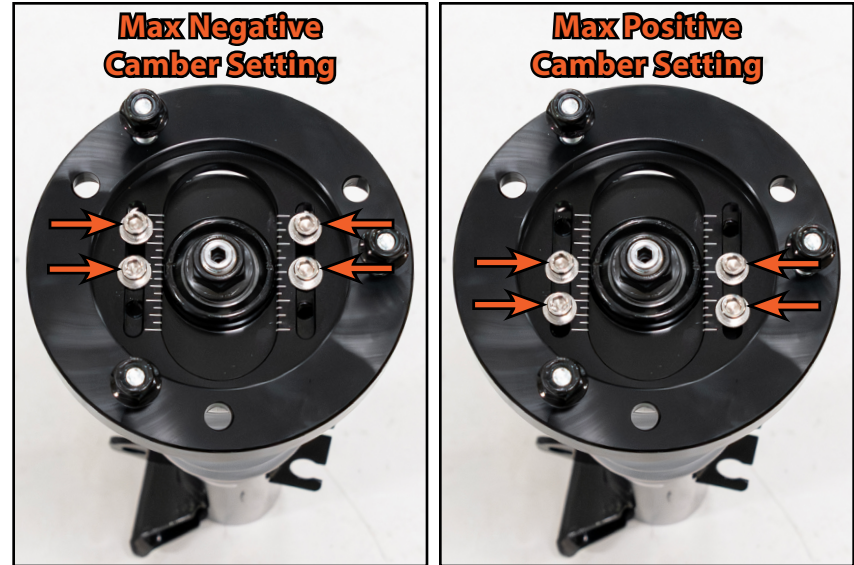
The strut itself can be rotated up or down inside the body to raise or lower the vehicle without affecting the spring preload or damping. We recommend setting the height higher than you want the vehicle to sit as this will leave some room for the suspension to settle and for you to fine-tune once the coilovers are installed. Once all four coilovers are installed, reinstall the wheels and take measurements at all four wheels, fine-tuning until your desired height is achieved. Once you are happy with the overall height, tighten each locking collar against the strut body to lock it in.



# INSTALLING THE FRONT COILOVERS

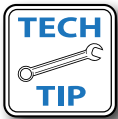
**Step 2:** 5mm Hex (Allen) Socket & Ratchet

**Optional:** Loosen the four screws (arrows) and reposition them into the holes corresponding to the desired camber setting. Installing the screws into the two most inboard sets of holes will set the plates for maximum negative camber adjustability, while using the two most outboard sets of holes will set them for maximum positive camber adjustability. After positioning the screws, slide the camber plate in or out to fine-tune the camber to your desired setting, then tighten the screws until snug to lock it in place.

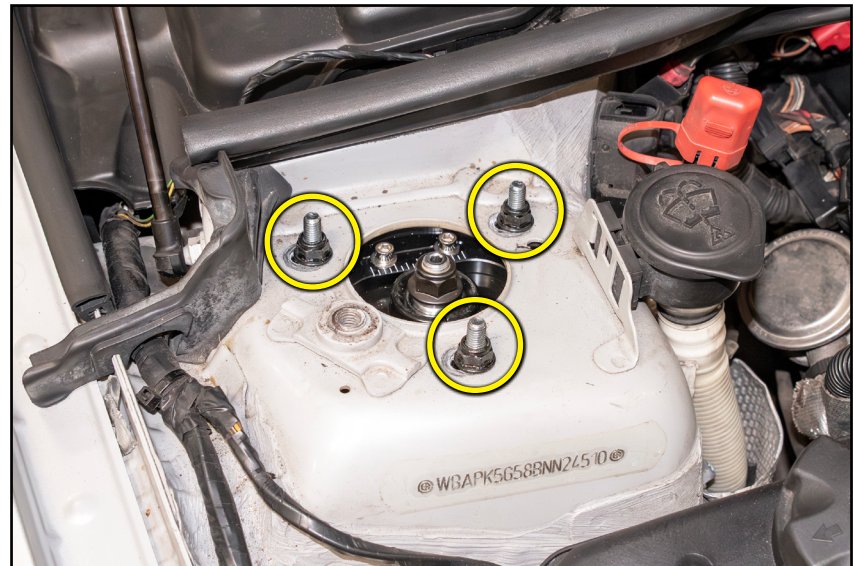


**Step 3:** 13mm Socket & Torque Wrench

Lift the coilover assembly up into the strut tower and install the three nuts (circled in **YELLOW**), torquing them to 34 Nm (25 Ft-lbs).



We recommend applying a good quality wax-based lube 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.



## INSTALLING THE FRONT COILOVERS

**Step 4:** E12, E14 Torx Socket & Torque Wrench

Reinstall the strut braces and torque the screws to:

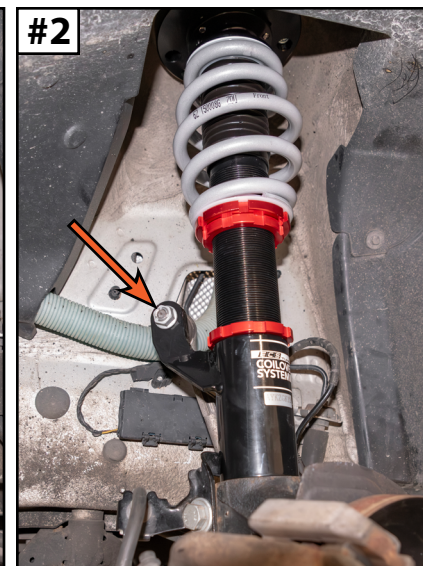
**Outer screws** - 34 Nm (25 Ft-lbs)

**Center screw** - 56 Nm (41 Ft-lbs)

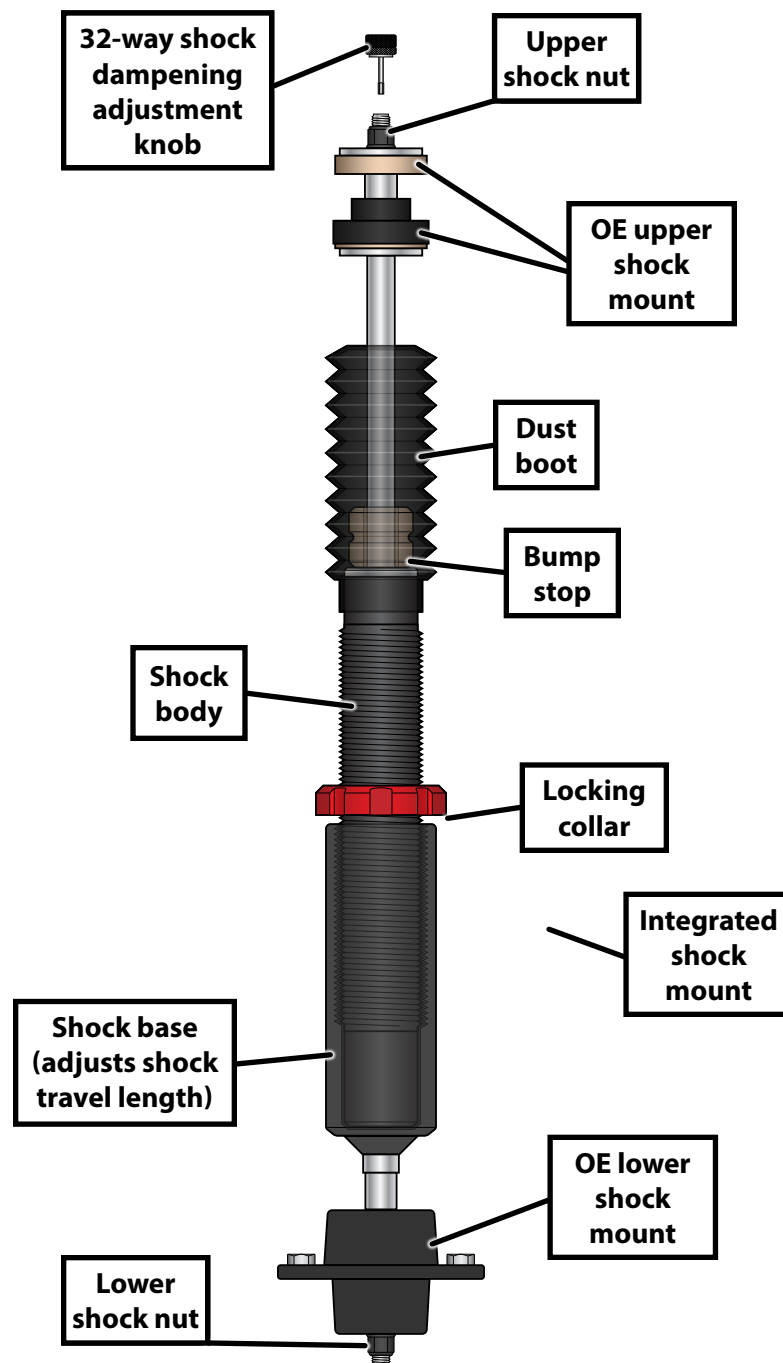
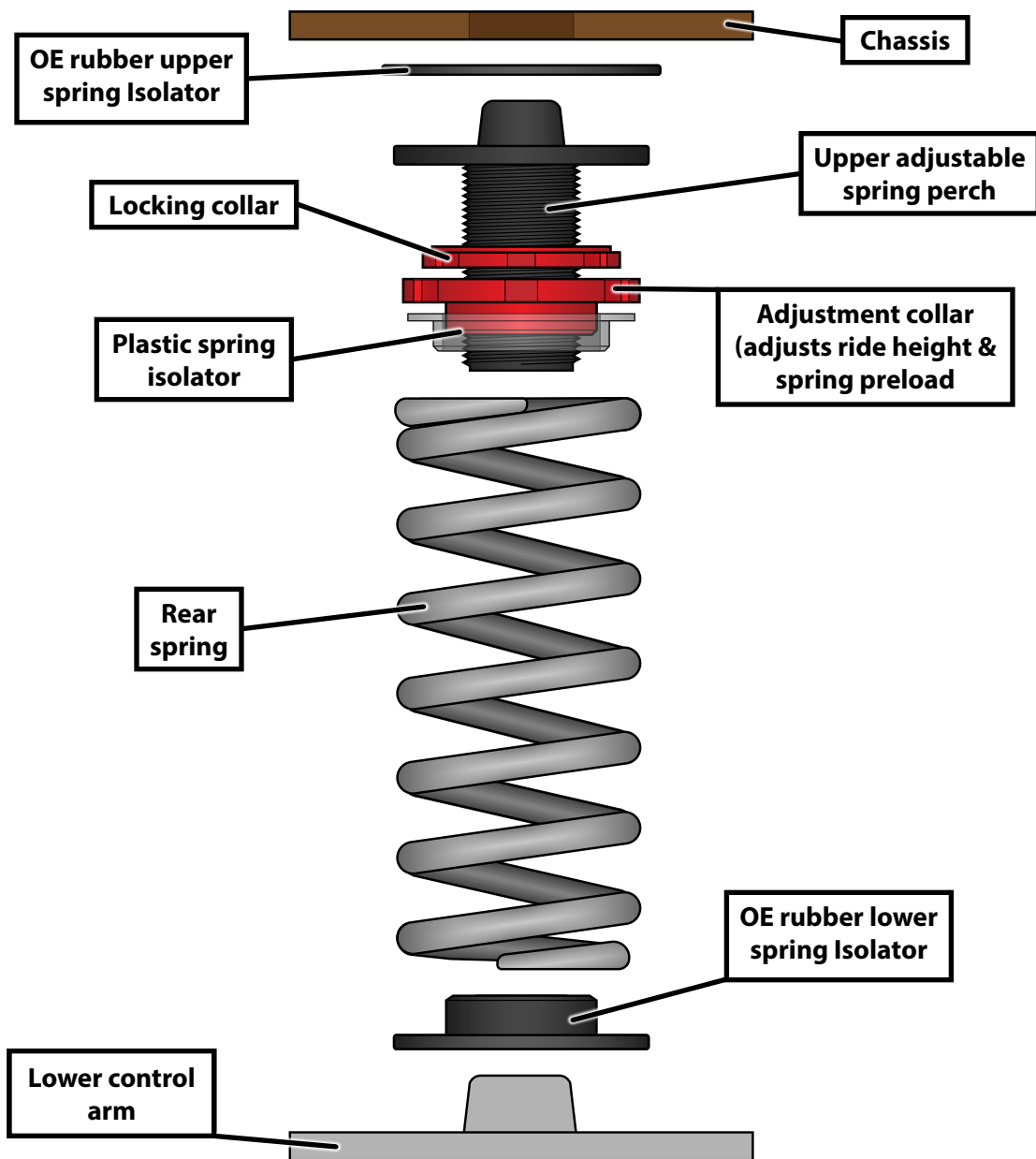


**Step 5:** 18mm Wrench, 18mm, 15mm Socket & Torque Wrench

Guide the strut back onto the knuckle and remove the spindle housing spreader tool. Reinstall the brake hose bracket, then replace the pinch bolt and nut (arrow in **Photo #1**) and torque it to 81 Nm (60 Ft-lbs). Connect the sway bar end link to the strut body, then replace the nut (arrow in **Photo #1**) and torque it to 58 Nm (43 Ft-lbs).



**REAR COILOVER INSTALLATION DIAGRAM**

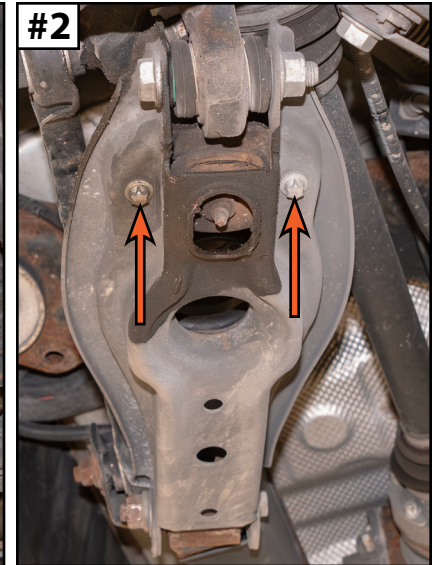


## REMOVING THE ORIGINAL SHOCKS AND SPRINGS

### Step 1: E12 Torx Socket & Ratchet

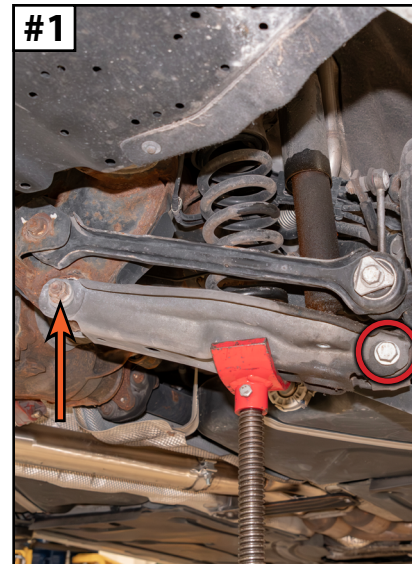
If equipped, disconnect the level sensor. Support the lower control arm from below (as shown in **Photo #1**), then remove the screws (arrows in **Photo #2**) that secures the lower shock mount to the control arm.

**E9x M3 ONLY:** Remove the nut and bolt that secures the shock to the lower control arm.



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

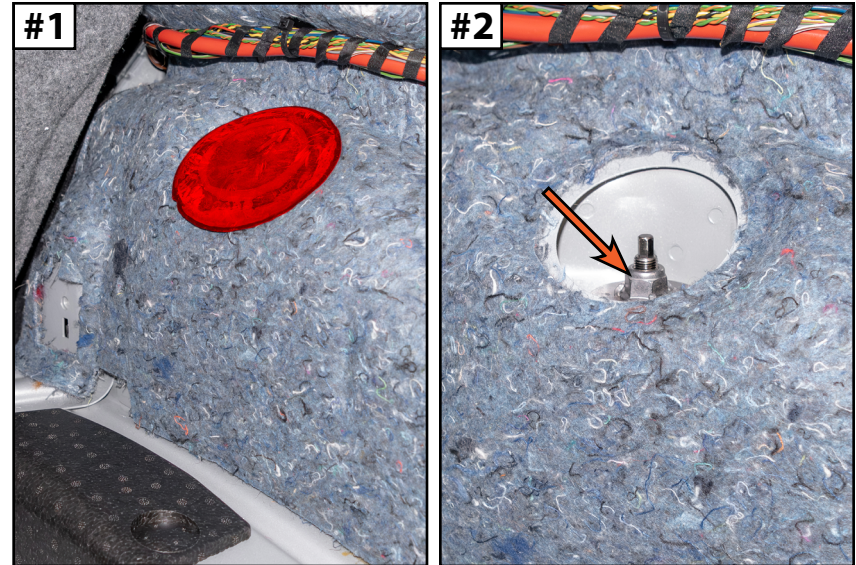
Loosen the inner lower control arm nut (arrow in **Photo #1**) slightly, then remove the outer lower control arm nut and bolt (circled in **RED**). Lower the control arm until the rear spring is no longer under tension, then remove it. Remove the OE rubber isolators and metal upper spring seat (highlighted in **RED** in **Photo #2**).



## REMOVING THE ORIGINAL SHOCKS AND SPRINGS

### Step 3: Razer Blade, 13mm Socket & Ratchet

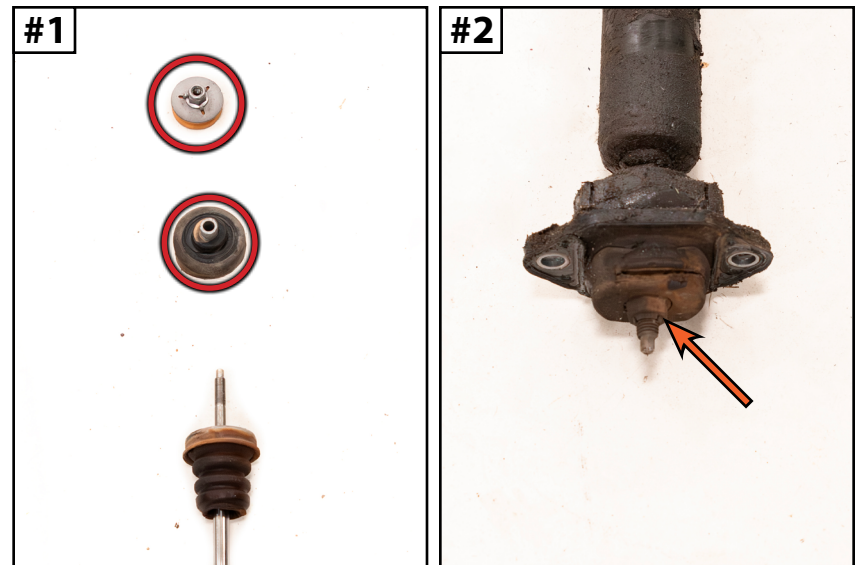
Remove the carpet panels from the trunk and remove the shock tower cover (highlighted in **RED** in **Photo #1**). Counterhold the shock shaft and remove the nut (arrow in **Photo #2**) that secures the upper shock mount to the body, then carefully guide the shock out of the fenderwell.



### Step 4: 16mm Socket & Ratchet

If reusing the upper shock mount, remove the upper and lower sections of the shock mount (circled in **RED** in **Photo #1**) and set them aside.

**Non-M models ONLY:** If reusing the lower shock mount, counterhold the shock shaft and remove the nut (arrow in **Photo #2**) that secures the mount to the shock, then remove the lower shock mount and set it aside.

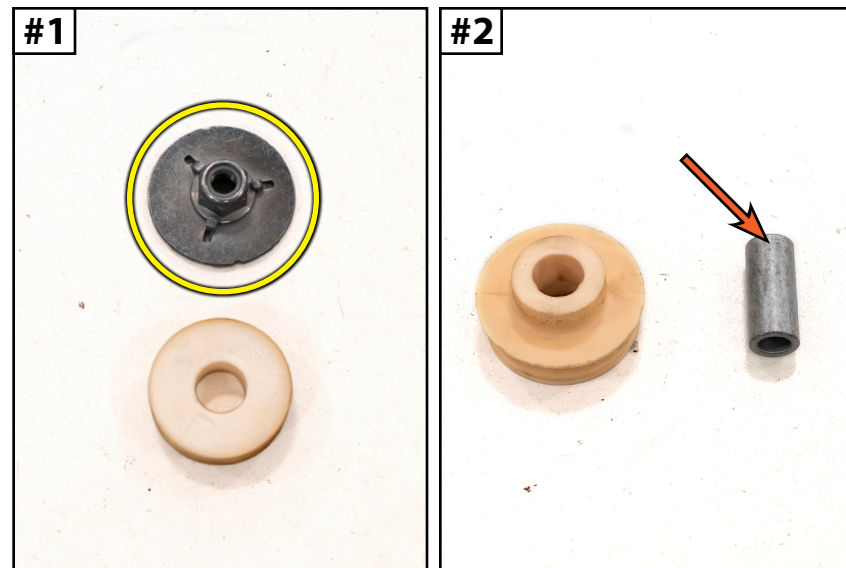


## INSTALLING THE REAR COILOVERS

### Step 1:

Using a razor blade, carefully cut the nut & washer (circled in **YELLOW** in **Photo #1**) free from the upper section of the upper shock mount.

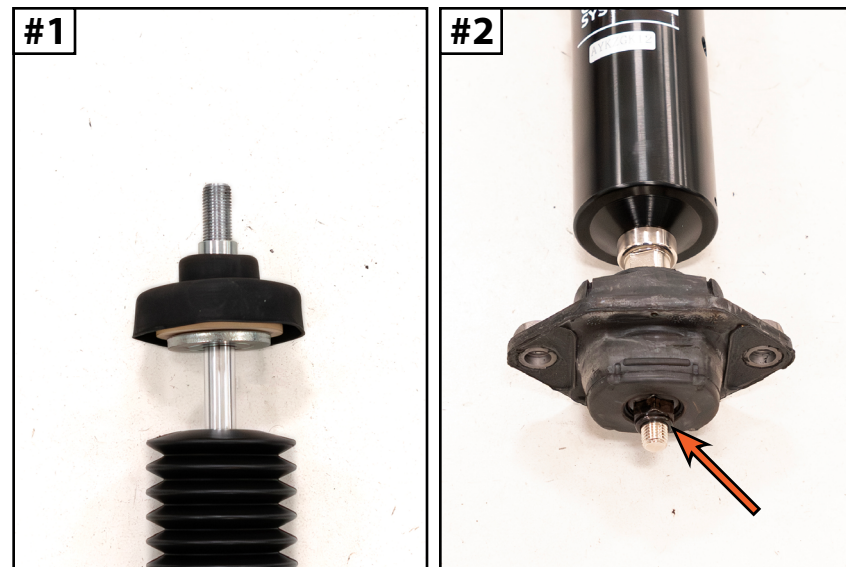
**E9x models ONLY:** Remove the OE spacer (arrow in **Photo #2**) from the lower section of the upper shock mount and replace it with the new spacer provided on the new shock.



### Step 2: 15mm Socket & Torque Wrench

Slide the lower section of the upper shock mount onto the provided lower washer on the shock shaft and replace the rubber gasket (as shown in **Photo #1**).

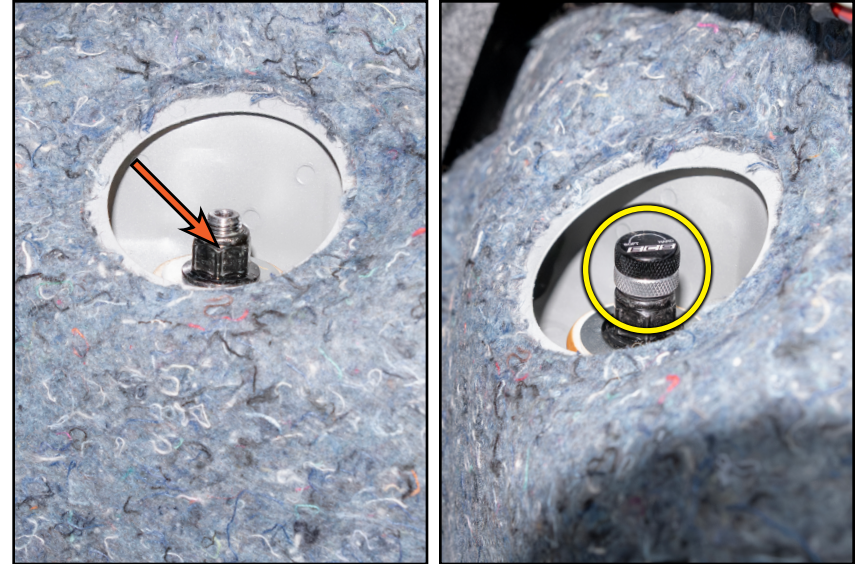
**Non-M models ONLY:** Install the lower shock mount onto the base of the shock and secure it in place with the provided nut (arrow in **Photo #2**), torquing it to 38 Nm (28 Ft-lbs).



## INSTALLING THE REAR COILOVERS

### Step 3: 5mm Allen Wrench, 15mm Strut Socket & Torque Wrench

Carefully guide the new shock into the fenderwell, then install the upper section of the shock mount and the provided upper washer and nut (arrow in **Photo #1**). Counterhold the shock shaft and torque the nut to 27 Nm (20 Ft-lbs), then insert and rotate the adjustment knob (circled in **YELLOW** in **Photo #2**) until your desired setting is achieved. If unsure, set the damping to the middle setting (16 clicks), you can always go back and adjust it later as needed. Reinstall the access cover and reinstall the trunk panels.



### Step 4: Coilover Adjustment Wrenches

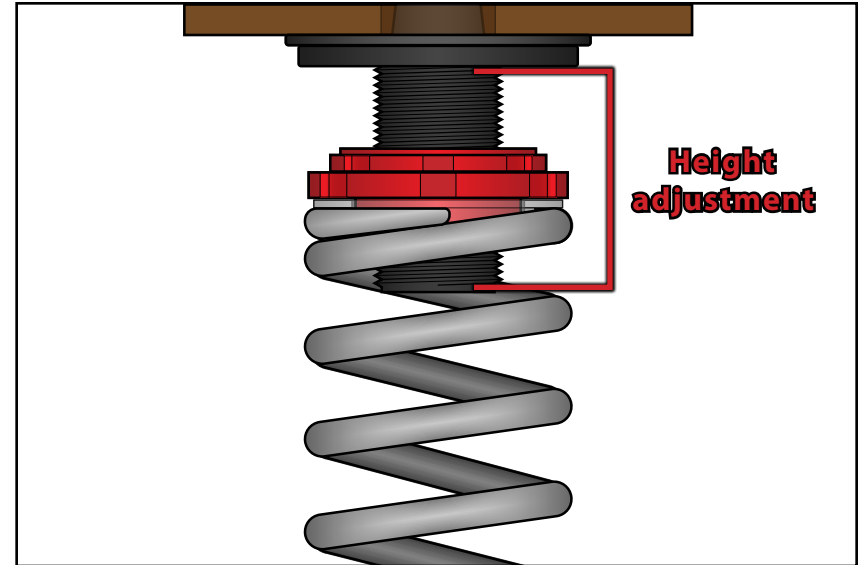
Using the diagram on [Page 12](#) for reference, slide the spring assembly into the lower control arm, then jack up the control arm until the raised locating boss slides into the hole in the chassis. Replace the outer lower control arm bolt (arrow) and loosely install the nut.



## INSTALLING THE REAR COILOVERS

### Step 5: Coilover Adjustment Wrenches

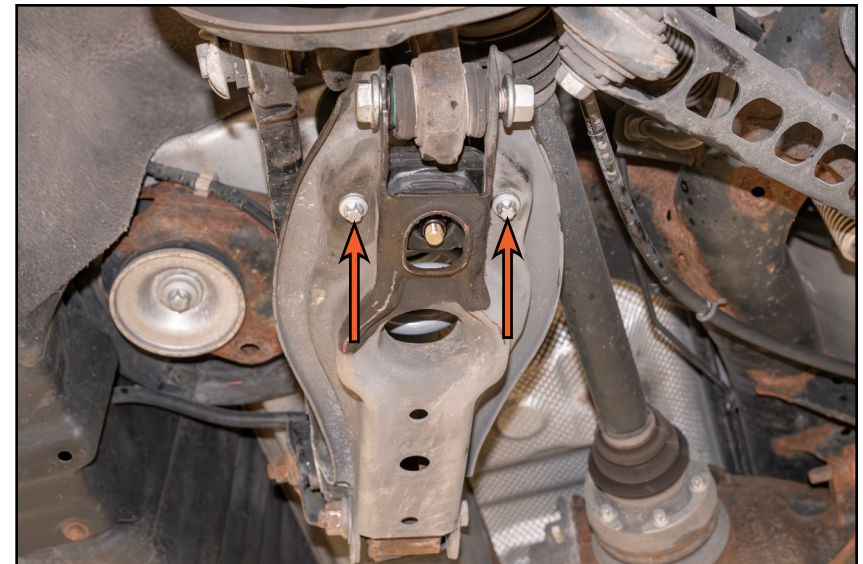
The adjustment collar on the rear spring perch can be used to adjust the height and spring preload simultaneously. Rotate the adjustment collar downward to preload the spring, raising the rear of the vehicle. Once your desired height has been achieved, tighten the locking collar down against the adjustment collar to lock it in place. Once all four coilovers are installed, reinstall the wheels and take measurements at all four wheels, fine-tuning until your desired height is achieved. Once you are happy with the overall height, fully tighten each locking collar to lock it in.



### Step 6: E12 Torx Socket & Torque Wrench

Replace the two screws (arrows) to secure the lower shock mount to the lower control arm and torque them to 60 Nm (44 Ft-lbs).

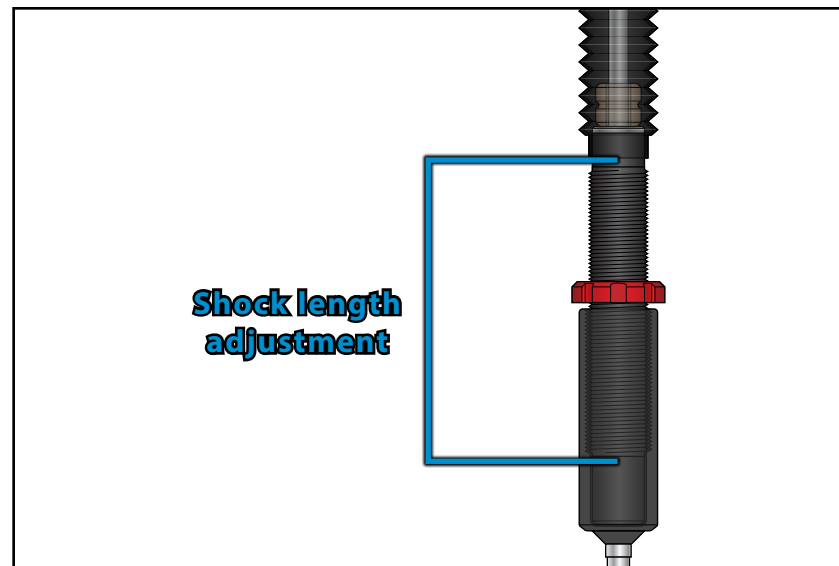
**E9x M3 ONLY:** Replace the nut and bolt that secures the shock to the lower control arm, but leave it loose for now.



## INSTALLING THE REAR COILOVERS

### Step 7: Coilover Adjustment Wrenches

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 shift or rattle when the suspension unloads. Adjust 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 shock body to lock it in.



### Step 8: 18mm Socket & Torque Wrench

Jack up the lower control arm until the suspension is at ride height, then torque the inner and outer bolt and nut (arrows) to 165 Nm (121 Ft-lbs).

**E9x M3 ONLY:** At ride height, torque the lower shock bolt and nut to 100 Nm (74 Ft-lbs).



## 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 fine-tune the height as needed until you are happy with the final ride height then fully tighten all the locking collars in the kit.



### Step 2:

Immediately perform a four-wheel alignment on the vehicle and take it for a test drive to ensure no rubbing or otherwise unusual noises occur. At any time you can remove the wheels and fine-tune your coilovers as needed, so make sure to keep the adjustment wrenches in an accessible location.



***Congratulations, your installation is complete!***

## 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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